

Pages Missing

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The Apple Orchard During August

Grant S. Peart, Burlington, Ont.

August is a month during which little orchard work can be done to advantage by the apple grower. The time for clean cultivation, spraying and summer pruning is past, the thinning season is about over, except where trees of winter varieties are heavily laden, and neither should cover crops be sown this month where orchards are carrying fruit.

This breathing spell, however, affords the orchardist an opportunity to do one or two things that are generally, and I may say sometimes unwisely overlooked in orchard practice. Suckers that have grown from around the root crowns of the trees should be removed and branches diseased with the blight should be cut and destroyed. The handiest tools for accomplishing the former work, are a mallet, a two-inch chisel and a spade. Roots that are sources of suckers are bared with the spade and the suckers are removed close to the roots with the chisel.

In August blighted portions of the trees are readily discernible. The diseased leaves and branches have a wilted and fire-fanged appearance and in some cases the branches are devoid of leaves. Also, the bark appears shrivelled and cracked, and is darker in color than healthy stock.

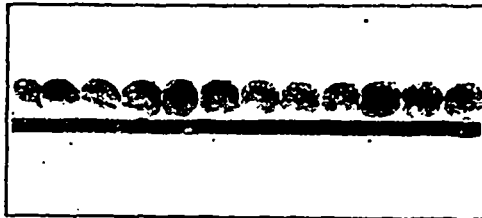
If removed now these infectious portions will not act as a source of contamination to the rest of the orchard next spring, nor during the winter pruning operations. There is always danger of carrying the disease germs in the saw, consequently it is furthermore advisable to disinfect the saw each time it cuts a diseased branch. A ten per cent. formalin solution gives satisfaction and does not corrode nor in any way injure the tools. This disinfecting material is most readily carried in a bottle. A swab is made by pushing a wire through the cork into the bottle and cotton wrapped around the wire.

HOW TO OPERATE.

In every case the incision should be made at least from six to twelve inches below the diseased parts of the branch, so as to insure the removal of it all. All these prunings should be destroyed at once by burning. If allowed to lie around the orchard, borers, especially the shot-hole borer, will work in them and consequently carry the disease to the trees

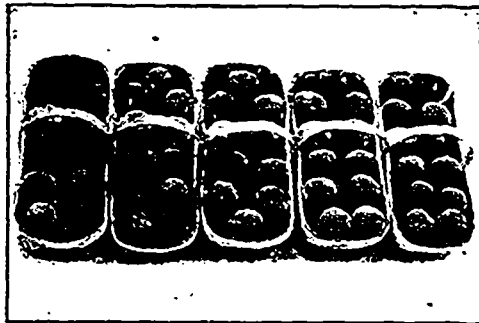
again. Thus it is very important that the prunings be burned.

When cultivation is discontinued at the beginning of August, the result is greater maturity, both in young wood and the fruit. The trees suffer less winter injury from frosts and a more highly



A Yard of Louth-Clinton Peaches

colored, better quality of fruit is obtained. Scientists develop this still further by maintaining that it checks the hibernation of plant food. This, they claim, becomes available to plants indirectly as a result of cultivation. It is soluble in water and thus washes away rapidly with rain when the trees are not in a condition to utilize it. In short, August and



Five Baskets of Louth-Clinton Peaches

fall cultivation of the orchard and summer-fallowing the land for winter wheat are considered at par as practices that impoverish a soil.

THIN WHERE NEEDED

There is still time to thin apples on trees of winter varieties, where they are carrying a heavy set of fruit. They have before them yet quite a lapse of time in which to mature so that the remaining apples, if the apples are thinned now, will have an opportunity to develop into number ones. If thinning is done, it is advisable to remove all sun-blistered fruit—the result of excessive July heat. These apples can never hope to be any-

thing better than culls or number threes, and thus will be worth but little. These sun-injured apples are located chiefly at the western quarter of the tree, and in exposed positions and can be readily recognized.

DO NOT SOW COVER CROPS

Cover crops should not be sown in orchards bearing apples during August. This statement is the result of experience among apple growers. Leguminous crops, such as clovers, vetches and so forth, if sown this late cannot get growth enough to be of any material advantage to the orchard, while it is conceded out of the question to sow cereals, including rye, wheat, and so forth, and also field peas, during August. They attain too much growth, and thus act as a veritable nuisance during the apple harvest, while moving about the orchard with the ladders and other appliances.

Louth-Clinton Peaches

The peaches shown in the accompanying illustrations were found in the No. 1 and "Fancy" grades being packed by their grower, Mr. S. H. Rittenhouse, of Jordan Harbor, in the Louth-Clinton peach area, Ontario. They show Elbertas among which few No. 2s were found. The three-foot-of-peach samples were taken from the center one of the five baskets of Louth-Clinton peaches.

Mr. Rittenhouse practises severe heading-in of young trees until they begin to bear fruit when this is not so necessary excepting after a season during which a greater portion of the strength of the tree may have gone to wood because of a light fruit crop. The proper amount of fruit for each tree to mature is controlled chiefly by judicious pruning, hand thinning being resorted to only when conditions demand it on varieties which commonly set too heavily.

LIBERAL FERTILIZATION

Mr. Rittenhouse is a firm believer in the old, reliable barnyard manure for a general feeder and uses it liberally. Hairy vetch and red-top clover are used for cover crops and to augment the supply of nitrogenous matter and commercial fertilizers when necessary to furnish a greater amount of nitrogen, phosphoric acid and potash, all of these being discovered by a close study of the requis-

ites for the crop and the evident condition of the soil to supply them.

Thorough cultivation is practised until the crop is well filled out, then it is totally discontinued except in an extremely dry season when a brush with the straight-tooth harrow may be necessary for a proper retention of moisture for finishing up the sample. This permits of the wood becoming ripe and hard as it should be to withstand the cold of winter.

Peaches are given only one spraying and this of lime-sulphur so thoroughly applied that every particle of wood left on the trees after pruning is completely coated. Mr. Rittenhouse aims at doing this during March.

Of course, one obvious condition is always understood to form a part in all the requirements for profitable peach culture—one must have peach-producing soil on which to plant in a peach-producing climate, the two being inseparable if best results are to be realized.

One may have the right soil in the right climate, plant only the very best varieties for profit, thoroughly feed, prune, thin, cultivate, etc., and yet lose his total remuneration therefor because of just one neglect or failure—that of leaving out the thorough spraying.

The Raspberry Twig Girdler

Prof. C.J.S. Bethune, O.A.C., Guelph Ont.

"I am sending you a beetle that has attacked our raspberry plants. I never saw it before this year or saw the plants injured in this way. About five or six inches from the end of the sucker are two girdles and then the end dies. So far I can discover no further damage, and in every case it is the suckers which are attacked, not the fruit-bearing canes. These beetles do not seem to work very quickly, nor are there great numbers of them, though they are difficult to find and capture unless actually at work. Can you tell me what they are, and if there is any remedy?—H. I. G. Ferguson.

The insect referred to is called the Raspberry Twig Girdler and has been a familiar insect for a long time. The beetle which is long and slender, with black wing covers and yellow thorax, is called the *Oberca bipunctata*. It bites a girdle around the twig six inches or so from the extremity, and then it turns around and bites another girdle at the distance of its own length from the first. Between the two it makes a little hole and inserts in it an egg; from this there soon hatches out a yellowish maggot, which bores down through the stem and feeds on the pith. The effect of the girdles is to cause an almost immediate wilting of the twig so that the injury is readily observed.

The only effective remedy is to cut off the affected twigs two or three inches below the lower girdle and then to burn them at once so as to prevent the maggots attaining to maturity and providing for an attack next year. Like many

other insects, it has its periods of abundance. Last year was a very favorable one for it, its attacks having been noticed in many widely scattered parts of Ontario.

Orange Rust

E.M. Straight, MacDonald College, Que.

Some sections have been badly struck with orange rust this year. Where prevalent it is the worst enemy of the blackberry and raspberry. It is widely distributed and is known in localities all over the continent.

In early spring the under sides of the leaves of blackberries and raspberries often present a red or orange color. In

Cannot Do Without It

We do not know what we would do without The Canadian Horticulturist, and it gets better with every issue.—W. P. Powe & Son, Sunnyside Gardens, Cainsville, Ont.

every case it will be found that plants so attacked are much retarded in growth. The leaves are distorted, tend to curl, and take on a languid appearance.

Another stage of the same disease is often overlooked by the casual observer. It precedes the red rust by some weeks, and appears on the upper side of the leaves, and may be found about the time the leaves unfold.

When a plant is once attacked nothing may be done to save it. The mycelium is within the tissue, and lives there from year to year during the life



Blackberry Leaf, underside covered with rust.

of the plant. Spraying is useless. Remove and burn all affected plants. They are of no value, and a great nuisance to all healthy plants.

Reasons for Pruning

To give proper form to the tree.

To remove all dead branches and limbs that cross each other.

To thin out the top, so that the tree can be readily sprayed, and the fruit easily picked.

Prune when the tree is dormant to increase wood growth and thus renovate the tree by inducing it to bud and new wood growth.

Pruning Cedars and Raspberries

Prof. W.S. Blair, Macdonald College, Quebec

When is the proper time for pruning or clipping a cedar hedge, and the proper time for cutting back red and black raspberries? Last year after the berries were all picked I took out all old wood and all new except four or five canes. The canes were cut back to about four feet. I cleaned the ground up generally. This was done about August 15th. Several of the hills later showed dead canes turned dark as if blighted. Was it caused by the pruning, or should I have left them alone until spring? Several of my black cap berries are completely gone—no life left. What is the cause?—H. W., Whitby, Ont.

My experience goes to show that it matters little when cedar hedge is pruned in so far as vigor of the hedge is concerned. The aim should be to have a good looking well trimmed hedge for the longest possible time and in order to accomplish this I have followed trimming about the middle to the last of June and again the last of July or early in August. The June pruning is made principally to shorten shoots that are making excessive growth.

The killing of the raspberry canes may have been due to sun injury, Anthracnose, or to root-gall. Where a thick growth has surrounded canes during the early season the canes are as a result susceptible to injury from exposure to direct sunlight. Bright sun for a day or so following the pruning out may cause the injury, on the other hand a few days dark weather following the pruning may result in a gradual hardening of the tissue and no injury result.

The pruning out has a tendency to lessen liability to Anthracnose, although it may have been well established by the date mentioned, and the thinning out has resulted in a more rapid drying out of the cane; the Anthracnose checking the sap flow through the plant. Whether or not Anthracnose is present would be indicated by irregular black blotches along the cane in some cases completely encircling them.

Whether or not root gall is the cause of the trouble with your black cap berries could be determined by digging up the dead plants. If it is it will be indicated by knotty growths on the root.

An Irrigated Orchard

M. Barwell, Grand Forks, B. C.

We grow largely apples, but some plums and pears. Flemish Beauty is our best pear commercially and the fruit is nearly always good size and free from any blemish. We also grow to a limited extent Bartletts, Anjou, Clairgeau, and Clapp.

In plums, we grow Burbank, peach plum, Bradshaw, Yellow Egg, and Pond's Seedling. Pond's Seedling seldom or never rots with us, and it and the peach plum are two of the most profitable.

In apples we grow McIntosh and Wealthy chiefly for fall, both of which do extremely well. For winter we have King, which turned out a fine crop of clean, highly colored and large fruit this year. Grimes Golden did well and was loaded heavily. Wagener also did well, and we have a block of six year olds, which this year averaged three or four cases to the tree of an excellent sample. In addition we grow Spy, Red Check Pippin, Jonathan, and a sprinkling of other varieties.

Amongst those varieties which are now most highly regarded in British Columbia I should place McIntosh Red, Wealthy, Gravenstein, and Cox's Orange for fall; and for winter, Jonathan, Spy, Wagener, Spitzenburg, Grimes Golden, Winesap, and Rome Beauty. It should be said, however, that the behaviour of varieties differs very much in the various districts, a mountainous country such as British Columbia lacking the uniformity of condition which obtains over large sections of other portions of the continent.

Our rainfall here is usually light, and we aim to cultivate very early in the spring and very frequently, and usually irrigate two or three times a season. This is done by the furrow system, the water being run down the furrows for twenty-four or thirty-six hours, and cultivation following as soon after as possible.

Heading Back Young Trees

R. R. Waddle, Ontario

Finding several growers with the opinion that young trees should not be headed back the first year, or not at all, which in the majority of cases, is a great mistake, I am giving you the results of an experiment which we carried out in Ontario County last season. Probably about two hundred trees were cut back at time of planting. Later in the season the unpruned portion suffered so greatly that we were compelled to prune some of them in order to save the trees, as so many died back further than they should have been cut.

This season, the foliage of the trees, which were cut back at the time of planting, is in the very best condition. The



The Orchard of J. D. Honsberger, Grand Forks, B. C., Irrigated.
Six carloads of prunes were shipped from this orchard in 1909.

trees stand erect and have made a wonderful root and body growth. The dying trees cut back late in the season are looking equal to those not cut back, which all show a sickly condition.

The remainder which were cut back this spring show the effect of having too heavy a top for the roots. They have been whipped back and forth by the wind,

have made no body growth and appear to be a year behind the portion headed back. During the winter the trees suffered very little from freezing back, all portions being equal in this respect. The loss in trees seemed to be sustained by the unpruned portion, which goes to prove trees are better cut back at time of planting.

Pick Over Trees Twice

W. H. Gibson, Newcastle, Ont.

We have always been able to get local help for picking. Thus we get an hour's start of the gang that is sent out by dealers, who have to drive out often from six to twelve miles from town. I make two pickings and with such apples as the Wealthy, go over the trees three times. Pick the top and south side first, when the strength of the tree is turned into what is left, and they color up. I am satisfied that the improved quality of the apples pays well for the extra expense in picking.

I have a rough shed in each orchard with light roof and boarded up on three sides, which is very convenient for storing barrels and machinery. The drops are all hauled into this shed, when in a few days any bruises will show; then when a wet day comes they are sorted over. The strip of grass under each row saves a great many apples that otherwise would be wasted. I use the ordinary cradle shaped basket for picking and light ladders, and pick entirely from the outside of the tree.

The early varieties are packed in the orchards, the winter varieties put in barrels just as they come from the tree,

pressed tightly and led to the storehouse in a spring wagon to prevent bruising. Our co-operative store house will hold nine thousand barrels. The apples are all inspected at the station they are shipped from. At Newcastle the inspector comes twice a week through the season. The Newcastle association has not had a bad mark against it in four years.

I prefer a small association to a large one as it is easier for the growers to get together, and there is no danger of friction. I am growing both cherries and pears extensively, and have found them both profitable. In cherries the Early Richmond and Montmorency give best results. In pears, fifty per cent. are Bartlett, the balance are Clairgeau, Anjou, Duchess and Wilmot. The Wilmot is a native seedling, medium sized, very profitable and hardy, but scarcely as fine in quality as the Bartlett. Dr. Farncomb had two trees of this variety, from which he sold five barrels at eight dollars per barrel. The pears from this district come in just after those of the Niagara peninsula, thus missing the usual glut, and realized last season from seven dollars to ten dollars a barrel.

Peach Trees From Stones

Miss A. Moyle, Richmond Hill, Ont.

In the February issue of *The Canadian Horticulturist*, there appeared a picture of a peach tree grown from a pit planted by Mrs. R. L. Brereton, of Toronto. This statement was made: "As a rule only one out of a hundred seedlings turn out worth growing."

When King Edward, as Prince of Wales, was in Toronto, my mother was visiting at her old home there. While waiting to see the prince she bought a dozen peaches. The pits were saved and taken home to the farm, which is situated on the gravel road between Paris and Brantford. My father, the late Mr. Henry Moyle of Paris, planted them in the garden. They all grew. The trees were never sprayed or pruned, but year after year they were loaded with the choicest fruit, similar to the original peaches. The branches had to be supported with props to prevent their breaking off. They were a yellow peach, firm flesh, very juicy, free stone, and the skin had a beautiful bloom.

One year my father picked eleven peaches, measuring seven by nine inches, and took them to the Toronto Exhibition. They were "highly recommended," but as there was not a full dozen they did not receive a prize. All the pits planted produced the same peach.

I remember one day after coming from school, eating six peaches and putting the stones in the ground in the back yard on the south side of the house. In the spring six trees made their appearance. Father said, "Bless the child, why did you put them there?" because they were in a very inconvenient place. I replied, because I wanted "to see them grow." They were allowed to remain; many a basket of luscious fruit was picked from them.

If I remember correctly, the trees did not bear till they were six years old. The original twelve trees

were so large and strong, we children of twelve and fourteen years of age climbed up and out on the branches to pick the peaches. They were not forbidden fruit. Many baskets of choice fruit were given to friends with the instruction "be sure to plant the stones."

IS EXPERIMENTING

So convinced am I that the finest peaches can be grown from the stones, I am experimenting at our summer home at Richmond Hill, Ont. Last September the parings and stones from several baskets of choice Crawford peaches bought in Toronto, were buried in the kitchen garden, as we had no other way of disposing of the garbage. This year a number of peach trees came up. Some are where they can remain, while others are too close and will need to be transplanted. I am an advocate of fall planting and will have them moved in November, and watch the result with interest. We are told "it is too far north here, the peaches will not ripen," but we have succeeded in doing a number of things people said could not be done, and it is worth trying.

I have successfully packed my apples in boxes for a number of years. The only way to do this profitably is to produce at least ninety per cent. number one.—Earl and Lee, President Stoney Creek Farmers' Institute.

Remarks by Fruit Growers

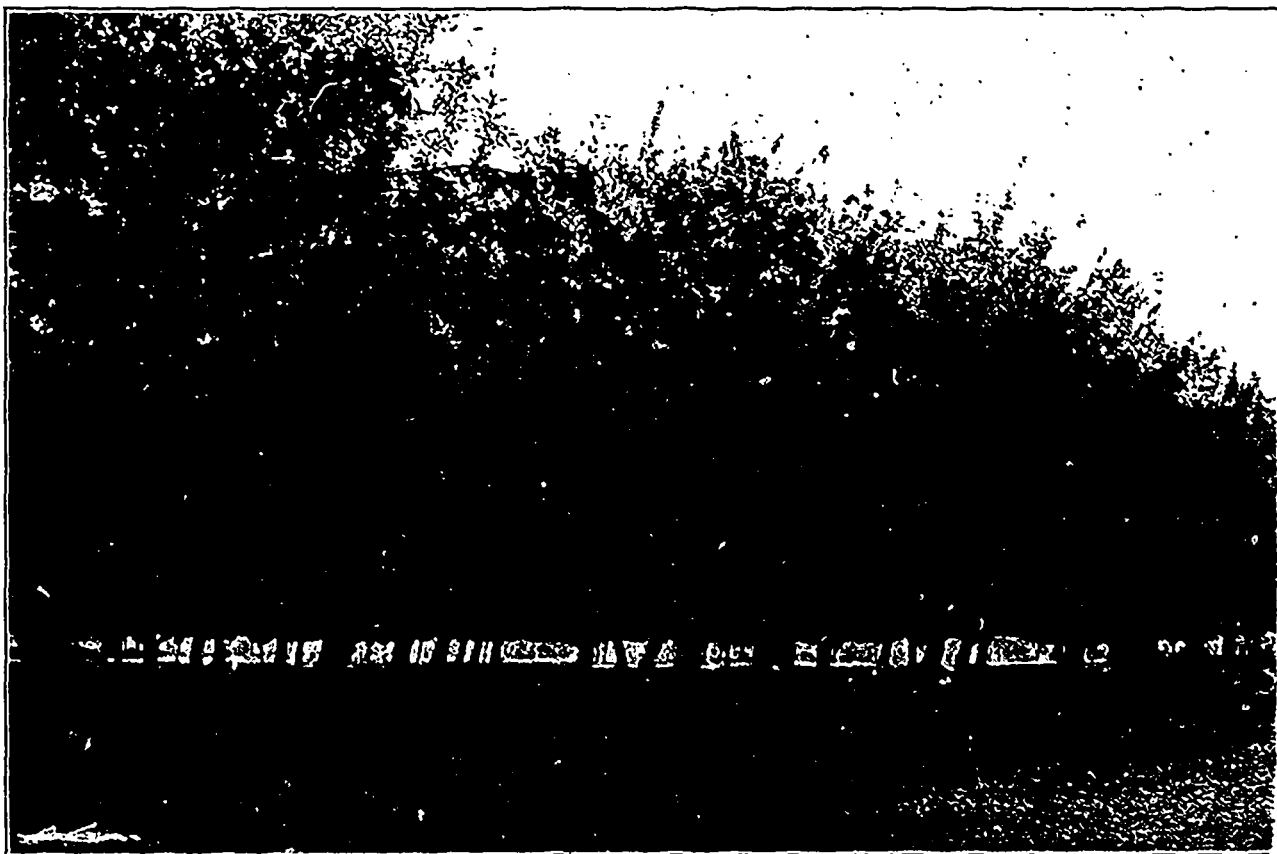
Whenever a large limb is sawed from a tree the wound should be at once covered with wax or thick paint.

Neglected fruit trees are not worth the land they occupy. They are an eye sore, and when pest infested are a positive menace to the neighborhood.

Peach trees are headed at about eighteen inches from the ground and are not allowed to get over ten feet high. In order to hold them there they prefer cutting back in the summer.—J. W. Smith & Sons, Winona.

In my opinion fruit growers will have to change their ideas of pruning in order to meet the changed conditions. The old idea of thinning out the centre of the trees to let the sunlight in has resulted in many orchards, apple especially, becoming too tall for the care that a tree now has to receive.—J. O. Duke, Ruthven, Ont.

In the spring of 1910 a blight attacked many of the apple trees in Huron County. This, with other causes, led to the lightest crop of apples known in the county for twenty years. It was noticed that from the trees that were sprayed nearly all produced some apples and seemed to get over the effects of the blight sooner than the unsprayed trees.—R. R. Sloan, Porter's Hill, Ontario.



A Well Managed Orchard that is Productive and Profitable

Many hundreds of apple orchards in Ontario that have been neglected for years have this year been pruned, sprayed and cultivated. There are thousands more which only require the same treatment to realize handsome returns for their owners. The fine orchard here shown is owned by Mr. W. V. Hopkins, Burlington, Ont. It is only one of many in that splendid fruit district.

Floral Notes For August

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

DAHLIAS must be given plenty of water at the roots during the hot August weather. The growth should also be sprayed every evening with clear water. A mulch of about an inch in depth of partly rotted barnyard manure placed on the surface of the ground, about twelve or fifteen inches all around the plant will help them. About the same quantity of lawn grass or short grass clippings spread around the plants will also benefit them, and conserve the moisture. The mulch should not be placed too close to the stem of the plant, an inch or two from it is best.

An application of liquid manure to the roots of the dahlias once a week will also benefit them at this time when the buds are swelling. Apply the liquid manure when the soil is moist, not when it is very dry or when it is very wet. When the soil is dry the plant cells and tissues are too hard and contracted to get the best results, and when the soil is wet the plants are already charged with sufficient moisture. The best time to apply liquid fertilizers is when soil conditions are of a normal nature.

The seepage from barnyard manure or from stables, diluted with an equal quantity of water, makes a good liquid fertilizer for almost all out-door plants. A pailful of fresh cow manure put into ten or twelve gallons of water in a tub, diluted with half water, is one of the best liquid fertilizers for garden plants generally. An application once a week will invigorate all growing garden plants. One ounce of nitrate of soda dissolved in two gallons of water is also a good fertilizer for all garden plants, or for window boxes. Window box plants require a little fertilizer at this time, as the soil usually becomes exhausted toward the end of the season.

Bonora is one of the best commercial fertilizers sold for pot plants or for window boxes.

GLADIOLI

Keep the seed heads of the centre or terminal spike of gladioli cut out when the flowers have become withered. If seed heads are allowed to develop it will lessen the growth of the young corm or bulb, as well as retarding or perhaps preventing altogether the lateral spikes of bloom from developing on the side of the main stem as they often do.

If the spikes of gladioli are cut when one or two flowers have opened, the balance will develop if the spike is placed in a vase of water. The water should be changed every day or two, and about half an inch of the bottom of the stem cut off when the water is changed.

Hyacinth, tulip and crocus bulbs that were lifted from the flower beds in early June or when the summer decorative

plants such as coleus, geranium, and canna, were planted, should be lifted early in August from their temporary quarters where they have been heeled in to ripen off. The bulbs should be laid in shallow boxes or spread out on the ground for a few days after digging to dry, when they can be placed away in a cool room or cellar until planting time in October. Dig the bulbs that have been heeled in now at once, and dry them.

from frost, usually until the end of September or later.

Towards the end of August or early in September, many of the early flowering varieties will require disbudding. This is done by picking off some of the smaller buds, leaving two or three of the largest and best buds only at the top of each shoot or branch. By removing or thinning out some of the buds, larger flowers are produced from the buds left, and fewer of them. If very large blooms are wanted, leave only one large, perfect bud on each stem, usually the crown or



Plants That Show the Effect of Disbudding

The plant on the left was not disbudded at all. The centre plant was partly disbudded, two or three buds being left on each shoot or branch. Only the crown bud was left on each branch of the plant on the right.

About the middle of the month is the best time to take cuttings of coleus, geranium, iresine, ageratum, pelargonium, and so forth. Set the cuttings in sand or half sand and half soil, in shallow, well-drained boxes. Under a tree or on the north side of a fence or building, is a good position in which to root cuttings in the hot weather.

Chrysanthemums that have been planted in the ground during the summer should be dug up late in August and potted into good rich soil in large, well drained pots. Pack the soil firmly around the roots. Firm potting is an important point in potting these plants. A short piece of an old broom handle pointed a little at one end, makes a good "potting stick" for this purpose.

Water the plants thoroughly at the roots at once after potting. Stand the plants in partial shade away from the hot sun for a day or two. Keep the roots moist but not too wet for a week or so. Sprinkle the top growth every day until the plants are in flower. Keep the plants out of doors as long as they are safe

topmost bud being left to flower. The Pompon or small flowering types do not require disbudding. The Pompons make good window plants as they are usually dwarf and compact growing, and very free flowering.

Save seeds of all desirable varieties of plants. Dry the seeds well before putting them away for the winter. Save seed only from the best type of flowers. Label the best blooms when the plants are in flower so as to secure best types.

If large plants of pansies are wanted for early spring flowering, about the middle of August is the best time to sow the seed. Sow the seed in a shallow, well-drained box in soil four parts rich loamy potting soil, one part leaf soil, one part sand. Transplant them into a cold frame or a nursery bed in soil with two parts more loam than before. A little coarse garden rubbish should be thrown over the plants about the first week in November, and a light sprinkle of strawy manure or leaves over the coarse rubbish.

Seed sown now should produce good plants that will flower in April or May

The Summer Care of House Plants

E. F. Collins, Toronto, Ont.

THE care of such plants as are usually found in the home, is sometimes a source of much worry to the amateur gardener or housewife, especially when the said housewife wishes to go away for one or two weeks-end excursions. It is then either a choice of letting the plants die or getting a neighbor to take care of them.

Many plants will keep moist long enough to go even a week without attention if treated in the right way. In the case of the ficus or rubber plant, aspidistras or ferns, dig a hole in some shady spot in the back garden, plunge the pot into the ground a little below the surface, pack the soil lightly around, and then thoroughly saturate the plants and surrounding soil with water. Should the water drain away too readily, place three or four inches of decayed leaves or moss over the top, and around the plant, close to the stem, and you will find that it will not need watering for a week or more. All palms can be treated in the same way. In fact, they will be greatly benefited by the outside treatment.

RE-POTTING

If any of the plants mentioned are pot-bound or full of roots, repot them into pots two sizes larger. That is, if they are in a four inch pot, place them in a six inch pot, or from a six inch into an eight inch, and so on. In this way there is no danger of over-potting. When repotting, be sure to use plenty of drainage in your pots. Place one piece of crock over the hole, then about one-half inch depth of small broken pieces or clean cinder, and then a thin layer of moss or rough pieces of leaf soil. Then your pot is ready for the plants. Be sure to pot fairly firmly by ramming down the soil with a piece of stick so as to leave no vacant space between the ball of soil.

All the begonias usually found in the house can be treated in this way except that in potting use more decayed leaves and do not make the soil quite so firm as for palms or rubber plants.

Many plants on balconies and verandahs suffer from lack of moisture by the pots being exposed to the drying winds. This can be avoided by placing the pots into larger pots, vases, jardinières or rustic stands, and packing the space between with sphagnum moss, and then keeping it thoroughly saturated with water.

GIVE SOME FERTILIZER

Plants require some stimulant during the summer, when they should be growing. If they are not re-potted during the season they ought to have some fertilizer twice a week, such as a top dressing of sheep or cow manure, and then frequent watering. Clay fertilizer dusted on the

surface and then watered is most beneficial. The amateur gardener should always remember that during the hot dry weather the tax on the strength of plants is like it is on the human system. Evaporation is so rapid through the lungs of plant life that unless plenty of moisture and food can constantly be supplied through the roots, plants become stunted, they show a poor color and growth and eventually die.

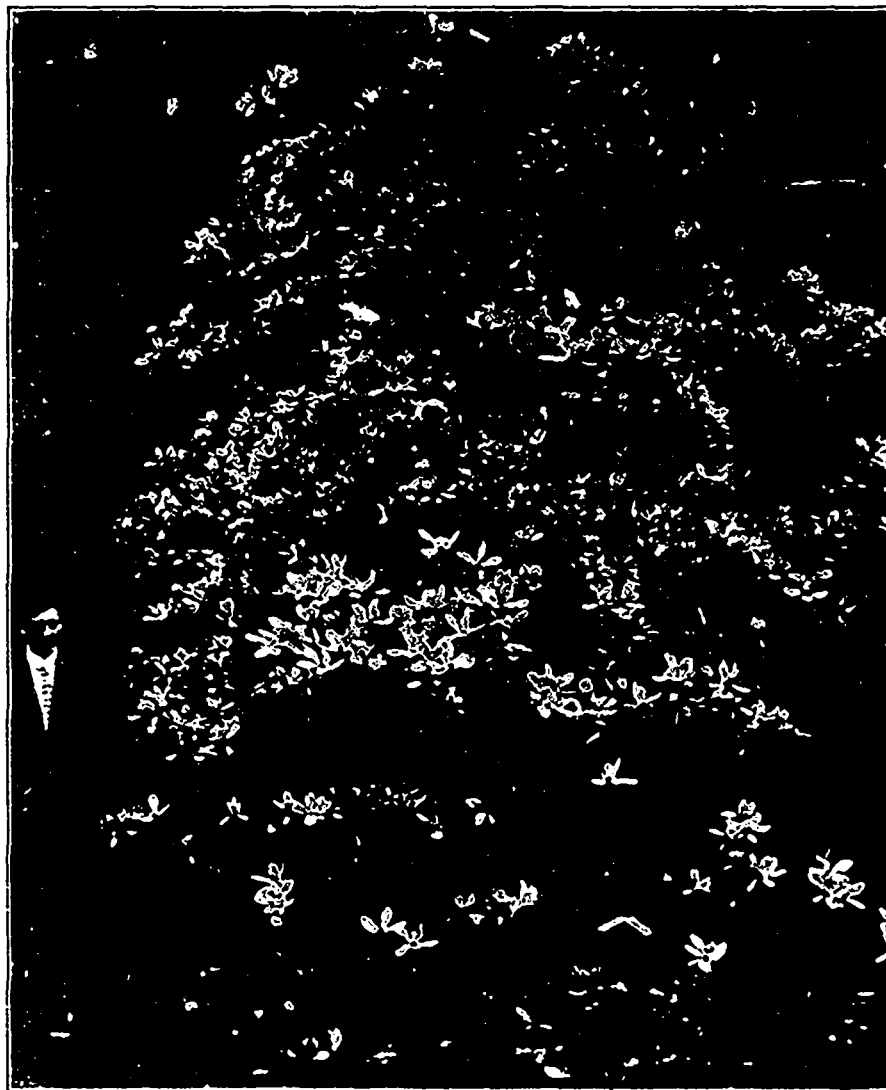
How to Destroy Them

The common little red ant, which makes tiny hills on our walks and in the grass, can be destroyed by pouring a little gasoline in each hole. Half a teacupful to a teacupful will suffice for from three to six holes. Do not be afraid to use plenty of gasoline, in order to reach

the queen or queens which lay the egg. This liquid, however, will kill grass or plants where it comes in direct contact with them.

The large mounds out of doors, each of which is occupied by hundreds of ants, can be easily treated with bisulphide of carbon. Make eight or ten holes with a cane or croquet stick, about eight inches deep, in each mound. Into each hole pour a good tablespoonful of bisulphide of carbon, closing each hole with earth, and then throw a couple of wet burlap sacks over the hill, leaving them over night. One might have to do this twice, or until the queens are killed.

While ants, when seen climbing up apple trees, or shrubbery and plants, generally do not directly injure the plants, since they are for the most part after the lice, which give up to them in response to their caresses, some honey dew, of which ants are very fond, nevertheless the black ant sometimes girdles and kills shrubs like the lilac and snowball. When ants



Magnolia Soulangiana in Bloom at St. Catharines

This beautiful tree stands in the grounds of Mr. E. A. Lancaster, M.P., St. Catharines. Some idea of its size may be obtained by comparing it with the photograph of Mr. Lancaster Jr., who stands beside it and who is six feet tall. This Magnolia was planted by Mr. G. W. Hodgetts, Vice President of the Horticultural Society, who formerly owned the property.

are found at this work, we first have recourse to strong tobacco water to see whether we can drive them away. If they still persist in eating the bark, we advise uncovering the crown and larger

roots, mixing up arsenate of lead with a little water, and applying it as thick whitewash to these parts. Arsenate of lead is a poison, which, however, applied in that way, would not injure the bush.

Everybody's Flower

By Mrs. Annie L. Jack, Chateauguy Basin, Que.

The peony has been called "Everybody's Flower," being of easy culture, and able to adapt itself to any soil and situation, while having the reputation of being immune from insect pests that destroy so many of our garden treasures. It is par excellence the flower for the amateur, and if selected with a view to lengthening the period of blossoming, will continue to give flowers from the first red "Piny Rose" of our grandmother's day, full of tonic scent, and opening in May, to the latest of the beauties that remain sometimes after Dominion Day.

Enduring neglect without repining, the plant responds to good culture and enjoys being nurtured in good loamy soil that will show an increase in the size of the flower. Some of the newer varieties are very fragrant, which is an added charm, and a peony fancier will tell you that if you inhale their perfume with closed eyes, it is easy to imagine that it is a Glorie de Dijon rose, while a pale pink beauty called "Lyde," has a more powerful, yet delicate scent, similar to pure rose attar, resembling the essence that has its home in the gardens of Persia.

The blossoms of a new variety called "Summer Day," remind one of a magnificent La Marque rose, with the same soft yellow tint in the centre that shades into white.

There is a lovely peony called "Arctusa," that is a revelation to those who only know the red, pink and white, for it has outer petals of peach color shading to delicate lilac and creamy white, and one of the latest flowerings is a delicate lavender, flesh colored, named "Lady Gwendolin Cecil." There is no place in the garden where herbaceous peonies appear to such advantage as in the shrubby border, planted in masses, the fine leafage, healthy and vigorous, being very satisfactory.

There is a beauty in this plant even in April when the red shafts come through the ground, and grow so fast that they become budded foliage before we are aware of their haste. It is very easy going, and yet dislikes interference, being satisfied with an annual mulching, and watering in a dry time, for it is a thirsty plant, in a drought, and the buds may refuse to fulfil their promise through lack of water. But if borders are dug and planted deep this is not so likely to happen, and a plantation of peonies is so adaptable that in bed or border

the ground may be filled with scarlet tulips or golden daffodils that will finish blooming early and not intrude.

The month of August or early September, is best for dividing and transplanting this perennial, after the season of flowering is past. However small the plant, so long as it has a sprout or eye, it will grow, but the smaller the plant the slower to blossom. Being impatient of removal they should be left in their glory to come to perfection, as they resent indiscriminate changes and hacking pieces from the roots.

There is no question of hardiness and for this reason it is especially suited to our climate. "P. officinalis" being a native of the Alps, and "P. albiflora" of Siberia, and from these two the present race of garden species sprung.

The new single peonies are very unlike those we know so well, but for beauty they hold their own, displaying a tuft of golden anthers set in the centre of a flower that may easily be mistaken for an immense single rose.

There is nothing more effective than an arrangement of one variety of peony in a less frequented corner of the lawn and they will thrive in such a situation if given a mulch of coarse manure in the autumn that will furnish nutriment in the spring, and winter protection.

Continuity of Bloom

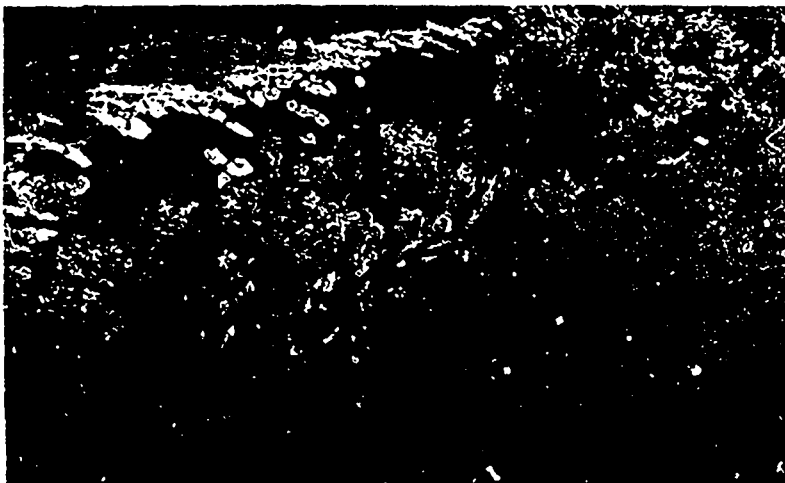
A. J. Elliott, Aylmer, Ont.

After reading the article in the July issue of The Canadian Horticulturist describing Mr. R. B. Whyte's garden at Ottawa, one phrase in it caught me, and I have taken it for the caption of these few thoughts. Continuity of bloom has caused many a florist, amateur and otherwise, many serious thoughts and arriving at the desired end has been accomplished only after many a brain twist.

This question has put more would-be gardeners out of business through disgust over the failure of their efforts, than possibly any other one thing. I have gathered many a good thought from the columns of The Canadian Horticulturist, and if I can assist through past experiences in helping other lovers of flowers, I shall be happy.

To me a perennial border is an absolute necessity for a home garden. I take the most pleasure out of it, and I grow vegetables and annuals to my heart's content.

In April my bulbs begin to appear, and right welcome they are. Chionodoxia, snowdrops, crocuses, jonquils, narcissus, hyacinths and tulips show a riot of bloom that lasts until the first of June. Then follow in quick succession sweet rocket, Sweet William, pansies, buttercup, columbine, perennial poppies, irises, peonies,



Squash Vine Growing on Fence. Garden of C. B. Hamilton, Toronto, Ont.

ismenes, foxgloves, roses and the various lilies.

This brings us up to about the first week in July. In the perennial border this is the crucial time. All I have in full bloom now are the hollyhocks, Shasta daisies, galliardias, and platycodons. Happy is the man who hath his quiver full of them, for by a judicious arrangement of these flowers distributed through his border he can counteract to a measurable extent the gloom cast over the border by the passing of the grand old lilies, both white and colored. With these four he can bridge the short space of time till the hibiscus, perennial phlox, golden glow, calopsis, the late lilies and red-hot poker arrive.

In the interstices in the border I sow or plant as thickly as desired gladiolus, phlox Drummondii, eschscholtzia, Rose of Sharon and zinnias, which will make

As long as people depend upon the cheap five cent packets of mixed flower seeds and bargain counter lots of bulbs for their supply, their flower gardens will remain extremely common.—D. W. Marden, Pilot Mound, Man.

their presence felt in the continuity of bloom.

This programme gives me flowers the season through. If any one will follow out this course they will have no reason to complain of the lack of bloom. Aside from this of course I have my annuals, but my heading refers more especially to perennials.

Florists will sometimes get disappointed in experimenting with new flowers. This year I tried the arctotis. I will not grow it again. With me it is no good. Its flowers and foliage are too much of the same color, and its length of blossom is ridiculously short. It is open when I get up and at noon it shuts up, and does not open until the next morning. We have no use for it.

Hedges

Barlow Cumberland, Port Hope

Planters of hedges and of Spy apples are akin. They are kindly people who "do unto others as they would be done by." Hedges are not for a day, nor for a year, but are a permanent beauty and adornment. They evidence love of home.

Cedar seems best adapted to our latitude. Being born of swampy ground it needs moisture. The hedge represented in the accompanying illustration is mulched every other year with stable manure, and in very dry seasons, occasionally watered at the roots.

Cedar hedges should be trimmed in



An Artistic Gate to Kitchen Garden
Cedar hedge at Dunnain, the residence of Mr. Barlow Cumberland, Port Hope, Ont.

cone form, not straight sided, but wider at bottom and tapering to the top — the natural form of a single tree, but trimmed closer. The tops must not be left flat, else the snow will lodge and injure the fronds with ice.

A privet hedge is of quicker growth, but is liable to frost and not so permanent. In its later years, just when its presence has become most accustomed, it may get ragged and may have to be pulled up.

A speedy and convenient hedge effect can be produced by posts, painted green, planted six feet apart, with strong wire fence four feet high, between. Plant Virginia Creepers at foot of each post, and at two feet centres between.

Flowers for Winter Flowering

Wm. Haat, Ont. Agricultural College, Guelph, Ont.

House and window plants, such as palms, Ficus elastica (Rubber Plant), Cordylines, or Asparagus plumosa (sometimes wrongly called Asparagus Fern), Asparagus Sprengcrii, Boston Ferns, and similar plants, should be re-potted about the end of August if the pots have become full of roots and the soil exhausted. Nearly an inch of drainage matter, such as broken flower pots, coarse gravel, coal cinders or lump charcoal, should be placed in the bottom of a six or seven inch pot.

A good potting soil for these plants can be made by mixing one part fine clean pit sand, one part leaf mould or black soil from the bush, one part dry cow manure powdered fine, and five or six parts of light loamy soil. Soil taken from loamy soil that has been allowed to rot, with one-fourth part of dry cow manure, one part sand, and one part leaf mould, would be still better for the plants. In repotting about one-third of the old soil should be removed from around the roots.

After potting, water the plants well once, then keep the soil only just moist until growth has commenced. Shade the plants for a week after repotting, and sprinkle overhead with water daily. Stand them in partial shade in hot weather. Take the plants into the house after the first week in September.



The Back Garden of T. D. Dockray, Toronto, Ont.

Bulb roots in the mixed or perennial border or where planted among shrubs for permanent occupation, do not need to be moved or transplanted until the clumps have become matted and the flowers they produce small and poor. It is best to dig, divide, and transplant these clumps early in August, before they start to root much and grow. Do not leave them until bulb planting time in October. Bulbs do not like to be disturbed after the roots have well started, hence the necessity of digging the permanent kinds up so early. The seed heads should be cut off all bulbs down to the first leaf as soon as the flowers have dropped. This applies particularly to tulips and hyacinths. Scillas and chionodoxa are often let go to seed as they self-seed and produce lots of seedling plants in that way.

Prune in summer to check the growth of the tree and throw the strength of the tree into producing fruit, thus increasing not only the yield but also the quality of the fruit.



Imantophyllum Plant (Clivia) in Summer Time

This is an easily grown plant, the leaves of which should be kept fresh and green during the winter by holding at a temperature of thirty-five or forty degrees in a cool room or cellar. The soil should be kept slightly dampened as it is a moisture loving plant.

Landscape Gardening

Linus Woolvorton, Grimsby, Ont.

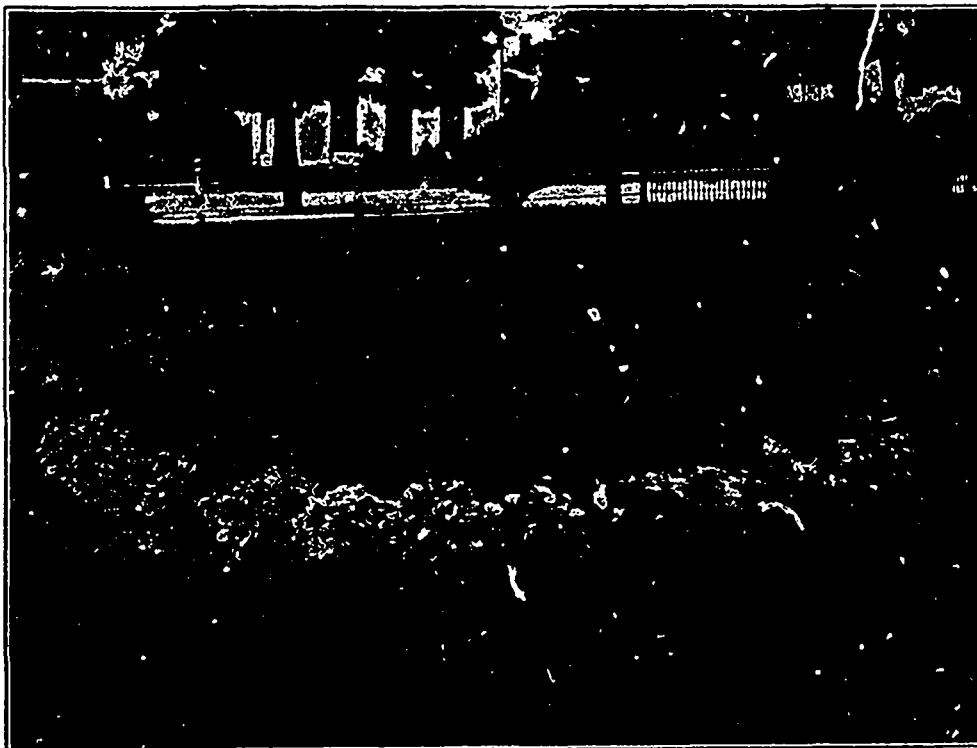
Landscape gardening is a comparatively new profession in Canada. Quite recently the teaching of the main principles of the art have been undertaken at the Ontario Agricultural College at Guelph, and two experts have arisen, one in Ontario and another in Quebec, but these have appeared almost before the public were prepared for them. The beautiful parks of Great Britain, of Germany, and of France, speak volumes in praise of the landscape gardeners who have made them famous, and the charming gardens, parks and boulevards of Boston, Massachusetts are an everlasting credit to the memory of Frederick Law Olvestead.

Prof. Sargeant of Boston, speaks very decidedly regarding the important field of study which is covered by this interesting art. "Parks and city squares," he says, "cemeteries and large country places, must be laid out and planted by one who has studied design, and the effects and needs of trees, shrubs and flowers. Small country places and even villa plots, if they are to be made the most of, must be entrusted, too, to competent hands."

THE FIRST TO CONSULT

Professor Sargeant further asserts that the landscape architect should be consulted even before the house architect for the selection of the most effective site, and for suggestions regarding the architectural design best suited to the locality. "Send for him," he says, "first of all, even though it is a villa on an acre of ground that you mean to build; ask him where your house had better stand, where is the best place for the main entrance, the piazzas, the stable, the gates, the dog-house, even; if the grounds are larger, ask him what architectural style seems to him most fitting, where on the plan the chief rooms should stand, what views their windows should command; then send for your architect, let them devise and decide together and work together until the work is done. In this way you will run a far better chance of getting a good house and a good place than if they had worked separately—the architect building his house without knowing where it might best be placed, or how best surrounded; and the landscape gardener coming in afterwards to find, perhaps, that no chance was left him to assist the house, or to do his own work well."

I commend to the readers of The Canadian Horticulturist these remarks of Prof. Sargeant; they are particularly apropos just now in Canada, when so much interest in the beautifying of towns, villages and home grounds is being taken by our local horticultural societies.



A Geranium Bed on the Grounds of the Presbyterian Church, Goderich, Ont.

Many churches might greatly improve their grounds by planting more flowers. The bed here shown is composed of scarlet geraniums in the centre bordered by silver-leaved geraniums, with an outer border of the carpet plant. This bed was planted by Mr. D. S. Stoddart, who states that he has found geraniums most successful plants for such beds owing to their well-known hardiness and their prolonged season.

Old Country Flower Beds

E. F. Collins, Toronto

Last summer the writer saw many beautiful color combinations in Hampton Court Palace Gardens, not that the plants used were costly or rare, but the effect was gained by the coloring and point of view from which the visitors could see them. There were two beds which were beautiful beyond anything like the idea that I can convey in writing. First, a square shaped bed with the ends concaved, filled with a groundwork of equal numbers of plants of sweet alyssum and dwarf blue lobelia, with dot plants about twenty inches each way of a white and pink tinted tuberous begonia, and above that a few dot plants of eulalia Japonica variegata, standing up two feet high, the effect was, as I said, truly beautiful.

The second bed, which was placed away back from the nearest point of view, and had a background of trees and shrubs and extensive buildings above that, was a combination of salvia Zurich, with tall dot plants of Gnaphalium, tied loosely to one centre stake, and the bed edged with the golden fuchsia, Sunray, rich and gorgeous in the position where it was, but if placed close under the eye or near brick walls, it would have looked crude and vulgar. Other beds were formed of blue violas, with dot plants of heliotrope, soft and pleasing to the eye, while the angles of walls and terraces were oc-

cupied with medium sized carpet beds in simple design, and the flatness relieved by the liberal use of various grasses. I consider that color arrangement and position are the two most important subjects to be considered by gardeners. Much can be done with poor material, if these two important points are considered.

"Sweet Lavender"

A. H. Ewing, Woodstock, Ont.

Everyone from the Old Country, whether horticulturally inclined or not, knows the Lavender. Even Londoners remember the "Sweet Lavender" cry of the peidlers, and have probably indulged their olfactory organs by buying a "pen'-orth." Every garden here might have a plant of this sweetest smelling herb by planting it in some situation where it would be well covered with snow during the winter and protected from the strong rays during the earliest days of spring. For the last four years the writer has grown some outdoors which have pulled through the winter with more or less success and it is safe to say that no plants in the garden have given so much pleasure or brought up so many pleasant remembrances of days gone by to the many visitors who frequent the place.

The Lavender flowers have the most refined scent in the garden and the leaves, too, have a very refreshing perfume. Altogether it is the sweetest, quietest and most grand-motherly plant that grows.

Diseases of Celery

A. McInnis, London, Ont.

There are several diseases which attack celery, but only a few may be mentioned. "Damping" is caused by a fungus which follows careless watering while the plants are very small. It attacks the stems of the seedlings at the point where they emerge from the soil, bringing about decay. This disease may be avoided by starting the plants in trays in a shallow trough containing about one inch of water, allowing the water to enter through the drainage holes in the bottom of the trays. In this way the surface of the soil will remain slightly dry, while the roots will receive plenty of moisture. It will always be necessary to water very carefully and to avoid extremes of drought and moisture, also to provide plenty of heat and ventilation. During extremely dry weather it is best to prevent too rapid evaporation by partial shading with lath screens of thin muslin.

The disease known as "blight" or "leaf spot," is caused by a fungus. It is very prevalent and destructive. It makes its appearance at any time, usually after the plants have been set in the open field. The first visible indication of the disease is in the form of grayish spots upon the leaves, changing to a brown or burned appearance in a day or two. If conditions continue suitable to the development of the disease, it will spread to all parts of the plant, the stems will droop and the entire plant assume the appearance of having been scalded. The heart of the plant will continue to throw up new leaves, but when once badly infected, it never sufficiently overcomes the disease to produce a marketable product. When this disease makes its appearance, it is already too late to attempt to eradicate it, as much of the injury has been done before the existence of blight is perceptible.

CELERY BLIGHT

Celery blight generally appears during or immediately after a period of sultry weather, when the atmosphere is filled with moisture and the nights warm. Bright sunshine and a clear atmosphere during the day, with cool nights, are favorable for the prevention and control of blight. Any check in growth will so weaken the plants that they are liable to be attacked by disease. On the other hand, if the plants can be kept in a vigorous growing condition during unfavorable periods, they will be in a much better condition to withstand disease. Owing to close selection and constant in-breeding, the self-branching varieties have become constitutionally weakened, and suffer more from disease than the hardier green sorts.

Under favorable conditions spraying has in many instances proved beneficial in checking blight. Severe loss from

blight is noted only where large quantities of celery are grown and handled together. Growers will not be greatly troubled if the plants are kept in a vigorous condition throughout the growing period.

This may be greatly helped by partly shading the plants up to the time when they are set out into the open field and by planting the crop on land that is rich enough to keep up a rapid and uninterrupted growth. The most satisfactory shade for the plant bed consists of a screen made of plastering laths. The size of an ordinary hot bed sash is the most convenient for these screens.

Growing Tomatoes

A. H. MacLennan, B. S. A.

When growing tomatoes in the greenhouse pollination should be carefully attended to, as insufficient pollination causes misshapen fruit. When the flower is mature the stamens are the longest. But as the flower opens to be pollinized, the pistil gradually elongates until it is much longer. Being longer, and the stigma larger than the style, it tends to ward off pollen. Pollen grains adhere and germinate easily. The more pollen, the more perfectly shaped fruit. Pollinization is effected by tapping flowers, jarring uprights, or using a brush. Using a spoon and stick and tapping carefully each flower is the best method. It should be done at least every other day. The pollen is most abundant on bright days. The plants and atmosphere must be dry.

DISEASES

Leaf blight or scab (*Cladosporium fulvum*) appears as rusty brown spots on the under surface of the leaf. It is caused by too damp atmosphere. Give better ventilation and allow less water on the leaves. As soon as noticed, use Bordeaux mixture, spraying thoroughly both sides of the leaf. If the disease is well established, it is best to remove the crop, then sterilize or renew the soil.

Blossom End or Black Rot is caused by insufficient moisture at roots as the plant matures. The plant has become dry and when watered the sudden filling of the cells of the fruit causes the skin to burst and allows the entrance of bacteria. Mildew appears as purple or brown spots on the leaf, which wilts where attacked.

The best remedy is to vaporize sulphur in the house.

STERILIZATION

There are two methods of sterilizing the soil—steaming and formalin. If you have sub-irrigation, you can simply connect your steam pipes by hose to the upright and force steam through the soil until it rises in a cloud. Another method is to make a pan, which is forced down over the soil and steam connections made on top. The steam is then turned

on at a pressure of twenty pounds for twenty minutes.

To use formalin, the following is the strength: Eight pounds formalin to one gallon water; one and a half quarts of mixture to fifty gallons of water. Then use one gallon to every square foot of surface and leave for ten days. Then dig over and plant.

Possibilities of a Greenhouse

I have a small greenhouse, 16 x 35 feet. It is heated by hot water. I want to run it this winter, and as I am only an amateur I would like to know what may be grown in it most profitably and what are the possibilities of such a house. I have four acres of land one and one-half miles from what is considered a good market, but as I have to hire a man to keep a horse, I find the expense greater than the returns and would appreciate a few practical suggestions? Mrs. Amateur, Ontario.

It is very difficult to reply to a question of this kind where so many factors have a bearing on the matter. In the first place, the small greenhouse mentioned would not be sufficient to occupy one person's time and give remunerative results. As a side line to some other business it might be useful. As to what could be grown in the house mentioned, a great deal would depend upon the market for the produce. That could be decided only by someone who knows the requirements of the place.

To go into the plant and cut flower business to make any kind of success it would require at least three or four houses of the capacity of the one mentioned, as there is not room enough for a collection of plants and flowers for a general florist's stock. If there is a good market for cut carnations, these could be grown. It would be necessary at this late season of the year to purchase plants from some large firm growing these flowers, such as the John Dunlop Co., Toronto, Gammage & Co., London, or other large firms, as it is too late now to start the plants for winter flowering. Field grown plants could be secured and planted about the end of August. It is too late to think of growing Chrysanthemums for the present season. Lettuce, radishes, and onions could be grown during winter. All of these, if properly handled, are good paying crops.

As to the four acres of land mentioned, it is a useful property to have in connection with greenhouses; but as you say you cannot run it to make returns, it would be better to dispose of it, although if properly run and suitable for a market garden it should work in very nicely for early vegetables from plants raised in the greenhouse in early spring. Much depends, however, upon the ability of the person running a greenhouse or garden as to the success attained.

The Skinner System of Irrigation

E. E. Adams, Leamington, Ont.

I have been using the Skinner system of irrigation on some two and a quarter acres of my ground for about a year, and have obtained very satisfactory results. Last year it gave me great satisfaction with my cabbage during a drought when rains were few. The cost of installing the system was about \$550.

I have not as yet enough water supply to obtain the best results, but with what I have I am able to carry over through a dry time a considerable quantity of truck, and thereby increase the profits. I use a gasoline engine and pump combined on one base for pumping the water through the pipes. It goes out of small nozzles with a hole in them about the size of a pin, and with forty pounds of pressure the water is broken into a fine mist which, falling on the soil does not pack it as rains do.

IT IS USED IN FLORIDA

Before installing the system, I looked over considerable ground at Tampa and Bradentown, Florida, where it was being used. I have since looked over some ground at Grand Rapids, Michigan, where lettuce was being grown. In Florida, I found twenty acres of celery in one block covered by this system, and when the water was being applied (after four o'clock in the afternoon) the sight was grand. We could see just about what was going to happen to that crop. Almost no rain falls in Florida during January and February when celery, lettuce and other truck crops are growing, and when they need large quantities of water. Some of the finest celery grown in Florida comes from Manatee County, near Bradentown.

I found in Florida that the system is installed under contract to firms who make a business of selling systems. The cost is said to be about three hundred dollars per acre, which is too much money. My plan was to purchase all my galvanized pipe at wholesale, and also all valves and other fixtures, except some patent unions and nozzles which must be procured from the manufacturers. These nozzles are very small, having a small hole, about the size of a pin, so that under the pressure the water is broken up very fine in passing out. I purchased a combined gasoline engine and pump at a cost of two hundred dollars, and galvanized pipes, three-quarter, one inch, one and one-quarter and two and a half inches, and fittings.

WATER IS PUMPED

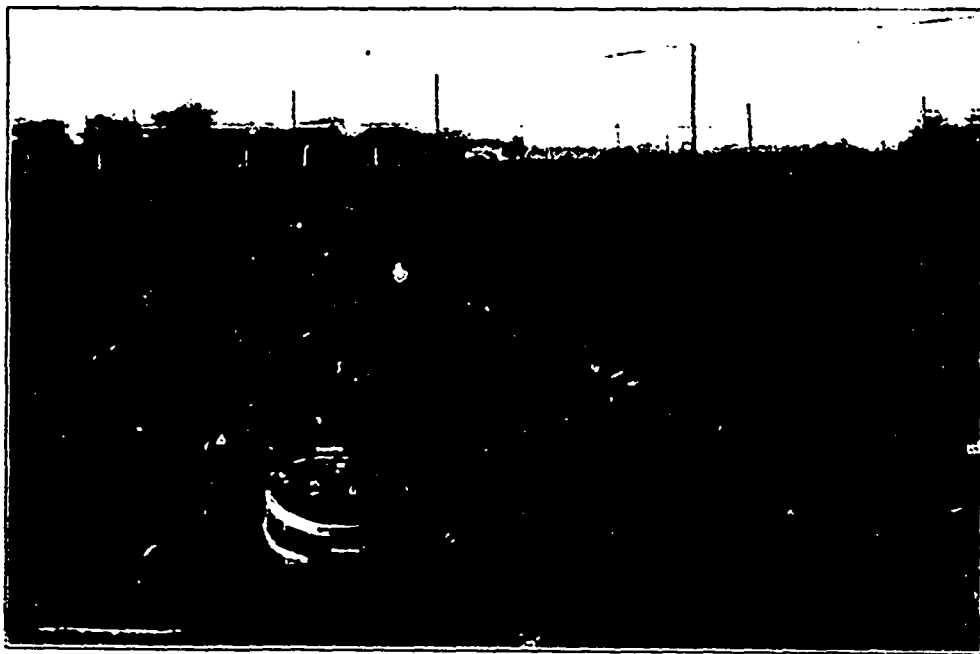
Not having a running stream or lake to draw water from, I am forced to pump from a deep well to a storage tank, containing nine thousand gallons, which cost about eighty dollars set up, made of southern cypress. Water is pumped into this tank by a windmill, but I cannot say that this is the best method, as the wind does not always blow. In order to over-

come this, one should have a small engine to attach to the pump when no wind is blowing, in order to keep the water coming into the storage tank for emergency use. The water is forced into a two and a half inch main, which runs down the centre of my field. Laterals are taken from the main and can be placed fifty-four feet apart. With the patent union previously mentioned, the lateral pipes may be turned to throw

Many berry growers this season alone lost enough on their berry crops to pay for a small system. For vegetables we must have water, and plenty of it, when cabbage are heading, when roots are making also we must have it, in order to get the best results from our labor.

Fertilizers for Potatoes

Does it pay to use fertilizers for potatoes, and if so, how much and what analysis? The above questions are frequently asked, and the answer is more



The Irrigation System of Mr. E. E. Adams of Leamington as it appears in his Pepper Field

Mr. Adams, whose system of irrigation is described in the adjoining article, grows about one and one-quarter acres of green and red peppers each season. An illustration of his crop last season is here shown. The peppers are sold mostly in Ontario, Quebec and New Brunswick. Mr. Adams finds a market for his product by sending out circulars containing quotations of the different goods he has to offer. As yet he has never grown enough to supply his trade.

water—say, east or west—twenty-seven feet, thus covering the ground completely by turning to any desired angle. The nozzles are placed in the lateral pipes about four feet apart. My system has mains running east and west, with laterals running north and south. It is used to water early cabbage, cucumbers, peppers, and this season some Gibraltar onions. The results are most marked. When we have a dry spell we turn on the water, and one watering in some instances is all that is necessary, as we have at times quite sufficient rain. For cucumbers we must have water at least twice a week, as the crop is forced, in order to have cucumbers when the price is high, which is usually three weeks in July, although this year we shipped from the ground during the last week in June.

This system should be used by every vegetable or small fruit grower. Take strawberries, for instance, this season in some parts of Essex county, as well as in the Niagara district, where owing to a dry spell in May the crop was practically ruined, it would have been a great thing to have had a rain to apply when needed.

easily given by learning what is used in the great potato growing districts.

On Long Island there is a co-operative association of farmers who buy about 6,000 tons of fertilizer, and the analysis they demand is 5-5-5; the fact that they grow very largely early potatoes accounts for the high per cent. of nitrogen in this mixture. This is also true of the truckers of the Norfolk district, who grow potatoes for the early New York market, and who use as a standard a 7-7-7—seven of nitrogen, seven of phosphoric acid, and seven of potash.

The Ohio Experiment Station in some recent fertilizer experiments obtained the largest yield from an application of 160 pounds of acid phosphate, 100 pounds muriate of potash and 80 pounds of nitrate of soda. This material would be equal to about 340 pounds of a 41-6½p-15k goods, which is about the same analysis as Mr. T. E. Martin, West Rush, used, 1,500 pounds to the acre, to produce his yield of an average of 418 bushels on 18 acres—a yield which has probably never been equalled.

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H. BRONSON COWAN, Managing Director

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January, 1910	8,925
February, 1910	8,967
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April, 1910	9,410
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August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
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Total	117,609

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" " " " 1908	8,635
" " " " 1909	8,970
" " " " 1910	9,867

Sworn detailed statements will be mailed upon application.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

INVESTIGATION REQUIRED

The suggestion that has been advanced on different occasions that arrangements might readily be made to irrigate from Lake Erie and the Welland Canal thousands of acres of the low lying lands in the Niagara District suitable for fruit growing but not now used for that purpose, has been endorsed recently by the Toronto Globe. In this connection the Globe says:

"The fruit growers of the peninsula should organize and present to the Dominion Government a well-considered proposal to 'make the new Welland Canal, soon to be built, an irrigation canal as well as one for navigation. Tens of thousands of acres within reach of the canal could be 'doubled in value by the use of irrigation 'ditches, and the fruit industry, instead of 'being constantly subject to the risk of 'failure from drought, could be placed upon 'a basis of reasonable certainty. What 'the Moors made of Granada and the Egyptians of the Delta of the Nile the Niagara 'fruit growers could make of their wonderfully rich and favored region by the 'wise use of the Lake Erie irrigation 'dam."

The fruit growers of the peninsula will serve their own best interests if they follow the Globe's advice. They might well, also, invoke the assistance of the Ontario government. What is first required is a careful examination by experts of the possibilities of the whole scheme. This should be undertaken by the provincial government. In British Columbia during the past month the local government brought from Oregon an expert in irrigation practices, and had him visit different sections of the province and consult with and advise the growers in regard to irrigation possibilities and methods. The Ontario government should not wait to be urged to undertake similar work in the Niagara District, but should make the move of its own volition.

COMBAT INSECT PESTS

The entomological department or division of the Dominion Department of Agriculture has never received the attention or assistance that its importance deserves. It is sadly undermanned, lacks funds, and altogether is neglected in a manner that reflects sadly on the Dominion Government, as well as on ourselves as a people. Did we but understand more clearly how important it is that we should have a better knowledge of the insect pests that thwart, rob and annoy us each year we would long ago have seen to it that the Entomological Division was given the support that the needs of the country require.

Government authorities have estimated that the Codling Moth, or Apple Worm, causes a loss exceeding twelve million dollars a year in the United States. This estimate does not include the expenses of labor, spraying apparatus, and poisons used against this pest, which amount to three or four million dollars a year more. The Plum Curculion causes likewise a loss running into the millions of dollars. In Canada the loss is proportionately as great. These, however, are but two of scores, even hundreds, of insects that might be mentioned. The fruit, flower and vegetable growers have their special insect foes to combat, and they need and should have at their disposal

all the helpful information that the government can provide.

But the people interested in horticulture comprise only one class in the community. What about our farmers who each year lose millions of dollars through the ravages of insect pests in their grain and other crops? What, also, about our forests? A report recently issued by the government states that fire and insects between them have caused untold loss in the forests of Canada. The bark beetle alone has killed practically all the tamarack, and is now at work on the mature spruce in the timbered sections of the west that it was hoped might be drawn on in connection with the construction of the James Bay Railroad.

Commendable assistance has been granted to the seed division of the Dominion Department of Agriculture. The expenditures that have been involved have been shown to have been justified. Equal importance might well be given to the work of the entomological division. This branch of the work of the Department of Agriculture should be given more attention immediately.

A GLANCE AHEAD

This is a day of mergers and combines. The Monetary Times is authority for the statement that during the past ten years the number of boot and shoe factories in Canada has declined from 5,398 to 138, the carpet factories from 557 to 5; carriage and waggon establishments from 3,336 to 368, agricultural implement concerns from 221 to 88; and furniture factories from 1,286 to 181. The reduction in other lines of manufacture has been about equally striking.

Combines of this character do not always result injuriously to the consumer or to the producers of the raw material. There are instances where they have effected economies in manufacture that have resulted in a reduction of the retail price of the finished article. As a rule, however, they are dangerous. They lead to the concentration and control of great wealth in the hands of a few and generally have for their object the control of prices in a manner almost invariably inimical to the best interests of the consumers and often of producers as well. The canning combine in Ontario has not benefited the producers to any extent and has increased prices to the consumers.

Is there a possibility that the production of fruit may be working in the same direction? The purchase and leasing of over nine thousand acres of fruit land in Ontario and Quebec during the past year by a company capitalized at a million and a quarter of dollars has been followed by a rumor that it is proposed to organize a somewhat similar company to be known as The Nova Scotia Fruit Estates Limited, with a capital of one million dollars, to acquire and work fruit land in the fruit districts of Nova Scotia. While ventures of this character hitherto have generally proved disastrous, leading financiers are moving in this direction. They have the benefit of the knowledge gained from previous undertakings of the same nature. Never before has the movement reached such proportions as it has this year in Ontario. The fact that the best fruit lands are limited in area has an important bearing on the situation.

Fruit growers who lease their orchards to these large concerns and bind themselves to care for their orchards in a stipulated manner become little more than employees on their own places. Where they have neglected in the past to take proper care

of their orchards such a fate is little better than they deserve. It is a working out of the great law that leads the less able to become dependents on others more intelligent and capable than themselves. Nevertheless, what is the outcome likely to be? What is wanted is not a few large concerns with many employees working the land for them, but numerous small orchards managed by independent owners. These small owners must, of necessity, cooperate, but they should not sacrifice their rights to the soil in so doing. This may be looking ahead for trouble, but the tendency referred to should be watched carefully.

A NARROW MEASURE

Some months ago there came into our possession two photographs that had been taken in the packing rooms at Grimsby, Ont., of one of the largest tomato growers in the Niagara District. A polite request was sent by us to this party for some general information about his methods that might be used in connection with the reproduction in *The Canadian Horticulturist* of these views. No response being received to our first letter, we later sent a second. To this we recently received the following reply:

"Do you think for one minute that we are asleep? Don't fool yourself. If the people want to grow tomatoes let them get busy and find out for themselves. We are not 'learning' other people at our expense. We do not allow people through the green-houses and will not give any information on the subject whatever."

Once or twice before we have come across misguided men of this type, but we had hoped that in this year of grace the last of them had found by now the error of their way. What a fortunate thing it is for us, and for them, that there are not more of them! Were this view of life and business to prevail we might expect to find men guarding their establishments with shot-guns for fear others might learn something from them by peeping over their high-board fences. We would have to discontinue our farmers' institute meetings, fruit and vegetable growers' conventions, packing schools, and so forth, for no one would care to address them on account of the danger that they might let slip some priceless secret. We might as well, also, close our churches, as somebody might learn from us how to become Christians, and then there mightn't be room for us all in Heaven.

Such men deserve our sympathy and tolerance. They are their own worst enemies. Their mistake arises from the fact that they have failed to comprehend the working of that Divine law which has declared:

"Give, and it shall be given unto you: good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again."

The Dominion Government is to be commended not only upon having decided to investigate the extent and the possibilities of the fruit growing interests in Canada, but also upon having placed this work in charge of Mr. W. H. Bunting, of St. Catharines. No more capable man for the work could have been obtained. Besides having a practical experience, extending over years, in the growing of all the leading varieties of fruit, including not only apples, peaches and pears, but small fruits as well, Mr. Bunting has time and again shown his ability in other matters that have involved hundreds of thousands of dollars in the fruit growers of Canada. Upon him devolved the

duty of preparing the main case for the fruit growers in their fight before the railway commission, first against the railway and more recently against the express companies. How splendidly he succeeded was shown not only by the important concessions gained, but by the compliments paid him by two different chairmen of the railway commission upon the manner in which he submitted his arguments and presented his facts. We have long needed such a report as Mr. Bunting has been deputed to prepare. It may be safely predicted that this report when presented will be thorough and authoritative and a credit to the Department of Agriculture.

Can any readers of *The Canadian Horticulturist* furnish us with information concerning Charles Arnold, late of Paris, who originated the Ontario apple? One of our subscribers in British Columbia, who has been seeking information on this subject, has written us recently as follows: "A fruit that bears the proud name of your province, and that is among the very first cross-bred apples, as years go by, and the importance of cross-bred varieties increases, will be hunted up for the veriest detail of its origin, which then may not be obtainable owing to those who know having passed on. There must be some among Mr. Arnold's descendants or friends who could give a detailed account of the origin of this apple." Our correspondent is right. It is to be hoped that already it may not be too late to obtain the desired information about this great variety of apple.

As the society reports in this issue of *THE CANADIAN HORTICULTURIST* show, a number of horticultural societies in Ontario have held successful rose shows during the past few weeks. This is an excellent line of work for societies to undertake. It involves considerable work for the officers, but nothing worth while can be accomplished without effort. The rose is a popular flower with the public, and a rose show for that reason generally draws a better attendance than can be obtained for other exhibitions of the same class. Societies which have not attempted to hold exhibitions could not do better than to start next year with a rose show.

PUBLISHER'S DESK

Our front cover illustration this month shows cherry pickers at work in Hillcrest Orchards, Kentville, N. S. The trees are Montgomery variety six years old. In 1909 two thousand trees of this orchard produced one thousand three hundred boxes. Individual trees yielded as much as sixty pounds each.

A circulation statement, showing the actual paid circulation of *THE CANADIAN HORTICULTURIST* by provinces, and by counties in Ontario, has just been prepared. This is given, along with other information that will prove of interest and value to advertisers, in an attractive little folder which we have just issued. Copies of this folder will be mailed on request. The number of paid subscribers to *THE CANADIAN HORTICULTURIST* is but a few short of ten thousand, which number we expect will soon be exceeded. This great gain in circulation demonstrates the rapid progress that is being made by *THE CANADIAN HORTICULTURIST*.

Subscribers sometimes write to us for information, but neglect to sign their names to their letters, using a *nom de plume* instead. Their expectation evidently is that we will publish their question and an answer to it in *THE CANADIAN HORTICULTURIST*. To all such we would say "DON'T." It frequently happens that our space does not permit us to publish such an article, and as we do not know our correspondents' names we are unable to write to them direct giving them the information they desire by letter.

For the illustrations of Toronto gardens, published on pages 187 and 188 of this issue, we are indebted to the officers of the Toronto Horticultural Society, who used them recently in their excellent year-book for 1911, mention of which was made in our July issue. A number of other equally fine illustrations appear in their year-book, some of which may be used later in *THE CANADIAN HORTICULTURIST*.

Next month will appear our Special Exhibition and Packing Number of *The Canadian Horticulturist*. It will be all that we have said about it in previous issues and more. The manner in which our leading government officials, both Dominion and provincial, and prominent fruit growers in all our fruit growing provinces, have rallied to our assistance has been most gratifying. This issue of *The Canadian Horticulturist* will be a distinct improvement over anything we have ever before attempted. The illustrations will be a feature that will be certain to please. The colored illustration on the front cover will be both striking and attractive. Many extra copies of the issue will be printed for distribution at the Toronto and other leading exhibitions. Advertisers will do well to reserve large space and soon, as the forms will start going to press early this month and the best positions still left cannot be held open long.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

MITCHELL

Our society, which has a membership of over one hundred, has been the means of improving the many homes in this town. There is a healthy rivalry amongst its members to see whose place can be made to look the best. The fences are taken down between the houses, and the boulevards in their fronts, making altogether one of the prettiest inland towns of Ontario.

We keep the grounds beautified around the new Carnegie Library, and we are contemplating building a dam below the gates at the waterworks, from the Thames River. There are spring waters running into this, and it is the intention of the society to clean out the bed of the river, and have a constant flow of pure running water, with seats arranged along its sides. At present the place is an eyesore from the Main Street. The citizens have promised to contribute the larger part of the outlay.

There is always a looking forward to the next issue of *THE CANADIAN HORTICULTURIST*, of which each member gets a copy. You as well as ourselves are endeavoring to do a good work, and we wish you every success.—A. J. Blower, sec.-treas.

ST. CATHARINES

The eighth annual show held by the St. Catharines Horticultural Society, the latter part of June, was an immense success. There were several hundred exhibits, and the hall in which the exhibition was held was filled with a wealth of exquisite blooms, that delighted the hearts and charmed the eyes of the spectators. By the testimony of one of the judges, such a display of amateur grown roses could not be found in any other city on the continent.

With a membership of over six hundred pledged to make St. Catharines the most beautiful of cities, the local horticultural society has abundantly justified its existence. But it required work to achieve this measure of success. Eight years ago when the first rose show was held, Mr. W. B. Burgoyne, who has been president for some years, had to drive around the city the day before to find exhibitors and prevent the show from becoming an ignominious failure.

GRIMSBY

The Frau Carl rose was given our members as a premium by our society several years ago, and now it is showing up at its best. It is the purest white and the most perfect form of any white rose in my collection. I do not find sandy knolls suitable for my roses. I have transplanted all mine to soil of heavier texture with very marked results, both in vigor of plants and in profusion of bloom.

Our rose show was held during the latter part of June at Dr. Clarke's private grounds. There was a fine show which, with music and conversation, made a delightful evening for a village society. This year we gave our members Gruss an Peplitz, a now hybrid tea rose.

TORONTO

The rose show held recently by our society was the most successful in the series of exhibitions that are being held. There were numerous other exhibits besides roses, however, although the popularity of the rose was shown by its predominance over that of the other flowers exhibited.

An exhibit of rare orchids and ferns by Mr. Thomas Manton attracted many admirers. An exhibit of hardy perpetuals, hybrid teas and climbing roses of Mr. W. G. MacKendrick, president of the society, was very fine and one of the features. The great variety of roses which may be grown in Toronto was shown by an extensive exhibit from Alexandra Park. There was a fine display of fruits and vegetables.

Bronze medals were awarded to Miss M. E. Blacklock for spiraea venusta, to T. D. Dockray for perennials, and to T. W. Armistage and W. J. Smith for Japanese iris.

LINDSAY

Our society held a nice meeting in the spring and afterward distributed to our members seventy-five clematis and seventy-five climbing roses in variety. To those who received them we have given a lot of personal instructions in regard to methods of cultivation. Our membership is now seventy.—F. L. Frampton, Secretary.

MacDonald College Appointments

The Board of Governors of McGill University, Montreal, have confirmed Prof. F. C. Harrison, B.S.A., D.Sc., F.R.S.C., in full status as principal of the affiliated institution of Macdonald College, Quebec, in which he was appointed bacteriologist and

later as acting principal upon the retirement of Dr. James W. Robertson, in the early part of 1910. Since assuming the difficult duties of acting principal Prof. Harrison has shown administrative abilities of a high order, which have now been recognized.

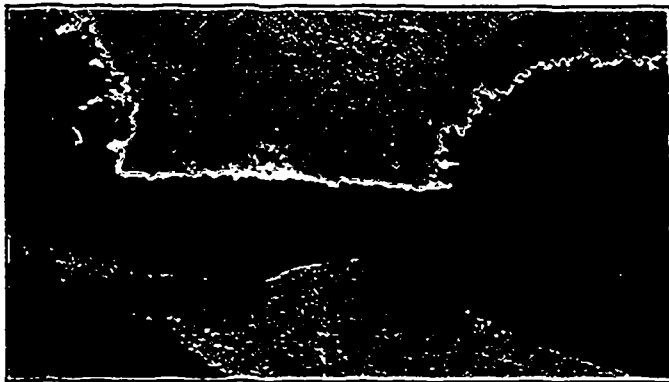
Professor Harrison was born in 1871, and was educated at Westminster and other English schools. From a scholastic standpoint he is eminently qualified to hold the position he has been appointed to, having obtained degrees and honors from the Ontario Agricultural College, Toronto University, McGill, the Royal Society of Canada and other leading educational institutions and societies. Mrs. Harrison, who has been a devoted associate of Professor Harrison, in his life work, is the daughter of Dr. James Mills, formerly president of the Ontario Agricultural College, and now a leading member of the Canadian Railway Commission.

Mr. E. M. Straight has received the appointment of assistant professor of horticulture. Mr. Straight is a New Brunswick man. He was born at Cambridge, Queen's county, where he received his education. After teaching in the public schools for a number of years, he was engaged in intensive market gardening, until he decided on an agricultural college training. This he secured at Truro, the Agricultural College, Guelph, and at Macdonald, Quebec. It may be added that he is one of Macdonald's first graduates.

The summer meeting of the Pomological and Fruit Growing Society of the province of Quebec will be held at Inverness, Montgantic Co., August 29 and 30.

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TORONTO

Demonstration Orchards in Quebec

G. A. Gigault, Quebec, Deputy Minister of Agriculture

THE Minister of Agriculture for the Province of Quebec has given a grant of \$800 to certain co-operative societies on the condition that such money shall be expended in doing orchard work to demonstrate how existing orchards may be made to produce more and better fruit, and show how the fruit may be marketed in the best possible way. The grant cannot be secured except through the formation of an agricultural co-operative society properly organized according to law. Any funds of the society, outside of the government grant, may be expended as thought advisable by the society. The government grant, however, can be expended only as directed by a joint committee, made up of three persons representing the said society, three persons representing the Quebec Pomological Fruit Growing Society, and one person representing the Department of Agriculture of Quebec. It is required that all accounts relative to the expenditure of the \$800 grant be countersigned by the secretary-treasurer of the Quebec Pomological Fruit Growing Society before payment is made. The committee representing the Quebec Pomological Society is composed of Professor W. S. Blair, Macdonald College, Rev. Father Leopold, La Trappe, and Robert Brodie Esq., Westmount.

It is the duty of the joint-committee to formulate a line of demonstration-work as thought advisable for the districts to outline in detail methods of proceedings, to select the orchard where the work is to be done, and appoint a capable man for carrying on the work. All travelling and other expenses incurred by the committee in connection

with the demonstration orchard work will be paid from the grant of \$800.

The work to be done will be confined to pruning, spraying, cultivating and fertilizing bearing orchards, and to the packing of the fruit. The work to be undertaken will benefit the whole community by demonstrating proper methods of carrying on the above operations. The work will be confined to one or at the most two orchards in a district. The intention is to do thorough work in one orchard rather than spend the money in doing a little in several orchards.

METHODS OF WORK

It is not the intention of the committee to rent an orchard or orchards for this work. It is thought that orchards can be secured in which to conduct the work by the committee agreeing to pay all the expenses of spraying, pruning, fertilizing, cultivating, harvesting and marketing, the owner receiving all the money obtained for the fruit, and in case the returns are not as great as in adjoining similar orchards, the shortage will be paid by the committee from the grant for demonstration orchard purposes.

The work is to be done, as far as possible, by hiring men and horses and wagons, as well as such implements as are necessary, from the owner of the orchard. The rates for labor are fixed by the committee. Proper spraying outfits, ladders, scales, buckets, measuring dishes and so forth will be secured and paid for from the government grant and remain the property of the co-operative society to be used or disposed of as directed by the joint-committee.

The owner of the orchard cannot in any

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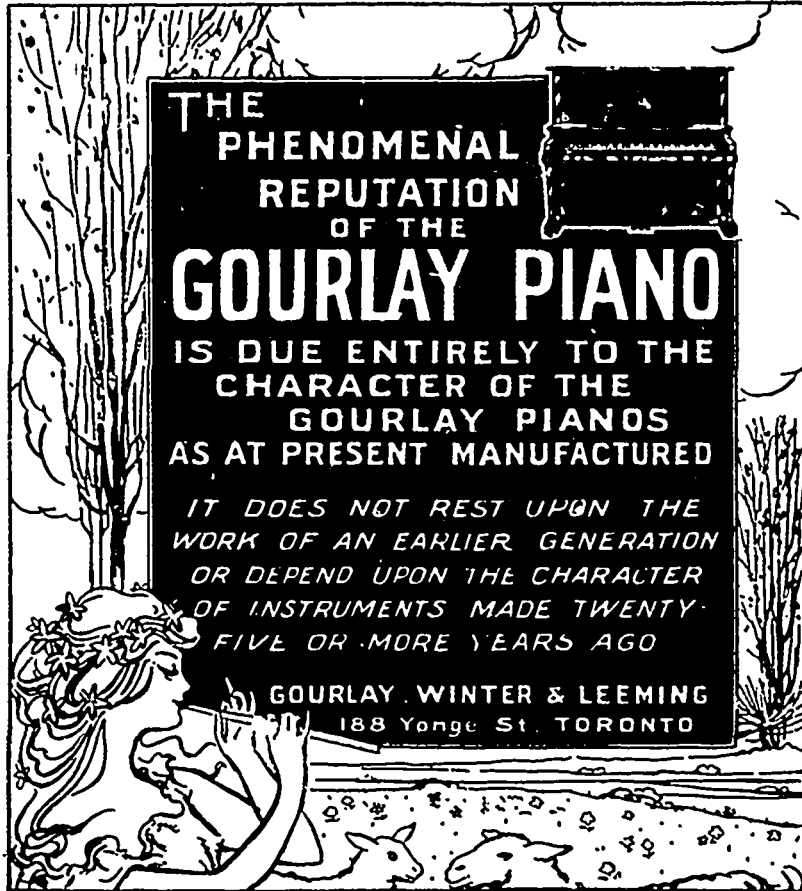
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way interfere with the work to be done in the orchard. The Superintendent does only such orchard work as directed by the secretary of the joint-committee, Mr. Peter Reid. He is given instructions in detail regarding the demonstration work, and is held responsible for the proper carrying on of the work. Monthly orchard meetings may be arranged as thought necessary by the joint-committee, and the expenses will be paid from the \$800 grant.

Should the co-operative society wish to secure spraying materials, commercial fertilizers or fruit packages in a wholesale way, arrangements will be made, if considered advisable, for the Superintendent to procure and take pay for such materials at some central place, twice a week. The Superintendent is to keep a careful report of all the time spent in the various operations, and the date on which the work was done. The Superintendent is paid \$70 per month from April to November 1st.

Eighty trees of fairly uniform size and of one quality are required, and two plots of cultivated area and two plots of uncultivated area, or forty trees, are to be manured in the spring at the rate of twelve tons of good stable manure per acre. One plot of cultivated and one plot of uncultivated areas will not be fertilized. All of the grass on the uncultivated area will be cut when six inches high and allowed to remain on the ground as a mulch.

All of the trees will be sprayed in the spring before the buds break with lime-sulphur. Bordeaux mixture will be used on all plots except two, one being the cultivated and the other the uncultivated manure plot, where lime-sulphur only will be used entirely. The trees will all be sprayed with arsenate of lead except on one-half of the unfertilized cultivated and one-half of the unfertilized uncultivated plots, where Paris green will be used.

Four demonstration orchards and co-operative societies have been organized, namely the St. Hilaire, Albotsford, St. Joseph du Lac, and Havelock.

A Big Orchard Concern

The advertisement of the National Land Fruit and Packing Co., Limited, has appeared in some of the English horticultural and other publications offering for sale 150,000 seven per cent. preference shares and 100,000 ordinary shares of £1, or approximately \$5 each. The company is capitalized at \$1,250,000.

In its announcement the company states that it was formed in 1910 chiefly for the purpose of producing and marketing apples grown in the province of Ontario, and that for this purpose it has acquired established orchards containing over 140,000 bearing trees, constituting what is believed to be the largest apple producing property in the world under one ownership. The company owns 9,115 acres, of which 5,377 are freeholds and 3,738 are leaseholds, situated on or near the shores of the Great Lakes. The company proposes to acquire further specially located freehold orchard lands from time to time, and during this and several succeeding seasons to plant upwards of one thousand acres per annum with selected standard apple trees, of which a large number will be early varieties.

The company proposes also to establish a number of manufacturing plants close to each group of properties, and all apples which are not marketable in the ordinary manner will be sent to these factories and treated by evaporation or other processes. It is estimated that upwards of 12,000 tons of apples will be treated in this way this season.

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Mention The Canadian Horticulturist

The president of the company is H. Pollman Evans, of Toronto, the President of the Union Life Insurance Company. The directors are Thos. T. Rolph, Hon. Geo. E. Foster, M.P., and D. A. Burns, of Toronto, Wm. M. German K.C., M.P., of Welland, E. L. Taylor, K.C., Winnipeg, Man., and G. I. Campbell Dauncey, London, England. It is to be presumed that this is the company that has been leasing and buying orchards throughout Ontario during the last year, reference to which has previously been made in THE CANADIAN HORTICULTURIST. It is to be hoped, if the expression is permissible, that for the sake of its shareholders the company has not litten off more than it can chew.

PROVINCIAL NOTES

Eastern Annapolis Valley

Eunice Buchanan

The dry weather still continues except for a heavy thunder shower on July 12. Strawberries have suffered considerably, but the apple trees look remarkably healthy. More apples have dropped than was at first expected. But the fruit is unusually clean, very few spotted or wormy apples in evidence.

There has been quite a plague of green aphid on the young apple shoots, and the weather, warm and muggy, has been conducive to their increase. Gardens have had much with which to contend in the way of cutworms and dry weather, so that seeds have been unusually long in germinating.

It is estimated that during the season of 1910-11 Nova Scotia exported apples equal to 248,000 barrels and used 75,000 barrels at home. The principal markets were in Great Britain, South Africa, Newfoundland and the West Indies.

Quebec

Auguste Dupuis, Director of Fruit Stations

Insects of all kinds have committed much damage to fruit and ornamental trees. Sugar maples and soft maples in the hills and mountains, spruce and pines have all their particular insects, who destroy their foliage. Acres and acres of fine sugar maple trees have been defoliated. Small, green caterpillars which did not find any more leaves to devour hung by millions under the trees. Probably a second brood will hatch soon and will continue its work of destruction till autumn.

In Kamouraska, L'Islet, Montmagny, Bellechasse, Levis, and Lotbiniere Counties the oldest inhabitants never saw such a plague. Insects hatched in May one month earlier than usual. The plum Curculio, Codling moth and two other green caterpillars were very numerous in the apple and plum orchards on the shores of the St. Lawrence. Apples are eaten from inside and outside. Spraying is practised by few. The Honorable Mr. Caron, Minister of Agriculture, sent experts with outfits to spray the orchards east of Quebec where insects were doing the most damage. The trees will be thoroughly sprayed three times. Lessons are given to orchard owners in spraying well and in the right time, in the cleaning of the bark and in pruning of trees. We hope that the work will be efficacious and that the contrast between orchards sprayed and those that have not been sprayed will induce fruit growers to spray in future and to cooperate with the members of the horticultural societies of Kamouraska and L'Is-

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SEPTEMBER 8th to 16th

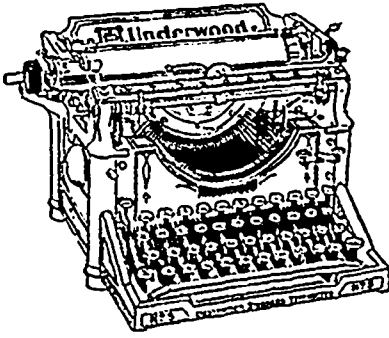
GOOD CASH PRIZES FOR FRUIT AND FLOWERS

The interior of the Horticultural Building all changed this year || Special Railroad Rates for Exhibitors and Visitors

Send for Prize Lists and Entry Forms to the Secretary

W. J. REID, President **A. M. HUNT, Secretary**

Some History about Typewriters



Modern and Ancient
 CHAPTER 2 (a)

GEOERGE Carl Mares, of London, England, has just published an elaborate book, "History of the Typewriter." In the preface he says:

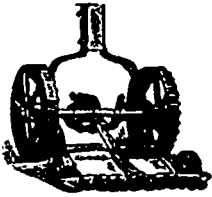
THE greater portion of this volume was put into print in 1907, but the constant stream of new machines placed upon the market about that time made it necessary to defer publication.

SINCE this work was undertaken, the structure of the typewriter has undergone a complete revolution. Probably nothing in any mechanical art has been more marked than the progress of the front-stroke visible writing machine.

IN this respect the Underwood typewriter would seem to deserve all the honors which naturally fall to the successful leader of a revolution."

United Typewriter Co.
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E. J. NEALE & CO.
SMITHFIELD MARKET
MANCHESTER, ENG.
Cable Address: "Neale & Co., Manchester"
Warehouses: 10 Hanover St., Shudehill, Manchester
Bankers: Parr's Bank Ltd., Hyde Cross, Manchester
Regular consignments solicited
Correspondence invited



The Clipper

There are three things that destroy your lawns, Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out.

CLIPPER LAWN MOWER Co.

Dixon, Illinois

Barn Roofing

Fire, Lightning
Rust and Storm Proof

Durable and
Ornamental

Let us know the size of any roof you are thinking of covering and we will make you an interesting offer.

Metallic Roofing Co.

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TORONTO and WINNIPEG

Agents wanted in some sections.
Write for particulars.

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SOLD ON A SPOT CASH GUARANTEE

CURES While Horses Work or Rest

International Gall Cure is a certain, sure, quick and infallible cure for Galls, Sore Necks, Sore Backs, Sore Mouths, Cuts, Bruised Heels, etc. Will not melt and dissolve from the animal heat, but stays right where it is applied. Possesses extraordinary healing and soothing qualities. International Gall Cure is the cleanest, most antiseptic, purest and best Gall Cure on the market. We will refund your money if it ever fails to cure. Keep a box on hand as it is almost a daily need on the farm.

25c. and 50c. At all dealers.

INTERNATIONAL STOCK FOOD CO., Limited
TORONTO, ONT.

let Counties in the purchase of good spraying outfits, insecticides and fungicides.

CROP PROSPECTS

The apple crop is promising, but the plum crop will be very light. Cherries are a failure, small fruits abundant. The orchard area has greatly increased. Better and more suitable varieties adapted to our northern latitude have been planted. Ontario nurserymen who advertise in The Horticulturist instruct their agents to sell only varieties which mature their wood quickly and forbid them to sell Baldwin, King of Tomkins, R. I. Greening, Newton Pippin trees all of popular varieties but needing a longer season of vegetation than ours. Unscrupulous jobbers a few years ago sold in our districts a great number of these varieties which have all died. It was a great loss which discouraged the farmers who lost confidence in nursery grown trees. Nurserymen advertising for agents mentioning that "no experience in fruit culture is required of salesmen" should not be trusted. The sales of fruit and ornamental trees of flowering shrubs by nurserymen of Quebec and Ontario provinces have doubled this year. The Village des Aulnais has increased its area considerably and being the most northern nursery of Canada can fill orders for dormant trees much later in spring than the western nurseries.

The multiplying of Damson and Reine Claude plums on own roots (not grafted) is a speciality here and deserves the extensive propagation it has acquired on account of the delicious quality of their fruits and the hardiness of the trees which once planted last eighty to one hundred years.

Georgian Bay District, Ont.

The fruit growers of the Georgian Bay District are making a big effort to grow clean apples this year. Although some few growers have sprayed for some years, last year was the first year spraying was undertaken on a large scale. It was so successful that this year a large quantity of material has been used. Four cars of lime-sulphur, besides some home boiled, have been used by the Georgian Bay Fruit Growers, Ltd., and four tons of arsenate of lead so we expect neither scabby nor wormy apples.

The orchard of Mr. Wm. Reekie, the president of The Georgian Bay Fruit Growers, Ltd., has been properly sprayed, pruned, fertilized, and is well worth a visit. It is likely to have one hundred and fifty to two hundred bbls. per acre. It contains principally Gravenstein, Snow, Spy, Baldwin, and Spitz.

The manager's orchard, J. G. Mitchell, will likely average four to five barrels per tree of thirteen-year-old Spys. Some fruited at eight years, and have been bearing every year since, showing the effect of good cultivation and proper pruning. Mr. Mitchell believes in early training. The old orchard is also well worth a visit. The writer was particularly struck with the appearance of a young orchard of 1,140 trees planted on the filler system one hundred trees per acre. The main orchard will be Baldwin, fillers, chiefly Wealthy and Duchess. The orchard has been fertilized with nitrogen, phosphate and potash, and the growth of the trees has been extra.

The Georgian Bay Fruit Growers, Ltd., have about one hundred and fifty acres in bearing, and expect to plant one hundred to one hundred and fifty acres next spring.

There are a large number of smaller orchards here in Thornbury, probably two hundred acres more. We also have a branch of The National Land Fruit and Packing Co., Ltd., here. Capt. Ferguson, who is in charge, tells me that they pruned and

LEAD ARSENATE
is better, in every way, than any other spray for Worms, Codling Moth, Potato Bug, Asparagus Beetle and other leaf-eating insects.
VANCO spray's earlier, sticks to the leaves better, does not burn the foliage, and always kills the insects. Contains guaranteed amount of Arsenic Oxide — of uniform strength and highest quality.

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It is made in Canada. This means no duty to pay, lowest prices, lower freight from a HOME industry.
Our book on Spraying is free. Write for a copy.

FERTILIZERS
We also sell Nitrate of Soda, Murate of Potash, Sulphate of Potash and Acid Phosphate.

CHEMICAL LABORATORIES LIMITED
128-12 Van Horn Street,
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Daisy Apple Press

Used by all leading apple packers in Canada, United States and England.

Write for prices and complete information to

J. J. ROBLIN & SON
Manufacturers
Brighton, Ont.
Canada

BULBS

Plant Now For SPRING FLOWERS

There is no season of the year when Flowers are enjoyed more than in the Spring. Bulbs planted this Fall will flower almost as soon as the snow is gone. Planted in pots they can flower in the house during the winter.

Send to-day for our Beautiful Bulb Catalogue. It gives a list of Special Offers.

Mention this paper and it will be sent free.

Dupuy & Ferguson
38 Jacques Cartier Square
MONTREAL, P.Q.

sprayed over four thousand trees in this neighborhood. They are renting orchards, and they have made a big improvement in orchard work.

Altogether we expect to open your eyes at the Horticultural Exhibition in Toronto next November, especially as we justly claim to have the best home of the Spy, and no better place than the Beaver Valley for the other good kinds.—G. W., Clarksburg, Ont.

Lambton County Openings

S. E. Todd, B. S. A., Petrolia, Ont.

One of the anomalies of the history of agriculture in Ontario is the circumstance that the development of many of its industries is the result of accident rather than intelligent design. A section of country, which happens to have as pioneers men of more than ordinary intelligence, or that by some other accident has had planted crops peculiarly fitted to its climatic soil and market conditions, will be found to develop rapidly, whereas another section, equally well adapted, will lie waste.

This peculiarity is well exemplified in this county of Lambton. The region around Arkona was the first in the county to become well known as a fruit producing district. A study of the cause of this condition shows that some years ago a number of people of the Niagara District emigrated and settled around Arkona, bringing with them the ideas of fruit growing inculcated by their experience in their former homes.

Around Sarnia an extensive vegetable trade is growing up, and again you will find that the nucleus of the growers was drawn from the vegetable gardening class around Hamilton. Forest, on the other hand, has become well known as an apple producing district, mainly due to the superior intelligence of the old Scotch pioneers, of whom Mr. James Johnson was the most far-seeing. The great development there is largely due to the care and foresight exercised by this splendid old settler, who planted and cared for the orchards that are now so well known as those of Johnson Bros.

PEACH GROWING

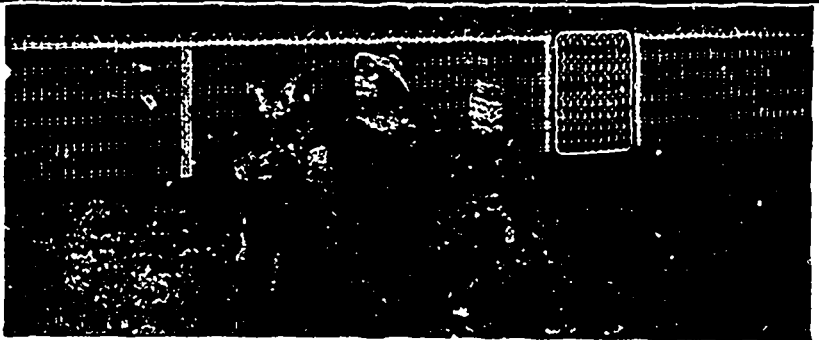
The first attempt to grow peaches in a commercial way was in the region of Arkona, and partly due to lack of knowledge of conditions and of the more advanced methods of cultivation, and it may be partly due to climatic conditions, the attempt was only fairly successful. In the region around Forest in the early days, peaches succeeded perfectly, but were never grown commercially. Later the "Leaf Curl" completely wiped out the peaches, and because no one was sufficiently interested in them, the disease was not studied, and until within the last few years no attempt at control was made. Thus it will be seen that development in the past has been largely accidental.

To-day, however, a new situation is noticeable. The subject is being taken up in a more intelligent manner. A study is being made of climatic, soil and market conditions and the particular classes of fruit best suited to the individual sections are largely being planted. The result is that very great and rapid development is taking place, owing to the confidence with which the investor can look to the future. A man who, having investigated the climatic conditions, studied the soil, and examined the outlook for market, finds all of these favorable when intelligent selection is made, moves forward to the development of his particular property with a confidence that is unknown to the haphazard investor and planter. This condition is the answer to the

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Send with me: I import every year and get only the highest quality of spring flowering bulbs. Write for particulars and prices.



A fence of this kind only 16 to 23c per running foot. Shipped in rolls. Anyone can put it on the posts without special tools. We were the originators of this fence. Have sold hundreds of miles for enclosing parks, lawns, gardens, cemeteries, churches, station grounds, etc., etc. Supplied in any lengths desired, and painted either white or green. Also, Farm Fences and Gates, Netting, Baskets, Mats, Fence Tools, etc., etc. Ask for our 1911 catalog, the most complete fence catalog ever published.

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SAVING time and work on the farm cuts down expenses—makes farm life more pleasant and more profitable. Of all modern work and time savers—an IHC gasoline engine stands first. It operates the many machines that now mean hard, disagreeable, expensive hand labor. It solves the "keep-the-boys-on-the-farm" and "hired-help" problem.

Wouldn't you like to have a simple, economical, efficient, durable IHC—the engine that thousands of other progressive farmers are using with such great profit and satisfaction? Wouldn't you like to have it run your cream separator, feed cutter, pump, fanning mill, saw, grindstone, thresher, clover huller, electric light plant, washing machine, and do the other odd jobs around your farm?

An IHC engine costs less than any other if you measure by the years of service. And you can get just the IHC you want. There is

A Style and Size For You

IHC Gasoline Engines are made in the following styles and sizes: Vertical type—2, 3, 25, and 35-H. P.; horizontal—1 to 25-H. P.; semi-portable—1 to 8-H. P.; portable—1 to 25-H. P.; traction—12 to 45-H. P.; sawing, pumping, spraying, and grinding outfits, etc. Built to operate on gas, gasoline, kerosene, distillate, or alcohol. Air-cooled or water-cooled. Don't buy any engine till you investigate the IHC line. Learn all the facts about the design, materials, and workmanship that go into the construction of IHC engines—then decide. See the IHC local agent at once, or write nearest branch house today for our new catalogue.

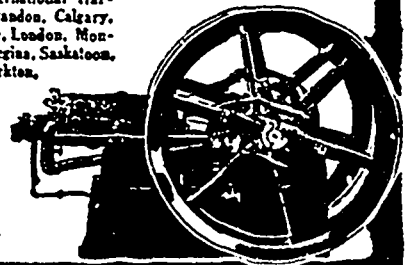


IHC Service Bureau

The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm and then distribute the information. Your individual experience may help others. Send your problem to the IHC Service Bureau.

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VANCO Lead Arsenate Will Kill Potato Bugs Every Time

Better than Paris Green because it will never burn the leaves and will stand two or three rains without washing off.

It never fails to kill Potato Bugs, Cabbage Worms, Codling Moths and other leaf eating insects. It is easy to spray and does not settle in the tank like Paris Green.

Simply mix "VANCO" LEAD ARSENATE with water, four pounds to forty gallons of water. "VANCO" LEAD ARSENATE contains 15 per cent to 16 per cent Arsenic Oxide, one of the most effective poisons for leaf eating insects. "VANCO" LEAD ARSENATE is made in Canada. There is no duty to pay on it. You get the best quality at lowest prices.

Write for our Price List and Book on Spraying.

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We also sell Nitrate of Soda, Muriate of Potash, Sulphate of Potash and Acid Phosphate.

Chemical Laboratories Limited, - Toronto.
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When The Cow Has Done Her Part

OF COURSE it's important that the cow do her part. But after that, it's up to your cream separator. If it doesn't get highest quality cream—if it doesn't skim to a trace—you are robbing yourself of the profit that your cows have produced.

I H C Cream Harvesters get full value out of the milk, not for a few months only, but through years of constant service. They have proved their durability, close skimming, easy cleaning, and easy running advantages.

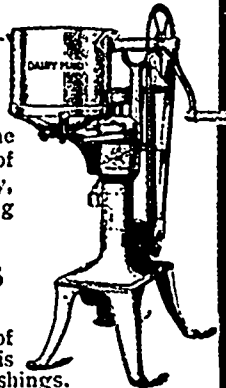
I H C Cream Harvesters Dairymaid and Bluebell

are the only separators with dust-proof and milk-proof gears, which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. These separators have large shafts, bushings, and bearings; the flexible top-bearing is the strongest and most effective found in any separator. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated. I H C Cream Harvesters are made in two styles—Dairymaid, chain drive; and Bluebell, gear drive—each in four sizes.

The I H C local agent will be glad to point out the above features and many others, or, write to nearest branch house for catalogues and other information.

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I H C Service Bureau

The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problem to the I H C Service Bureau.



rapid development in the region along the lake shore from Sarnia east to Thedford and Arkona.

This year about 70,000 trees of various classes have been planted in this district. A large proportion of these are peaches, although the apple is predominant. The early apple, to supply the western trade, is commanding considerable attention owing to the advantage in climate for the production of these varieties enjoyed by the county, and to the great and growing demand for these apples. A notable feature is the fact that practically the same varieties of the different classes of fruit are being planted throughout the district. This will mean uniformity of product.

Cherries are beginning to demand considerable attention, and pears are being planted to a limited extent. This fruit will be planted much more extensively in the near future, because of the ideal soils and climatic conditions that generally prevail here. Plums have long been grown commercially, and the tendency in this district is perhaps to somewhat overdo the planting of plums.

It Pays Them

We find THE CANADIAN HORTICULTURIST one of the best advertising mediums published in Canada for our goods. It reaches the most progressive people in the land who are interested in agricultural pursuits. You may depend on our continuing to use your columns for a good many years in the future.—Brown Bros. Co., Nur-

That the astute business men of the Dominion look to great development in the future in this district is evident from the fact that two very large canneries have been established in the county this year, one in the town of Sarnia and the other at Petrolia, having a capacity of about 2,000 acres of crops each. The production of vegetable crops by this means has been given a great impetus. In the region around Sarnia and north of Thedford, some of the very finest land in Ontario is being developed into celery and other vegetable gardening crops. The tomato crop has increased about 700 acres, while cano berries and strawberries are being planted extensively to supply the demand for the canning factories.

A GENERAL DEVELOPMENT

It will be seen that the development is along very general lines. The county, in a few years, will be producing not one class of fruit only, but practically all of the valuable fruits and vegetables grown in Canada. This must mean that this county will have a great advantage over many sections that are specializing in only one or two branches, in that in case of failure in a single crop or possibly two crops the others will be left to insure something for sale each year. The importance of this fact can scarcely be over estimated.

When we consider that geographically this fruit district is situated on the southern shores of the great body of water of Lake Huron and somewhat south of the Niagara fruit belt, and is climatically on a par with it, we may look forward with confidence to the successful and rapid development of this now district. As yet it is in its infancy. The now plantations, considerable though they are, are almost swallowed up in the stretches of fertile country yet awaiting the investor. Opportunity and success awaits the intelligent investor and worker in this region.

**Still More Points
for the Few Who
Have Not Gone
Thoroughly Into
U-Bar Greenhouse
Construction**



Last month our chat was particularly about the way these houses are bound to outlast others, because of no joints at the eaves, and the complete protection from decay of the wood in the steel encased U-Bar, but we stopped talking just as we were about to mention the question of heat.

They are easy houses to heat, because of the absolute tightness of their construction. They keep the weather out and the heat in. Heat leakage means money leakage. The U-Bar is the lightest, strongest, tightest house built.

Send for catalogue.

U-BAR GREENHOUSES

PIERSON U-BAR CO

ONE MADISON AVE. NEW YORK

CANADIAN OFFICE, 10 PHILLIPS PLACE, MONTREAL

GOOD CROPS

ARE OBTAINED BY USING

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AS SUPPLIED TO
NURSERIES, FRUIT GROWERS AND
GARDENERS

SURE GROWTH COMPOST

makes poor land fertile, and keeps fertile land most productive. Supplied by

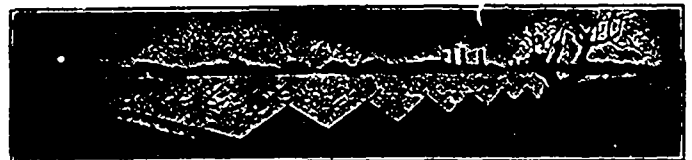
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GOOD QUALITY, FLAT, EVEN
THICKNESS, AND WELL CUT

We make a specialty of supplying
Glass for vegetable forcing houses

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USE FOSTER'S POTS

THEY ARE THE BEST ON THE MARKET



WE MANUFACTURE
STANDARD POTS
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AZALEA POTS
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SAUCERS AND
STRAIGHT PANS

Canada's Leading Pot
 Manufacturers

The FOSTER POTTERY CO., Limited
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44 Church St., Toronto, Ont.

*SPECIALTY: Fancy Home Grown
 Fruit and Vegetables*

SEND FOR STAMP AND PAD

Last Year's Peach Shipments

THE CANADIAN HORTICULTURIST is in receipt of Bulletin 27, of the Dr'y and Cold Storage Series, issued by the Dominion Department of Agriculture, entitled "Trial Shipments of Peaches in 1910." It is by J. A. Ruddick and W. W. Moore. This bulletin gives complete information about the peaches shipped to the British market last season, with an addenda dealing with the South African export peach trade. Among the general conclusions given in the bulletin are the following:

That Canadian peaches can be delivered in Great Britain in good marketable condition, provided proper care is exercised in preparing them for shipment.

That only peaches of good quality, of large size, and with a touch of color should be shipped.

That every detail of packing must be attended to with scrupulous care.

That if peaches can be pre-cooled before shipping they may be picked in a more mature condition, which would add to their flavor, size and appearance.

That shipment by fast freight in a well iced and properly loaded refrigerator car is better than by express.

That in the ocean steamers any temperature between 35 and 40 degrees will carry the peaches safely if they have been delivered to the steamship in right condition.

That it is important to have the temperature gradually raised to about 55 degrees during the last thirty-six hours the fruit is in the ship's refrigerator so that when it is landed there will be no condensation of moisture from the warmer outside air.

That it would be an advantage if during the next few years all the Canadian peaches shipped could be sold by one broker in each of the principal markets so that undue competition might be avoided.

That only a comparatively small quantity of our peaches can be disposed of in Great Britain at the prices realized for our shipments the past season, and that if our growers desire an outlet for a considerable quantity a much lower price will have to be accepted, and finally,

That the number of growers who are in a position to successfully cater to this export trade is limited, and that if it is gone into by the average grower, or shipper, following the average slipshod methods, nothing but disaster may be anticipated.

The reports show that the shipments of South African peaches which reach the British market at a different season, have increased from 7,612 cases in 1906 to 23,616 cases in 1910. The estimated average cost of shipping South African peaches, including the cost of packing material, freight and the London charges, is forty-eight cents a case with an average price obtained of one dollar and forty-four cents a case.

Items of Interest

A correspondent of THE CANADIAN HORTICULTURIST, R. R. Sloan, of Porter's Hill, reports that the fruit crop prospects in Huron county, Ontario, are that there will not be a heavy crop of apples this fall, as the blight that affected the trees last year has not extended its full effect. Baldwins made hardly any showing. Spies had less than one-third of a normal bloom. Kings, Greenings and early fall apples, pears, plums, and cherries made a good showing. There has been more activity in orcharding in the county this year than ever before.

Mr. J. MacPherson Ross, of Toronto, who has frequently contributed with acceptance to the columns of THE CANADIAN HORTICULTURIST, announces that he is open for engagement as a landscape gardener.

**The First Step In
 Scientific Farming Is
 An IHC Manure Spreader**



YOU will never get the most out of your soil until it is properly fertilized. And it will never be properly fertilized until you use a good manure spreader, because the use of a spreader will enable you to overcome the practice of spreading on one acre what should be used on two. Why delay the profits that are rightfully yours? Why not look into this manure spreader proposition at once? Learn the many reasons why thousands of other progressive farmers are having such great success with IHC Manure Spreaders.

When you examine one of these spreaders, note the extreme simplicity and great strength of the working parts; note that the beater driving gear is held in a single casting, thus there is no binding nor cutting of parts caused by the gearing springing out of alignment. Notice the roller bearing support for the apron which reduces the draft of the machine; operate the convenient levers; notice how quickly and easily the feed changing device can be shifted, and the wide range of adjustment.

Corn King Cloverleaf

Each of these famous IHC Spreaders is simple, strong, and durable in every part. Each is instantly adjustable to spread light or heavy as your judgment tells you is best for the soil. Whether you have a large or small farm, or whether you want a spreader for orchard use—there is an IHC that will suit your requirements.

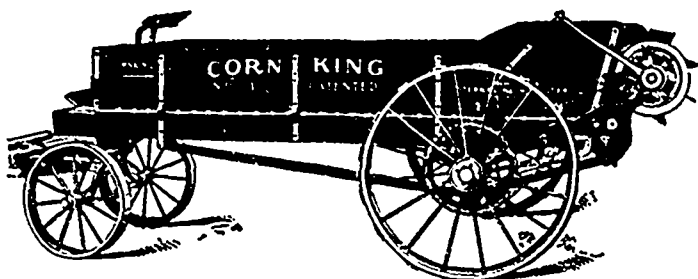
Why not see the IHC local agent at once? Let him tell you why IHC Spreaders are so remarkably successful. Get catalogues from him, or, if you prefer, write nearest branch house for any information you desire.

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APPLE BARRELS

WE can furnish you with Staves, Hoops and Heading of the Best Quality for making Barrels, or arrange with our cooper friends to supply you with the Barrels ready for Packing. All our stock is standard grade, warranted up to the requirements of the Fruit Department.

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Make More Dollars From Your Apple Orchard

Everything in connection with the growing of apples, from the planting of the tree to the harvesting and selling of the fruit is covered in the new book.

THE CANADIAN APPLE GROWERS' GUIDE

By L. Woolverton, M. A.

The information in this book is invaluable to every person who has an apple orchard. It will give you just such information as will help you to make your apple orchard produce more dollars for you. It is a Canadian book and deals with Canadian conditions. Below is a brief review of its contents.

Part 1.—A Complete Guide to the Planting, Culture, Harvesting and Marketing of Apples.

Part 2.—Descriptions of Varieties of Apples, which are grown in the various Provinces of the Dominion of Canada, made by the author from personal study of both the trees and the fruit with full size photographs of the fruits themselves made under his personal supervision.

Part 3.—Varieties of Apples recommended for Planting in the various sections of the different Provinces of the Dominion.

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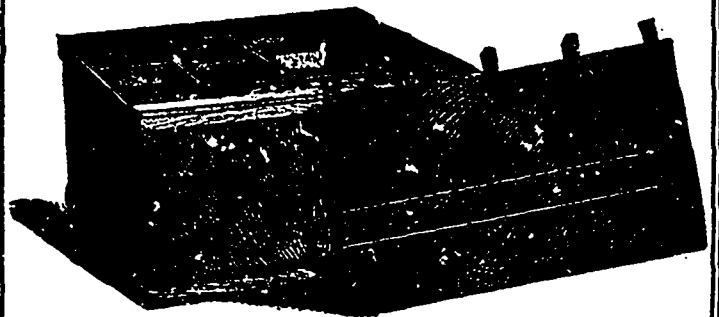
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Correspondence Invited

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Veneer supplied for the protection of trees from mice during winter

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The Oakville Basket Co., Oakville, Ont.

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 Largest collection in Europe. 100,000 plants ready to sell. Seed 25c per pkt. Lists free.
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PLANET JR. POTATO DIGGERS save time labor, money—amplify a lifetime Write to-day for 1911 catalogue free.
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POULTRY DEPT.

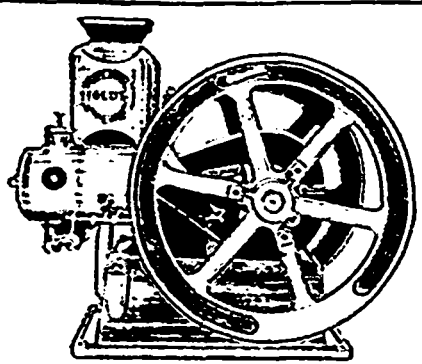
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Give Green Feed
 Chickens running off grass should be given plenty of finely chopped vegetable matter between other meals. Fine lawn mowings, onion tops, lettuce and cabbage leaves, thinnings from the seedling beds, or any other garden produce that is fresh and wholesome is good for chickens and they should have all they will eat.
 A common cause of constipation in chicks is traceable to indigestion brought about through lack of grit. Unless the food fed to chicks is, by the aid of grit, properly dealt with in the gizzard, a great strain is put upon the other digestive organs, with the result that they become debilitated, and, consequently, the bowels become loaded with unassimilated matter. Not only should the chicks have a constant supply of fine grit, but they should have a little finely powdered charcoal added to their soft food occasionally to sweeten their crops and tone up their digestive systems. A sprinkling of sulphur also will have a beneficial effect upon the liver, and assist the bowels to properly perform their functions.
 Chickens failing to feather up properly often cause anxiety to the attendant. Such a condition is traceable either to low vitality, insect pests, or lack of animal matter in the rations. Such chickens as fail to produce feather should be examined for lice, and if they are found to be free from these pests they should be given a liberal allowance of milk and a little sulphur in their soft food. A little linseed meal in the food will also do good, as will also a daily allowance of well cooked and finely chopped lean meat. Finely chopped cabbage is a good feather producer, and this should be fed as much as the chicks will eat.—The Poultry Advocate.

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Fruit Investigation
 The Minister of Agriculture has authorized a special inquiry to be made into the fruit growing industry of Canada, under the direction of Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner. The well-known fruit grower, Mr. W. H. Bunting, of St. Catharines, Ontario, has been engaged to conduct the inquiry, and it is safe to say that no man in Canada is better equipped to undertake this important work. The officers of the fruit division will collaborate with Mr. Bunting in this work, as far as their other duties will permit them to do so. He will be assisted also by local officials of the different provinces and districts. The report, which should be a very valuable one, will be available for the Dominion Conference of Fruit Growers, that is to be held at Ottawa some time next winter. The investigation will be conducted with a view of securing some reliable data respecting:

1. Area and extent of land adapted to fruit growing in the various provinces.
2. Varieties of fruits which have been found to be most profitable and successful in the several provinces or subdivisions of the same.
3. General trend of the industry toward concentrating the production of large quantities of standard varieties.
4. Difficulties which are likely to be encountered.
5. Methods of production.
6. Facilities of distribution and marketing.