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Growing Grapes Under Glass

A. J. Logsdail, B.S.A., Central Experimental Farm, Ottawa

GREENHOUSES, in the form of conservatories or forcing-houses are no longer exceptional luxuries. Many of our new country homes and the larger of our suburban residences now possess some such adjunct to the house. These greenhouses are evidence of the increasing appreciation and interest of the public in horticulture. This growth of interest is particularly noticeable in amateur circles. It is responsible for many new and ambitious schemes, which are materially broadening the whole field of horticulture.

One of the recent ideas is that of a fruit or orchard house, or a vinery. It is with respect to this latter phase, namely that of the vinery, that the following remarks have been written. Such suggestions as may be given in this short article have been written in the hope that they may be of some assistance to amateurs who are thinking of growing some of the delicious European grapes (*Vitis vinifera*) for the first time.

The growing of grapes under glass in England is an old, well established, and extensive business. Moreover, it is in the hands of men who as horticulturists are second to none, and whose experience with the varieties they are now growing can be of material assistance to us in our endeavors along this line. The amateur in making a selection of varieties for himself is liable to be misled if his choice is guided solely by the descriptions of the fruit qualities to be found in catalogues, for many of these varieties are little grown but are still maintained because of their marked adaptability to certain conditions.

As this crop is grown under artificial conditions, the matter of climate is not so pronounced as is the case with imported fruits grown in the open; the chief differences, perhaps, being those of less atmospheric humidity, and greater light and heat intensity. Both of these conditions can be greatly modified by more frequent "damping down," and by the use of a light shade sprayed on the glass.

A list of the varieties of *Vitis vinifera* would be legion, but the amateur can console himself with the knowledge that perhaps seventy-five per cent. of the

total glass crop of Great Britain is produced by only six or eight varieties. These varieties have proved themselves to possess in a marked degree the characteristics of vigor, prolificacy, and quality. The varieties in question are:



Alicante Grapes. No. 1

This is a young vine in a twelve inch pot. Note the method of training. It is carrying nine bunches of grapes and is somewhat heavily loaded to obtain the best results.

Black Ramboro or Black Hamburg, Muscat Hamboro, Alicante, Gros Colmar, Gros Maroc, Foster's Seedling, Madresfield Court, and Muscat of Alexandria. The last-named is liable to be somewhat shy in setting fruit under certain conditions.

The best way to grow the European grape is in a thoroughly drained and carefully prepared vine border, built within the greenhouse and along its sides. The young vines should be planted at least twelve inches from the wall, and if two rods are to be grown from each vine, the vines should be planted eight feet apart, to allow two feet on either side of each rod for the growth of the laterals.

From a dormant condition the vines should be induced to break into leaf gradually. Undue haste at this time

often spoils a crop. If budding out is slow or uneven, this may be remedied by laying the rods on the ground and syringing more frequently, or syringing with tepid water.

The average length of time taken to grow a crop of grapes from that of starting the canes into growth till the fruit is ready to cut, is usually from five to six months. It depends upon the time of year the crop ripens, after which the vines require a rest, and an opportunity to ripen the wood made. The grape crop is really a quick crop when compared with the crops of other hardwooded fruits, but it requires continual attention. Successive annual crops are obtained only by experience, often of a most disheartening nature.

The writer spent several years with one of the largest commercial grape growers in England, who had considerably more than twelve thousand linear feet of glass in grapes alone. Annually these vineries would produce crops of perfect fruit, and varying but little in yield from year to year. The estimated standard of yield for such varieties as Gros Colmar, Black Hamboro, and Alicante was one pound of fruit to each linear foot of vine rod. Thus a vine bearing two main rods each eighteen feet in length, making a total rod length of thirty-six feet, would be expected to yield thirty-six pounds of fruit.

During the time of flowering, the setting of the fruit is greatly assisted by gently tapping the canes once or twice a day. Sometimes a rabbit's tail or soft camel's hair brush is used to distribute the pollen, and a third expedient is that of dusting the blossoms with Pampas Grass bloom, and so doing the duty of Nature and the bees; this has been found to produce the desired result.

ENRICH THE SOIL.

The grape is a heavy feeder or, in other words, to produce best results commercial fertilizers require to be liberally used. In connection with the use of commercial fertilizers though, the motto of the amateur should be "festina lente." A little at a time given regularly will produce far better results than liberal applications at distant dates. The grower should bear in mind the different



A Young Foster Seedling Grape. No. 2

This grape is also in a twelve inch pot. It is carrying seven well filled bunches of fruit. This is a more satisfactory method of training than that shown in the first illustration.

requirements of the grape at different stages of its growth. During the first two months leaf growth is required, and the use of a nitrogenous manure, such as Ammonium Sulphate, is beneficial. Nitrate of Soda is not quite so safe to use, especially in the case of vines growing in pots. Ammonium Sulphate is best applied in solution at the rate of a quarter of an ounce to each gallon of water, twice a week. With vines growing in a border, the application is somewhat stronger as watering is not so frequent as is the case with pot-grown vines.

When the fruit clusters appear, the tips of the laterals are usually nipped off, leaving two leaves beyond the fruit cluster. During the flowering period, and while the fruit is setting, feeding is generally withheld, though some growers, with marked success, use a little Muriate of Potash (KCl.) at this time. With hard-wooded plants in pots, Muriate of Potash should be used with care. When the fruit has set and is about the size of small garden peas, sufficient leaf and wood growth should have been obtained and the further use of nitrogenous manures is apt to be harmful to the full maturity of the fruit.

The bunches of fruit at this period are thinned by means of fine-pointed scissors. The smaller berries are removed and the remainder are thinned in tiers so that each berry will have room to develop to its full size, and the whole bunch ultimately develop the form of a symmetrical cone hanging point downwards. At this time the energies of the

vine are engaged in the development and maturing of the fruit, and the feeding of phosphates and potash in available form will quickly show beneficial results. When the fruit begins to color the proportion of potash may be slightly increased.

PRECAUTIONS.

A careful watch should be kept for any appearance of red spider. This dangerous pest can generally be controlled by syringing and maintaining a humid atmosphere.

The Sod Mulch vs. Cultivation

AN interesting controversy is now engaging the attention of apple growers across the line. A few months ago a bulletin was issued by the Geneva Experiment Station giving the results of sod vs. cultivation on the Hitchings' orchard of western New York State. In this orchard the trees in sod came out ahead of those under cultivation. The bulletin explains at length the exceptional conditions that made the sod mulch method a success in that particular case. Later an article appeared in *The Country Gentleman* dealing with the advantages of the sod mulch, particularly for hilly land.

In the article mentioned reference was made to the work of the Ohio Experiment Station to solve the problem of successful orcharding on the hills of southeastern Ohio. There the great difficulty is to prevent the land from washing. The sod mulch system proved to be the solution. The manner in which one particular orchard was treated is summarized in the following paragraph.

"From those hills the humus had been farmed out and in summer the land dried out as hard as a board. The soil was so poor that cover crops would not grow. Some trees had not made any growth in fifteen years. In 1910 the trees were mulched with straw and in 1911 each tree got five pounds of nitrate of soda and five pounds of acid phosphate. They made one and a half feet of growth. In 1912 and 1913 one thousand pounds per acre of a mixture of two parts nitrate of soda, two parts acid phosphate and one part of muriate of potash was applied. Another orchard was mulched with straw but received no fertilizer. It yielded only one-fifth the crop of the fertilized orchard. But straw was expensive so the land was allowed to go to grass which was then cut and allowed to lie on the ground. This was effective at the same cost as straw at six dollars a ton."

Continuing, the writer of the article states: "The experimenter in the case of the Hitchings' orchard says in his bulletin that the grass mulch trees were hungry. On the other hand he gave the

When using commercial fertilizers it is well to remember that underfeeding is a far safer course than liberal feeding, as an unduly heavy application may prove fatal. Lastly, certain varieties are very subject to Sun-scald and in this instance the variety "Lady Down Seedling" may be particularly mentioned. When any evidence of scalding appears on the berries, the shading should be increased, if this can be done without unduly hindering other vines in the same house.

cultivated trees nitrogen in the form of clover which he plowed under. He didn't even up the race by giving the mulch trees some of the nitrogen they needed. Nor did he try any legume as a form of grass mulch; he let it go at orchard grass. There are many legumes that would be suitable.

"Available plant food is the vital thing; cultivation is a detail, not a fundamental. Available plant food may come at times without cultivation and by easier and cheaper methods. Cultivation is merely one way of feeding the tree. Give a tree plenty to eat and it will do lots of things—carry apples through moderate freezing for instance, and also weather surprising drought.

"On sandy soils the mulch system might be a failure and in dry farming areas cultivation is a necessity. But the sod mulch has many advantages. Mr. Hitchings manages the tillage end of one hundred acres of apples easier than he



- Black Hamburg Grapes. No. 3

This vine is carrying only four bunches. In weight of fruit they will probably equal the nine Alicante clusters. In quality they will far surpass them in flavor, size and appearance.

could plow five. Along in June and July there come wet days when the teams could do nothing else. He sends a man with a mowing machine into the orchard and another with a scythe to trim around the trees. This fits into a system of farm management that will appeal to many."

THE OTHER SIDE

The other side of the question is given in the Geneva bulletin. The Hitchings method is simplicity itself. The land remains in sod indefinitely, the grass is cut for a mulch once or twice a season, and is left on the ground. Three plats were included: A lies on the floor of a valley and is comparatively level, B lies on the lower part of a rolling hill; C is higher up on the hillside.

In each plat half the land is in tillage and half in sod. All appear to be well supplied with phosphorus, potash and

nitrogen; B and C receive the hillside seepage. All parts were given the same treatment except for tillage. All the factors favor the sod mulch method. The tilled plats were plowed early in the spring and cultivated from seven to eleven times, a cover crop, usually clover, following. In the sod plats was a mixture of orchard grass and blue grass.

Mishaps and slow maturity prevented crop yields in plat A. The sod trees yielded a little less than four bushels a tree and the tillage bore a little more than three. The difference in favor of the former was due to a greater number of apples and not to increased size.

The cultivated trees in the valley did better comparatively because there was more moisture on the hillside. The tilled trees always had darker foliage although the amount of growth was about the same. The cost for the tilled plats was

\$16.28 an acre and for the sod plats seventy-two cents an acre.

In conclusion while tillage is the best method of caring for the great majority of orchards, yet there are peculiar conditions under which the Hitchings' method may be used advantageously:

First—On steep hillsides, where the land washes badly.

Second—On land covered with rocks, trees may stand best in sod.

Third—the Hitchings' method is suitable only for soils of sufficient depth; on shallow soils it will usually prove a failure.

Fourth—Soil must be retentive of moisture. Tillage is to be preferred for land that suffers from drought.

Fifth—Since the cost of caring for a mulch orchard is less, a greater acreage may be handled at the same cost and the net returns be as large as in a smaller tilled orchard.

Fire Blight and How to Fight It*

Prof. W. H. Brittain, Provincial Entomologist, Nova Scotia

FIRE blight is a disease that is of bacterial origin. In this respect it is comparable to diseases which affect men and animals, such as cholera, blood poisoning, tuberculosis etc., and it may become epidemic in character. The organism which causes this disease (*Bacillus amylovorus*) is extremely minute, measuring only one twenty-five thousandth of an inch long, and one-forty-five thousandth of an inch wide. When carried to the blossoms this germ is capable of multiplying rapidly in the nectar of the flower and from thence spreading downward and destroying the spur. When twigs or shoots are pierced by insects bearing infected material the organism grows and multiplies, feeding upon and destroying the tissues of the inner bark and cambium. It does not, however, winter over in the infested shoots, but in so-called "holdover" cankers upon the limbs or trunk.

SYMPTOMS.

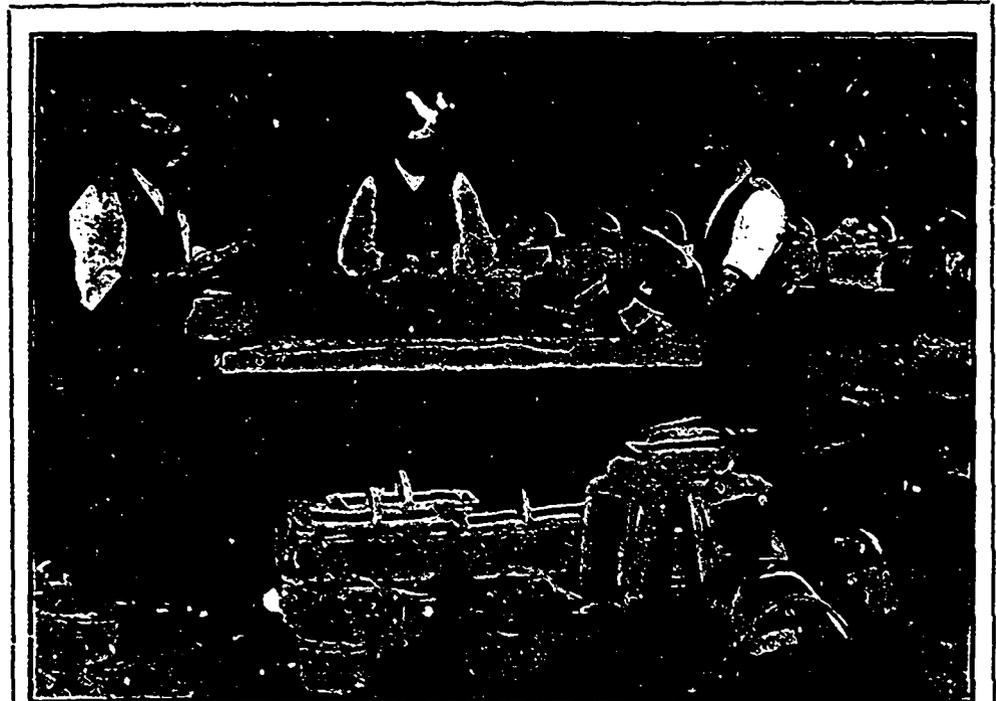
The disease first appears as a blight of the blossoms. Shortly after blossoming time affected blossoms instead of developing into fruit will be seen to wilt. Gradually the leaves surrounding the fruit cluster also begin to show signs of disease, becoming brown and dead, until the whole fruit spur looks brown and scorched. A careful examination of diseased spurs may now show small heads of whitish or yellowish liquid oozing through the bark. This liquid gradually hardens in the air and becomes dark red or brown in color. Microscopic examin-

ation of this exudate reveals the fact that it is literally swarming with the germs of the blight. This form of the disease in blossoms and fruit spurs is known as "blossom blight."

Shortly after this form is noticed the disease will begin to appear in the new twigs of the current season's growth. Tips of affected shoots will turn brown,

the bark will take on a moist, water-soaked appearance, and the leaves will become withered and brown. Where the disease is active, drops of the gummy exudate will be seen oozing from the bark. This form of the disease is known as "twig blight."

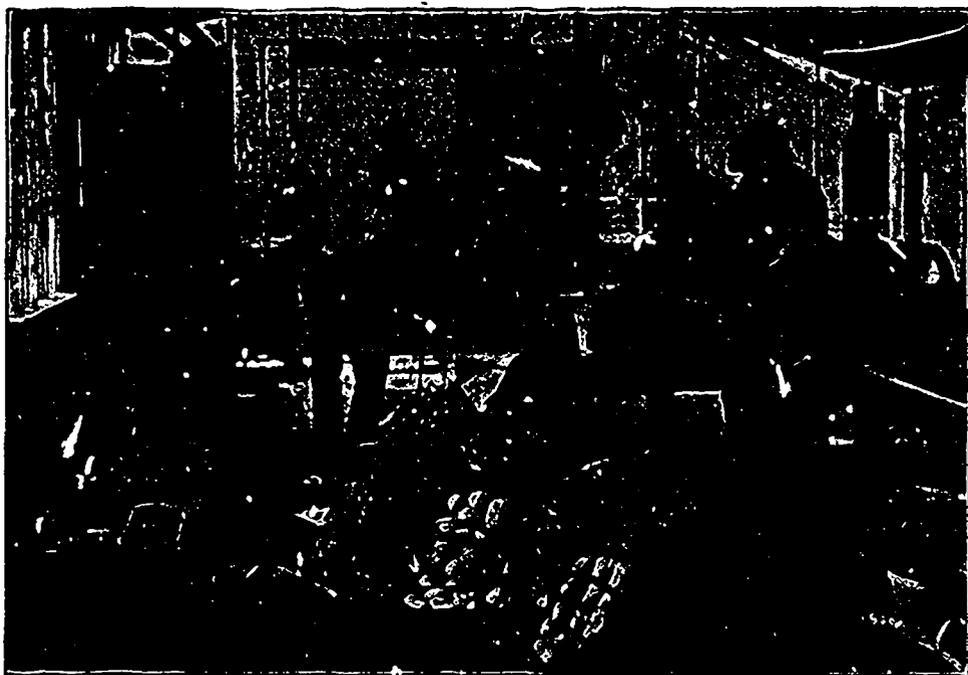
In some cases the disease will not stop here but will spread down affected shoots



Marketing the Peach Crop. Orchard of D. F. Hamlink, Huron County, Ont.

Mr. Hamlink seems to have proved that peaches can be grown successfully in his section of Huron county. He has twenty-five acres of peaches two and three years old, as well as five acres of trees that have been bearing for the last eight or ten years. The trees are doing well. Mr. Hamlink has not lost over half a dozen trees by being winter killed. On his three year old trees he will have about twenty per cent of a crop this year.

*Extract from an address delivered at the recent annual meeting of the United Fruit Companies of Nova Scotia.



Marketing Early Tomatoes. Messrs. M. O. Field & Sons, Grimsby, Ont.

into the main limbs and trunk. Here it may form large cankers and through cracks in the diseased bark, the yellowish liquid will ooze in large drops. Large limbs or even trunks may be girdled in this way and destroyed. In the east this form of the disease is most common in pear trees, but in the northwestern States and British Columbia it frequently assumes this form on many varieties of apples and causes immense loss. In years of epidemic it may spread like a blighting flame from orchard to orchard carrying destruction with it. While it is too early to say how this disease may act under Nova Scotian conditions, it does not seem probable that the disease will assume this virulent form. Observations so far seem to show that usually the injury is confined to the blighting of the current season's growth, which, while it does not seriously injure the tree, may totally destroy the crop.

In the summer when the tree begins to ripen up its wood, holdover cankers are formed on limbs and trunk at the base of diseased shoots. These have the characteristic water soaked appearance when fresh and are usually separated from the healthy tissue by a crack or fissure.

The forms of the disease then are—blossom, twig body and holdover blight. Body blight is the most serious form of the disease, but does not appear to be prevalent in Nova Scotia. The blossom blight, which destroys the crop, but does not kill the tree, is the form we have to fight.

SPREAD OF THE DISEASE.

The principal agent for the spread of blight is the bees, that carry it around from flower to flower at blossoming time. Aphids, leaf-hoppers, plant bugs and

other sucking insects are attracted to the sweet juice that oozes from diseased tissue and becoming affected from this source, are important carriers of this disease. In Ontario it has been found that the Fruit Bark Beetle (*Eccoptogaster rugulosus*) is often responsible for carrying the disease into the body of the tree. Sap suckers and humming birds may also have something to do in carrying the disease from place to place. One of the most potent and dangerous methods of blight dissemination is by the use of infected pruning tools. Persons who cut out diseased limbs without disinfecting after each cut are liable to aggravate the disease instead of controlling it.

TREES AND VARIETIES AFFECTED.

Besides the apple, pear and quince, certain wild and ornamental plants are known to be affected. The mountain-ash, the hawthorn and the shad bush are the chief of these. A disease known as "wither tip" of poplar is often mistaken for fire blight, but bears no relation to it whatever.

While all varieties of apples may be attacked, they present a very wide variation in their degree of susceptibility to the disease. So far we have found the disease is most prevalent on the Nonpareils though it has also been noticed on Gravenstein and Baldwin. Further investigation will doubtless show other varieties attacked.

CONTROL OF THE DISEASE.

The disease may be partially controlled by killing the insects that spread it about. While we cannot hope to get at the bees, we can destroy the others by the use of Black Leaf 40, either alone or with flour paste, applied when the leaves are about the size of mouse ears. This

method, however, is and must always remain only a partial one. The only cure for the disease is cutting out the diseased limbs. This should be done to about a foot below the diseased part, and the tools used in cutting must be disinfected after each cut. For this purpose corrosive sublimate is used in the strength of 1-1000 of water. Tablets can be obtained at the drug store, one tablet of which dissolved in a pint of water will give the desired strength. This must be used in a wooden or glass vessel as it corrodes metals. The most convenient method is to use a small glass bottle or flask which can be kept in the pocket. Attach an ordinary bath sponge to the wrist by a string and keep wet with liquid from the bottle. By this method the pruning shears can be swabbed off after each cut without loss of time, and both hands are free to be used when necessary. In cutting out hold-over cankers, the bark for two or three inches around the diseased area should be removed and after drying the wound should be painted over with coal tar or white lead. For disinfecting purposes, formalin, one pint diluted to three gallons, may be substituted for corrosive sublimate.

Careless cutting is worse than useless, and puts an orchard in worse shape than before. It must be understood that this disease cannot be destroyed by spraying. No more than a diseased bone can be cured by the application of an ointment to the skin, can this disease be destroyed by sprays. Surgery is the only remedy, and must be fearlessly done. Better cut out a little too much at first, than to have to continue the operation indefinitely. I know of nothing in the whole realm of plant pathology that offers such opportunities for cooperative effort as in the control of Fire Blight. With other diseases you can spray and obtain good results regardless of your neighbors, but with Fire Blight your work will be rendered useless if a source of infection exists near by.

Injury from Root Killing

Editor, The Canadian Horticulturist, —We are getting numerous inquiries concerning trees which leaf out and then die more or less suddenly. These are the customary symptoms of root killing, although a great many fruit growers do not seem to be aware of this form of winter injury. We have investigated a number of cases of this kind, and always with the same results. If any of your correspondents have been losing trees in this way, we shall be glad to send a man to investigate the same and report. At a later date we shall be glad to inform your readers more fully as to the results of our studies.—J. W. Crow, O.A.C., Guelph.

Seasonable Paragraphs for the Gardener

DON'T stop cultivation in the flower or vegetable garden now. Keep the soil loose and the weeds out.

That the garden may look its best, pick the flowers constantly; pansies, sweet peas, poppies, and roses especially. The best time to pick flowers is in the morning and evening when the sun is not bright and the plants are fresh.

Trim the hedge, but do not give a severe pruning.

It is time to make up lists of tulips and other bulbs that are to be planted in quantity this fall. Send to some of the large importers of bulbs for their catalogues. Tulips, crocus, and daffodils do well outside.

Blight, a fungus disease, is liable to cause trouble this month. For the large garden, spraying with bordeaux is the best remedy. The most common formula is four pounds of lime, four pounds of copper sulphate, and forty gallons of water. Dissolve the bluestone in a fairly large quantity of water, slake the lime separately, mix the two solutions, and dilute to required quantity.

For the small garden the most convenient remedy for fungus diseases is to powder the leaves with flowers of sulphur or a mixture of flowers of sulphur and lime.

Would you enjoy the novelty of a few strawberries during the winter? Put some plants in pots, plunge the pots out of doors, and bring them into the house in the fall.

The old blackberry and raspberry canes should be cut as soon as fruiting is over. At the same time the young growth should be pruned back to a convenient height, say three and one half to four feet. Next year's crop will be increased by judicious pruning.

August is the insect month. Dusting the plants with lime is the safest treatment for cabbage worm; poisons are too dangerous. Arsenate of lead is becoming popular as a poison spray; it sticks to the foliage well.

Cultivation of bush plants should soon cease. If you have a fair-sized patch, it is good practice to sow a cover crop; ryegrass is suitable. Another plan is to give a mulching of manure.

Strawberries may be planted now if the soil is in good condition and moist. For raising very choice berries, one method is to set the plants one foot apart each way and trim off all runners. Every four rows a row may be skipped to leave a path.

Red raspberries are propagated by suckers which come up around the old plants. These may be taken up in the autumn, heeled in during the winter,

and set out in a permanent bed the next spring.

Have you ever considered the advantages and pleasure that even a simple, cheap greenhouse offers? Read carefully the articles in this special greenhouse number.

If you have a hotbed, cucumbers can be sown now and they will fruit in early winter.

The late sown crops should be given every opportunity to grow. Thin properly and cultivate.

If you intend taking a crop of strawberries from the old bed next year, cut off the runners and trim the plants a bit.

Give the garden every opportunity to do its best by applying nitrate of soda or hen manure.

Bring carnations indoors to pots, boxes or benches in the greenhouse.

Rubber plants can be increased now by binding some moss about the stems and keeping them moist. When the roots form cut the stems below the moss and pot the new plants.

Autumn blooming crocuses, if planted now, will bloom this fall.

Bulbs of Madonna lily, a beautiful, hardy, white lily, should be planted. They will make a small growth this fall, but no injury from frost will result.

Black raspberries and dewberries are propagated by layering. The tips of the canes are bent over to the ground and covered with dirt to a depth of about four inches as soon as the fruiting season is past.

Celery is a moisture-loving plant. See that it gets plenty of moisture.

If you have not a cold frame or a hotbed, now is a good time to build one. Vegetables planted in the cold frame now can be enjoyed in the late fall. Next spring the cold frame can be utilized as a hotbed.

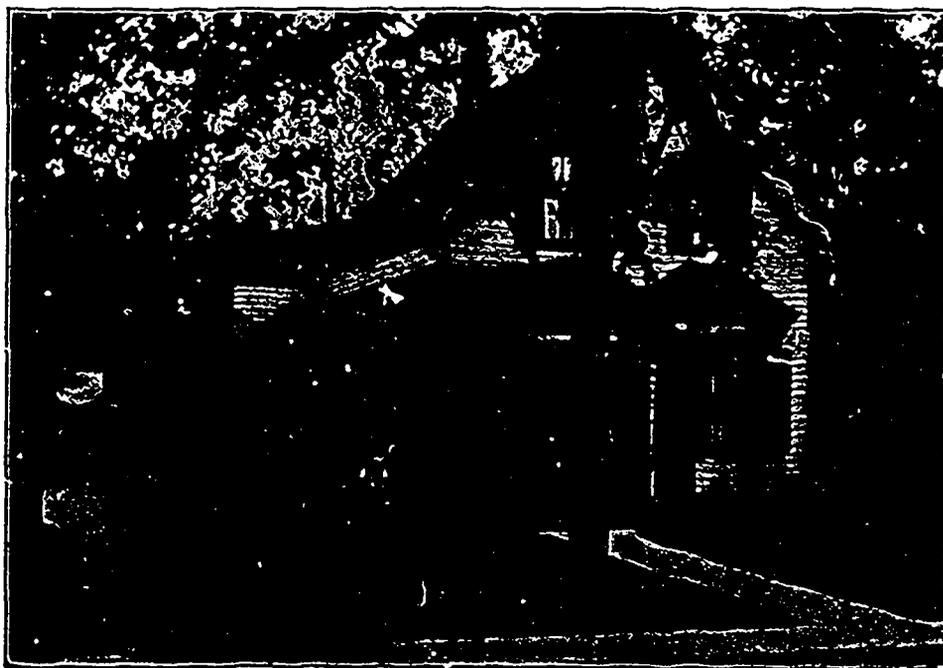
Geraniums for winter flowering should now be potted. Plunge the pots in the garden where they may remain till early in September. Keep all bloom buds picked off in the meantime. When plunging the pots out doors, place a flat stone underneath them so earth worms cannot get into them.

Seed of pansies should be sown early in flats for planting out in cold frames in September to winter over in the greenhouse or conservatory. These will flower early in spring.

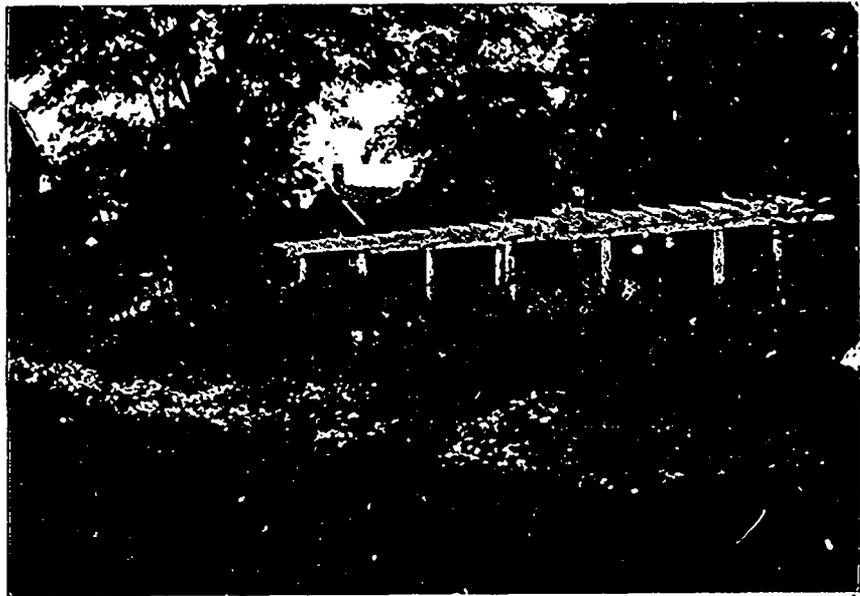
If you have not yet done so, now is a good time to plan the flower arrangements for next season.

To rejuvenate old geraniums that are in pots, cut back where the stems are getting woody. Keep the soil about them moist. When there are signs of growth, remove from the pots, cut the roots back by half, and put in smaller pots. When five or six leaves have developed, repot in large pots.

It pays to put vegetables and fruits in clean, neat and attractive packages that are to go on to the market. Two small well-graded and well-packed packages often bring double what the same amount will bring in a large package. It does not cost much more to pack in the smaller package.



The Home of Dr. Geo. Bennett, President St. Thomas Horticultural Society
This residence secured third prize for floral beautification in a contest conducted last year by the Society.



A Modern Pergola, in the Garden of Mrs. MacLaurin, Ottawa, showing a Blaze of Annuals in the Front

Late varieties of celery can be safely blanched with soil. They do not rust as readily as the early varieties. Allow no soil to fall into the crown of the plant. Keep hilling the plants up gradually as they grow.

Treatment of Calla Lily

F. Wise, Peterboro

My Calla lily is a young plant and is growing nicely, but has not flowered. New leaves are thrown up constantly, but the old leaves continually turn yellow and wither up, so that it never has more than three or four leaves on it at once. I have had the plant a little more than a year. I often stand it in hot water, and sometimes water it with fairly hot water, always with warm. It was re-potted in the early fall and I occasionally give it sterlingworth plant food. It looks very well, if it were not for the yellow leaves.—Miss C. M.

You are probably killing your lily with kindness. The treatment for calla lilies after they are potted up in the fall is to give them a good position in a sunny window and water them with tepid water; this does not mean hot water. Give an occasional fertilizing with some good plant food. Be careful not to overdo the latter. Do not give any fertilizer until you are sure that the plant has good root action.

The hot water treatment you have been giving may have caused a soft, unhealthy growth, or this may be caused by worms in the soil. If the latter is the case, it would be better to turn out the pot and stick a hatpin through the soil here and there, when the worm or worms will make their exit. Another plan is to give lime water occasionally, as this is helpful to the plant.

It is a good test of the quality of a garden bed to be able to dig in it with your hands quite easily.—H. M. Speechly, Pilot Mound, Man.

Gardening With a Lead Pencil

H. Gibson, Taxedo Park

AUGUST is a month when a good deal of useful gardening may be done with a notebook and pencil. Many amateur gardeners start activities in early spring by ordering their packages of seeds from the seedsmen's catalogues without having any knowledge of what the resultant plants will be like. In making up the garden list the beginner often bases his choice on the fascinating illustrations and romantic names of the plants. Thus it is that many plants of less value and beauty remain comparatively unknown.

There is, however, a more practical way than depending upon the seedsmen's catalogue. It is by the notebook and pencil method. The time to get acquainted with the future inhabitants of the garden is during the flowering season. In your own neighborhood there are gardens containing treasures with which you can become acquainted. Visit them with an open eye and an inquiring mind, notebook in hand.

Rule the pages with column spaces for common and botanical names, height, color, flowering period, location as to sun or shade, annual or perennial character, planting time, and cultural methods. Your neighbor's experience, coupled with your own, will help to fix the information in your mind.

Should your own locality not offer ample scope, visit a nearby nurseryman. There you will find a wealth of material for your notebook, with the additional advantage that you may order plants or seeds on the spot.

The adoption of such a scheme will avert many a mistake and disappoint-

ment. By it one can save at least a year or two in the attainment of a satisfying measure of success in gardening.

Iron Sulphate for Dandelions

In the June issue of The Canadian Horticulturist some methods of destroying dandelions were given. During the summer of 1913, Prof. J. E. Howitt, of the O.A.C., conducted spraying experiments with the use of iron sulphate. Commencing early in May, one-eighth of an acre of lawn was sprayed before the first of August. In all two hundred and sixty-four pounds of the sulphate was used at a cost of one cent a pound.

This portion of the lawn was quite weedy and after the six sprayings had been given, fifteen hundred dandelions were spudded from the one-eighth of an acre. But from an adjoining square yard which had not been sprayed, three hundred and fifty plants were taken, indicating that the iron sulphate did good work. The data shows that the initial outlay for material is fairly large, twenty dollars an acre, but a satisfactory job would be cheap even at that price.

Supports for Sweet Peas

A. V. Main, Ottawa, Ont.

The question of what is the best support for sweet peas deserves some thought. Supports that are good, cheap and effective, and that will ensure economy in labor, will appeal to most of us. The oldest method of all, the use of branches, is almost obsolete. The best substitute is wire netting five to six feet high. It is cheap, durable, and can be stored away easily.

Where wire netting is used no permanent fixture is essential. The netting, when necessary, can be cleared away easily and free access to the ground be secured for fall preparation. As the peas climb, strands of binder twine can be run up and down the row to keep them to the netting.

Cement Flower Bed Border

T. J. O'Flynn

The following plan for making a cement border around a flower bed has worked well with me. Take a hose or rope and place it on the sod with the desired curves. Then with an axe or any sharp instrument cut a trench four inches by four inches to conform with the desired shape. Use cement and gravel in the proportion of one to four, and fill in the trench, being careful not to have it quite as high as the sod. Dig the sod on the inside of the trench when the cement hardens.

This will reduce the labor of keeping the edge of the bed looking nice, as the lawn mower can be run around on the cement. The cement need not appear. A little earth can be drawn over it

Accomplishments of the High Park Horticultural Society

A FEW years ago the High Park district was a Toronto suburb. There were vacant lots with their accompaniment of refuse and weeds. Avenues of trees were unthought of and the vision that the section might become one of the finest residential districts of Toronto, was entertained by but few.

But Toronto grew. It grew with rapidity. It became evident the High Park section was to become a place of homes. Soon the idea was conceived by a few enthusiasts that by concerted action and a little planning it would be possible to ensure the homes that were yet-to-be being planned on lines that would ensure the whole district being made one of the beauty spots of Toronto. And thus was born the High Park Ratepayers' Association.

This was several years ago. The Association, at first, devoted its attention to many lines of work. These included the proper opening up of the district, the attracting of a desirable class of residents, the laying out of the streets. It was realized that this was not sufficient. A horticultural committee was organized. A campaign was launched for the planting of gardens, the laying out of lawns and trees and the general embellishment of the homes of the district. Out of this committee has grown the High Park Horticultural Society.

The transformation that has been effected within a few years borders almost on the miraculous. Hundreds and hundreds of beautiful homes have been erected. A desire for the beautiful in nature has been created which has permeated the whole district until the neighbors vie

with each other in doing what they can to advance the cause in which all have shown so much interest.

Most of the improvements from a horticultural standpoint have been effected within the past four years. In 1911 a campaign was launched to interest the people in the matter of improving the lawns, gardens and general appearance of the property in their district. Prizes were offered for the best kept lawns, gardens and window boxes. That year Andrew Dods was the successful prize winner in the garden competition. The following year the honor was won by Wm. Mormann, Rideout Street. In addition to the regular prizes a resident of the district presented a fine cup for competition. These competitions have been continued each year with splendid results. In addition frequent exhibitions have been held within the past five years. Thus increased interest has been created. When one considers that most of the dwellings have been built within the past five years, the attractive appearance of this part of the city is remarkable. Many of the gardens would seem to have been established for years. A representative of The Canadian Horticulturist had an opportunity some time ago to visit High Park and see for himself the splendid work that is being accomplished. From among the large number of fine lawns and gardens noticed space will permit of only a few being mentioned. The endeavor has been to select a garden from a few of the more important streets and thus have the whole district fairly well represented.

One of the first residences we visited

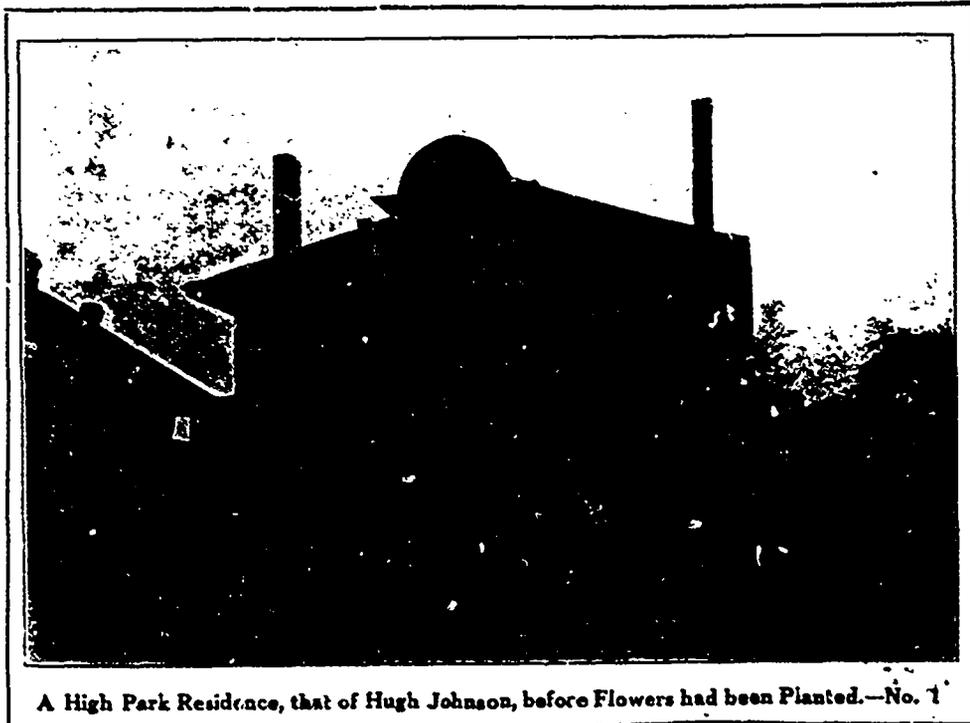
was that of Wm. Mormann, who in 1912 captured the first prize. A noticeable feature about Mr. Mormann's place is the absence of fences. Instead, privet hedges have been planted which are an improvement over the unsightly line fences so often seen. The stump of a tree which Mr. Mormann had occasion to cut down, had been put to good use by placing on it a box, three by four feet, from which hangs a profusion of German Ivy. Covering the house is some fine Ampelopsis. Hanging in the front porch is a nice flower basket and flanking the entrance and over the door is some fine Cobia Scandens. To one side of the house is a large pine tree. In this tree a box has been placed which a family of black squirrels have selected as their home. One of these squirrels has become so tame that Mrs. Mormann often feeds it out of her hand.

A UNIQUE IDEA.

Another feature of special interest was a high framework covered with wire netting and over which vines were growing profusely, which Mr. Mormann has erected alongside his neighbor's house. This will serve to hide the unsightly brick wall until the vines which his neighbor has planted have attained their growth.

A splendid lawn and garden is that of Major J. O. Thorne. The house is flanked on either side by a wide expanse of lawn, the borders and corners of which are planted to shrubs, roses and perennials. Shrubs and hardy perennials are also planted around the base of the house. At the rear and separated from the lawn by a privet hedge, is a fine kitchen garden. Around the garden are wire net fences backed by herbaceous borders. The kitchen garden proper is laid out in squares, Old Country style, with fruit trees planted in the corners of the plots. The tomatoes are trained on a trellis and pruned back to the spurs, the same as in greenhouses. To one side is the garage. When we consider that the garden had been only two years in existence, it was a splendid one.

A most energetic member of the society has been Hugh Johnson, 55 Radfow Street. His idea was to do away wherever possible with line fences. Facing the street his lawn is bordered with a Japanese ivy hedge. The house itself is well covered with vines, shrubbery and herbaceous plants, among them being some fine coladiums. Along the boundary lines are some handsome Norway maples. At the rear is a fine lawn with herbaceous border. A fine pine tree gives ample shade. A bird box has been placed well up the trunk, the entrance being large enough to accommodate a wren



A High Park Residence, that of Hugh Johnson, before Flowers had been Planted.—No. 1



Mr. Johnson's Residence, Showing Part of Improvements Effected by Means of the Planting of a few Plants and Vines.—No. 2.

but not an English sparrow. A sand pit gives ample opportunity for the children to enjoy themselves.

A NATURAL BEAUTY SPOT.

Probably the garden showing the most natural type of beauty was that of W. H. Reid, 94 Bousted Ave. Between the lawn and the street is a rough stone wall about two and one-half feet high. Behind this wall the earth is banked up and planted with roses and shrubs. Viewing the wall from the street one has the impression that flowers are growing on top of it. Leading under an archway a flag stone walk extends to the house. The house is well covered with vines, and an herbaceous border extends around the base. On the front lawn an old tree trunk about eighteen feet high, has been transformed into a fine ornament by being well covered with vines.

A WELL KEPT REAR LAWN.

At the rear of the house is a fine lawn flanked with herbaceous borders and containing a few fine shade trees. Grape vines well loaded with fruit were growing on the wire netting which constitutes the line fence. Between the house and the one adjoining is a vine covered archway which screens the rear door from the street. The neighbors in the house adjoining have adopted the general scheme and the two residences are in complete harmony.

A fine corner was that of H. E. Hurd, 16 Parkway Avenue. Facing the house was a crescent shaped lawn surrounded by a walk. In the centre was a fine bed of geraniums. Along the side street was a wrought iron fence, behind which was a fine collection of border plants. In the extreme outer corner of the lawn was a

small bed of most attractive appearance. Mr. Hurd's son, who was responsible for the fine improvement made in this garden, has since died. He was very enthusiastic in improving the appearance of the High Park district.

On Roncesvalles Avenue, a neat little garden was that of Wm. Barber. The lawn was enclosed with an iron fence behind which was a fine border of herbaceous plants. A bordered walk leading under an arch, extended to the rear of the house. A few stone urns on the lawn added to the general attractiveness of the scene.

Another nice garden was that of W. McLavish, 440 Indian Road. Space does not permit us to describe this garden more fully. Suffice it to say, however, that the efforts of residents of High Park to make the district one of the finest residential sections in the city, have been crowned with an unusual measure of success.

As a cut flower the peony is hardly equalled. Cut the blooms as the bud is about to unfold and place in water in a cool room, such as a cellar, where the air is fresh, night and day, free from draughts. They will continue to develop, and when brought up as required they will open and retain all their fragrance and delicate fresh coloring, last for days, and be superior to those left to open on the plant exposed to the heat of the sun which fades them out very quickly.—J. H. Bennett, Barrie, Ont.

Two good varieties of the moss rose are the Crested Moss and Blanche Moreau.—Wm. Hunt, O.A.C., Guelph, Ont.

The Growing of Roses

Jas. M. Bryson, Avoka Vale, Toronto

It must be confessed that of late years there have been vigorous and sustained efforts made to level up all roses to one uniform standard, that of the best show blooms. In pursuit of this not a few roses of special interest have disappeared from many gardens. At present the rose fever runs high in the direction of the hybrid perpetual and hybrid tea, and even the popular sorts may be moulded by pruning and training into other forms than those of the standard, half standard, or dwarf bush rose. To show how to secure variety of form is the purpose of this paper.

Pruning may, in some important senses, be said to be the basis of training. The highest examples of rose training contain two apparently opposite qualities, symmetry and diversity. Each rose may be a symmetrical type, of a particular formed rose, and yet the mere juxtaposition of two forms will yield a richer variety than if neither had been more or less perfect of its kind. For example, a perfect dwarf and a perfect standard afford more contrast or diversity than if the dwarf were climbing up into standard stature. Similar contrasts may be drawn between pillar and weeping roses. These principles must be clearly borne in mind and persistently applied in practice when pruning roses.

A superfluity of material is almost more difficult to deal with than a scarcity. By looking well ahead this may generally be prevented by disbudding, a kind of prevention that saves much cutting and carving afterwards. For pyramidal roses the number of shoot for example, to form the pyramid is four: That is to say, one central shoot and three side shoots. These may either be forced out of the base or the stem breaks from near the base. The latter may help to widen the base of the pyramid. In this formation the leading shoot should always have the preference from the first. That shoot, though beheaded every year, should be cut back to the best and most prominent buds, in order to ensure the presence of a fine bud. At this point it is a good practice to disbud the upper end of the shoot, or even to shorten the leader considerably about the middle of September. This throws the strength of the plant into the buds left, and ensures that the upper ones, especially those nearest to the beheading line, shall break vigorously the next year.

When the old leaves on a growing plant begin to wither or lose their natural color, cut them off.—E. Lane, Galt, Ont.

Garden Enemies

R. S. Rose, Peterborough, Ont.

ALL gardens are now in full swing, and should be attended to every day. An hour or two each morning before breakfast is by far the best time to do the work as one is fresh then and can do much more than in the evening, which time should be left for watering.

FIGHT THE APHIDES.

This is the time to get after the aphides, that little green insect that comes on the roses and sweet peas. I give here what Mrs. Ely in her book entitled "A Women's Hardy Garden" recommends as the best to use:

"Put one cake of laundry soap shaved fine into one gallon of water. When dissolved add two gallons of kerosene oil. This makes the emulsion. For spraying one quart of the above emulsion in fourteen gallons of water."

Be sure that this is thoroughly mixed before using. If you have not got a sprayer use an ordinary whisk and whisk upwards under the leaves and around the stalks of the plants.

Now take a look at your Rudbeckia (Golden Glow) and see if a red insect has got on them. We will call them red aphides, as I do not know their proper name. They appear on the stems of the plant just under the blossom. Kerosene emulsion will also kill these pests.

I have also used a preparation which I have found effective against the green, red and blue aphides. It is a mixture of tobacco. Take an ordinary pail and fill lightly with tobacco stems. Do not press them down. Pour into the pail as much cold water as it will hold. Let this stand for a good two hours. It will then be ready for use. Spray the same as with any other emulsion. The only trouble with the tobacco water is that it is not good after two days as it seems then to lose its strength, and will have to be made up fresh, while the kerosene emulsion is good for any length of time. The aphides should be attacked as soon as they appear. If you have not got any emulsion on hand have it ready next year and spray before signs of these pests come. Prevention is better than cure.

Use three pounds of blue vitriol in coarse crystals, and three pounds of unslaked lime. Slake the lime in two and a half gallons of water. Pour two and a half gallons of water over the blue vitriol in another receptacle, and let both stand over night. In the morning stir the blue vitriol until all is thoroughly dissolved. Then let two persons pour simultaneously the lime water and the blue vitriol into the same receptacle, and add twenty gallons of water.

Before using always give it a good stirring. This mixture will last during the summer without losing strength and should always be on hand. It is also good for any kind of blight that may appear.

Hollyhocks, monkshood, roses and phlox all have a tendency to rust or mildew, and if sprayed at the end of April and again during May with this mixture it should prevent such blight attacking the plants. Phlox should be sprayed during June and July or when you notice the leaves turning black or brown.

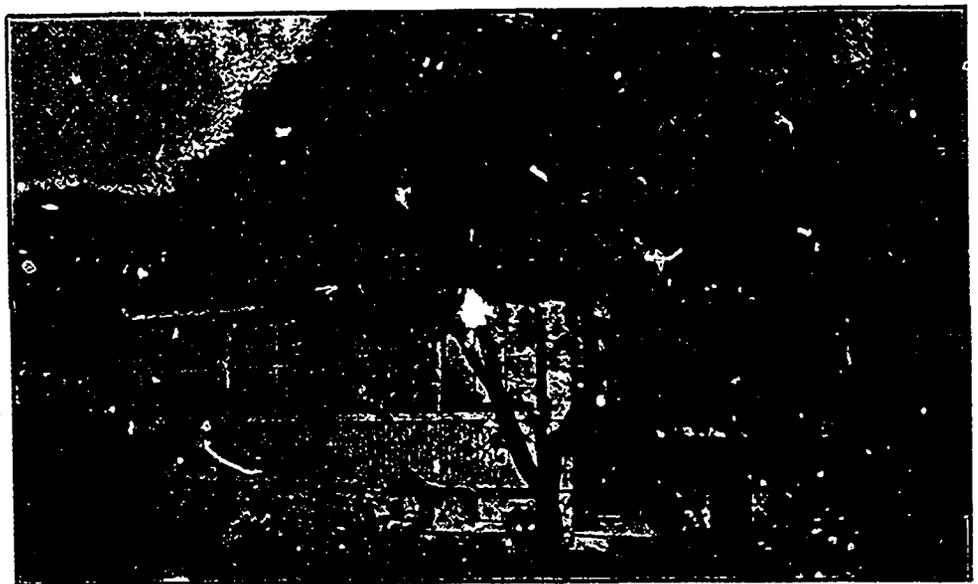
Mildew is now likely to attack your rose bushes during July. Look out for white spots coming on the leaves, and if you cannot get Bordeaux mixture another good remedy is Flower of Sulphur. Pick off the affected leaves and cover the rest with the sulphur after watering, or when there is a heavy dew. Do this for a day or two. I have also heard of soot being used. This was highly recommended to me by an extensive rose grower, and is said to work splendidly. Cover the bushes well with the soot and let it rest on them for four or five days, then wash off. The mildew will disappear and the leaves turn a deep rich healthy green.

I would also suggest that you take a stroll around your neighbor's garden. He or she may have some plant that you want and you may have just what they want in exchange. Exchange of plants or ideas are one of the delights

of gardening. You will always find a gardener who takes a pride in his place willing to show you his garden and to talk about it. Also take a run around the greenhouses and keep in touch with the florists. You will find them courteous and willing to give you any information in their power regarding any trouble that you may have with your garden. One's work in a garden is never done during the months from April till the frost drives us from the garden to the house for shelter. It's a pleasure ground from start to finish and those who love their garden and what it brings forth, will find it a restful labor before or after the day's work in office or factory.

What is the cure, if once they take a good hold of your plants? There is none. You may keep them in check, but you cannot altogether get rid of them, but, as I said before, there is something better than a cure; there is prevention. The aphid finds no food when the plant is in perfect health. It will not taste the sap that is pure and untainted. It is a leech which sucks bad blood only. Now you know what you are up against, so get busy and fight them if you can to a finish.

There are other enemies besides insects that attack our plants, namely, rust, or mildew. You can tell when this is attacking the plants as the leaves will turn black, brown or white and fall off. In cases where this appears use Bordeaux mixture, spray as with kerosene. This mixture can be bought from any of the nurseryman or can be made up at home after purchasing the ingredients.



An Amateur's Greenhouse, that of Mr. R. B. Whyte, Ottawa

Simple greenhouses, such as this, can be erected at but slight expense by any amateur flower grower. The returns cannot be estimated in dollars and cents. In this small house Mr. Whyte has tried many kinds of plants. His chief show plants are the bulbs, and never from early winter till late spring is his house without a beautiful display of these most satisfactory flowers. Frezias, narcissi, tulips, hyacinths, form the staple crops, while crocuses, grown in flat pans, also make very effective shows. A full description of this greenhouse was published in the last August issue of *The Canadian Horticulturist*.

Managing a Greenhouse for Profits

ONE of the pioneer market gardeners of Nova Scotia is Mr. H. Loomer, of Falmouth, Hants Co. Eighteen years ago Mr. Loomer made a start in gardening by purchasing thirty-six acres, most of which at the time was rough land. His total initial capital was just seven hundred dollars.

For upwards of twelve years no extensive greenhouse work was attempted; cold frames and hotbeds only were used to get a longer growing season. No attempt was made at first to grow anything out of the ordinary line of market vegetables. The nearby town of Windsor was the nearest market, and a large part of the truck Mr. Loomer sold by going from house to house with his team. But gradually the market was enlarged, until to-day shipments are made to most large towns of the province.

Over five years ago Mr. Loomer's trade had reached considerable proportions, although he had as yet made no attempt to grow vegetables out of season on a large scale. By early starting and careful methods he got his produce on the market before the general crops came on and thus obtained the top price. But Mr. Loomer believed in the possibilities of growing vegetables under glass and backed up his belief by erecting a one hundred and fifty by thirty foot greenhouse. Year by year the plant has been increased, until now there is about fifty thousand feet of glass. When visited by an editor of *The Canadian Horticulturist* early in July, one hundred dollars' worth of products were being shipped out every day; the annual output is over ten thousand dollars.

During July the chief greenhouse crops are cucumbers and tomatoes. From a half-acre of glass Mr. Loomer turns off an average of one thousand cucumbers a day for a period of two months. Greenhouse lettuce, radish, and spinach are over by that time. By the first of August, when the outdoor stuff is coming on, the greenhouse crop is about done. The vines are cleaned out and manure is spread four to five inches deep. This manure is kept watered down till September when a team is taken into the greenhouses and the manure is plowed under. This is the only dressing of manure that the ground receives during the year. Successive crops receive applications of commercial fertilizers.

Towards the middle of September the first sowings of lettuce, radish and spinach are made. Lettuce is sown thick in one of the houses and then transplanted to some of the others. The first cut is made in November and continued sowings give a supply through the winter.

Sowings of cucumber are made from January first to the end of February. Previous sowings of lettuce are made with a vacant row every seven feet, and this row is sown to cucumbers. At other times the cucumbers are placed seven feet apart, with two rows of beets between and a row of radish or lettuce between each row of beets. Cucumbers are sown fifteen inches apart in the rows. The vines are trained on upright trellises to a height of six or seven feet and then overhead on setting. The laterals are pruned at the second bud, leaving two fruits to each branch. A hive of bees is kept in each house to ensure the setting of the fruit.

Mr. Loomer's favorite variety is a cross that he has himself made between two varieties—Rawson's Hothouse and Granite State. From this cross he has made continual selection and has a splendid cucumber of medium length.

The spring tomato crop is sown in December and January. Four or five transplantings are made before bearing. The final settings are in rows two and one-half feet apart, with sixteen to eighteen inches between plants. The vines are trained upright on a string and pruned to single stem leaders. The method of pruning for fruit is practically the same as the Potter system, as described in the *July Horticulturist*. Bees fly in the tomato houses during the winter and a satisfactory set of fruit is obtained. The bees are fed sugar syrups at that time.

During the winter and early spring, celery, lettuce, beets, cabbages, tomatoes, cucumbers and squash are all started in the greenhouse for early planting out of doors. These come on the market early and bring the top price. Irriga-

tion has been found necessary to bring transplanted lettuce along nicely. The Skinner system of irrigation is used. The best possible use is made of the land; between the rows of early vegetables late celery is sown.

About the first of June celery is sown out of doors, where it remains till October. It is then brought into the greenhouse and marketed at Christmas time; it gets a good growth before much heat is needed in the houses.

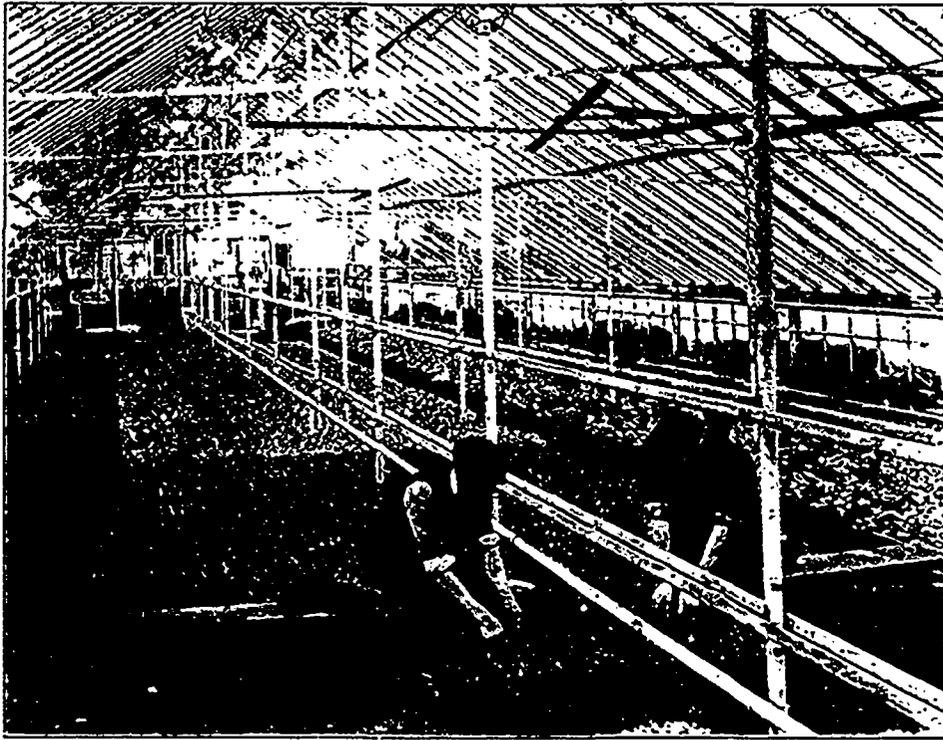
In one small house tomato seed is sown about June 15 and cucumber seed at August 15. These are turned off for the fall trade. The tomatoes are sown earlier because the fruit does not set well during the dark days of late fall. For spring planting Mr. Loomer uses the Bonny Bess variety but prefers the Stone for fall planting. The former does not color well in the greenhouse during winter. Grand Rapids is his favorite variety of lettuce for the greenhouse, as it is about the only one that will stand as much heat as the cucumbers. It must be well supplied with water.

There is something of the supernatural about Mr. Loomer's water supply. He spent several thousand dollars boring artesian wells in order to locate a sufficient flow of water, but without success. A lady visiting at his home not long ago remarked that she could locate water with a forked apple branch. Mr. Loomer was quite willing to let her try, so they went out to see if water could be found. After a while his friend indicated where she thought there might be water. Men were set to work, and at a depth of ten feet a supply of water was found that a gasoline engine, pumping forty gallons a minute, cannot drain in a day.



Interior of one of the Greenhouses of Mr. H. Loomer, Falmouth, N. S.

(See accompanying article.)



Planting Lettuce in a Pipe Frame Greenhouse. Lord & Burnham, Costruction, Toronto, Ont.

Questioned as to his marketing methods, Mr. Loomer replied that he thought for a man beginning in a small way near a large market it would be best to specialize in a few crops. In his own case his market is so scattered and so many small and varied orders

come in that he is obliged to raise a large variety of crops. Where the market is not large in any one place, it is difficult to get back the packages. When near a large city one can team the produce and get the packages back, otherwise an additional outlay is required.

Vegetable Growing Under Glass

A. H. MacLennan, B.S.A., Macdonald College, Que.

MARKET gardening in Ontario as a business has been growing rapidly. In growing it has changed its character greatly. For many years it was carried on entirely in the field. What early plants that were required were produced in the field. But of late years the grower finds that he must change many of his methods, must build a greenhouse. And why?

To answer this question, if we look closely we will find several reasons. First, we find the city population has increased; more wealth is being added to our bank account. With this increased wealth has come the desire to spend more freely, our tastes have changed, so that now we desire to have on our table many things which are out of season ordinarily.

Next the grower has come up against the question of labor supply. The opening up of the Canadian west, the ease with which a man may start a business for himself, the sudden booms in land values which often made a man wealthy in a short time, the tendency to drift to the cities in the fall, and there to remain, are the main reasons for this

scarcity. The growers find they must overcome this if they would succeed. How can they do so? Not by following the former routine. They must build greenhouses wherein they can grow crops winter and summer. Here they can give men work the year round, their own business and profits increasing at the same time. They find their men much better satisfied. The wet disagreeable work which formerly often had to be done when transplanting their crops in hotbeds is now done in warmth and comfort. The plants themselves do better.

Lastly arises the question of earliness. Anyone who has had any connection with gardening in Ontario knows that to obtain the best prices one must try to have his produce on the market earlier than his neighbor. While this was done, formerly in hotbeds, the labor required to operate them and uncertainty of weather conditions during the transplanting period, made too much of a handicap. Much better plants came from the greenhouse; he could start earlier and thus gain time.

Greenhouses in Ontario to-day are mainly of four types. The first is the

sash house, made by two sash fastened together in the shape of an A (inverted V) with a path dug out eighteen inches to two feet in the centre for working. This type is heated by a stove and is used only to produce early plants for outside planting. The second has wooden sides, four feet high, and glass roof; is fourteen feet wide, with no supports for the roof. This house is good for winter lettuce growing and early plants in spring, while under the benches one can force rhubarb. The third type, and the one most commonly found in Ontario, is called the pipe frame. These houses are generally thirty or forty feet wide with two or more rows of supports made of pipe. This type of house appeals to the grower, since he can erect it himself. The fourth type is the flat iron rafter house. This house is more expensive but lasts longer and is much stronger. It requires few repairs little glass is broken, things which soon would make up for any saving in first erection cost.

To-day we find most of our growers devoting their house to the growth of lettuce with spring crops of cucumbers and tomatoes. Some grow tomatoes in the fall and spring with a crop of lettuce in between. Other crops that might be grown are peppers and cauliflower. The diversity of crops grown will soon be as great as outside.

One must not think, however, that greenhouse growing of crops is easy. Some people will say, "Oh, you have everything under your control; you can make the weather to suit yourself." While this may be true, still one must remember heat requires coal to make it; coal costs money. Again nature takes much greater advantage of any slip we may take. Much more so than outside, and slips soon eat up the profits.

Practical Pointers

It is more economical to purchase one ton of high grade fertilizer than three tons of low grade.

The planting of strawberries is preferably done in August, the soil having been used to produce early vegetables, which will have been removed before the end of the month.—W. A. Dier, Ottawa, Ont.

"The fruit on lime soils is often smaller, unless much humus is present; but the statement made in Europe that cultivated fruits, and especially grapes, are sweeter on calcareous soils, is abundantly verified in the native fruits of the Mississippi valley states as elsewhere; where the various wild berries, haws, plums, etc., are well known to the younger part of the population to be much sweeter and higher flavored in certain (calcareous) localities than in others, besides being usually more abundant."—Hilgard.

The Canadian Horticulturist

COMBINED WITH
**THE CANADIAN HORTICULTURIST
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2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

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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 copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

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		" 1913, 12,524	

Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,
 PETERBORO, ONT.

EDITORIAL

AN ECONOMIC IMPOSSIBILITY

These are days when we hear much about the "back-to-the-land" movement. Magazines feature articles which describe the great financial success some former city dweller has made by "reserting the city and taking up market gardening, fruit growing, dairying, or some other kindred farm occupation. These articles create an impression that the time is ripe, consequent upon the high cost of living and rural depopulation, for many city people to move out to the country. Many people really expect to see such a movement take place ere long.

There are many reasons why such a migration can never take place under existing conditions. One of the principal of these is the tendency of land to increase in value in proportion as the demand for it increases. Fruit growers especially have noticed this tendency. Let us illustrate how this principle works.

Toronto has a population of approximately five hundred thousand. Suppose ten thousand people in Toronto decided that they were going to give up city life and go in for farming. The first thing they would have to do would be to take stock of their resources. Next they would have to ascertain what investment they would have to make to obtain the necessary land.

Suppose they found that the best fruit land, such as that in the Niagara district, was worth two hundred dollars to fifteen hundred dollars an acre, the best ordinary farm land from seventy-five to one hundred and twenty-five dollars an acre, medium good farm land from forty to seventy-five dollars an acre, depending on its location, and poorer land twenty to forty dollars an acre.

Of the ten thousand would-be fruit growers or farmers, two thousand might be able to purchase the higher-priced land, three thousand the best farm land, three thousand ordinary farm land, and the remaining two thousand the poorer class of land.

With these facts before them, suppose these ten thousand people set to work to purchase land at the prices which they had decided were within their reach. What would happen? Simply this: As soon as the first two or three hundred of the first two thousand began to purchase the best fruit land at the prices mentioned, the holders of such land would advance its purchase price ten, twenty-five, fifty, possibly one hundred per cent. The result would be that only a small percentage of the two thousand would be able to secure such land as they were looking for. Those who could not would then be forced either to give up all idea of settling on the land or to buy poorer land than they had first intended to purchase. This would increase the number of people seeking that class of land, and it also would increase in value with a similar result. The same principle would hold true of all the other grades of land on the market, limited only by the amount of it offered for sale and the number of people desiring to purchase it.

This tendency of the price of land to increase in even more rapid ratio than the demand will always make it impossible for any large number of city dwellers to leave the crowded cities to engage in rural occupations. It is because our available free

land is about exhausted and because occupied farm and fruit land is held at values that are high, considering its productive power, that immigrants and farmers' sons are unable any longer to obtain land at prices which are within their reach and thus are forced to settle in our urban centres and engage in occupations in which the ownership of land is not essential.

This is the main explanation of the problems that have been raised by the more rapid increase of urban than rural population by the increased cost of living and by the growth of slum areas in our cities. It explains, also, why we are hearing more and more about the "land" question. The sooner we recognize that these problems are going to increase in importance, and that existing conditions are going to become worse rather than better, particularly in our fruit districts and in the market gardening sections adjoining our larger cities, unless we settle this land question, by among other things, taxing land according to its value, the sooner will we make progress toward their solution. The only difference between the land question in Great Britain and in Canada is that it is farther advanced there than here, and thus they have been forced to deal with it.

PROTECTION OF BIRD LIFE

Every observant fruit grower has long recognized the fact that the great majority of birds are beneficial rather than injurious to the orchard. While some species consume considerable quantities of fruit at certain seasons, they are beneficial at other periods. Were they in time to become exterminated the number of pests of different kinds that the fruit grower would have to contend with would be greatly increased through the disturbance to the balance of nature now maintained by bird life.

We have been slow to recognize the important part played by birds, but as a result of costly experience we are beginning to find how necessary it is that bird life shall be protected. In May the United States Senate passed an appropriation of fifty thousand dollars for the enforcement of a new federal law for the protection of migratory birds. The president of the American Game Protective Association, Mr. John B. Burnham, is now urging the adoption of a treaty by the United States and Canada that will have for its object the protection of all birds that migrate between the two countries. Such a treaty has been drafted and is now being pushed in Congress by friends of the Association. While the provisions of such a bill may require careful consideration, the general principle is one which will meet with general approval in Canada.

THE SOD MULCH

A short time ago there appeared in a United States periodical an article dealing with the sod mulch method of orchard management. Much stress was laid upon the merits of this system as proved by investigations conducted by experiment stations in the states of New York and Ohio. The article in question leaves the impression that the sod mulch is to be preferred to cultivation. It must be remembered that the orchards in which the sod mulch proved so successful were located on hilly ground or possessed unusual soil conditions. In order to give both sides of the case, extracts from the article mentioned and from the New York state bulletin are published elsewhere in this issue.

Whatever the conclusions drawn from this controversy may be, the history of orchard-keeping in Canada proves the efficiency of cultivation. Sod orchards that had not yielded enough fruit to pay for the picking have by improved management given good returns. Of the improved methods adopted, cultivation has been one of the most important. There is little fear of any widespread return to the sod mulch.

Several features of the sod mulch method, however, are worth consideration. Occasionally we find orchards located on a steep slope. These are always difficult to cultivate and soil washing is prevalent. We have in mind several orchards situated on steep hillsides in which the roots are near the surface because of soil washing. Every winter a few trees are heaved out. Were the grass cut and left to serve as a mulch and fertilizer applied we believe the sod mulch would prove satisfactory in those orchards. In any case, however, owners would be well advised to carefully consider conditions before making a change.

SCHOOL GARDENS

There are this year two hundred and ninety-three school gardens in Ontario, an increase of sixty per cent. over last year. In addition, there are five hundred schools that distribute seeds to the children. Most of the district representatives, of which there are about forty, have on an average twenty schools holding school fairs.

Such progress is encouraging, but when it is considered that there are nearly six thousand schools in this province, much yet remains to be done. Teachers everywhere report that the greatest need is more sympathetic assistance on the part of the parents. Many hold that there is no need for a school garden where children are brought up in a natural environment. A greater mistake could hardly be made. It is that same familiarity that dulls the child's mind to the beauties about him and creates the longing for the "real" life of the city. Under the direction of the school teacher, new interest in the wonders of nature and the true worth of the country life can be aroused through the medium of the school garden.

In calling the fourth Dominion Fruit Conference for next September the Dominion Minister of Agriculture Hon. Martin Burrell, has acted wisely. The fruit industry in Canada is developing with such rapidity that new and important problems are constantly coming to the front while old ones, which have never been fully settled, insist on receiving further attention. Those who attended the last Dominion Conference, as well as the one held previous to it, realize that the delegates present had too much business to deal with in the time at their disposal. Much of their work had to be hurried, and some neglected altogether. It is well, therefore, that these conferences shall be held with sufficient frequency to ensure the important subjects dealt with receiving the attention their importance deserves.

As the ratio of urban to rural population in Canada increases the demand for the vegetables at all seasons of the year will increase in proportion. Thus we may expect to see a marked increase within the next few years, as we have within the past few years, in the number of greenhouses erected for the production of vegetables. As the number of wealthy people in our

large centres increases we may also expect to see an increasing number of conservatories erected in connection with private residences for the production of flowers. The increasing interest taken in horticultural exhibitions, as well as the greater number of these exhibitions that are now held, is an indication that horticulture in Canada is rapidly assuming a position of greatly increased importance.

SOCIETY NOTES

Western Notes

The Winnipeg Horticultural Society has definitely decided to hold another provincial Horticultural Exhibition this year. It will be conducted to some extent along the same lines as the Ontario Horticultural Exhibition inasmuch as an effort will be made to have the board comprise as many related organizations as possible. The date has not yet been set, but it will likely be about the beginning of September. The Souris Society will also hold an exhibition in September. What is called the Three Towns Horticultural Show will be held on August 21 at Crystal City. The three horticultural societies in Killarney, Crystal City and Pilot Mound unite in holding the show. Mr. R. Jamieson, of Crystal City, is the exhibition secretary-treasurer.

Hamilton

The Hamilton Horticultural Society held a most successful flower show on June 24th, when the ground floor of the old Library Building was transformed into a fairyland of flowers. The display of roses of all colors and varieties was particularly beautiful. Mr. J. T. Moore, of Moore Park, Toronto, had a most spectacular display. It was the most successful exhibition the society has held for years. There was a large supply of the old-fashioned flowers—Sweet William, Canterbury Bells, and others. The gold medal offered in the rose competition, open to amateurs only, was won by J. W. Harper, and the silver medal by T. H. Hayhurst. The society's prize for the best collection of decorative plants was won by J. A. Anderson. Max Stolpe had an interesting section devoted to landscape designs, plans and drawings. A green rose exhibited by Benjamin Johnson and a miniature Japanese garden, shown by Mrs. Valance, attracted much attention. Much of the credit for the success of the show was due to the efforts of the secretary, Mrs. Potts, and superintendent J. A. Anderson and Mr. A. Palmer.

Belleville

During June the Belleville Horticultural Society held a successful public meeting. The principal speakers were Rev. Geo. W. Tebbs, of Orangeville, and Mr. C. W. Nash of Toronto. Mr. Tebbs showed on a screen a number of hand-painted slides dealing with gardens, lawns, orchards, and fruit. The slides were shown from natural color photography. The coloring was magnificent. Mr. Nash spoke on the subject, "Friends of the Flower Garden." He described the habits of various denizens of the garden, including beetles, dragon flies, birds, and the common toad. By the killing of snakes, hawks and owls man has destroyed those creatures which prey upon troublesome meadow mice. Thus man suffers when he tries to upset the balance of nature to suit his own ideals as to the fitness of things.



A Floral Novelty

The illustration here shown was sent The Canadian Horticulturist by Mr. Walter T. Ross, of Picton, the secretary of the Picton Horticultural Society. It shows a couple of stems of fox glove with a Canterbury Bell on the top of each stem. They were grown in the garden of Mrs. J. M. Mallory, of Bloomfield.

PUBLISHER'S DESK

Our front cover illustration this month shows a conservatory in a private residence in Montreal. While there are not many of us who can enjoy the possession of such a conservatory as the one shown, it is gratifying to know that the number of such conservatories in Canada is increasing rapidly. The delightful opportunities of such a conservatory are limitless.

In the August issue of The Canadian Horticulturist last year we devoted special attention to topics bearing on the construction and operation of greenhouses and private conservatories. The information contained in this number was so appreciated by our readers we have again given special attention in this issue to topics bearing on the greenhouse and the production of various crops under glass. Amateur flower growers who would like to erect inexpensive greenhouses will be interested especially in the illustration of the inexpensive greenhouse of Mr. R. B. Whyte, a full description of which was published in our August issue of last year.

Our September issue will be our Annual Fall Packing and Exhibition Number. It will be particularly strong both in illustrations and subject material. Many of Canada's leading authorities on the production and handling of fruit will contribute. Lack of space prevents our giving a more complete description of this issue, beyond saying that it will be a larger issue than usual and one of the best numbers of the year.

Success of Cooperative Effort in Nova Scotia

THE reports presented at the second annual meeting of the United Fruit Companies of Nova Scotia L.d., held in Berwick, N.S., June 30 and July 1, showed that the principles of cooperation have become firmly established in Nova Scotia. In spite of adverse conditions the year was one during which great progress was made by the company and a large volume of business transacted.

Some idea of the business done may be gained from the following extracts taken from the annual report of the Board of Management, composed of Messrs. John Donaldson, president; A. E. MacMahon, F. W. Bishop, F. H. Johnson, B. W. White, S. B. Chute, general manager, and A. E. Adams, secretary.

The year through which we have passed has presented problems of a most extraordinary and unusual character, and your Board feel much gratified that, even under most trying and adverse conditions, they are able to present a report which records success in all its undertakings and a justification of the various policies which have been pursued.

The previous year had, as you are aware, been a year of low prices, and the season under review opened with indications of a short crop all around.

Speculators, aware of these facts, visited cooperators and offered prices that in comparison appeared large indeed.

These prices would not have been offered but for the cooperative movement, and we are glad to report that practically all of our members remained loyal to their fellows and turned down all offers made, thus successfully defeating the efforts of self-interested speculators to break up the cooperative movement.

Not only did these cooperators demonstrate thereby their loyalty to their fellows and to their cause but they also showed common sense in recognizing that speculators were buying for profit and that their central association had exactly the same means of earning that profit as the speculator, the only difference being that in one case the growers marketing through their own business would own and retain the profit for themselves, while in the other case all the profits would go into the pockets of the speculator.

The test that these circumstances made possible has shown what sterling qualities are possessed by the majority of our membership, and should serve as a lesson that it is futile to throw away money in bait to cooperators now that the great superiority of the cooperative method is so thoroughly understood.

During the year six Companies have taken stock in the Company, making a total of thirty-eight Companies holding shares in the Central Association and necessitating an increase of authorized capital.

During the season your Central has handled 274,000 barrels of apples and 38,700 barrels of potatoes; a grand total of 312,700 barrels.

Out of this quantity, however, there were only 79,531 barrels No. 1, 36,459 barrels No. 2, the balance, 158,000, being No. 3.

There were also in this quantity no fewer than 170 varieties, comprising a very large percentage of apples difficult to market on account of the fact that they are unknown.

Yet, in spite of that overwhelming proportion of No. 3 and all those odd varieties, your Central has been able to make a return which works out as a mean average (including absolutely everything) at \$2.57 per barrel, ones, twos and threes.

While we are prepared to admit that a general shortage of the apple crop has in a measure been the reason for such high prices, yet the system under which we have marketed the apples entrusted to our care has been principally instrumental in enabling us to make such large returns for such a percentage of the entire crop as we handled.

EXPENSE OF OPERATION.

A meeting of your directors was held on September 27th, and an estimate for the ensuing year was submitted. According to this estimate, which was made before the real business of the year started, the expenses would work out at \$13,300 for apples and potatoes, and \$2500 for supplies, a total of \$15,800.

In actual fact the expenses for the year only amounted to \$12,300 for apple and potato accounts, and \$5452.48 for supplies, or a total of \$14,653.48, about \$1,100 less than our estimate.

That portion of expense applicable to apples and potatoes works out at four cents per barrel.

We consider, and it is also the opinion of the various Government Departments of both Canada and the United States who have investigated our system, that our expenses are absurdly low, considering the amount of work accomplished and the great saving effected in the cost of handling, the enhanced prices realized for the Valley's crop and the reduced prices now paid for nearly all necessities of the farm.

We have, however, investigated the expenses of various other organizations and we find that our expenses are ridiculously small in comparison.

For instance, we find, according to the Bulletin of Economic and Social Intelligence, that the Californian Fruit Growers' Exchange show an expense of 7.23 cents per box. The secretary of this company claims that this is the lowest marketing cost for any agricultural product in the United States.

The North Pacific Fruit Distributors write us that the cost of their central is fifteen cents a barrel, while the sub-central's expenses amounted to thirty cents a barrel. They state that salaries vary all the way from \$1200 for a manager of a small local, to \$10,000 for their central manager. They further state that it is the man who can successfully manage the business they want; if successful he can secure about any salary. We feel, therefore, we need make no apology for the expense of only four cents a barrel, especially in view of the fact that another 200,000 barrels could have been handled with practically no additional expense.

During the season your Central loaded apples and potatoes on to no less than 118 boats. One steamer and three schooners were chartered to carry potatoes to Cuba.

With reference to the pack of this year we are able to report a vast improvement in the direction of uniformity. This is borne out by the daily report of our local inspector and also by the detailed and tabulated report of your European representative, who has met each boat and examined all packs. It is also borne out by the trade on the English market, who report a distinctly more uniform pack than at any time previously.

Reviewing the whole year we consider that to have maintained the reputation of the cooperative pack on a year when our apples were so atrociously scabby and spotted has been quite an achievement and re-

flects the utmost credit on all concerned.

We were gratified to note that, generally speaking, fruit growers have realized the absolute necessity of spraying and that this spring spraying has been carried on in a manner never before approached in the Valley.

As an indication of the increased attention that has been given to this vitally important matter, we would state that your office handled three times the quantity of spraying material this year compared with last.

We wish to give some explanation in connection with our method of handling the large spotted apples.

During the first few weeks of the season we were permitted to pack such fruit as numbers twos but later in deference to the requirements of the Fruit Marks Act this pack was discontinued.

Your Board of Management did not feel that they would be protecting the interests of the growers by allowing such spotted fruit as represented by these apples to be simply marked No. 3. They therefore instituted a special pack known as Cooperative No. 3. On the face of the end of the barrel was attached a label reading as follows:

"IMPORTANT."

The apples in this barrel are guaranteed to be number one in size, but have the defect of being either off-color or spotted. The Dominion Fruit Marks Act forbid this class of apple being marked number one."

The idea of this label originated in the mind of Mr. F. M. Chute, of Waterville, to whom we accord the credit of an idea that has put considerable money into the pockets of the Cooperative Fruit Growers of the Valley.

British Trade Prospects

Writing to the Department of Trade and Commerce from Birmingham, Eng., Canadian Trade Commissioner J. E. Ray reports as follows:

Canadian fruit is always saleable in this district, and direct shipments are becoming more frequent every year. Complaints re quality and packing were frequent ten years ago, but each season recently has found buyers and sellers satisfied with their transactions. Apples, pears, peaches, and plums are in demand, the most popular variety of apple in Birmingham being the Golden Russet. Imports of Canadian apples into Great Britain were £838,283 in 1908 and £847,583 in 1912, while imports of pears have declined from £13,541 to £7,996 during the same period.

CANNED FRUIT AND VEGETABLES.

Although Canadian canned fruits are on sale here, observation shows that the opportunities for extension of sales are practically unlimited. All the retail stores carry heavy stocks of canned fruits and vegetables from the United States, and several packers in that country conduct extensive advertising campaigns throughout the British Isles. The quality of Canadian fruits is highly appreciated in Birmingham, but very few buyers appear to differentiate between the United States and Canadian products, both of them being invariably referred to as "American." Canned and bottled peas command good prices and the trade is sufficiently large and regular to repay Canadian packers. Investigation does not reveal the existence in this district of Canadian peas thus prepared.

LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others. The time to prepare the ground is now, the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Don't fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address **C. M. FORBES**
Sec. Lanark Ginseng Garden Co.
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BULBS

Now is your chance to get your Fall Bulbs **At ROCK BOTTOM PRICES**

We represent in Canada one of the largest Wholesale Bulb and Plant Growers of Holland and we are going to sell at retail better Bulbs at less than you have paid before for inferior kinds.

Send us your List and we will quote you, as we have no Retail Catalog and you do not help pay for one.

NO ORDER TOO LARGE - NO ORDER TOO SMALL
Write To-day - **NOIV**
THE GARDEN & ORCHARD SUPPLY CO.
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Dominion Fruit Crop Conditions

The report of the Dominion Fruit Division on crop conditions under date of July 13th, stated that the June or July "drop" now being over, reports generally are not so favorable as those sent in a month ago. There is, however, a tendency on the part of growers to underestimate their crop at this time, just as they are inclined to overestimate it at the time of blossoming. In eastern Ontario the crop will equal that of last year, and in western Ontario will approach that of 1912. Nova Scotia, while suffering seriously from frost in some sections, will produce the best crop since 1911, if nothing further interferes. The crop of British Columbia will surpass that of 1913. It is therefore clear that the Canadian apple crop, from present indications, will be above average, and with proper attention given to distribution and marketing, one that will return to the growers satisfactory figures.

The apple crop in southern and western Ontario and in the Niagara district will, from present indications be an excellent one. Greenings and Baldwins have been reported short in Wentworth county, but taking the western portions of the province as a whole, the yield promises to be well above the average and of good quality.

Conditions in the inland counties of Ontario correspond very closely to those in southern and western Ontario. In both districts the drop has been exceedingly heavy. Huron county reports fall varieties particularly good, with winter sorts lighter. Spies being about equal to the 1913 crop. Brant county promises to equal the 1912 yield, and prospects are almost equally favorable in Middlesex.

In the main apple-producing counties of

Douglas Gardens

OAKVILLE, ONT.

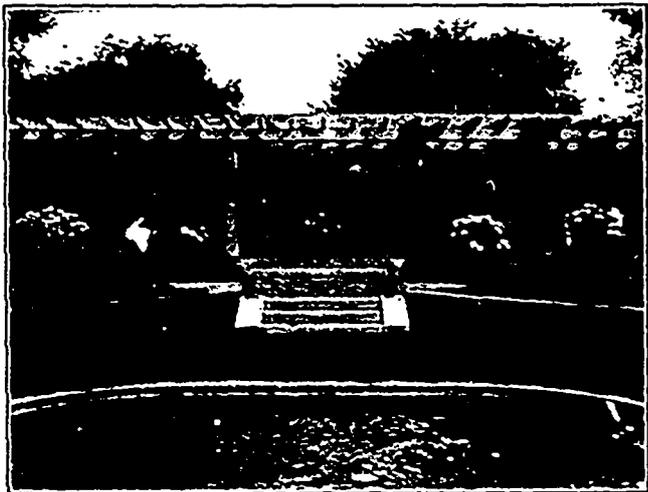
The Rhizomatous Irises, including Pamila, Interregua and Germanica, should be planted not later than August for best results. We strongly recommend Iris Koenig, 50c each; Rhein Nixe, 50c each, Wyomissing, \$1 each, Junata, 75c each, Mandraliscae, 25c each, Mme. Chereau, 12c each. We have five fine sorts of Pamila Hybrids, and five of the best of the Interreguas.

Nearly all the varieties of Peonies that we offer this year are one year plants. The other varieties will be in strong divisions. These should be planted in the latter half of September and orders should be given now.

We have a fine lot of "Miss Lingard" Phlox, Delphiniums, Aquilegias, Shasta Daisies, and other Herbaceous Perennials which are described in our fall planting list now ready for distribution. This list will be sent to all on our mailing list and to others who send their names and addresses.

EARLY ORDERS ARE SOLICITED.
Cash with orders, please.

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Ontario, that is, those along the north shore of Lake Ontario, the failure or success of the crop seems to have depended to a very great extent upon the attention given to the growers to spraying. In spite of the very heavy drop, the general opinion appears to be that a crop about equal to that of last year will be produced. Orchards that were neglected will be almost entirely worthless. In Prince Edward county reports are for a crop below average, especially of Kings. Kings, Baldwins, and Spies will run about seventy per cent throughout the district. Some of the most tender trees, particularly Ben Davis, showing the results of the severe winter which so greatly affected pears, plums, and cherries.

The yield in eastern Ontario and Quebec will be a heavy one, if no further "drop" takes place. It is very gratifying to learn that in Dundas county, the best of the McIntosh, there is promise of an abundant crop of that variety. Fameuses also look well. The June drop was very heavy, but where the tent caterpillars were kept under control, there is still sufficient fruit for an abundant crop.

EASTERN CONDITIONS.

In the province of New Brunswick serious injury was done to early varieties by frost. A less serious cold spell was also experienced during the latter part of June. Prospects generally are very promising, particularly for the fall and winter sorts.

The early June frost is generally considered to have reduced the apple crop in the Annapolis Valley by somewhat over a million barrels. The blossoms set for record crop which would probably have reached almost the two million barrel mark. Reports now are that about one million to a hundred thousand barrels will be harvested.

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BECAUSE—

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The tuition fee for Ontario students for two years is

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A portion of the cost during the first year is defrayed by work on the farm and the various departments.

Students wishing to take the full Four Years' Course for the degree of B.S.A. conferred by the University of Toronto, do not require matriculation standing. Students are accepted for this Course if their standing on second year examinations warrants it.

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Prices for guaranteed Queens: 1 queen \$1.00; 6 queens, \$5.00; 12 queens, \$9.00; 25 queens, \$18.00; 50 queens, \$35.00; 100 queens, \$65.00.

Queens raised from the same stock, but not guaranteed, \$7.00 per dozen. You may order 25, 50, or 100, and have them sent in half-dozen or dozen lots, or in different batches as you wish. Queens furnished till Nov. 15th
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All three for one year only \$2.00.
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Select untested—\$1.00 each.

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by introducing some of Leininger's strain of Italians. Have been a breeder for 25 years. No better bees in America. Untested one \$1.00, six \$5.00. Tested one \$1.25, six \$6.00. Breeders, \$10.00 each. During August and September we will sell tested Queens, one year old, at 80c each. Will guarantee evergreen.

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Untested Queens, \$1 each, \$10 doz., or 75c. each in lots of 25 or more. Warranted purely mated Queens, \$1 each, \$12 doz. Tested Queens, \$1.50 each. Breeding Queens, \$5 each.

I can fill your order for one queen or by the hundred and guarantee you a square deal.

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QUEENS AND BEES

We can supply choice leather colored Italian Queens promptly at the following prices:

	1	6	12
Untested	\$1.00	\$5.50	\$10.50
Tested	1.50	8.50	16.00
Select tested	2.00	11.25	22.50

For prices on larger quantities please write us.

We offer bees in pound packages from the same stock as above as follows after July 1st:

1 lb. \$1.50 2 lb. \$2.50 3 lb. \$3.50

These prices do not include a queen. Add price of queen you may select to price of package when ordering. Safe delivery guaranteed. Full directions for handling sent with each shipment.

A full stock of bee-keepers' supplies always on hand for prompt shipment. Catalogue on request.

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Tested Strait	75c. each
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Bees per pound	\$1.00
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Fourth Dominion Conference

The Dominion Minister of Agriculture has called a conference composed of delegates from the various provincial fruit growers' associations to meet in Grimsby, Ont., September 2nd, 3rd, and 4th, to discuss subjects of vital interest to the fruit growing industry of Canada. It is expected that certain standards of packages grades of fruit, and methods of transportation will be recommended for adoption for the whole country. The object of the conference is largely that the minister may come in direct contact with the representatives of the fruit growers and shippers, and discuss with them methods whereby the fruit growing industry may be developed in the best possible way.

Delegates have been appointed from the different provinces as follows:

Prince Edward Island—Murdoch McKinnon, Charlottetown, A. E. Dewar, Charlottetown, Theodore Ross, Charlottetown.

Nova Scotia—S. B. Chute, Berwick, S. C. Parker, Berwick, F. W. Bishop, Paradise, Prof. P. J. Shaw, Truro, W. W. Pineo, Waterville, A. E. McMahon, Aylesford, Manning Ells, Port Williams, W. H. Brittain, Truro.

New Brunswick—C. N. Vroom, St. Stephen, A. G. Turney, Fredericton, S. B. Hathaway, Fredericton, W. B. Gilman, Fredericton.

Quebec—Robt. Brodie, Westmount, N. E. Mack, Chateauguay, T. G. Bunting, Macdonald College, Dr. F. C. Harrison, Macdonald College, Father Leopold, La Trappe, H. A. Dickson, Rectory Hill, R. A. Rousseau, Acton Vale, Representative of Quebec Department of Agriculture (not yet named).

Ontario—F. S. Wallbridge, Belleville, C. W. Gurney, Paris, A. W. Peart, Burlington, Robert Thompson, St. Catharines, Walter Dempsey, Trenton, P. W. Hodgetts, Toronto, John Brown, Brighton, Elmer Lick, Oshawa, A. E. Kimmins, Winona, Dr. A. J. Grant, Thedford, A. Onslow, Niagara-on-the-Lake, R. W. Grierson, Oshawa, J. W. Crow, Guelph, M. Snetsinger, Thornbury.

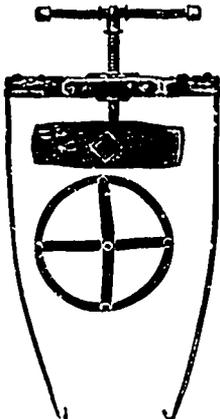
Manitoba—Professor. G. W. Broderick, Winnipeg.

British Columbia—W. C. Ricardo, Vernon, W. S. Foggo, Vernon, Jas. Rooke, Grand Forks, R. M. Winslow, Victoria, John E. Reekie, Kelowna, J. C. Metcalfe, Hammond, Thos. Abriel, Nakusp, Representative of Okanagan United Growers (not yet named.)

Prolonging the Season

John Donaldson, president United Fruit Companies of Nova Scotia, says: I have long considered the prolongation of season of some of our choice varieties, e.g. the season of the Gravenstein, Nov. Scotia's great apple should be extended to embrace the Christmas home markets, this is to have the season extended from first September to Christmas. What quantity of that delicious apple could be consumed if we had that extension of time! What prices we would obtain in the far western markets, if by some system of pre-cooling both apples and cars, we could see the apples arrive there during even a week's month in the pink of condition.

Again, the season of the Ribston apple must be extended in the foreign markets, from October to January, if we are to make those varieties the most profitable. Spies and some other varieties should never be placed on our own markets before April, and the season should then extend to July.



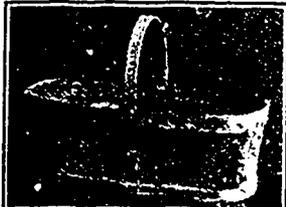
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British Columbia

Several appointments of interest have recently been made by the Provincial Government in the horticultural branch of the Department of Agriculture.

F. L. Goodman, who has just completed his third year at the Ontario Agricultural College, will be in temporary charge of work which will cover investigations in the Cold Storage of Apples—the shipments of rhubarb, pre-cooling, careful handling and transportation of strawberries and raspberries; the operation of the pre-cooling plant on tender fruits at Summerland and handling experiments with the various orchard fruits; investigations of the suitability of refrigerator cars, etc.

T. C. Sanderson, an Ontario Agricultural College under-graduate, who has just completed his third year's work, has been appointed vegetable expert and will be at work for the next five months. He will be in charge of experimental investigation work and general instruction work in the vegetable industry of the province, especially in the Lower Mainland, for the present year.

W. W. Hayes, who graduated in horticulture from the Ontario Agricultural College, Guelph, in June, has been appointed as assistant horticulturist.

L. F. Burrows has completed his third year's work in horticulture at the Ontario Agricultural College, Guelph, and has been appointed temporary assistant to P. E. French, assistant horticulturist at Salmon Arm.

E. C. Hunt, a graduate in agriculture of the W.S.C., Pullman, Wash., took up his duties on the 15th February as assistant to M. S. Middleton, in charge of Pruning Schools in West Kootenay, and on the 1st May took charge of the blight control work at Grand Forks.

H. M. Scott has taken third year's work at the Ontario Agricultural College, Guelph. He will be temporary assistant to M. S. Middleton, and have headquarters at Nelson.

M. H. Howitt, graduate from the Ontario Agricultural College, Guelph, 1913, who has been in the Fort George district, has been appointed temporary assistant to A. H. Tomlinson, assistant horticulturist, Prince Rupert.

M. H. Ruhmann, who has been on blight control work at Grand Forks for several months, will go to Vernon as assistant to the pathologist and entomologist, which position has been filled by the appointment of J. W. Eastham, lately assistant to H. T. Gusow, Dominion Botanist.

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

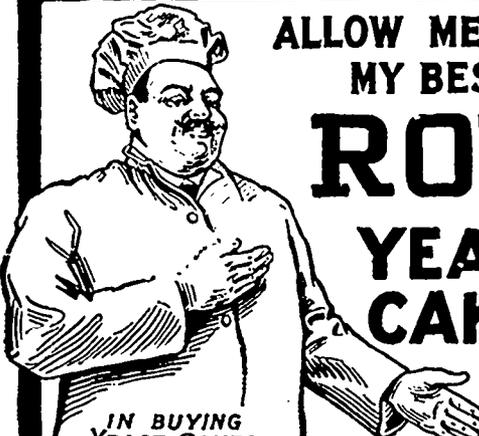
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Late Fruit Crop Reports

The following telegraphic reports dealing with fruit crop conditions were received by the Dominion Fruit Commissioner, and published under date of July 15th:

New Brunswick—(Province has splendid young orchards, but not yet producing sufficient fruit for home consumption). Apple crop promises seventy per cent. crop only, a few orchards injured by frost. Scab showing very little. Summer and fall varieties heavier than winters. Size and quality good. Raspberries promising well.

Nova Scotia—Weather conditions favorable. Very little spot showing. General estimate of apple crop too large. The crop will be, at most, one million barrels. Spy, King, Russet, Wagener, Bellefleur, Baldwin, and Ribston leading. Nonpareil, Blenheim, Fallwater, Stark, Gravenstein, and Ben Davis light. Crop last year 650,000 barrels, 1912 1,000,000 barrels, and in 1911 a record crop of 1,750,000 barrels.

Quebec—Most sections looking well. Fameuse and McIntosh dropped heavily, but sufficient left on trees for good crop. Cherries heavy crop. Bush fruits good.

ONTARIO CONDITIONS.

Lambton—Apple crop forty per cent. above 1913, and fifteen per cent. below 1912. Weather has been hot and dry for six weeks, with sufficient drop to prevent thinning. Favorable showers this week and well sprayed orchards will have a good commercial crop of clean fruit. Plums and pears fair to good, but much lighter than last year. Grapes promise a good crop.

Norfolk—Crop one-third heavier than 1913, and one-third lighter than 1912. Fungus prevalent, but quality is good in orchards that have been well sprayed.

Huron—Crop about twenty-five per cent. heavier than 1913, in spite of heavy drop. Quality will be good. Plums light.

Counties North of Lake Ontario—Prospects not so good as expected. Drop has been heavy. Crop will run about same as last year, or about twenty-five per cent. less than 1912. Fruit well distributed and all trees bearing. Weather conditions fair.

BRITISH COLUMBIA.

Okanagan Valley—Long, dry spell was broken by rain. Quality of apple crop excellent. Total crop will approximate 1,000 cars, which is equal to the crop of 1912 and twenty-five per cent. greater than 1913, with Wealthy, Jonathan, Wagener, and McIntosh heaviest. Pears twenty per cent. increase over 1913. Tomato acreage increased twenty-five per cent. Peaches a fair crop totalling 50,000 twenty-pound boxes.

United States—Western New York crop is slightly less than 1912, and double that of 1913. States of Washington, Oregon, Montana and Idaho average eighty-one per cent., as compared with eighty-four per cent. in 1913, and ninety-one per cent. in 1912.

London, England—Latter half of June very dry, but rain general during early part of July. Present conditions favorable. Plums about average. Kente and neighboring counties show fair apple crop. Midland counties very uneven.

Last year the United Fruit Companies of Nova Scotia Ltd. bought for its members: 575,000 pulp heads, 35,000 lbs. nails, 67,800 lbs. grass and clover seed, 22,745 lbs. seeds various, 48,300 vetches, 4,500 bus. seed oats, 2,060 bbls. flour, 19,649 bags of feed, 6,044 tons fertilizers 104,000 lbs. arsenate of lead, 8,900 rods wire fence, 1,800 bbls. lime sulphur, 2,200 lbs. Black Leaf 40. These supplies cost in round figures \$183,000. Fire insurance risks for \$450,000 were handled.

Make Big Profits With This Canning Machine at Home!



Here is the ideal practical canning apparatus for home canning surplus Fruit and Vegetables. It is simple, easy to operate and inexpensive. Enables you to get top prices for products, save early ripenings and wind-falls, and protects you against the price-lowering effects of an overloaded market. The

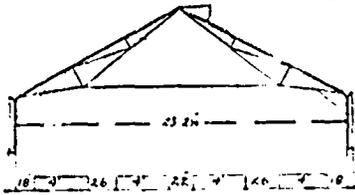
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All Entries close Aug. 15th. For Prize Lists and Information write
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September 11th to 19th, 1914
THE GREAT
Fruit and Flower Exhibition
All Fruit to be Judged by Standard. Approved by Ontario Fruit Growers' Association.
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Special Railway Rates for Exhibitors and Visitors.
Prize Lists and all information from the Secretary, London, Ont.
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Speaking of the coming Dominion Fruit Conference, Mr. Johnson, Dominion Fruit Commissioner, stated recently that four great questions of interest to apple growers would be considered: First, Cooperation; second, Transportation; Third, Inspection at Point of Shipment; fourth, Marketing. He said that Ontario had asked for inspectors who would also be instructors, men who would go into the warehouses and instruct the foreman and managers rather than men who would open packages and inspect at the terminal points. He realized the markets was the all important question. If markets could not be obtained, and held and enlarged, what would be the use of raising apples?

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True Canadian Nursery Stock for Fall Planting. 1,000 Stratified Seeds \$3.00. 1,000 one year old roots \$20.00. 1,000 two year old roots \$40.00. Write us for full particulars.

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3-band leather color. Unt., 60c. each. \$7.00 per doz. Sel. Unt., 75c. each \$9.00 per doz. Circular frog.

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Famous North Carolina bred Italian queens for sale—(red-clover three-banders), honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis select drones; bees that get the honey; free of disease. Untested, 1, 75 cts; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select, tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00

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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

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COMMANDS THE HIGHEST PRICE ON ALL MARKETS

Why not pack your fruit in boxes and enjoy more profitable returns.

Our complete organization, with every modern equipment, insures service, quality and satisfaction.

Prices submitted on boxes, made up or knocked down, including printing. State quantity.

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BOXES AND SHOOKS

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The "Daisy" Folding Apple-Sorting Table



This is another of the famous "Daisy" Apple Packer's Outfits which is being put on the market this season.

It is light yet strongly built to meet rough usage. It folds compactly and can be readily carried from place to place in the orchard. It is thoroughly tested for strength and efficiency.

The table frame is of oak and all metal parts are of first-class malleable, thus being interchangeable in case of breakage. The cover is of No. 10 canvas.

An Article Every Packer Should Have This Season

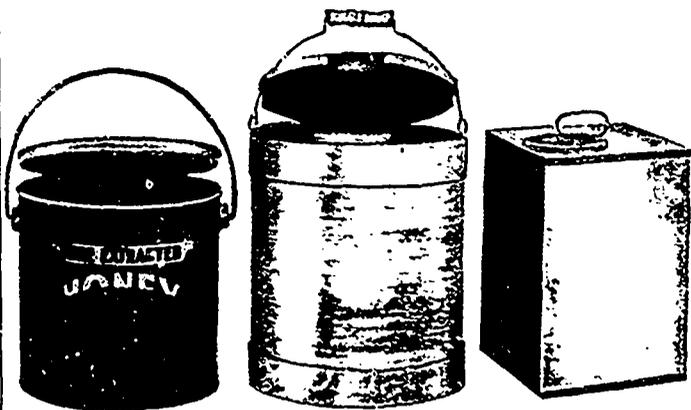
If interested write for circular and prices

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60-lb. Jacketed Can fitted with 1 1/2" Can Screw

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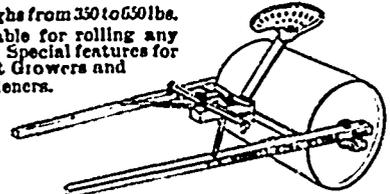
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Weights from 350 to 650 lbs.
Suitable for rolling any
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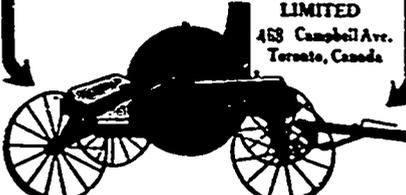
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into the highest silo or dry straw or hay
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raise 6 inches and set close to knives—solid,
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No lodging, everything cut, wheel always in
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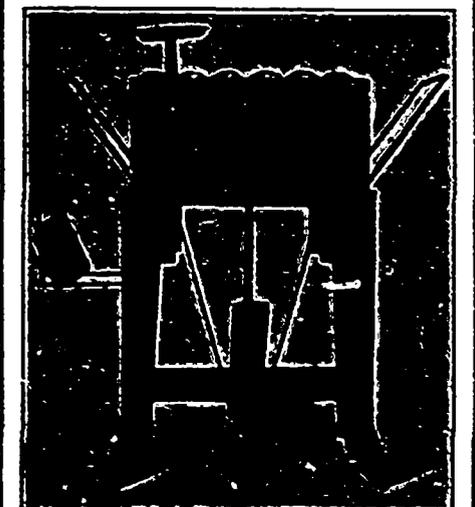
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also make large type machine for custom work.
Ask your dealer about the well known machine
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Quick and Easy

That is the way the **DAISY APPLE
BOX PRESS** works. A simple pres-
sure of the foot brings the arms up over the ends
of the box, automatically draws them down and
holds them in place while being nailed. The
fastest and only automatic press on the market.



Pat. No. 104,535

If you pack apples in boxes, this machine
will be a great convenience to you and will
save you time and money. Write for price to

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**British Buying Methods
Changed**

For years Canadian apple shippers have complained against the system of buying and selling apples by auction that has been followed in Liverpool. During the past two years this system has been changed for the better largely through the efforts of Mr. I. N. Chute, European representative in England of the United Fruit Companies of Nova Scotia Ltd. At the recent annual meeting of the company the Board of Management referred to this change as follows:

In last year's report Mr. Chute explained in detail the system under which fruit was handled in this important market; he explained the operations of the various organizations, the Importers' Association, the Brokers' Association and the Buyers' Association. Strong protests have been made for generations by apple shippers from all parts of the world, especially concerning the operations of the Buyers' Association, who had the monopoly of the auction rooms and who persistently refused to allow any but members to buy in the rooms. Such protests, however, have always been in vain because there was no organization powerful enough to withhold supplies and thus compel recognition.

We are unable to go into details as to how it has been accomplished but have the satisfaction to be able to report to you today that any firm of good financial standing and clean business record can enter the auction room and bid for your apples, so that in future instead of a few men being able under certain conditions to fix the prices they will pay before the sale commences, your apples will be sold to the highest bidders drawn from all parts of the country, many of whom have previously had to pay the old Buyers' Association as high as fifty cents a barrel profit.

The fact that this extra competition means enhanced prices and prevents market rigging is of course apparent. In addition to this, none of your apples are now tolled by the Importers' Association, saving in that direction approximately twenty cents on every barrel.

We feel that this is the most important achievement of The United Fruit Companies of N. S. Ltd., and feel sure that all cooperators will share our satisfaction in the knowledge that it is by their concerted action alone that this sweeping reform has been brought about.

Australian Fruit Exports

Complete figures in regard to the exports of Australian fresh fruit for the 1914 season are not yet available. The subjoined table shows, approximately, the totals for the season, compared with 1913. The Hobart figures establish fresh records for Tasmania, which is the principle apple-growing state:

Tasmania to United Kingdom, 1913, 465, 103 cases; 1914, 766,203 cases. Tasmania to Germany, 1913, 17,275 cases; 1914, 72,175 cases. Tasmania to South America, 1913, 115,763 cases; 1914, 37,908 cases. Total for Tasmania, 1913, 598,141 cases; 1914, 876,186 cases.

Victoria to European ports, 1913, 580,154 cases; 1914, 352,055 cases. South Australia to European ports, 1913, 37,864 cases; 1914, 100,588 cases. Approximate total to May 7, 1914, 1913, 986,159; 1914, 1,328,822.

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Sturdy. They defy Competition.

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