THE CANADIAN HORTICULTURIST

JANUARY, 1911
Vol. 34 No. 1

PETERBORO, ONTARIO

...ents a Year
...or 2 Years

THE ONLY HORTICULTURAL MAGAZINE IN CANADA
FOR FRUITGROWERS, MARKET GARDENERS & AMATEUR HORTICULTURISTS
ISSUED ONCE A MONTH

The Canadian Horticulturist

Contents for January

INDEX TO ADVERTISEMENTS.

TALKS ON ADVERTISING

By the Advertising Manager

No. 4

WHY IT PAYS GENERAL ADVERTISERS TO USE THE CANADIAN HORTICULTURIST

Taken as a class, fruit growers receive a larger average annual income than those engaged in almost any other occupation. Fruit growers, with large, well kept orchards, frequently receive from $6,000 to $15,000, and over, for a season's fruit crop. A single acre of fruit will produce as high as $1,000 in a season, and a production of $500.00 and over, per acre is not out of the way.

A twelve acre apple orchard belonging to a reader of The Canadian Horticulturist living in Wentworth County, last year produced over $6,000 worth of apples. Another subscriber in Norfolk County realized a net profit of $539.24 from an acre and a half of apples. A Peel County subscriber made $800 in one season from an acre and a half of strawberries. Another subscriber in Welland County has made as high as $2,900 from three acres of peaches. These are a few of many instances which might be given, which give an idea of the wealth which each year goes into the pockets of the fruit growers. Railway corporations feature fruit growing as the strongest inducement to farmers and homeseekers to settle in their respective territories. We hear more to-day about the fruit lands of British Columbia than its gold fields. Why?

To ensure success in advertising there must be, not only the *desire* but the *power* to buy the thing advertised. The general advertiser cannot afford to overlook the fruit growers when planning his advertising campaign. They can be reached through The Canadian Horticulturist.

ANOTHER CLASS OF READERS

But, there are more than fruit growers read The Canadian Horticulturist. Yes. Many people read it for its timely and practical information on flower growing. Have these people money?

Go into a town during the summer and look for homes surrounded by fine flower gardens and attractive grounds. In most cases you will find the owners of these places wealthy, and in the great majority of cases they belong to the well-to-do class. They have money to spend, and can afford not only the necessities but the luxuries of life

These are the people to whom the articles in The Canadian Horticulturist on amateur gardening and home improvement appeal. They read them not simply to pass away a few hours, but to learn something which will help them to still further improve and beautify their homes and surroundings. When they read The Canadian Horticulturist they are in a mood to be influenced by the advertisements they see in the paper. They are the people who like nice things and who can afford to buy them. They have confidence in The Canadian Horticulturist, and know that it publishes only reliable advertisements. The general advertiser who appeals to these people through the columns of The Canadian Horticulturist, reaches people who will read his advertisements with interest, who have confidence in what he says, and who can afford to buy his goods.

Women are large buyers of advertised goods. Practically every woman is fond of flowers and interested in flower growing. In every home where The Canadian Horticulturist goes it is read with interest by the women. They find something in every issue which interests them. The general advertiser who seeks to interest women can do so to advantage through the advertising columns of The Canadian Horticulturist.

Mr. General Advertiser, our readers are worth knowing, and their business is worth obtaining.

Next Issue—Advantages of Using Good Sized Space

Grape Vines

(Wood taken from our own bearing Canes)

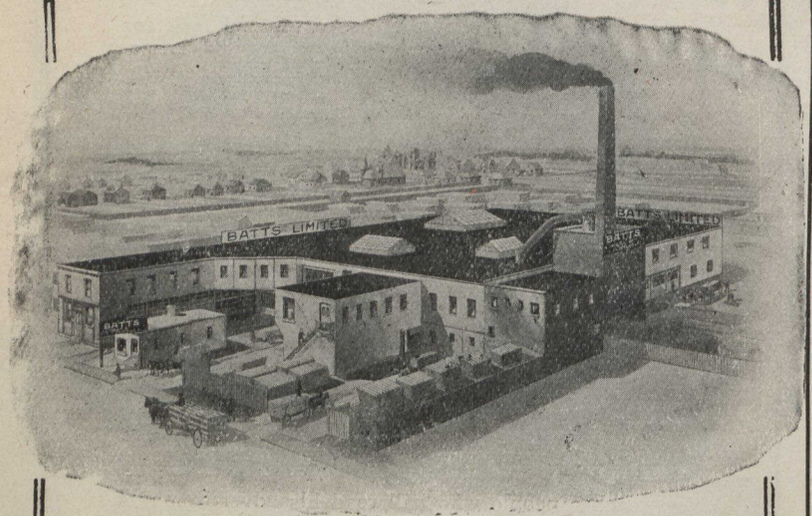
"Helderleigh" 2-year old Vines are strictly 2-year old and are **NOT** inferior old Vines cut back year after year until they have root enough to pass. Seeing is believing. Samples will be sent on application.

E. D. SMITH

Helderleigh Nurseries

WINONA, ONTARIO

Photograph has been taken to show the roots of our 2-year old Vines.



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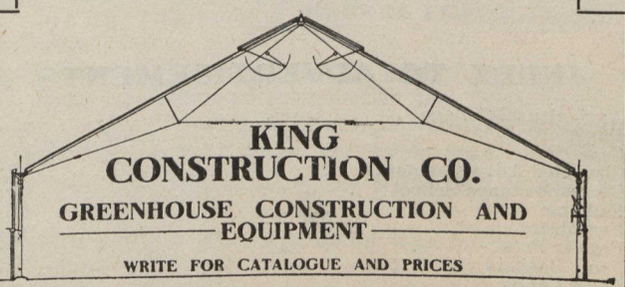

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¶ Write and tell us the kind of houses you desire to erect or ask for question blank and we will mail you our descriptive bulletin by return of mail.

THE KING CONSTRUCTION CO.

248 Wellington St. West TORONTO, ONT.

The Canadian Horticulturist

Vol. XXXIV JANUARY, 1910 No. 1

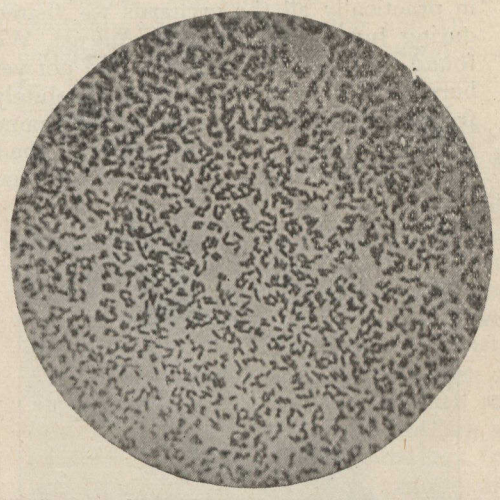
"Fire Blight" Successfully Combated*

D. H. Jones, O. A. C., Guelph, Ont.

IN order to successfully cope with a disease, whether it be a disease of animals or of plants, it is most desirable to know its specific cause and its methods of attack. Practically all that is known concerning the precise nature of infectious diseases, both of animals and plants, has been learned during the last thirty years or so. Everyone now is familiar with the precautions necessary to prevent the spread of typhoid fever, cholera, tuberculosis and anthrax, and other infectious diseases in man and animals. Individuals suffering from these diseases are isolated as far as possible and care is taken that all discharges from their bodies are burned or otherwise disinfected. These precautions are necessary because these diseases are the result of micro-organisms gaining access to the body through water, food or wounds, and there rapidly multiplying. Their multiplication produces the symptoms of the disease, and as millions of the germs are soon produced in the body from a few that have gained entrance, some of these are given off in the discharges, and if these are not destroyed they are liable to spread the disease to whoever comes in contact with them.

The disease of some trees known by the various names of fire blight, pear blight, apple twig blight, body blight, and blight canker, is a bacterial disease, and hence if its spread is to be prevented precautions must be taken somewhat similar to those found necessary in dealing with bacterial or infectious diseases of man and animals.

So far as is known, the disease is peculiar to North America, where it has caused immense losses to pear and apple growers. In addition to being found on the cultivated and wild varieties of apple,



Bacilus amylovorus, the germ which causes the blight. Magnified 1000 times.

pear and quince trees, it is common on the juneberry, hawthorn and mountain ash, and occasionally it is found on the plum.

EFFECTS OF THE DISEASE

The disease is caused by a microbe known as "Bacillus amylovorus," which on gaining entrance to the bark of a tree subject to its attack, rapidly multiplies there and in doing so kills the bark. If the bark attacked be that of a twig, the twig with its leaves, blossoms or fruit will wither, turn brown and die. If the bark attacked be that of the trunk or main limb, the result is a canker of the area attacked. The cankered area is usually darker colored than the healthy part, is somewhat sunken, and usually surrounded by a crack. If the cankered bark be cut, it will be found to be brown and tough instead of being white or light green and tender. The canker in the apple tree does not usually spread to very great dimensions except in a few varieties, principally the Russian varieties. With the pear tree, however, it is different, for when the bacillus finds entrance to the bark of the trunk or a main limb of a pear tree it usually continues to spread there until it has killed the tree.

PEAR TREES SUSCEPTIBLE

For the disease to spread rapidly in a tree it is necessary that the affected bark be juicy. The bark of the large limbs and trunk of the pear tree is softer and more juicy than that of most varieties of apple trees. Hence it is that the disease spreads more rapidly and does much more damage in the trunks and large limbs of the pear than in those of the apple. On the other hand, the bark of the twigs and young shoots of the apple is softer and more juicy than that of the pear twigs, and consequently blight of the apple trees is usually in the form of a twig blight, all the young growth on a tree often being killed in one season.

Trees in sod are not so sappy as those under cultivation. Hence it is that the disease kills off trees in well cultivated orchards more often and more rapidly than in orchards that are in sod. However, sod is not the ideal condition for an orchard. It not only curtails the production of fruit and hinders the development of the tree in general, but it harbors numerous insect pests for which it is a good breeding ground. We must, then, if we are to get the best results from our orchards, cultivate them and find some other means of keeping the blight in check than by leaving them in sod.

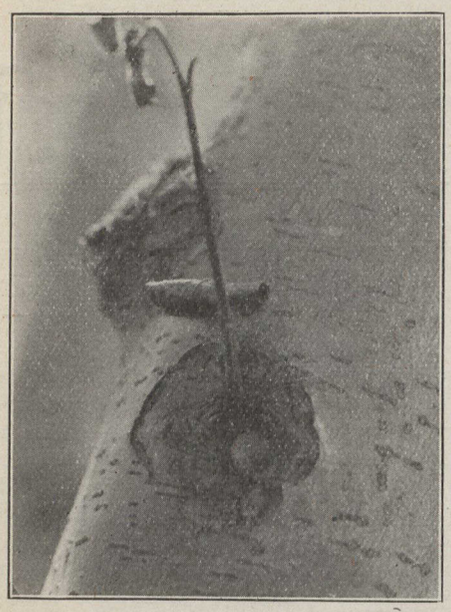
HOW THE BLIGHT IS SPREAD

Insects, more than any other thing, are responsible for spreading the blight. It was demonstrated a few years ago that bees, wasps and other blossom visiting insects often carry the germs of the disease on their bodies, especially their mouth parts, to the blossoms they visit in the orchard. When they insert their

*An address delivered at the annual convention of the Ontario Fruit Growers' Association held in Toronto last November.

Apple tree badly attacked by "Fire blight" through blossom inoculation in spring and twig inoculation by aphids. Eighty per cent. of twigs and small branches killed out in one season.

Young pear tree, with one branch inoculated with the germs by the pruning saw. The branch was killed and the disease was spreading from this branch to the others.



Typical blight canker in the bark of a large limb of a Tolman Sweet, which developed at the base of a watersprout that was inoculated by aphids. Many cankers so caused were on the tree, some of them spreading sufficiently to girdle the limb.

proboscis into the flower to get the nectar, they deposit a few germs in the nectaries, and here the germs develop rapidly, kill the flower, and pass down the bark of the flower stem to the fruit spur, kill it and all the other blossoms on it; they continue to work their way in the bark, passing on down the twig to the larger branch, and thus we get a typical case of "twig blight."

When the disease is active in a sappy tree, there is often a gummy exudate from the part affected. This is usually amber-colored and may be seen on the outside of the diseased bark, sometimes in globules and sometimes slowly streaming down the surface. This gummy material is teeming with the disease germs and many insects like to feed on it, and in feeding on it they get their feet and mouth parts covered with the germs, and these when they fly away they take along with them. So when they fly from a diseased tree to a healthy one, they are liable to inoculate the latter with the disease germs from the former. The inoculation is made either through the flower by the honey seekers or else by a puncture of the bark by a biting or boring insect, such as a beetle, or by a sucking insect, such as the various plant bugs and aphids.

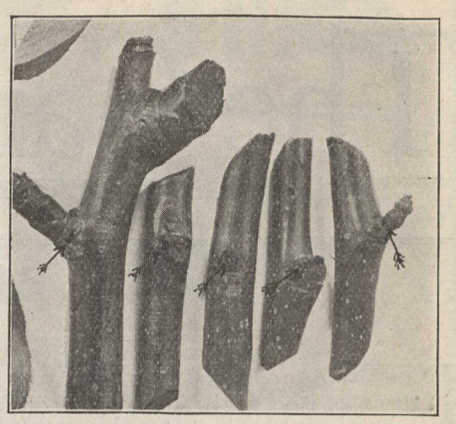
We found as the result of our observations made in the college orchard and many orchards in the Niagara, St. Catharines and Whitby districts, that fifty per cent. of the total amount of twig blight on apple trees in 1909 was due to its spread from tree to tree and from orchard to orchard by aphids (Aphis mali and Schizoneura lanigera), and that practically all the twig inoculations that were made after the blossoming season were made by these same orchard pests.

The aphid's favorite feeding place is on the water sprouts, suckers, and young twigs of the tree. It is here they find the tender bark which they can easily puncture to obtain the plant juice which is so plentiful there. It is the tender, juicy bark that, as we have before mentioned, supplies the ideal conditions for the blight germ to rapidly develop in. An aphid when feeding punctures the bark from which it draws the sap with its sucking tube. Should the twig which it punctures have the blight, the sucking tube which is inserted in the bark will be contaminated with the blight germ, and large numbers of germs will be drawn into the body of the insect and will cover its mouth parts, and so, when the aphid moves to another twig, it will carry the germs along with it, and on puncturing the fresh twig will inoculate it with these germs. We found this to be happening in practically all the orchards we visited during June, July, and early August. We found many young trees that had not yet borne a blossom and that were absolutely free from blight before the aphids came in June, to have after this date all their young shoots killed out by the gradual

Trunk of young pear tree, near the ground, showing a rapidly spreading canker, which developed as the result of the tree being inoculated with the germs of the shot-hole bark-boring beetle, Scolytus rugulosus. The minute borings of the beetle may be seen close to the arrow points. Notice that the borings are usually within a bud scar.

spread of the disease from the tops downward after they had been inoculated by aphids. We also found large numbers of suckers and water sprouts on the older trees develop the disease after the aphids visited them and rapidly die.

In many cases, when the disease reached the base of the water sprout or sucker it entered the limb or trunk on which the shoot grew and there formed a canker, sometimes large and spreading, if the bark was juicy, and sometimes small. The bark immediately surrounding such cankers is liable to harbor the disease germs through the winter, then in the spring, when the sap begins to run once more, the germs rapidly develop, spread



Shot-hole borings in a healthy branch from a young pear tree. In every case they are at the base of a fruit spur or small branch. Around three out of five of the punctures the blight was spreading as a canker.

further through the bark, thus enlarging the canker, and often girdling the limb, which results in its death.

THE DISEASE IN NURSERIES

We found aphids to be the principal means of spreading the blight in apple tree nurseries. Wherever in nurseries the aphids were kept in check there was practically no blight. While in the nurseries in which the aphid was allowed to have its way, there the blight flourished in all directions.

While aphids and "twig blight" are both common on the apple, neither are very prevalent on the pear. Blight, however, kills off many more pear trees than apple trees. How, then, is the blight carried to the pear trees? It is sometimes carried to the blossoms by bees and wasps, and it is such inoculations that are responsible for most cases of "twig blight" in the pear. "Body blight," however, is more common than "twig blight" in the pear. This is the same disease working in the bark of the trunk and larger limbs. The germs sometimes enter it at the base of the twigs which have been inoculated at the blossoms. We found, however, during the last two seasons cases of direct inoculation into the bark of healthy trees made by the fruit-bark-boring beetle (Scolytus rugulosus).

This is the same beetle that works in the bark of the peach and cherry, causing them to exude large quantities of gum-like material. The pear tree does not exude this gummy material, and as the hole made by the beetle is very small and is usually underneath a bud or spur, it is not readily seen. This beetle bores in the bark and is more common on weak or diseased trees than on healthy ones. We found the beetles in the bark of blighted trees to be literally covered with blight germs, and we found the disease to be developing around the fresh punctures made by these beetles in the bark of healthy trees. The fruit-bark-boring beetle is one means of spreading the blight among pear trees.

The pruning-knife, saw, chisel, shears,

harrows, cultivators, and other tools used in the orchard, after coming in contact with a diseased tree, are potent carriers of the disease. We have seen numerous cases of blight that could clearly be traced to this source of infection; and we proved in a number of experiments how easy it is for the disease to spread in this way.

After using a saw on the diseased part of a tree and then on the healthy tree, niching the bark or cutting off branches, we found that in seventy-five per cent. of the experiments the healthy tree contracted the disease at the point cut. Scraping healthy trees with diseased trees when removing the latter from the orchard is also a common method of inoculating healthy trees.

ERADICATION AND PREVENTION

When once the disease enters a tree, whether it be in the fruit, twig, branch, or trunk, there is no remedy for the affected part. The only measure to be adopted is to cut out and burn it right away. To cut off an affected twig will save the branch on which it grows, and to cut off a diseased large branch will save the tree.

In cutting dead or diseased tissue from a tree, care must be taken to cut from six inches to a foot below the blighted area, as the germs always extend further than the visibly affected part. Whenever the pruning tool comes in contact with the disease in pruning operations, it should be disinfected by being wiped with a disinfectant, as corrosive sublimate, 1-1,000 parts or 10 per cent. formalin. These may be carried in a glass bottle. If a wire is run through the cork so as to project into the bottle, and a piece of rag tied around the end of the wire, this may be used as a convenient swab for applying the disinfectant.

The best time to cut out blight is the first time it is seen, as every case of active blight is a potent source of infection for innumerable other cases. However, it is not always practicable to locate every case of blight as it occurs. The best time for systematic action in an orchard is in late fall or early winter. At this time the diseased parts are more readily noticed than in late winter or early spring; and if precautions are taken to burn the material out, this will ensure the destruction of the beetles, aphids, and other insects harboring on and in it.

If an orchard be cleared of the blight during the winter there will be no germs there for insects to get contaminated with in the following spring. Hence, as the bees and wasps go from flower to flower they will not infect the blossoms. The blossoms not being inoculated, there will be no early twig blight; so that when the aphids come later in the season, there will be no source of infection for them. If, however, there should be affected trees in the neighborhood of the orchard, which is usually the case, then the only way to keep the disease out of the orchard is to control the insects.

The aphids may be kept in check by spraying the trees when the buds are just beginning to swell with home-boiled lime-sulphur, preferably of the strength of twenty-five pounds lime, twenty pounds sulphur, to forty gallons of water. This is to kill the eggs which may be seen on the twigs and small branches of the tree. To destroy the aphids in summer, give them a thorough drenching with kerosene emulsion. In the fall observe if any aphids are present on the water sprouts, where they will be found, if there are any on the trees at this time of year. If present, cut off the water sprouts and destroy them.

Several bad outbreaks of the fruit-bark-boring beetle in peach and cherry orchards have been traced to wood piles made from diseased and dead wood taken from the orchard. It is in such wood that beetles winter. In the spring they issue from it in large numbers and make their way usually to the orchard once more. This shows the necessity for burning before spring the dead and diseased wood taken from the orchard.

Several orchards, that two years ago were badly infected with blight, are now after being carefully treated as above outlined, free from the disease. It now will be a comparatively easy matter for the owners to keep their orchards free from the disease by making an occasional inspection during the growing season and cutting out the fresh inoculations that are brought by insects from neighboring property.

W feel certain that if concerted action such as indicated be taken by all fruit growers in any district, the disease may be wiped out of that district and be prevented from entering it again.

Cover Crops in the Orchard*

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

The following experiment in orchard management proves that the soil moisture conditions can be controlled more effectively by the date of seeding than by any particular cover crop. Crimson clover was sown on June 15th and on July 15th. The soil samples taken on the first of September showed six and one-tenth per cent. of moisture for the early seeding as against twelve and three-hundredths for the later seed plot. These results are what one would expect, and the date of seeding advisable for different sections and different types of soil can be determined only by conducting similar experiments in your section. After conducting various tests we have settled on the last of June or early in July as the most suitable in our section for ripening young trees.

If trees are carrying a good crop of fruit there is little likelihood of the wood not ripening well, and it would be unwise to dry out the soil too much by early seeding of the cover crops. For this reason, I advise later seeding in the bearing orchard, say the middle of July. It is well also to keep in mind that cover crops have a much more rapid growth in a young bearing orchard where there is little shade than in an old one heavily shaded, and the transpiration in protected areas is not nearly so great as in the unprotected.

THE QUESTION OF MOISTURE

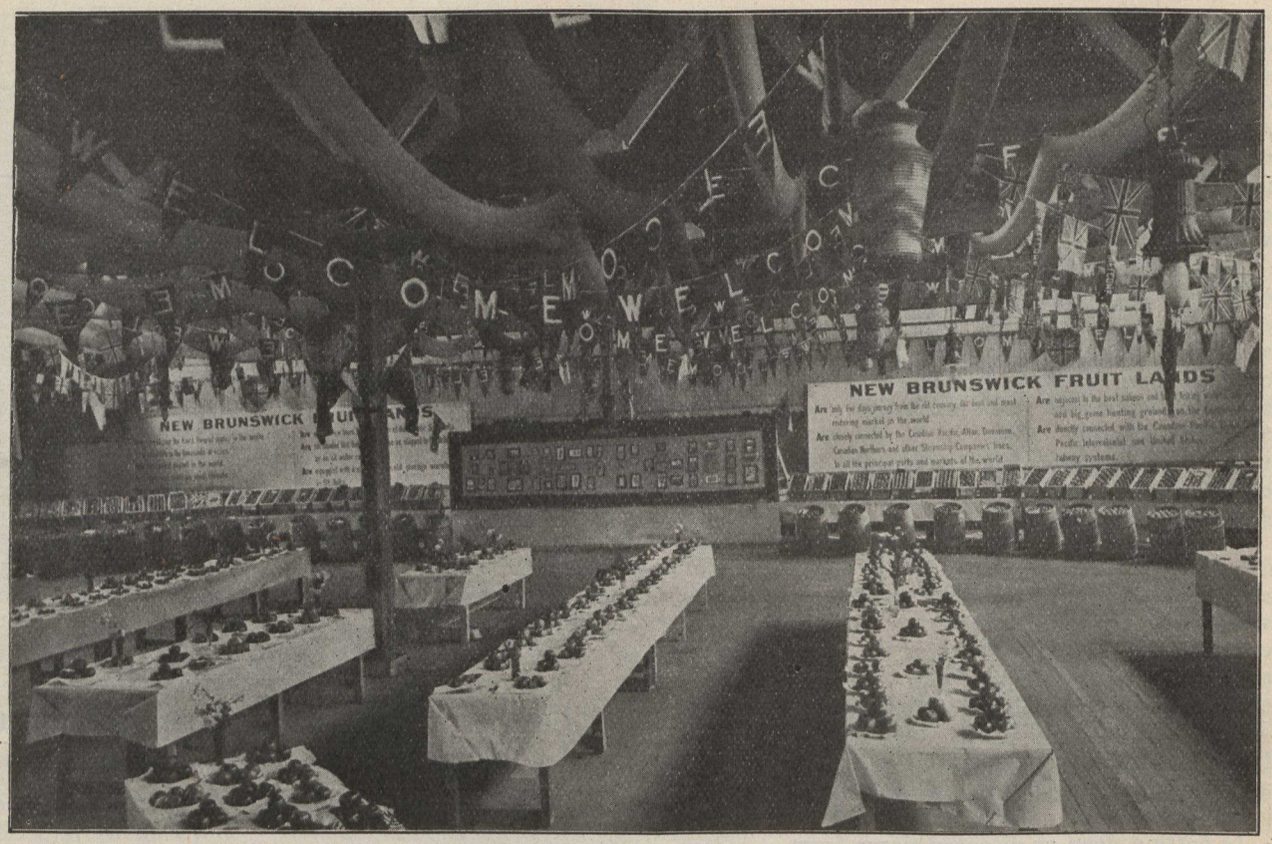
While a cover crop may dry out the soil early in the season that does not imply that the soil will continue dry until late fall and injuries from dry winter freezing result. Our experiments go to

A House of Apples Shown at the Ontario Horticultural Exhibition

One of the most striking features of the recent Ontario Horticultural Exhibition in Toronto, was the house of apples shown by the fruit growers of Northumberland and Durham Counties. Their exhibit is here illustrated.

*This article is continued from the December number.

show that when a dense covering is formed it so protects the soil that little evaporation takes place in the late fall and the ground by fall will actually contain more moisture than the areas not so covered. Winter killing of the root is more liable to occur in a dry soil. This is not of special consideration in northern sections only, for winter killing is often caused by alternate freezing and thawing, which has greater range in a somewhat dry soil than in a moist soil, for the more water a soil contains the less liable is it to frequent alternate freezing and thawing.



A View of a Portion of the Display of Apples at the Recent Exhibition at St. John, N.B.

Cover crops were first used for the purpose of keeping frost from penetrating the ground and at the same time prevent alternate freezing and thawing. It will prevent the latter as we all know from experience, and experiments go to show that a moderate mulch on the surface will keep the frost from penetrating less than half the depth that it will on unprotected areas. The frost penetrating the soil may not prove injurious, but alternate freezing and thawing must be guarded against.

PLOWING UNDER NOT ADVOCATED

It is usually not advisable to plow under a cover crop in the fall. There is much less liability to washing off the surface soil, and the mulching effect is better if it is on the surface. It also serves to hold the snow, which is one of the best protective covers we can have.

Personally, I think it does not matter whether the cover crop stands the winter or not. In fact the only advantage that I can see in having one that will stand the winter is to dry out the ground early the following spring. The danger, however, is that we may allow them to grow too long before plowing under and rob the ground of much moisture that might have been conserved, and as well deprive the tree of its full early spring breakfast.

The following experiments which I personally conducted show the effect of winter rye and Red clover in reducing the moisture contents of the soil as compared with the early cultivated crimson clover plot. A plot of oats sown on an adjoining plot on June 20th was also compared as to the percentage of moistures at different dates. These plots showed how quickly the moisture contents of the soil can be reduced by crops in the orchard in the spring and early summer months.

Date Samples were taken.	Winter Rye	Date sown June 20	Crimson Clover plowed under May 13	Red Clover not plowed
May 12	18.41	20.	20.88	18.93
May 26	17.21	18.02	21.21	18.97
June 9	12.52	17.84	20.31	14.04
June 23	10.46	17.40	20.46	11.65
July 7	9.06	16.70	19.14	11.22
July 21	7.46	13.43	20.54	12.06
Aug. 4	8.23	9.49	18.11	10.36
Aug. 18	9.80	10.30	20.26	13.66
Sept. 6	17.79	16.99	24.04	20.22
Sept. 20	14.91	16.31	18.09	19.87
Oct. 31	21.33	19.77	26.02	19.71

The clover plot was given clean culture and no cover crop was used on any of these plots. The fall was a moderately wet one and these plots each contained approximately twenty per cent. of moisture, which amount our experiments indicate is about right for the most successful wintering of the tree. One of the bad effects of drying out the soil early in the spring is that the subsoil water is lost, whereas it should be retained for the crop later on, as it is this water on which the crop depends later in the season. The tabulated data shows only the condition of the soil to one foot in depth, but soil to a greater depth would show as great a variation.

It is advisable, except in cases where the ground has an excess of nitrogen, to use leguminous cover crops. The Crimson clover and common vetch we prefer. Both of these make an ideal cover. The math is not objectionable at picking time and it forms a good protective covering. We find that the clover can be worked under with greater ease and for that reason we use it principally. The two mixed together are good.

Red clover does not make sufficiently rapid growth in my opinion and we do not use it except in our comparative tests. We get a much better protective covering with th crimson clover, and a very much greater bulk of material to turn under. A mistake is often made in using too little seed. Never use less than twenty-five pounds of Crimson clover and seventy-five pounds of vetch seed per acre.

SEEDING CLOVER

In seeding to clover we run over the ground with a tilting spike tooth harrow, sow the seed and harrow with this tool again having the teeth upright, and again harrow with the teeth tllted to leave a perfectly smooth surface. The seed can be safely worked in to a greater depth than is the case with the smaller Red clover seed. In seeding vetch I prefer to use the springtooth harrow which leaves the soil more in ridges and after seeding this is again used, followed by the levelling harrow.

I have never yet had any difficulty in getting a good catch from seeding on a properly cultivated area. If this ground is thoroughly dried out on the surface, there may be trouble, but in such cases I would advise working in the seed more deeply.

One of the best of the Japanese plums for long distance shipping is Ogon.

The Little Peach Disease

L. Caesar, B.S.A., O.A.C., Guelph, Ont.

During a recent trip to the peach districts of Michigan to investigate the disease known as Little Peach the writer gained the following information:

Little Peach is a very destructive disease; and in the opinion of the majority of Michigan growers is several times more destructive than Peach Yellows. Wherever affected trees have been allowed to remain the whole orchard, as a rule, has become hopelessly diseased in four or five years. An expert grower stated that he had himself seen more than 100 orchards thus destroyed.

So far as known, no variety of peach tree is exempt. Japanese plums are subject to the disease. The writer saw three plum orchards with several of the trees attacked by Little Peach.

Little Peach attacks trees from two years of age upwards. (This is also true of Yellows.) The disease has been successfully controlled in Michigan and other places, but only by the removal each year, as soon as possible, of all clearly diseased trees and also all suspected ones. It is absolutely necessary to remove the suspicious cases as well as the clearly diseased. Co-operation in control measures is necessary, and, where orchards are close together as in Ontario peach districts, is imperative. No person can thoroughly control the disease in his own orchard by the removal of diseased trees if his neighbor only a few rods away fails to remove his. If, however, the orchards are half a mile or more apart one may hope to be able to keep his own orchard fairly free from the disease even independent of his neighbors. Where trees have been removed because of the disease young trees may, if desired, be set in the same place next spring. Such trees are not any more subject to Little Peach and Yellows than any other trees in the orchard. (Prof. Waite of Washington, D. C..Prof. Blake of New Jersey, and several others agree with this statement.)

CAUSE UNKNOWN

The cause of Little Peach (or of Yellows) is not yet discovered. It is not definitely known in how many ways the disease may be spread. It is probably first brought into a district on nursery stock and once in the orchard it spreads from one tree to another, but just how no one knows. Many think that the time of infection is during the blossoming season.

The disease can be propagated by budding, as has been proven by Dr. Smith and Prof. Waite in the case of Yellows. Mr. Horace Welch, who is said to be the best expert on the disease in the State, took more than 200 buds from trees showing symptoms of Little Peach, and inserted some in young seedlings and others in healthy trees, but in every case the disease developed, but not until the second year, and in some cases the third year.

Whether the pits from Little Peach will grow and produce the disease is not yet proven. (Prof. Philips of Virginia, believes a small percentage of them will do so.) The ordinary system of inspection for Yellows (as practised in Ontario) is not sufficient for Little Peach, as this disease often does not show in trees until the latter part of September. Therefore, inspection work should continue up to the coloring of the leaves by frost. It is not an infrequent occurrence to find trees with all the symptoms of Little Peach except that the fruit ripens somewhat prematurely or at latest at the normal time. Such fruit shows no sign of Yellows. This is possibly an abnormal case of Little Peach and Yellows attacking the tree at the same time. Whatever be the cause these trees must be destroyed just as if they had typical Little Peach or Yellows.

In some districts in Ontario Little Peach has already caused the loss of several orchards and of many trees in nearby orchards. No chance should be given it to make further progress; therefore, every grower is urged to destroy AT ONCE every tree marked by the inspector and every suspected tree. It is very important not to let them remain in the orchard till next spring. There is no use in hoping for the recovery of trees; they never recover from this disease.

Shrub Hedges

A. K. Goodman, LL.B., Toronto, Ont.

The best of the garden is what you put into it rather than what comes out of it. It is the satisfaction of your tastes and the bettering of them, the thought and sentiment you express in planting and gathering, the innocence and quiet of mind that you take to the seeding, trimming and watering that are the real rewards.

The winter is the season to take stock of your yard conditions, the reflecting period when your plans are matured for its improvement in the spring. Have you thought of planting any ornamental shrubs? Do so now—let me recommend from personal experience the despised and neglected snowball, the guelder-rose (Viburn Opulus) with its globose clusters of white sterile flowers, said to be a cultivated variety of high cranberry. It is very hardy, does well enough in any soil and under all conditions, but plant it—attend to it—prune it—feed it, and love it, and the beautiful display of bloom it will in gratitude return will be a source of wonder, pleasure and delight.

Have you a place where a hedge effect is desirable, then alternate with the best known honeysuckle, the Tartarian from Russia—feed and prune them with care and in a few years nothing will surpass the fragrant loveliness of these shrubs in flowers:

> "How sweetly smell the honeysuckle
> In the hush'd night, as if the world were one
> Of utter peace and love and gentleness."
> —*Tennyson (Gareth and Lynette.)*

I have also found the lilac or pipe tree and particularly the Persian lilac (S. Persica) an excellent hedge to divide the vegetable garden from the front. The lilac is a widely cultivated ornamental Old World shrub of the genus Syringa of the olive family (Oleaceæ), but notwithstanding its ancestry, how do we find it in Ontario? Everywhere sadly neglected, untidy, scraggy, its suckers occupying and spoiling the ground for some feet around the bushes. Try this method, plant a lilac hedge—feed it—prune it for form and flowers—cut out the suckers, and note the great panicles of fragrant bloom it will produce in quantity and quality. I challenge all exotics to excel these flowers in pleasing perfume.

A Portion of a Prize Winning Garden in the Earl Grey Garden Competition, Ottawa

The illustration shows a Tartarian honeysuckle and Snowball Hedge in the grounds of Newton J. Kerr, City Engineer, Ottawa.

January Notes for Amateur Flower Growers

Frank Wise, Peterboro, Ont.

January is the month when both the professional and amateur gardener can take a little time to review their work of the past year and lay plans for another. No matter how successful the gardener is he can always see where he has made mistakes and lay plans to avoid them in the future. Then, also, no gardener, however small, can get along without experimenting to some extent. We can benefit partially by other people's experience, but conditions vary. This is especially noticeable in the different kinds of soil. Fertilizers that will help a crop in one field will act the very opposite in another, producing the same kind of crop. Especially is this the case in the heavy clay soil. Sandy and loamy soils are not so susceptible to an overdose of manure. Being porous, they can cast off any surplus matter contained in it.

If you are going to make any changes to your home grounds now is the time to make a plan, as it is far easier to work when you have a sketch before you. This is especially true if there are more than one employed in the work. It will then not be necessary to leave such constant instructions with your workmen, which oftimes are misunderstood or forgotten, as a reference to the plan will ensure against mistakes.

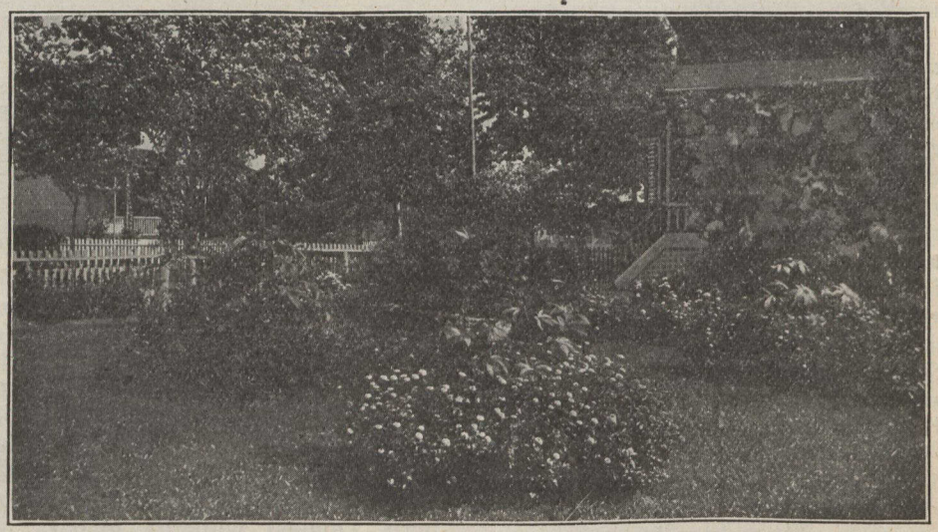
You can also draw a diagram of your kitchen garden, assigning the position for your separate crops, leaving space for new varieties. This you will find very convenient as then you will not have all your garden planted and find that you have forgotten some particular crop and have to sow it between the rows of some other crop, or sacrifice some of what has been sown.

Do not forget to take the advice given in last month's issue of The Canadian Horticulturist, regarding repairing and replacing all tools.

HOUSE PLANTS

Your house plants will require attention to keep them from going back. It will be necessary to watch the watering very closely and not to overdo it. Some of the readers of The Canadian Horticulturist will have received plants for Christmas presents. Most of these plants come from the florists and will require special care as greenhouse and house conditions are as a rule entirely different. Greenhouse plants are used to a moist atmosphere, which gives the foliage a soft tender appearance. This is especially so with a great many plants at this time, as the florist has been using a little more heat and moisture to get the plant as near perfection as possible, so as to demand the highest price obtainable.

A good way to treat such plants is to give them as nearly as possible the same treatment they have been getting in the greenhouse. Syringe them with tepid water once a day. This is better done in the morning as it allows them time to dry off before night. Do not subject them to too great a change in temperature, but give them as near 60 or 65 degrees of heat as possible. Last, but not least, do not water them until the earth will crumble in your fingers, then moisten them thoroughly. Do not allow the water to stand continually in the saucer. If these instructions are followed, you will be more likely to keep your plant alive instead of consigning it to the ash-heap in the back yard in a week or two.



A Silver Trophy Flower and Vegetable Garden, at Montreal West, Quebec

This garden owned by A. P. Horner, of Montreal West, now of Calgary, Alberta, won the first prize in 1909, in a garden competition conducted by the local horticultural society.

Examine your palms and ferns for scale. A little soapy water applied once a week will prevent the attack of this insect, and will also be beneficial to the health of the plant.

Most house plants will be benefited by a little fertilizer in some form at this time as it will encourage bloom in flowering and growth in foliage plants. Should you not have any of the plant foods advertized, a mixture of one part of nitrate of soda pulverized, three parts bone flour, and six parts Harris' Blood and Bone can be used, giving a tablespoonful to a four-inch pot and stirring it into the top half inch of soil with a pointed stick.

TREATMENT OF PALMS

The house treatment of palms is very simple and takes but little time. If you have received some palms as a gift, you must consider where your plants came from. A palm house is kept at a humid temperature of from 60 to 70 degrees, and the plant receives a syringing every bright day. This need not be done to your palm until it has become accustomed to its surroundings. It must be moistened twice a week for a few weeks, after which once a week will do. A good plan is to take it to the sink and give it a shower bath with a small watering can. A frequent sponging with soapy water will be beneficial.

Do not water until the plant becomes dry. Most palms do not dry out very quickly owing to having been fresh potted or having poor drainage. If when watering the water should remain on the top of the pot, the earth has either become baked or the drainage clogged. To overcome this, take a pointed stick and loosen the top earth in the pot. Turn up your pot and clean out the hole left for drainage by pushing your stick two or three inches up into the pot. If this should not remedy the trouble it will be as well to turn out the plant and take the old drainage material out (if it has any). Wash it and place it back again. Palms should not be repotted too frequently. They will often remain in one pot and thrive for years if given a frequent watering with manure water or a little concentrated plant food.

Look over your winter bulbs that were potted and placed in your cellar. Some of them may require watering. Bring up any that are making growth and treat them as advised in the last issue of The Canadian Horticulturist.

Treatment of Narcissus

What would you recommend to do with a giant white narcissus bulb that has been grown in pebbles and water since last fall and that flowered at Christmas? How long should it be kept in water?—R. McL., Stratford.

Narcissi bulbs which have been grown in pebbles and water as mentioned are of very little use for flowering purposes again, as this method of growing weakens the vitality of the bulb. If allowed

to dry off gradually and the bulb placed in dry sand or soil and kept in a cool place until spring, it might be planted in the open ground, where possibly it might recover in the course of a year or two. As a rule, however, they scarcely give returns to repay for the trouble.—Wm. Hunt.

The Classification of Trees and Shrubs

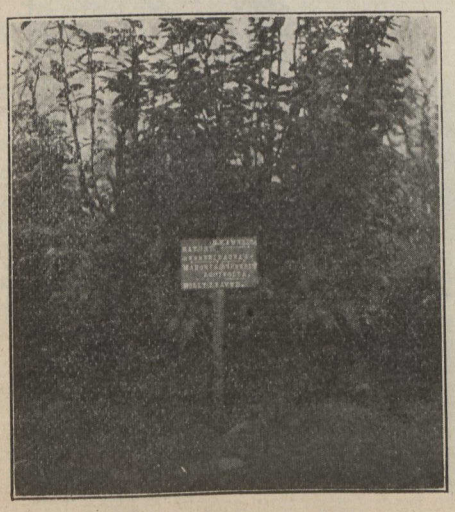
H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

WHAT promises to be a really systematic attempt to name and arrange the trees and shrubs in their natural orders in the Queen Victoria Niagara Falls Park will be made in the near future. The naming of the various subjects has already commenced. This most important phase of park work, although of great value, has been neglected hitherto in Queen Victoria Park and in many park systems.

It is of great advantage to people who visit our public parks to be able to ascertain the names of any trees or shrubs, which they may desire for planting purposes in order to beautify their own homes or property, without their having to take the trouble of enquiring the names from the superintendent or his assistants, whose services at that time may not be available, or of asking some of the employees who may give a wrong name, thus sending the enquirer away with erroneous information.

From a nurseryman's standpoint, also, the naming of trees and shrubs in our parks will be of great advantage. In many instances customers, when ordering from the nursery submit names or descriptions which are very vague and cause a great deal of trouble to define and select the subject desired. Thus if the trees and shrubs in the public parks were named correctly this unnecessary worry could be largely avoided.

As an educational feature, this line of work is worthy of serious consideration, as to students of botany, or others who desire information upon the subject, the proper classification of the subjects which beautify our parks will prove of incalculable value. It will prevent the unnecessary spending of valuable time in looking up references which are in many cases obsolete.



An Inexpensive Type of Label

The system that has been adopted in Queen Victoria Park is similar to the one in vogue in the Royal Botanic Gardens of Kew, The Edinburgh Botanic Gardens,

A Simple Label for Use on Trees

and I believe also at the Glasnevin Botanics in Ireland. A sheet lead label, five inches by three and one-quarter inches is used and bold type letters, one quarter of an inch in height, are stamped into the surface of the lead by means of steel dies, causing depressions into which white lead is rubbed with a piece of cloth, the letters thus showing up white upon a dark background. The label being almost the color of the bark of a tree, is hardly noticeable, but the letters stand out in relief and are easily distinguished even at a distance of six or eight paces.

The label itself is practically indestructible and only requires cleaning every second year. This operation is not difficult as the letters simply need repainting. This can be done while the label is attached to the tree, or it can be removed and the necessary painting done in winter when it is too cold or wet for outdoor work. All the materials necessary are a quantity of white lead and a piece of cloth or a sponge. It is also desirable to oil the labels at the same time. The accompanying illustrations show the different methods of attaching the label, lead or aluminum wire being used for this purpose, and also the manner in which the Natural Habitat, Natural Order, Genus, Species, and common names are printed. The method of fixing the labels to iron stakes for use in beds and borders, is also illustrated.

While passing through several city parks, I have noticed the unsightliness of the labels which sometimes are attached to the trees. Some of them being so large they gave the impression that the tree was planted purposely to support the label, instead of the latter being intended to indicate the name of the tree. The whole arrangement is almost as hideous as the advertising signs one notices nailed to the trees on the highways at the various city aproaches. It is just as easy to procure a neat label, that costs no more than the glaring enamel signs which are not only unsightly but in many cases so attractive that they furnish an excellent target for the average small boy

The Care of Tulip Bulbs

R. G. Yule, Toronto, Ont.

In the November issue of THE CANADIAN HORTICULTURIST I noticed a short article entitled "The Cultivation of Tulips." I do not agree with the writer when he states that tulips should not be grown two years in succession on the same piece of ground. I claim that no injury will result from letting the bulbs stay in the ground year after year.

The authorities of the Nashville, Carolina, Mission School grow the finest of tulips. I have seen photographs of beds there the flowers in which had not been raised for four years. The bulbs in the long beds in front of the Parliament Buildings, Toronto, are not changed as the writer says they should be. And yet there are no finer tulip beds to be found than the Queen's Park beds.

Some of the finest tulips I ever had grew from one red tulip bulb I picked up and planted five years ago last spring. It was in the bed for five years and I took out a capful of bulbs then.

A Cedar of Lebanon
At residence of Mr. S. A. Knight, Victoria, B.C.

Some Gardens and Gardeners in the Old Land*

Miss M. E. Blacklock, Toronto, Ont.

A LOVER of gardens and gardening can have no greater treat than a visit to the Mother Land. The love of flowers and indeed of beauty in any form seems inherent in the people, and equally so is the love of neatness and order.

There is little of the slovenliness in England that there is in Canada. From the delightful little railway trains one gets a back view of many houses, just as we do here from our trains, but there is a vast difference in the outlook. There you see prettily walled gardens, the walls of either brick or stone, containing vegetables in neat little beds, or flowers, or still more frequently, a happy combination of both, with the inevitable climbing rose on the house wall. Not one here and there, but all, with very few exceptions, are pretty, with everything to please and nothing to offend the eye.

We all know, to our sorrow, what the view from our train windows chiefly consists of, when passing anywhere near the haunts of man. Wherever there are buildings, scrap heaps, ashes, tin cans, and rubbish of all kinds obtrude themselves upon the sight and we have not even the grace to plant a Virginia Creeper or sow a handful of Nasturtium or Morning Glory seed to drape their hideousness. There are, of course, a few exceptions, but they are deplorably few. Do we realize the importance of first impressions, I wonder? Surely if we did, we would start a crusade of improvement along our railway tracks.

RAILWAY GARDENS

The grounds around the English railway stations are most attractive. For the most part they are beautifully laid out, with shrubs, trees, and flowers in every nook and corner. In the country parts the stationmasters take great pride in their gardens and many of the railway companies give prizes for the best kept station grounds, with the result that every little way-station is a blaze of flowers. They do not use geraniums or "bedding" plants for these grounds, but hollyhocks, Madonna Lilies, roses, campanulas, iris, and many other hardy things and a great variety of annuals.

The planting was not confined to one spot. Wherever there was any earth, if it was only a foot square, something was made to grow in it. Quite often narrow borders, a foot or two wide, were all the space that was available, but those little borders often vied with the larger ones in beauty.

The public parks and gardens are also walks with shrubs on either side—and such shrubs — hollies, rhododendrons, azaleas, laurels, all with broad evergreen leaves, enough to make any gardener, living in so cold a climate as ours, green with envy. For these shrubs are not only extremely beautiful in themselves, but they make such an admirable background for other things.

Then the trees. Wonderful old oaks with huge trunks and mighty branches, so old that one could easily fancy the Druids had worshipped beneath them and yet so hale and vigorous that they seemed to challenge old Father Time to do his worst. Copper beeches, with a smouldering fire in their leaves. Yews with their green mysteriously veiled in a great source of pleasure to the visitor. One can never forget their beautiful velvety blackness and a host of the most delightful Conifers of all shapes, sizes, and tints, some of them tapering into steeple-like trees, others broad and bush-like, and still others with fringe-like branchlets pendant from their sweeping boughs and graceful as a birch. It would be very interesting to know how many of these could be prevailed upon to take up their abode with us as permanent settlers and not succumb to our winters.

RHODODENDRONS

The flowering shrub of England, leaving roses out of the question, is the rhododendron. For gorgeousness there is not its equal. At Kew there are enormous masses of it which are a wonderful sight when in bloom, but in spite of its magnificence—or perhaps because of it —it is not a very lovable thing. One cannot wax sentimental over it as one can over a simple lilac by a gateway, or a bit of gorse on the hillside.

RUINS AND WALLS

Nature does a great deal of beautifying, entirely unassisted, in England, just as she does here, only differently. Every old ruin has its walls or window ledges more or less grown over with various little plants, amongst which the wallflower makes a wonderfully effective bit of coloring, and one learns why it is provided with such long, flexible, ungainly-looking stems, which are often so ugly when it is grown in pots and beds, but which give it a delightful airiness when we watch it swaying with every passing breeze on some old wall high above our heads.

LEDBURY

The first garden I was fortunate enough to see was in the quaint old town of Ledbury in Herefordshire. From a Canadian standpoint, it was a large garden; from an English one, of quite modest dimensions, the grounds probably being four or five acres in extent, an ideal size, because there was room for magnificent trees, shrubs in abundance, a water garden, a rock garden, and a walled enclosure, for fruit and vegetables chiefly, and yet nothing was crowded.

This garden was so well laid out that you did not realize it was laid out at all. With the "art that conceals art," things seem to have grown in just the right places of their own accord. Here, in a sheltered glade, was a low rocky bed of the choicest ferns, not one of our native ones missing that I am familiar with, except our "Christmas Fern" (Aspidium achrostichoides). Expressing surprise that so handsome a variety had been left out, I was told that it had been tried again and again, but had absolute-

Some of the Lovely Lawns and Boulevards of Chestnut Park Road, Toronto, Ont.

*A paper read at the annual convention of the Ontario Horticultural Association held in Toronto, November 17 and 18.

ly refused to live. Varieties that we see only in our greenhouses grew there vigorously in the open air. That fernery was a revelation of the possibilities of the English climate.

SOME FAMILIAR FLOWERS

A little farther on, the glade opened out sufficiently to have a wide border on one side of the walk—a border which curved with the walk and extended upwards (for it was rising land), into the trees and shrubs. Many old friends greeted the eye in this border and one was introduced to many new ones.

Great clumps of the Wood Hyacinths (Scillas: Hispanica, Nutans and Patula) were very lovely. They have nothing of the Scilla about them in appearance, being like large Roman Hyacinths. They come in various shades of mauve-blue, pale pink and pure white, and are most graceful and very well worth growing. These are really the "Bluebells" of the English woods, improved by cultivation. Trilliums, Foam Flowers (Tiarella cordifolia), Mitre-worts (Mitella diphylla and even the tiny Mitella nuda), and several others of our "woodsy" things made a flourishing little colony in a sheltered nook under the trees.

A ROCK GARDEN

On one side of the wide stretch of grass, which was commanded by the house, lay a square, formal garden some of the conventional beds of which contained magnificent May flowering tulips, others wallflowers, and others polyanthi. Still nearer the house, a path, passing through shrubbery to the right, led to the rock garden, which was a wonderful bit of color in its spring freshness. This you could easily see was the owner's chief delight. He pointed out his treasures with all a connoisseur's pride, and he knew the botanical name and habitat of every one. Many he had brought home himself from the Alps and the Pyrenees and various other places, some so minute that you might easily overlook them, others of more imposing growth.

From the rock garden we wandered into the walled garden, where the daffodils had held high carnival a few weeks before in a long border devoted to their sole use. These must have been a glorious sight, for the choicest new varieties were here in all their expensive—and therefore exclusive — greatness, but when we saw them they were at the very unattractive stage of "lying down." Nectarines, apricots and peaches were grown on the walls, and strawberries and other small fruits in beds.

Passing on, we came upon a woodland path which led across the carriage drive to the other side of the grounds and to a wild garden where primroses and violets had erstwhile flourished and a stream wandered in and out, finally broadening into a good sized lily pond, bordered with graceful hedges, bulrushes and iris, with bamboos nodding their heads over them. Looking through the trees, one could see the deer grazing peacefully in Lord Biddulph's park, which appeared to be part and parcel of these grounds, the low lying stone wall, which separated the two, not being noticeable from where we stood. Crossing a rustic bridge, we came to the drive once more which led past the little lodge to the gate, and so back to the town after a most enjoyable afternoon.

(To be continued.)

Winter Care of Evergreen Plants for Lawns

Wm. Hunt, Ontario Agricultural College, Guelph

THE class of plants that are grown in large pots or tubs and are usually made use of temporarily in summer for outdoor decorative purposes around the house, include many varieties. Some of the most popular are the Japanese Euonymus or Spindle tree, Nerium or Oleander, Aucuba Japonica, Laurisitinus (Viburnum tinus), Myrtle and Bay trees, Orange and Lemon trees, and the English ivy.

Too often in winter these plants are stood away in some hot dry room or in a dark furnace heated cellar, where they get very little attention. The soil in the pot or tubs is often allowed to get dust dry and remain so for a long period. This treatment, if it does not kill the plant, usually results in the foliage becoming so withered and rusty looking before spring that the plant is useless as a decorative plant, until the top growth has been cut back and allowed to start into fresh growth.

The best place to keep the plants in winter is in a cool part of the greenhouse, or a greenhouse lobby, in a temperature of about 40 degrees at night and 55 degrees in the day time. A shaded position where the hot sun does not strike them is best, as they do not require much sunlight in winter, the hot sun—especially toward spring—often burning or scalding the foliage. Next to a greenhouse, the vestibule or porch of a dwelling house will suit them, or a cool room or a light basement or cellar, or even a light root cellar.

IMPORTANT POINTS

The main point to consider in wintering these plants is to keep them in about the temperature before mentioned and as far away as possible from hot, dry, artificial heat. Keep them where the foliage can be sprayed occasionally with clear water. Spraying the leaves every week or two is of great benefit in keeping down red spider and thrip that sometimes attack these plants where the atmosphere around them is of a dry, arid nature. The cooler the temperature beyond actual freezing, the less need there will be of spraying. In spraying, the water should be applied mainly to the under side of the leaves, as this is the part of the leaf they attack. The pests mentioned are very destructive in a dry atmosphere and will soon denude the plant of leaves if not checked. Spraying under pressure is the best remedy and preventive for their attacks.

The soil in the pots or tubs should be kept well moist but not soddened; it should never be allowed to get in a dust-dry condition, or the foliage will suffer. When water is given, give sufficient to moisten all the soil and then withhold water until the soil shows signs of dryness again. This is better than applying a small quantity of water more frequently, that perhaps only moistens an inch or so of the soil and quickly evaporates, the lower roots getting no moisture at all.

INSECT PESTS

In addition to the red spider and thrip before mentioned, the other pests that trouble these plants are the scale insect and the mealy bug. The scale is a small white or whitish brown insect that attaches itself to the leaves and stems of the plant. The mealy bug is of a whitish

Two Flowers

The smaller of these two flowers was grown by Miss Helen Dargavel, Elgin, Ont., and weighed fourteen and one-quarter pounds.

color and, as its name implies, looks as if it had been dusted with meal or flour. The scale is the worst pest of the two.

The best remedy for the scale is to wash the leaves and the stems of the plants affected with a strong soap solution. Soap suds made from common soap will answer, or a solution can be made by thoroughly dissolving an ounce of whale oil soap in one gallon of water, or in that proportion. It is best to dissolve the soap in a small quantity of hot water, then add sufficient cold water to make up the quantity. A moist atmosphere and a cool temperature are the main essentials in keeping these plants free from insect pests and in good condition during the winter.

Insects that Attack Vegetables

L. Caesar, B. S. A., Ontario Agricultural College, Guelph

THE common or bluish asparagus beetle (Crioceris asparagi) and the twelve-spotted red one (Criceris 12-punctata), though comparativey new pests, have already spread over most of Ontario and are causing much loss to asparagus growers. The plants are attacked throughout the whole season, and not only the larvae or slugs but also the adults feed greedily upon them. The two species differ somewhat in their habits, but as the remedy for both is the same, we shall not go into details in regard to the difference.

MEANS OF CONTROL

The best way to keep this pest in check is to spray the plants carefully from both sides after the cutting season is over with three pounds arsenate of lead to every forty gallons of water. The sticker mentioned under flea-beetles should be added and also two or three pounds of freshly slaked lime, the lime being added solely to insure that any excess of sal soda may not act upon the arsenate of lead and cause it to burn the foliage. As this spray does not kill the eggs it will have to be repeated two or three times at intervals of a week or ten days until the plantation is entirely free of the pest.

By this method of destroying the insects the plants get a chance to grow thrifty and to store up plenty of food in the roots for the following spring and fewer beetles will attack them during the cutting season. Of course the poison cannot be sprayed on plants that are being cut, but new plantations which are not cut the first year should be sprayed quite early to protect them.

(2) Chickens and ducks. Where these are allowed to run on the plantation during the cutting season they seldom do any injury to the plants and are very helpful as destroyers of the beetles.

(3) Frequent cutting gives the eggs in the early season no chance to hatch.

STRIPED CUCUMBER BEETLES

Every grower of cucumbers, squashes, pumpkins or melons is familiar with the small beetles, about one-fourth of an inch long, with alternate yellow and black longitudinal stripes on their wing covers. They are often very destructive and are very difficult to combat successfully. The chief damage is done in spring to the young plants just after they appear and when they are least able to withstand an attack. At this season the adult beetles, which winter in the ground or under any good protection are very hungry and during one or two weeks feed very voraciously. At the end of that time mating begins and they become less destructive and more particular about what they eat, often refusing to touch plants with foreign substances on them. The yellow eggs are laid in the soil near or around the roots and if the earth is damp the young larvæ feed on the roots, vines or fruit that may happen to be near them. The new adults that appear later in the season also feed ravenously upon the vines and fruit.

The best means of control are trap crops and spraying. It has been found that the beetles prefer squashes to other kinds of cucurbits, hence before sowing the cucumbers or the regular crop a considerable number of squashes should be sown around the outside of the plantation to attract the beetles. As soon as they appear they should be heavily sprayed every few days with arsenate of lead, three or four pounds to forty gallons of water. When the cucumbers or regular crop comes up, spray it with Bordeaux mixture and arsenate of lead of the above strength, repeating the spray several times until after the vines have begun to run. The Bordeaux is added chiefly as a repellant, since the beetles after the first week or so usually refuse to eat plants covered with it. Bordeaux also helps to keep off the mildew and gives vigor to the plants. Later in the year squashes should be planted and left to attract the greedy new adults. These can then also be sprayed with the arsenate of lead and many of the beetles will be destroyed.

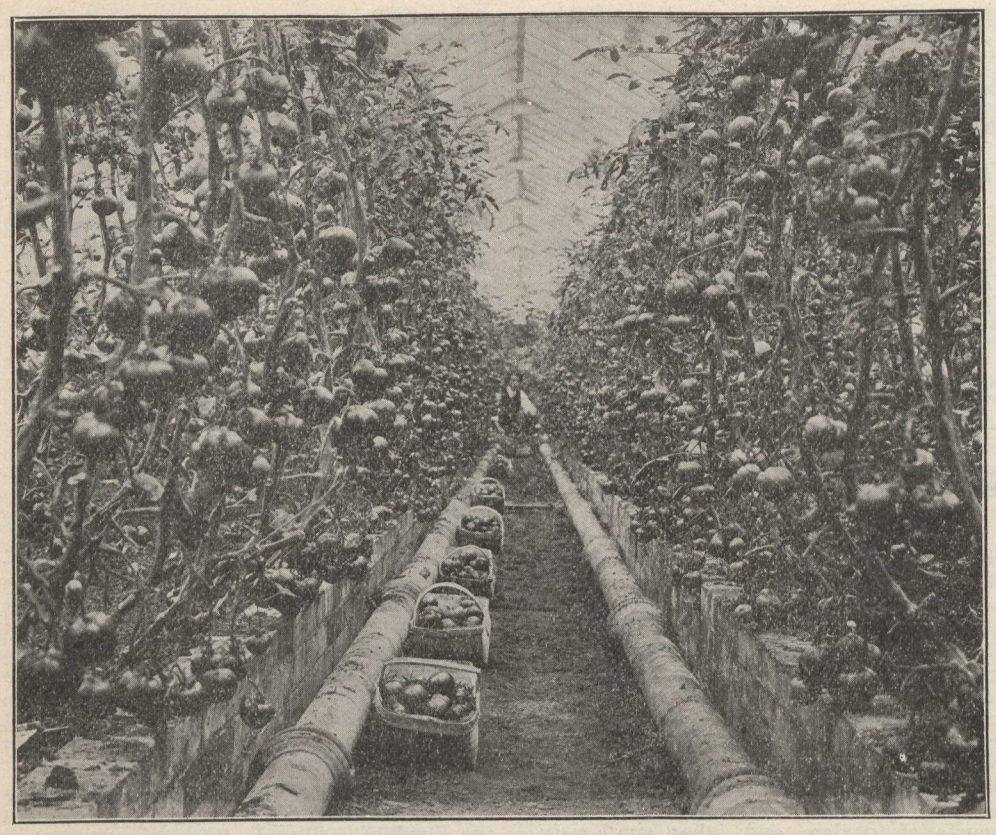
Advantage should be taken of the habit of the beetles late in the fall to congregate in great numbers on old cucurbit fruits and vines, especially where these are gathered into heaps. I have seen the beetles in thousands in such places on frosty mornings. If then the refuse be gathered into heaps after the picking season and on some frosty morning, a covering of straw is thrown over them and set on fire, countless numbers of beetles would be destroyed and the number left for the next season thus greatly lessened.

COVERINGS

A very satisfactory way of protecting young plants in the spring on a small scale is to cover them. For this purpose cut a barrel hoop in two so as to form two semi-circles. Then place one of these over the other and at right angles to it, and insert the ends of both in the ground. Two bent wires will of course do instead of the hoops. The frame thus made

Loading Vegetables and Small Fruit at Sarnia

Immense quantities of early vegetables and small fruits are now produced each year on the south shore of Lake Huron, and shipped by boat to Northern and Western ports. The shipment here shown consisted of 42 waggons of produce, or approximately 100 tons, all grown in Sarnia township



English Hot House Tomatoes, Evans No. 1. The vines grew fifteen feet high and averaged 21 lbs. to the vine.

should be covered over with gauze or some such material and a little earth thrown up around the edge so that no beetles can get under. It must be on the plants before the beetles get any chance to attack them and can be left on until the plants are too large for such limited space. This affords a complete protection but is hardly practicable on a very extensive scale.

(To be continued.)

The Potato Blight

F. F. Reeves, Humber Bay, Ont.

The question of how best to fight the potato blight or mildew is a very difficult proposition. During the past season I tried Bordeaux mixture, using the formula as given in Bulletin 122, issued from the O. A. C., Guelph, 1902.

Copper Sulphate (Bluestone)	4 lbs.
Quicklime (Fresh)	4 lbs.
Paris Green	4 ozs.
Water	40 gal.

The bluestone and lime were dissolved in different barrels. I used an auto-spray and started as soon as the potatoes were nicely above the ground and sprayed every two weeks after till the potatoes were ready to dig.

On part of our farm celery has been grown every year for over thirty years, and the crops of late years have been as good as any we have ever grown; in fact the celery seems to be better every year. Every year, however, we apply as much manure as can be plowed in.—George Syme, Jr., Carleton West ,Ont.

Experiments with Asparagus*

Prof. C. E. Myers, State College, Pa.

One acre of our experimental grounds is devoted to experiments with asparagus. On one half of this area we are making a variety test of Bonvaletts Giant, Connovers Colossal, Barrs Mammoth, Dreers Eclipse, Palmetto and Argenteuil. Of these Palmetto has thus far proved the most satisfactory, both from the standpoint of yield and quality and from its ability to resist disease.

The remainder of the plat is used for testing the importance of grading the crowns at the time of transplanting. This experiment is being conducted with the varieties Palmetto and Argenteuil. At the time of planting, the crowns were graded into three sizes and two rows of one hundred plants each were planted of each grade, first second and third. At the end of the first year the number of plants which failed to grow were respectively, thirteen, sixteen and thirty-four of the test of Palmetto, and thirty-eight, forty-nine and eighty-five of the test of Argenteuil. These figures are significant, and especially so when we consider the expense entailed in making replantings, as well as the year of time lost and the accompanying diminished growth.

Last year, at the end of the growing season, the growth made by each of the tests was weighed and was thirty-one, twenty-three and fourteen pounds respectively for Palmetto, and fifteen, eleven and five pounds respectively for Argenteuil. The first cutting for market was made this year. The record of the product harvested was twenty-two, twenty-four, and twelve pounds respectively for Palmetto, and thirteen, nine and five pounds respectively for Argenteuil.

In each instance the difference is important. It is especially noticeable between the first and third grades, while the difference between the first and second is less. In one case the yield of the second grade has been greater. The reason for this is unknown, but possibly may be determined later. The experiments seem to show that a person, when establishing an asparagus plantation, could well afford to carefully grade his crowns and discard all except the very best.

OTHER EXPERIMENTS

Some work is being done along the line of seed selection. At present, attention is confined to cabbage and tomatoes. We hope to be able to show how good seed may be produced. The work thus far indicates that there are great possibilities along this line. It is generally conceded that judicious selection offers great possibilities in the improving of our general farm crops. In pursuing this work the important feature to be borne in mind is that the entire plant, and not the individual fruit, should be considered the unit of selection.

To summarize briefly, we may say that these strain tests have shown the need of more care being exercised in the selection of seeds. Whenever plantings are made it is desirable to use several strains from seedsmen considered reliable since in this way we may be reasonably sure of securing a fair crop. New varieties should be tried, but it is unwise to make extensive plantings until they have proved satisfactory under your conditions.

*An extract from a paper read at the recent convention in London, Ont., of the Ontario Vegetable Growers' Association.

Turnip-rooted Celery or Celeriac

A. H. Ewing, Woodstock, Ont

The cultivation of this delicious vegetable seems to have been neglected of late years it is seldom seen in gardens. This is rather surprising as there is no difficulty in growing it on any good soil. It is no more trouble to produce than carrots or parsnips.

It is useful for soups, is very nice boiled like artichokes and served with white sauce, and there are various recipes for fixing it up for salads and other dishes. Try a row or two next season. Prepare plants like other celery and plant on the level, not in trenches; it does not require earthing up.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO, QUEBEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, $1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

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7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1909. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1909	9,456	January, 1910	8,925
February, 1909	9,310	February, 1910	8,967
March, 1909	9,405	March, 1910	9,178
April, 1909	9,482	April, 1910	9,410
May, 1909	9,172	May, 1910	9,505
June, 1909	8,891	June, 1910	9,723
July, 1909	8,447	July, 1910	9,300
August, 1909	8,570	August, 1910	8,832
September, 1909	8,605	September, 1910	8,776
October, 1909	8,675	October, 1910	8,784
November, 1909	8,750	November, 1910	8,747
December, 1909	8,875	December, 1910	8,662
Total for the year	107,638		108,809

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067

Sworn detailed statements will be mailed upon application.

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We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

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THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

EASTERN NATIONAL APPLE SHOW

If the proposal to hold a national apple show in Ontario next fall is to be acted upon, action should be taken immediately. From this time on every week of delay will militate against the success of the show.

To make this show the greatest that the world has ever seen, the enthusiasm of the citizens of Ontario and of the people of the east must be aroused. From the first stroke that is taken to the last this movement must be handled with the boldness that is inspired by the confidence of assured success.

The directors of the Ontario Fruit Growers' Association, upon whom has been imposed the responsibility of taking the initiative, might well decide, as their first step, to call a mass meeting in Toronto of all who are likely to be interested. Representatives should be present from the Dominion and Provincial governments, including Quebec, the city of Toronto, the provincial and local fruit growers and cooperative associations, the county councils representing the fruit districts, the railway and express companies, nursery firms, commission dealers and other similar interests. Reliable information should be laid before this gathering concerning the main features of the great national apple shows that have been held at Spokane, as well as of the recent show held in Vancouver, what they cost to run, how the money was raised and the effect they have had in arousing a greater interest in the growing of fruit and as an advertisement of the fruit growing resources and possibilities of their sections of country. Accompanying this there should be a rough estimate of the money that would be required to hold a distinctly greater show next fall in Ontario.

Such a gathering would attract the attention of the press all over the country. The fullest possible publicity should be given to the information brought out at it so that the public might realize the importance and extent of the undertaking and its support thus be obtained. To this gathering should be left the responsibility of selecting and appointing the main committee that would have charge of the arrangements for the show, the members of which could in turn select the executive committee from among themselves. The general committee should include representatives from every leading apple district in Ontario and from Quebec as well.

Should this gathering decide to proceed with the arrangements, as we may presume that it would, the Lieutenant-Governor of Ontario might then be requested to issue an official call for the holding of the proposed show, as did Governor Shafroth, of Colorado, for the Apple Congress held recently in Denver, Colorado. This call could be sent to the mayors of cities and towns, the wardens of counties and to every organization likely to be interested in advertising the resources of the province and in attracting immigration.

Following this local meetings should be held in the centres most interested. Toronto might well start off with the appointment of a committee from the city council, board of Trade and horticultural society with representatives from the fruit commission firms and other similar interests. Upon this committee should be imposed the responsibility of raising $15,000 to $25,000, of which $10,000 to $15,000 should be contributed by the city council and the balance by private contributions. Spokane has regularly contributed $25,000 a year to its show.

A definite request for assistance should then be made to the Dominion and provincial governments, after which the fruit districts should be organized, the railway and express companies interviewed and other similar arrangements made. Every step of the movement should be freely advertised both at home and abroad.

These suggestions are made in the hope that a few at least of them may prove acceptable to the directors of the Fruit Growers' Association, who we expect will improve upon them in many ways. In the meantime we must all recognize that the undertaking is a great one, that it is entirely feasible and that its successful completion will enthuse the fruit growers of Ontario and Quebec as nothing else could. At the same time it would advertise our resources to the world and thus should attract hundreds of thousands of capital and thousands of settlers to the fruit districts of eastern Canada.

INSULT TO INJURY

Ontario fruit growers of late have begun to wonder how it is that ninety out of every one hundred well-to-do British settlers who enter Canada to take up fruit growing pass by the great fruit districts of the east, as though they had never heard of them, and proceed direct to British Columbia. There they buy land at considerably higher values than land equally as good can be purchased for in Ontario. Eastern growers have even felt rather aggrieved over the situation. But now a worse thing is happening. During the past few months the Central Okanagan Lands Limited of Kelowna, B.C., has actually conducted agencies in Montreal and Ottawa. They have displayed excellent samples of their fruit and illustrations of their orchard land and are creditably stated to have sold some three hundred thousand dollars worth of fruit lands to Canadians in the east. They even ran an excursion of eastern investors to the Pacific coast province. We presume that the next we will hear is that they have opened branches in the Niagara District and that they have induced our leading Niagara District growers to sacrifice their fruit lands in order that they might make investments in the west.

The fact is that our eastern growers are very, very much asleep. If they do not awake soon they will have the boots stolen off their feet. The Ontario government also is dozing. The possibilities for a development of the fruit interests in Ontario are enormous. And yet! practically nothing is being done. Why then should we wonder over British investors passing us by?

One of our prominent and best informed government officials, who is acquainted with conditions both in the east and in the west, informed us recently that there is no reason why large areas of land in the Niagara District could not be irrigated from the Welland canal. The expense would be trifling compared with similar undertakings in the west. Such an opportunity in the west would have been seized long ago. We venture to say that were lands in the Niagara District developed in this and other similar ways whole colonies of British settlers might be located on them as is being done in British Columbia. What has been

said applies with about equal force to the other excellent fruit sections of Ontario.

The British Columbia growers deserve their success. They have overcome great difficulties. They have good fruit lands and they are making the fact known to the world. Their government is backing them up energetically. In time our Rip Van Winkles in the East will come to life but in the meantime it is a shame to disturb them.

A GREAT VICTORY

Fruit and vegetable growers especially but many other classes of the community as well may well congratulate themselves over the great victory that has been won, through the Board of Railway Commissioners, in regard to express rates. The decision of the board is the most important it has ever issued. It supports practically every contention made by the fruit growers when they gave evidence before the commission. The tariffs are declared to be too high and must be reduced, fruit rates between Ontario and the west must be lowered, carload rates must be provided between all points where fruit and vegetables move or are likely to move, existing forms of contract are unfair to the shippers, the graduated charges on express freight are unjust. Both companies must fyle new tariffs within the next three months.

Until the new tariffs have been settled it will be impossible to decide how much this victory is going to mean to the fruit and vegetable interests. The development of the fruit trade with the west is certain to increase greatly. Hundreds of thousands of dollars a year more will remain in the hands of the growers. Fruit and vegetable growing will be made more profitable and in consequence a certain increase in production will follow. Together with these benefits must be considered the effect this victory will have in encouraging growers to further unite, even more effectively than they have in the past, in pressing for additional reforms—not necessarily only in railway and express matters but in other directions as well.

Each year the directors of the horticultural societies in Ontario have to face the problem of how they can make their premium lists most attractive, within the limit of their funds, as well as how they can make their meetings more interesting and their exhibitions of greater educational value. Valuable information bearing on these points is brought out each year at the annual convention of the Ontario Horticultural Association but lack of time precludes these matters being discussed as thoroughly as their importance deserves. There is an opportunity here for the performance of good work by the superintendent of horticultual societies. Arrangements might be made with the different societies for the purchase of enough additional copies of all printed material they issue to make it possible to have a copy of each mailed to the secretary of every horticultural society in the province. The expense would be trifling. The benefit derived would be great.

The British Columbia government, not spasmodically, but regularly and persistently exhibits large quantities of British Columbia fruit at the leading Old Country exhibitions. Its main object is not to procure more markets for its fruit but to secure well-to-do settlers for its undeveloped fruit lands. It is succeeding. The tide of immigration to the west, past the fruit lands of the east, proves this. By and by the east will decide to do something.

Quebec Fruit Growers Discuss Matters

The annual meeting of the Pomological and Fruit Growing Society of the province of Quebec was held at St. Hyacinthe, Que., December 6 and 7. It was attended by many of the leading authorities on fruit growing in the province. The general attendance also was large. Among more prominent people present were Prof. W. S. Blair, of Macdonald College; Dr. C. Gordon Hewitt, Dominion Entomologist; W. T. Macoun, Dominion Horticulturist; R. W. Shepherd, Como; N. E. Jack, Chateauguay Basin; Robert Brodie, Notre Dame de Grace; Rev. H. H. Dickson, Rectory Hill; J. C. Chapais, St. Denis en Bas; Rev. Fathers Leopold and Oliver and Brother Ligouni, of La Trappe; J. M. Misch, M. Byers, Geo. Roach, S. Crawfield, of Abbotsford; Archie Ferguson, Montreal and Peter Reid, secretary, Chateauguay Basin.

FRUIT EXHIBIT

There was an excellent exhibition of winter fruit grown in the province, comprising a large number of cases and barrels of apples and other fruit, as well as over a hundred plates of fruit. There was a large exhibit from the Dominion Department of Agriculture, showing the products of different districts of Canada, while the Central Experimental Farm at Ottawa sent thirty plates of choice fruits, most of which had been grown from seedlings.

OFFICERS ELECTED

The following officers were elected: Hon. patron, Hon. Sydney Fisher, Minister of Agriculture; hon. president, G. Reynaud, La Trappe, Que.; hon. vice-president, Prof. W. S. Blair, Macdonald College; president, Rev. R. H. Dickson, Rectory Hill; vice-president, C. P. Newman, Lachine Locks; secretary-treasurer, Peter Reid, Chateauguay Basin.

Directors:—G. B. Edward, Covey Hill; E. A. Russell, Abbotsford; G. P. Hitchcock, Massawippi; A. D. Verrault, Village des Aulnaies; Auguste Dupuis, Village des Aulnaies; Robert Brodie, Montreal; Dr. Grignon, Ste. Adele; H. W. Thompson, Hudson Heights and N. E. Jack, Chateauguay Basin.

Executive Committee:—Prof. Blair and Messrs. R. W. Shepherd, C. P. Newman, N. E. Jack, Rev. R. H. Dickson and Peter Reid.

In regard to the appointment of delegates to the Dominion Fruit Conference, next year it was decided that the president and secretary of the association should be delegates ex-officio, and that five others should be sent, including Messrs. Chapais, Dickson, Shepherd, Brodie and Jack. It was also decided that the executive might appoint Mr. Byers and others to attend as representatives of the association apart from the Government invitation.

The usual summer meeting next year will be held at Inverness during September.

PRESIDENT'S ADDRESS

Prof. Blair of Macdonald College, in his presidential address gave a resume of the years' work in fruit growing. He dealt carefully with the surface cultivation, pruning and spraying, and estimated that it would cost at least $30 a year to keep an orchard in good fruit producing condition. With such treatment he computed that the average profits during the first fifteen producing years should be between $50 and $80 an acre, while after that when the trees had reached maturity, the profits should double that amount.

PEAR CULTURE

Mr. W. T. Macoun gave an elaborate account of pear culture in Quebec Province, reviewing efforts in this direction from the earliest available data. These records showed that pear culture had not been a commercial success in the province, mainly owing to climatic conditions, but also in some degree to the choice of unsuitable varieties. The only variety which had been shown to succeed to any marked degree was the Flemish Beauty.

A paper was read by Mr. L. V. Perron, a student at Macdonald College, on "Orchard Spraying." He went into the details of machinery, spraying mixture, pumps, nozzles and time for spraying, and showed the great improvements that could be made in the productivity of orchards by such treatment.

Prof. Lochhead, of Macdonald College, also read a paper on "Fruit Spurs," giving a study of twig life, and showing the effect of such study on the proper pruning of different varieties.

At the night session an address was given by Dr. C. G. Hewitt, Dominion Entomologist, on "Insect Enemies of Fruit," in which he enumerated the most common pests, and gave advice as to the best methods of exterminating them.

Father Leopold, of La Trappe, read a paper on how to set out an orchard, soil preparation and pruning methods.

Mr. R. W. Shepherd, of Como, described a trip through the Okanagan Valley, Kelowna, and other famous fruit growing districts of British Columbia. Although the results obtained were marvellous Mr. Shepherd did not consider the fruit of equal quality to that produced in Quebec province, although it was generally larger.

COOPERATION

The advantages of cooperation were pointed out by Mr. R. Brodie, of Montreal, who showed what fruit growers in portions of the United States and in other parts of Canada had accomplished by united effort. Mr. Brodie urged the adoption of cooperative efforts in Quebec but after considerable discussion it was decided that the apple and other fruit growers of this province were too scattered and too prosperous to want any cooperative aid. Quebec, it was declared, had several special advantages. First, it grew such apples as the Fameuse and McIntosh Red, which were famed all over this country as well as in England, for their unapproachable flavor, and as a result growers this year were able to get four and five dollars a barrel for No. 1 apples. And in addition to this the apple growers of the province not only had the Montreal market anxious to get their best fruit at fancy prices, but had half a million people along the lower St. Lawrence eager to buy their second fruit, at prices which could be secured nowhere else in Canada.

Mr. Shepherd reported that the exhibit of Fameuse and McIntosh Red apples at

the recent Vancouver Apple Exhibition had taken first prize as a whole exhibit while all the Fameuse exhibits had won first prizes.

Mr. Brodie claimed that owing to their cooperative methods the apple growers of the Okanagan Valley and other fruit districts of British Columbia had secured a lot of good publicity, and it was time the apple growers of Quebec made it known that they could grow fruit which was really unrivalled, both for appearance and flavor.

Mr. W. T. Macoun stated that arrangements were being made to cooperate with the Maritime Provinces to secure a standard form of judging apples, so that in future exhibitors would better know what to send. There is, he said, too much leaning toward size on the part of growers. If they knew the regular apportionment of marks they would better know the kind of apple to put on exhibition.

DEMONSTRATION ORCHARDS

The advisability of taking steps to urge the provincial Government to establish demonstration orchards, by taking over certain orchards in the various districts was discussed. It was considered desirable that the orchards should be taken over for a period of five years, in order to give a thorough opportunity of showing what could be done.

A committee of three was appointed to wait upon the Provincial Minister of Agriculture and urge that in addition to the work now being done along this line similar work be undertaken by the Department at Covey Hill, Ste. Hilaire, Abbotsford and two other suitable places.

In view of possible danger from the introduction of insect pests the association passed a resolution approving of the Insect Pest Act.

Nova Scotia Fruit Growers' Annual Convention

A number of discussions and incidents of unusual interest happened at the forty-seventh annual meeting of the Nova Scotia Fruit Growers' Association held recently at Windsor, Nova Scotia. Compulsory spraying, which is followed in British Columbia, was advocated by Dr. C. Gordon Hewitt, of Ottawa, Dominion Entomologist, who gave an excellent address on "Insects Injurious to Fruit in Nova Scotia." He spoke of the discouragement of a progressive fruit-grower keeping his orchard free of pests by spraying, which involved labor and expenditure of money, while next door, on either side were careless and indifferent farmers, with a few apple trees on their land, in which to breed insects. He was of the opinion that legislation which would compel a man to either spray or give up his trees, would largely overcome the evil. He advised an act for Nova Scotia which would meet with the approval of the fruit-growers.

OFFICERS ELECTED

President—R. J. Messenger, Bridgetown.
Vice-President—A. C. Starr, Wolfville.
Secretary—S. C. Parker, Berwick.

Messrs. S. C. Parker and M. K. Ells were appointed delegates to Ottawa, to meet the mammoth delegation of Western farmers on the tariff question and ask for reciprocity with the United States.

IMPORTANT RESOLUTIONS

The following resolutions were passed:

1. That the Nova Scotia Fruit-growers' Association commend the action of the Federal and Local Governments in desiring to remove restrictions on trade between Canada and the United States, recommending a free interchange of fruits, agricultural implements, fertilizers and insecticides.

2. That the Dominion Government be urged to appoint at once a director, and begin tests on the Fruit Experiment station lately established.

3. That, in the opinion of the Association the subject of Agriculture be added to the High School curriculum—at least, as an optional subject—with special teachers trained at the Agricultural College.

4. That the Government take steps to make the annual exhibition more satisfactory than at present.

Among the speakers were Mr. Alex. McNeill, chief of the Fruit Division, Ottawa, who statde that the Nova Scotia fruit growers have more trees en bloc than any place on the continent. Mr. McNeill urged greater cooperation and more of the enthusiasm and agressiveness of the west.

Some excellent specimens of apples from the Vancouver Show were shown by H. K. Lea, of Port Williams. They were beautiful in color and appearance, but those present felt that Nova Scotia could produce apples equally as good if not superior. The varieties shown were Jonathan, Delicious, Winter Banana, Grimes Golden, Mammoth Black Twig, Yellow Newton, Ben Davis and King David.

Maritime Fruit on Exhibition

Although the year 1910 was an off season for Nova Scotia fruit growers the exhibit of fruit at the Maritime Winter Fair during the first week in December was better than ever before, and showed a vast improvement over the fruit shown at the first Winter Fair held nine years ago. Mr. A. G. Turney, Provincial Horticulturist for the province of New Brunswick, showed a considerable quantity of excellent New Brunswick

fruit both in boxes and on plates that surprised many who previously were unaware of New Brunswick's possibilities in the line of fruit production.

The Dominion Department of Agriculture made a display of boxed fruit from Nova Scotia, New Brunswick, British Columbia and Ontario, to show the contrast between the apples grown in the respective provinces. This display showed our Maritime Province men that the products of their own orchards compare very favorably with those from orchards in the more western provinces.

The varieties shown from British Columbia were: Ben Davis, Gravenstein, Baldwin, Northern Spy, Jonathan and McIntosh Red.

Ontario showed: King, Ben Davis, McIntosh Red, Baldwin, Northern Spy and Gravenstein.

The Nova Scotia collection consisted of Spitzenburg, King, Blenheim, Ben Davis, Northern Spy and Gravenstein.

In the display of County Collections, the number of entries from the Nova Scotia counties were as follows: Pictou, 3; Kings, 2; Hants, 3; Annapolis, 1; Antigonish, 1; Cumberland, 4; and Colchester, 2.

From Prince Edward Island came two collections from each of the three counties, Kings, Queens and Prince.

A sweepstake prize offered for the best county collection was won by H. A. D'Almaine, Wolfville, Kings county with John Dewar, Queens county, P.E.I., second.

New Brunswick Fruit Growing Progressing

THE recent convention in St. John, N.B., of the New Brunswick Fruit Growers' Association, as well as the exhibition of fruit held at the same time, has increased the interest taken in fruit growing in the province. During the convention W. T. Macoun, Dominion Horticulturist, Ottawa, stated that New Brunswick fruit is noted for its excellent color and that it had long been his opinion that the St. John Valley is destined to become an important fruit producing centre.

Prof. Percy Shaw, Horticulturist, Agricultural College, Nova Scotia, in discussing "Points to consider in establishing an orchard," stated that depth and drainage of soil are more important than the type of soil. Fruit can be grown on any well-drained soil which possesses at least moderate depth. Elevated sites are preferred because of the better air and water drainage secured and also because of the fact that they are less likely to suffer from late and early frosts. Fruit is successfully grown on all slopes, but westerly or south-westerly aspects should be avoided, if possible, because of exposure to winds. Northerly slopes may delay the blooming period until after danger of frost, but delay also the ripening of the fruit. Southerly slopes give earlier maturity, but suffer also from prevailing westerly winds. The best protection from wind is secured with easterly slopes. Generally speaking, land should be plowed and harrowed in the fall and again in the spring before trees are planted. Nursery trees should be ordered early in order to insure getting good stock. It is better to purchase from a local nursery where possible, because trees can be inspected before buying and will suffer less in transit. It is better to order direct from responsible firms than to deal with agents. Spring planting is considered better than fall planting in the East, and should be proceeded with as soon as possible after soil is fit to work.

NURSERY STOCK FOR THE NORTH

Mr. W. T. Macoun discussed the growing of nursery stock in northern climates. The opinion was expressed by several in the audience that the nursery business in the north offers excellent opportunities. Mr. Macoun suggested the offering of prizes for nursery stock at the next fruit show, stating that the competition would be educational for farmers and would furnish good advertising for nursery firms. He had found it practicable to grow first class nursery stock as far north as Ottawa, and described in detail his method. Seed of hardy varieties of hybrid crabs, such as Martha and Transcendent, is sown and the seedlings are root-grafted at one year of age. The first year the scion makes a growth of from twelve to fifteen inches, but is frequently so immature as to become "black-hearted" during the following winter. To overcome this defect, the practice is to cut the young tree back to the ground. Several shoots may start, but one only is allowed to grow, and usually reaches a length of from eighteen to thirty inches. This growth of the second year is considerably freer from "black heart" than is the growth of the first year, and is allowed to remain to form the permanent trunk of the tree.

CROPPING YOUNG ORCHARDS

Prof. J. W. Crow, O.A.C., Guelph, dealt with the "Cropping of Young Orchards."

markets are not available in the eastern provinces for vegetables or canning fac- Discussion brought out the fact that local tory crops, as they are in Ontario. Crops grown in young orchards in New Brunswick will be potatoes, roots, hay, and sometimes grain. No serious objection was raised to the use of any of these crops, prvoided a space of several feet on each side of the tree is kept well cultivated during the early part of the season. A peculiar condition obtains, however, along the St. John River on what are called the "interval" lands. They lie at a uniform level of about fifteen feet above the river, but are flooded each spring and are consequently very rich and moist. It appears that these lands will stand continuous cropping for years without requiring fertilizers, and they will also grow apples (especially of the early varieties) to perfection. The orchards, however, are always left in sod and are usually cropped, because the land is rich enough and moist enough to grow two crops at one time without suffering to any extent.

EASTERN VARIETIES

Mr. R. W. Starr, veteran fruit grower of Wolfville, N.S., gave the following as a list of most profitable varieties grown in Nova Scotia: Gravenstein, Ribston, Bellefleur, Nonpareil, Baldwin and Greening. Other varieties proving satisfactory are Wellington, Cox's Orange, Charles Ross and Newton Wonder.

Following is a list suggested by Mr. Starr for New Brunswick, containing both domestic and commercial varieties: Red Margaret, Red Astrachan, Sweet Bough (all early), Duchess, Gravenstein, Dudley, Alexander, Ribston, Blenheim, Wealthy, Baxter, Wagener, Ontario, Bishop Pippin, McIntosh, Spy, Baldwin, Golden Russet, Stark, Nonpareil.

In Nova Scotia one of the best early pears is Marie (a native), followed by Bartlett, Sutton (another native), Bosc, Vermont Beauty, Boussock, Sheldon, Flemish Beauty, and Howell. For the northern sections of New Brunswick, Mr. Starr suggested Maria, Clapp, Flemish, and Howell.

Prof. Crow discussed the "Pollination of Fruit Trees," stating that some varieties are incapable of fertilizing their own blossoms and should not be planted in large blocks. Almost all varieties, so far as known, are benefitted by cross-fertilization, such fruits being larger and better in color. An excellent arrangement is to plant solid rows of one variety, placing two rows of a kind together. It was stated that wind plays very little part in the carrying of pollen, practically all of this work being done by bees and other insects.

ORCHARD MANAGEMENT

Under "Orchard Management," Mr. Macoun stated that a few years ago we in Canada cultivated our orchards on lines laid down by American authorities, and often the results were disappointing. After long experience, he had concluded that the only cultivation needed in northern climates was to break up the land in the spring in order to aerate the soil and then to seed it down at once to a cover crop. At Ottawa rape makes a good matting and holds the snow well, but is, of course, non-leguminous. Summer vetch makes an excellent cover and supplies nitrogen as well. It is killed by the first hard freeze in fall, but will stand some frost.

In cold districts light pruning is to be preferred, as there is much less danger of injury to the tree. If large wounds are made they cannot heal quickly because of the short growing season, and severe pruning would be likely to result in the production of immature wood. Mr. Macoun

stated that the Ottawa orchards have been sprayed for eighteen successive years three or four times each year with Bordeaux made according to the old formula, 4-4-40. For some time lead arsenate was used alone as a poison, but of late the practice had been to combine Paris green and lead arsenate, in order to secure the quick action of the Paris green together with the adhesiveness of the lead arsenate.

Many orchardists frequently use more fertilizer than is necessary. Trees do not take a great deal from the soil and it is safer to proceed slowly until experiments have been made to determine the value of fertilizers for each particular soil and district.

BRIGHT PROSPECTS

Mr. A. G. Turney, Provincial Horticulturist, who was engaged by the New Brunswick Department of Agriculture last spring to look after the fruit interests of the Province, and who is in large measure responsible for the success of the Fruit Show and Convention, expressed the opinion that the outlook for apple growing in New Brunswick is extremely bright. Apple raising is destined to become one of its greatest industries. Splendid land is available at a very low rate and within easy reach of an excellent cold-storage plant in St. John. Shipping facilities to Great Britain are of the very best and transportation rates are very moderate.

Mr. G. H. Vroom, Dominion Fruit Inspector, added very materially to the feeling of optimism which characterized all the meetings of the Association when he stated, as reported in our last issue, that there is no possible danger of over-production of apples. Increased plantings of fruit trees may be expected in New Brunswick during the next few years.

Arrangements are being made for the holding of a special school of box packing at the same time as the short course in fruit growing that will be held at the Guelph Agricultural College from January 23rd to February third inclusive. There will be a thoroughly competent instructor and an expert packer from either British Columbia or Oregon who will give several hours each day during the two weeks to personal instruction of the individual student. The class will be limited to thirty. Several hundred bushels of choice apples of different varieties have been secured for the use of the class.

At the annual meeting of the Toronto branch of the Ontario Vegetable Growers' Association held recently, George Syme, Jr., was re-elected president and Frank F. Reeves Secretary-treasurer Messrs. Syme, Reeves, Thos Delworth, J. W. Rush, W. G. Carter, Ed. Eagle, James Dandrich, J. W. Allan and J. Tizzard were elected to act on the board of the provincial association.

Revised Apple Rating

A number of important recommendations were made by the Canadian Apple Growers who met in Vancouver, B.C., under the chairmanship of Mr. Maxwell Smith, during the First Canadian National Show. It was recommended that the meeting of the Pomological Society of America should appoint a committee to revise the rating for apples, making it a double rating consisting of quality and commercial value. It was also recommended that each district having a local pomological society be requested to make recommendations to the parent body in regard to the particular product of the district so that the Pomological Society would have the necessary data to assist them in the work of revision

The last recommendatin was to the effect that the rating of apples be revised as follows: Macintosh Reds from 5.6 to 8.9; Winesaps from 7.8 to 9; Spies from 8.9 to 10; and Baldwins from 5.0 to 6.6; the maximum to remain at 10. These recommendations, which were unanimusly adopted, were brought forward by a committee, consisting of Professors Rowe and Newell, and Mr. Martin Burrell, M.P., all judges at the Apple Show, and who had been appointed for the purpose.

CAUSE FOR CHANGE

The chairman pointed out that during the twelve years since the rules of the society were adopted, many changes had taken place in the cultivation of the apple. Many new varieties had been successfully produced while many of the older species had been improved out of all recognition. He gave it as his personal opinion that the apple should now be graded only upon the degree of perfection to which it could be grown in any given district. That, he thought, was the only way in which to encourage the fruit growers to produce the varieties which their climatic environment enabled them to produce in the highest degee. If a certain apple could be grown to better advantage in British Columbia than in Nova Scotia then he thought that that particular apple should be rated upon the standard of excellence reached in this province and not claimed as an inferior quality because its cultivation was not successful in other parts.

New Brunswick Apple Show

Prof. J. W. Crow, O. A. C, Guelph, Ont.

THE east is being rediscovered. "I am clearing timber from my farm and planting apple trees on land which fifty years ago was growing hay and grain." This interesting statement was made by Mr. C. N. Vroom, of St. Stephen, President of the New Brunswick Fruit Growers' Association. The conditions mentioned are not, of course, prevalent over lage areas of New Brunswick, but President Vroom's statement throws, nevertheless, a good deal of light on the present agricultural condition of that deserted province.

New Brunswick has every natural advantage which could be mentioned and lacks only the people, without whom development cannot be made. Land for fruit growing purposes is available at prices ranging from $10 to $50 per acre, and is quite unlike the land of the eastern states, such as Massachusetts, in that it has not been exhausted by continuous cropping. New Brunswick land, comparatively speaking, is good, and is still capable of producing excellent crops of potatoes, hay, grain, apples, and similar crops. So far as the ability to produce fruit of high quality is concerned, the recent splendid exhibition in St. John, N.B., has demonstrated that New Brunswick has the climate as well as the soil.

New Brunswicker is apparently identical in every respect with Duchess, but it is said positively to have sprung from a seed of that variety on the farm of the late Mr. Frank Sharpe. Dudley's Winter is a variety which would seem to be of particular value to Ontario planters. It ripens with Wealthy, is above medium in size, good to very good in quality, and most attractively colored. The tree is hardy and productive and the fruit withstands handling as well as any variety of its season. Bethel is a dark red winter apple of fair quality, and is probably the hardiest good winter apple we have.

Other varieties which were in evidence in considerable quantities, but which are not recommended for commercial planting, were Golden Russet, King, Spy, Greening, Baldwin, Bishop Pippin (Bellflower), Tolman Sweet, Ben Davis, Gravenstein, Ribston and Blenheim.

New Brunswick fruit growers claim to have the best facilities for reaching the British market of any point in Canada. They are, of course, geographically much nearer Great Britain than is Ontario, but it must be borne in mind that until the middle of November the better class of fruit carrying vessels sail from Montreal. After navigation closes in the St. Lawrence, St. John is their winter port, and so far as winter conditions are concerned their claim is well founded. St. John has a splendidly equipped cold-storage plant, and this will probably be made use of by New Brunswick and Nova Scotia fruit growers and will be of great assistance in regulating shipments to the Old Country.

Considerable quantities of Ontario fruit have been stored in St. John at various times, but this season on account of the light crops in Ontario and in the east as well, there are no apples in storage at that point.

New Brunswick and Nova Scotia expect in a few years' time to have the British market very largely to themselves. They are looking to the time when Ontario and Western Canada will consume the greater portion of the crop produced in Ontario and British Columbia.

The San Jose Scale

Prof. C. E. Sanborn, Stillwater, Oklahoma

During the last two or three years the Oklahoma Agricultural Experiment Station has been experimenting with a natural enemy of the San Jose Scale. This enemy is a disease in the nature of a fungous growth. In southern latitudes it has been used even to a commercial extent for controlling the scale, but on account of the weather conditions of the State it has been supposed that such a disease would either fail to propagate itself during the summer or be entirely too delicate to withstand the low winter temperature. Careful experimentation, however, has proved the disease is very hardy and capable of propagation to a very beneficial extent in infested orchards.

Oftentimes diseases of a serious nature are introduced and scattered by insects and other agencies in general. This disease, however, is not capable of doing any damage to anything except the San Jose Scale and allied forms. Its use in orchards, groves, and public parks, as shown by the experiments, will be of a very great advantage in checking the local spread of the San Jose Scale.

It is of the same nature as the chinch bug disease but its appearance on infected insects is not nearly as conspicuous as the latter. To an ordinary observer it appears to be no more than the mold which is commonly present on damp bread a few days old. It will live and propagate on bread and is apparently just as harmless to the higher animal life, but the microscopic examination of an infected San Jose Scale reveals it to be fatal to the latter.

The experiments have been so conclusive in regard to the practicability of checking the San Jose Scale with this disease that the station is now propagating it to an extent sufficient to enable it to supply gratis all interested citizens of this State who request it.

The party requesting it must first submit specimens of scale to the station for identification. If the submitted specimens prove to be the San Jose Scale the station will send a small package by mail.

The fungus is grown on a jelly-like material which is of amber color in appearance. The color of the fungus or disease is white. This material may become more or less disarranged in transit through the mail, but its vitality will not be lessened. Upon its receipt the applicant pastes small portions of it to his infested trees. The jelly-like substance adheres nicely. The fungus gradually scatters from one tree to another of its own accord, but accomplishes better results if artificially well scattered when first applied.

Returns From Orchards

A statement has been issued by I. F. Metcalf, the District Representative of the Ontario Department of Agriculture at Collingwood, Ont., showing the cost of the work done in the demonstration orchards conducted in that district this year and their returns. A large part of the expense was for pruning, of which the orchards were in great need. This item of expense should be divided over a number of years.

Mr. W. Hamilton's orchard at Collingwood realized $405.45, as against a total expense of $144.20, showing a net profit of $261.20. Fifty trees owned by Jno. Osborne, at Dunedin, produced twenty-two and a half barrels of Duchess apples, which sold for $56.25, eighty-two barrels of fall and winter apples which sold for $246, and fifteen and half barrels of culls which brought $9.10, or a total of $311.35. The

cost of scraping the trees, pruning, two sprayings, working the orchard and sowing a cover crop amounted to $48.30. The cost of barrels, picking and packing cost $78.38. The profit on the fifty trees was $184.67. The most this orchard had ever produced previously in any one year was $50.00. The crop produced was clean and free from worms, and comprised a high percentage of number one apples.

Experiments with Cabbage

A series of experiments with cabbage have been conducted by the Maryland Agricultural Experiment Station. Bull. No. 133 of the station records the work that has been done and gives much valuable advice on the culture of this crop. Conclusions drawn from the results of experiments are as follows:

Cabbage is subject to, and often dies from, stem rot, black rot, root rot and other diseases. The spores of these diseases are generally present in sufficient quantities to inoculate the crop and only need favorable conditions for development. If, then, something could be done so as to do away with any conditions favoring the development of these diseases, farmers could work with more assurance of a crop. The conditions of soil and weather are important factors.

With a soil that is rich, spongy and full of humus, a crop could not be grown in a rainy season. It might be supposed that if such a soil were thoroughly drained it would insure a successful crop. This is doubtful, however, as such soils hold water like a sponge, and water drains very slowly from a sponge, even if there is good opportunity for it to pass off below. This amount of water, however, is likely to dissolve and hold in solution, enough soil salts to poison the roots of the plants. The roots being partly decayed cannot absorb sufficient water to supply the needs of the plants at this, the most trying season, of their growth. This causes a check in the growth, making favorable conditions for disease germs to enter.

During the three seasons in which cabbage could not be raised on the experiment plot, good crops were being grown on soil quite similar when considering the amount of sand, clay and silt in each. They were totally different, however, in their capacity to retain water.

To be able to grow cabbage successfully in this climate, in any season, the soil should be in such condition that the water will pass through it as freely as it would through a piece of pumice stone or porous rock. As a general rule the poorer the soil the drier and more porous it is. Thus it is that on the comparatively poor farms better late cabbages are grown than in the market gardens that are very rich.

A sod field broken early in spring and well manured has generally been found to grow the best cabbage. This does not apply to the early crops; these do best on the soils that are rich and full of humus.

Low priced fertilizers sometimes give as good results as the higher priced goods, but on the whole it will pay to be liberal with nitrogen. The two experiments indicate that it is profitable to use nitrate of soda on the plant beds, at the rate of 450 to 600 pounds an acre.

In localities and on soils where cabbage diseases are prevalent, it is safer to plant the type of cabbage with the purplish green crinkled leaves.

The crop generally seems to do better if the field is marked off both ways and the plants are set in the check and the cultivation is level.

Horticultural Possibilities of the West

The Dominion Horticulturist, Mr. W. T. Macoun, returned home recently from a two months' trip to the West on his first tour of inspection of the horticultural work at the branch Experimental Farms. In the prairie provinces he found that in most places the growing of apples had proved a failure, but after carefully looking into the conditions he has come to the conclusion that the failure has been due as much or more to the condition of the soil as to the severity of the climate. The prairie soils are for the most part rich in humus, containing a large proportion of nitrogen; the subsoil is in most places clay, and while the surface soil becomes very dry at times, seriously injuring annual crops, the roots of trees are in the moist, cool soil below. The richness of the soil and the moisture of the subsoil favor a succulent growth, which does not as a rule ripen sufficiently to be able to withstand the severe winters, with the result that the trees are being constantly killed back.

Mr. Macoun feels that he is correct in his conclusions by what he saw in Southern Manitoba at Morden and vicinity. Here the conditions of soil are quite different. There is a gravelly subsoil which thoroughly drains the land, and the soil is not so rich as in most of the settled parts of the prairies. Here he saw apple trees perfectly healthy and hardy, twenty-one years of age, quite as good trees as may be seen about Ottawa. There are thousands of acres along the Pembina hills in Southern Manitoba where the conditions appear as favorable as at this place. Mr. Macoun, therefore, believes that while hardy apples may be originated which will withstand the adverse conditions of both soil and climate, among such being the hardy cross-bred apples originated by Dr. Saunders and found hardy in many places, the commercial orchards of the prairies, if there are ever such, will be situated in those parts of the west where the soil is lightest and the drainage best.

Native plums and bush fruits succeed well in many parts of the prairie provinces. Annual and perennial flowers do particularly well on the prairies, the colors appearing to be intensified by the clear atmosphere and bright sunshine there. Ornamental shrubs of many kinds succeed well, as do a number of species of trees, most of the shrubs growing along the driveway at Ottawa being hardy on the prairies. In Mr. Macoun's opinion there is no reason why the surroundings of the farmer's home on the prairies should not be made as beautiful as in the province of Ontario.

While in British Columbia, he visited the famous Okanagan Valley, where there is a good crop of fine apples this year. On his way home he went to see the Experimental Stations in North Dakota, South Dakota, Minnesota, and Iowa, in order to learn what they were doing there which would be of value in Canada.

After visiting many of the Experimental Stations in the United States on this and former occasions, Mr. Macoun believes that the Experimental Station system controlled by the Dominion Government and extending, as it does, from Prince Edward Island to British Columbia, is much preferable to a State or Provincial system only where the influence of the work of each station, good as it may be, is much more limited than where the station in every province or state is controlled by the Federal Government. Mr. Macoun also comes back believing that the Central Experimental Farm at Ottawa is the most

beautiful, the best kept and the most useful Experimental Station to the people whom it was established to serve, namely, the farmers, of any station in America he has visited. He also saw no city that pleased him as well as Ottawa, which, as a result of the work of the Dominion Government Improvement Commission, has been vastly improved and beautified during recent years until now the capital is a credit to Canada.

The Dominion Canners Combine

The Monetary Times prints full details regarding the organization of Dominion Canners, Limited, with head office at Hamilton. This combine embraces 45 canning factories and also one-eighth interest in a Beamsville factory. The capitalization is as follows:

First mortgage, 6 p.c. bonds....$1,500,000
Preferred stock, 7 p.c..... 2,100,000
Common stock..... 2,100,000

The preferred stock was paid out for the various properties. The bonds have been underwritten by Messrs. C. Meredith and company, of Montreal, while the Dominion Bond Company of Montreal and Toronto, is offering $100,000 of the 7 per cent. cumulative preferred stock, with a 25 per cent. common stock bonus.

The following are factories taken over by the Dominion Canners, Limited.

Aylmer Canning Company, Brighton Canning Company, Kent Canning Company, Delhi Canning Company, Dresden Canning Company, F. R. Lalor Canning Company, Grimsby Canning Company, Simcoe Canning Company, Imperial Canning Company, Lakeport Preserving Company, Warehouses, Delhi Canning Company, A. C. Miller, W. Boulter & Sons, Port Hope Preserving Company, Ontario Pure Food Company, Kent Canning Company, Strathroy Canning Company, Lowery Bros., Miller & Company. Bowlby Bros., Belle River Canning Company, L. N. Schenck & Company, A. B. Taylor Canning Company, Wellington Packing Company, West Lorne Canning Company, Leamington Canning Company, Amherst Canning Company, Aylmer Condensed Milk Company, Limited, Belleville Canning Company, Bloomfield Packing Company, Farmers' Canning Company Limited, Burlington Canning Company, Hillier Preserving Company, Jordan Station Canning and Preserving Company, Napanee Canning Company, Niagara Falls Canning Company, Old Homestead Canning Company, J. H. Wethey, Limited, St. Thomas Canning Company, Tilbury Canning Company, Limited, Lakeside Canning Company, Limited and one-eighth interest in Beamsville factory.

The company controls more than 90 per cent. of the output of canned fruits and vegetables in Ontario, which produces 95 per cent. of the total quantity consumed in Canada. The above-named factories are distributed over the fertile strip of southern Ontario, commencing at Napanee, in the east, and continuing to Sandwich, in the west, a distance of more than 400 miles, with both water and railway transportation facilities from many of the factories. One of the special lines of the company is gallon apples for which there is a good export demand for Great Britain.

The company owns its own can-making factory and manufactures the bulk of the cans required, purchasing the remainder from the American Can Company. A lithographing plant is also owned and operated by the company, supplying all the labels used.

There were marketed from the orchard of W. H. Bunting, of St. Catharines, this year, 2,000 barrels of apples. The cull stock sent to the evaporators did not amount to over 250 bushels.

Ginseng Growers Meet

P. Wilson, Secretary,, Toronto

The third annual meeting of the Ontario Ginseng Growers' Association was held in the Y.M.C.A building, Toronto. recently. In the absence of the President, Mr. D. Menzies, of Kelso, occupied the chair. The members present were Messrs. P. Menzies, Milton; J. Leary, Whitevale; Mr. Nichols and Mr. J. Moon, Mono Mills, Ont.; Dr. Baird, Uxbridge; Rev. Dr. Medd, Goderich; Rev. W. L. Martin, Manswood; Dr. McKendrick and J. Frazer, Galt, Ont.; N. Wilson, Vittoria; J. A. Austin, Toronto; R. Lyons, Mons Mills; E. Baker, Goodwood; J. A. Geman, S. O. George. The present officers were re-elected for another year.

Some American dealers are advertising and selling roots and seeds far below their value. A resolution was passed that the executive committee should take steps to have a duty of 50 per cent. placed upon seeds and green roots and that the secretary be instructed to correspond with the Minister of Agriculture at Ottawa to that end.

After recess the Rev. W. L. Martin, of Mansewood, Ont., read a paper on the ginseng plant and its diseases and culture. Mr. J. Frazer, of Galt, and Mr. N. Wilson, Vittoria, contributed to the program.

Items of Interest

Some eighty-seven business men and ratepayers of Toronto recently presented a petition to Property Commissioner Harris requesting the city to establish the proposed civic fruit market in the neighborhood of the St. Lawrence market, where it would have a wharf nearby.

Immense quantities of vegetables are grown in the vicinity of Sarnia, Ontario. These are shipped inland as well as on the large steamers engaged in traffic on the great lakes. Photographs were secured recently of a number of the leading growers with their wagons loaded with vegetables. The steamer Huronic was shown ready for her voyage for Port Arthuur and Fort William with a hundred tons of vegetables. The photographs have been sent to a number of illustrated papers.

Dairy and Cold Storage Commissioner J. A. Ruddick sent a shipment of 150 boxes of Fameuse and McIntosh Red apples during the first week in October to Mr. Wm. Hutchinson, the Canadian Commissioner at the Brussels Exhibition. Mr. Hutchinson reports that these apples have proved a big advertisement for Canada. They have served to show the people the difference between real Canadian apples and those offered for sale in Brussels as Canadian apples. The public was so much impressed by these Canadian apple men in the fruit trade started to advertise their fruit whether it was from Canada or not, as being Canadian.

The report of the thirty-first session of the American Pomological Society, held at St. Catharines, Ontario, last year is being distributed. The report contains a large amount of information of the greatest value to present or future orchardists and gardeners. In its 350 odd pages, there are chapters on the following subjects: Orchard management; the latest on lime-sulphur sprays; a discussion of the adaptation of varieties to soils and climates; gooseberry culture, with special relation to methods of growing the English varieties; grape varieties of the east and west; and a very important chapter on co-operation in the marketing of horticultural products. The secretary is John Craig, Ithaca, New York.

Mr. Jas. P. Murray, of Toronto, has written to THE CANADIAN HORTICULTURIST, suggesting that as the Canadian National Exhibition is visited each year by thousands of people from all parts of Canada and the United States the grounds, which are spacious, or a large portion of them should be converted into a park and used for the growing of shrubs and flowers, which could be grouped and laid out in the most attractive manner possible. Lectures might be given on garden work. The grounds could be kept in an attractive condition throughout the summer months and the plants grown be properly labelled to educate the public. Mr. Murray believes that a floral park, such as suggested, would make its influence felt in almost every city and hamlet throughout Canada.

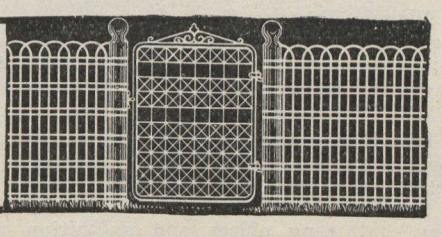
Apple Growers and the Tariff*

James E. Johnston, Simcoe, Ont.

In supporting the unanimous opinion of this delegation of farmers in favor of reciprocity with the United States in all agricultural produce, I may offer a few explanations as to how it would affect the interests of our Canadian fruit growers, and particularly our growers of apples. The district I represent is yearly becoming more largely engaged in orcharding. In this, as in many other sections of Canada, the apple business is being rapidly improved by cooperation of the growers in the care of their orchards and the marketing of their fruit. In the county of Norfolk we have a cooperative association engaged in the handling of apples. This association was organized five years ago, and in 1910, even with the short crop, it sold nine times the quantity of fruit handled in the first year it was organized. The prospects for further development of the apple business in Ontario, under the cooperative system, are bright indeed. The recognized superior quality of our fruit guarantees that with expert methods we can more than hold our own in any open markets.

But while the business of appre-growing is profitable to-day its extension would be promoted by the opening of wider markets. The Republic to the south, with a population of ninety millions or so and a rapidly growing demand for all kinds of food products would be an excellent additional market for our fruit. Even in the face of the duty prevailing, the shipments

*A paper read to Sir Wilfrid Laurier recently when the deputation of some 800 Canadian farmers waited on the Dominion Government and asked for better trade relations with the United States.



MAKE A NOTE OF IT

The February issue of The Canadian Horticulturist will be a

SPECIAL SPRAYING NUMBER

It will contain valuable information on regard to spraying. By showing the advantages of spraying, and by its increased circulation, it will have a big influence in increasing the sale of sprayers and spraying appliances and preparations. Get your share of this increased business by being well represented in this number. Reserve space now. Drop us a card to-day.

THE CANADIAN HORTICULTURIST
PETERBORO, ONT.

FOR SALE AND WANTED

Advertisements in this department inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

100,000 RHUBARB ROOTS.—Best varieties grown. Price list, catalogue.—J. H. Lawrence, Hatzic, B.C.

THE CANADIAN APPLE GROWERS' GUIDE (just published.) A thoroughly up-to-date treatise, covering every phase of apple culture, from the planting of the tree to the packing and sale of the fruit, by Linus Woolverton, M.A., Grimsby, Ont. Published by Wm. Briggs, Toronto, price $2.25, postpaid.

LANDSCAPE ARCHITECT.—Charles Ernest Woolverton, Grimsby, Ontario, is prepared to make plans for the improvement of country estates, city parks or private grounds, giving lists of suitable trees, plants and shrubs for planting. He has no personal interest in the sale of any of these, but can direct clients for purchasing them at lowest wholesale prices. He will superintend the work of the gardeners in carrying out his plans where such service is needed.

FRUIT LANDS

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

FRUIT FARMS sold and exchanged. List with us for quick sale. See us if you are thinking of buying a fruit farm.—F. J. Watson & Co., 1275 Queen Street W., Toronto, Ont.

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

CUBA—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free.—Sanderson, 16 Palace Building, Minneapolis.

FARMS WANTED — Don't pay commissions. We find you direct buyers. Write, describing property, naming lowest price. We help buyers locate desirable properties free. American Investment Association, 13 Palace, Minneapolis, Minn.

BRITISH COLUMBIA fruit growing. Send one dollar for two hundred page beautifully illustrated cloth bound book, entitled "Fruit Ranching in British Columbia," written by T. J. Bealby, a competent and well known authority on the subject. British Columbia Fruit, Molson's Bank Bldgs., Suite 1, Vancouver, B.C.

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

GROW APPLES AND GROW RICH — 10 acres in British Columbia's finest fruit growing district will support a family in comfort. Prize fruit, enormous crops, high prices, big profits—$200 to $500 per acre. Established settlement, no isolation, plenty good neighbors, best transportation, good markets, grand scenery, hunting, office, hotel; daily trains. Splendid climate; fine summers, mild winters; high winds and low temperatures unknown. Prices right. Easy terms. Proofs, plans, particulars.—Fruitvale Limited, Land Dept., Nelson, B. C.

from our asscciation this past year to the United States were 6,000 barrels, while 25,000 barrels went to the northwest and 5,000 barrels to England and Scotland. Had there been free trade in apples we would have been able to sell our whole crop fifty cents a barrel better than we did. There are varieties of apples, such as Greenings, Bellefleur and Talman Sweet, which are not wanted at all in the northwest, but are readily taken at a good price in the United States. Apart from this there are localities in Canada which could import American fruit to advantage and many sections in the United States which could use our fruit to even greater advantage. In years of scarcity the Canadian west would like to draw upon the Pacific Coast fruit more largely than it does, while in seasons of heavy production we would be greatly benefitted by an additional market. This illustrates the advantage of reciprocity.

At present the Canadian apple grower is discriminated against. The United States tariff on apples is seventy-five cents a barrel, while American apple growers shipping into Canada have to pay only forty cents a barrel duty. This is unfair, and I respectfully ask, on behalf of Canadian fruit growers, that you, as representatives of the Canadian people, will endeavor in any reciprocal trade negotiations to have the United States fruit tariff lowered to at least the same figure as the Canadian tariff. Further than this, we would welcome and request a complete withdrawal of all duties on apples entering either country. Reciprocity in apples would benefit consumer and producer alike.

Items of Interest

The Niagara District Fruit Growers' Association has decided to recommend that the appointment of fruit inspectors be taken out of the hands of the township councils and left with the provincial authorities.

The Dominion government has decided to take over the farm at Kentville, N.S., and conduct it as a fruit station. Fifty acres are to be cleared at once. A horticultural building containing offices and exhibition room and a storage room for apples will be erected.

At a meeting of the Niagara District Fruit Growers' Association held at St. Catharines in December a resolution was passed, and copies forwarded to the Dominion Government, stating that in the opinion of the Association the Dominion government should not enter into any reciprocal treaty with the United States without consulting the officials representing the fruit industry and that similar officials should be consulted in connection with every industry likely to be affected by the treaty.

The British Columbia government has completed arrangements for the conducting of packing schools in those districts of the province that will guarantee twelve pupils at a fee of $3.00 each. The government will give twelve lessons and stand practically all the expense. Diplomas will be given to those students who pass inspection.

The Calgary Horticultural Society held its fourth annual meeting in December. The society held eight general meetings during the year, at each of which a lecture was given. Five hundred dollars was offered in prizes in garden competitions. An annual exhibition was held. Mr. A. G. Wolly-Dod was elected president, Mr. W. R. Reader, secretary; and Mr. H. G. Burrows, treausrer.

Enclosed please find $1.00 for two years' subscription in advance to THE CANADIAN HORTICULTURIST. I enjoy this publication greatly. It should have the widest possible circulation in Nova Scotia. Each issue to every fruit grower is worth much more than the price charged for the entire term.—W. G. Clarke, Bear River, N.S.

"THE SWEETEST OF ALL THE CHARITIES."

Will You Help It In Its Hour of Need.... ?

THE HOSPITAL FOR SICK CHILDREN

COLLEGE STREET, TORONTO

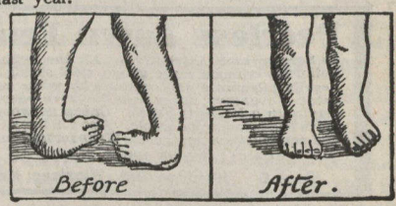
READY FOR MOTHER.

Appeals to Fathers and Mothers of Ontario on behalf of suffering children.

This Institution did more work in 1910 than ever before. Total In-Patients 1,224. Of these, 783 were from the city and 441 from the country.

Since its organization, the Hospital has treated in its cots and beds 16,837 children; 12,370 of these were unable to pay and were treated free.

There were 60 cases of club feet corrected last year.



THE HOSPITAL IS A PROVINCIAL CHARITY.

The sick child from the most remote corner of Ontario has the same claim as the child living within sight of the great House of Mercy in College Street, Toronto. Our cause is the children's cause. Could there be one that has a stronger claim on the people of this Province?

Perfect results in Harelip cases. 18 infants were relieved of this terrible deformity last year.

If the Hospital is to continue its great work, it must appeal to your pocketbook as well as to your heart. Let your Dollars be messages of mercy to the suffering little children of Ontario.

Please send your contribution to J. Ross Robertson, Chairman, or to Douglas Davidson, Secretary-Treasurer, The Hospital for Sick Children College St., Toronto.

Does the magic wire run to your place?

ARE you connected with the markets—with your friends—with the outside world—by telephone? Or is there no telephone system in your community? There has been a marvellous growth of the telephone in the rural districts of Canada **during the past two years.** The telephone problem may be of interest to the city man, but it is of even more interest to the man who lives in the comparative isolation of the rural districts. We believe the only reason why **you** have not a community-owned system in your own locality is on account of your not being in a position to secure sufficient data on the subject of organization and construction.

FARMERS!

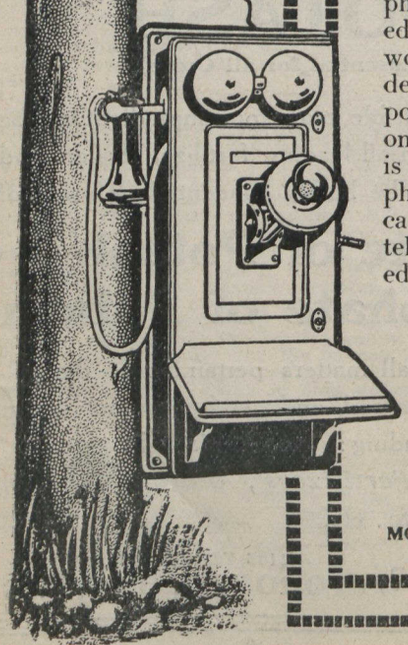
THERE is no further need of your not knowing how to proceed with the organization and construction of a rural telephone system of your own, because if you will simply write for our Bulletin, the whole story is there, a plain and simple story of how to start a community-owned telephone system going and how to keep it going. Hundreds of such companies are now doing business throughout the Dominion, and it is only a question of your having the essential facts down in detail to enable you to secure the interest and support of your neighbors and to organize a company of your own.

THE FARMER'S PHONE

The No. 1317 type telephone set, specially adapted for Rural Telephone work, is of the very latest design and is the most powerful and efficient set on the market to-day. It is the very acme of telephone construction. Because we make the best telephone specially adapted to rural use, over 90% of the rural telephones used in Canada to-day come from our factory. The president of the largest telephone company in the world could not have a more perfect instrument for his own private use. The details of this set are clearly set forth in the Bulletin mentioned above.

This Book Is FREE For The Asking.

All you have to do is to ask for Bulletin No. 240 and we will mail you **free** the whole story of how to organize and construct Rural Telephone lines. Do not hesitate to ask if you want the book—a postal card will bring it.



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