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JUNE, 1910
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60 Cents a Year
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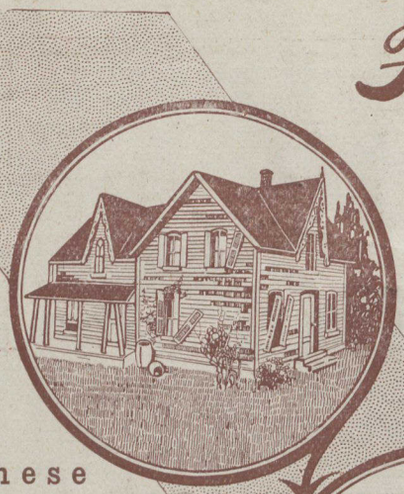
THE ONLY HORTICULTURAL MAGAZINE IN CANADA
FOR FRUITGROWERS, MARKET GARDENERS & AMATEUR HORTICULTURISTS
ISSUED ONCE A MONTH

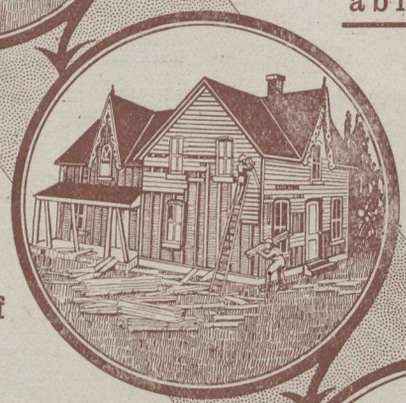
For nothing I will tell you all about Cement



You may have my expert advice without charge. I can save you considerable money. I charge nothing.

For the asking, you are welcome to use my knowledge. You can inform yourself fully on the whole big question of the use of cement for practically every use you are probably putting lumber to now. I will instruct you fully, in plain language, in the use of cement for making anything from a fence-post to a dairy-barn. And I can show you how to save money by using cement for any building purpose instead of using wood. Simply tell me your name and address and mention what sort of a structure you think of building or repairing—whether a residence, a poultry house, or even a drinking-trough.

You have nothing at all to pay for the advice and instruction I will promptly send you. Write to me before you buy another bill of lumber for any purpose. Be sure to.



These pictures show you plainly how simple a matter it is to change a decrepit frame house into one of cement stone.

YOU Pay Nothing for What I Tell You

And the reason I offer you my services for nothing is simply that the companies that employ me want the farming community awakened to the value that cement—of the right kind—has for every farmer. Even if they never sell you any cement, they want you and your neighbors to be informed on the uses of cement—and the ease and simplicity with which you can cheaply use it.

No High-Priced Labor Necessary

I can soon show you that it does not require an expensive mechanic to use cement-concrete instead of lumber for ANY purpose. I make the whole subject so plain and simple that you yourself could easily renovate your frame house, barn, hen house, wagon shed. I will tell you how to make a hundred farm-utilities from cement quickly and cheaply—more cheaply than you could with lumber. And bear in mind the fact that you are charged nothing for this "Education in Cement-Using." You will not be bothered to buy anything, either. There are no "strings" to this talk of mine—not one. Just write me and ask questions.

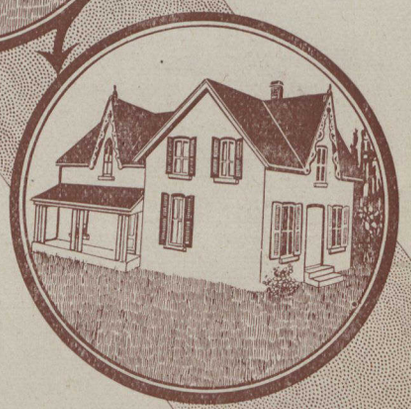
Cement Endures--Lumber Decays

That alone is the biggest reason why you should overcoat your house and barn with cement, as I will tell you precisely how to do. Cement is almost indestructible. Buildings exist in Great Britain and elsewhere that were built of cement by the Romans two thousand years ago For cement rightly used—as I will show you how to use it—makes structures fireproof; wet-proof; decay-proof; warmer in winter; cooler in summer. And it is ECONOMICAL—much more so than lumber, for ninety-nine uses out of a hundred.

Verandas
Box Stalls
Driveways
Fence Posts
Well Curb
Feed Yards
Barn Floors
Cellar Walls
Root Cellars
Horse Blocks
Chimney Caps
Chicken Houses
Watering Troughs
Curbs and Gutters
Windmill Foundations
Storage Water Tanks

Read This List of a Mere Few of the Uses Cement has on the Farm

Then write to me for particulars of how to build these things from cement—doing the work yourself, if you like, in spare time. Don't wait to write because you are not just ready to make any improvement to your buildings. Talk it over with me if you only need a few fence-posts or a watering-trough. Even on those small items I can save you considerable. Just write me.



ALFRED ROGERS
THE CEMENT MAN

Why not write me to-day? Accept my free services, make use of my knowledge to any extent; and you will not be under the least obligation or expense if you do. We want you to KNOW cement; and I will do all I can to help you KNOW it.

ALFRED ROGERS THE CEMENT MAN

308 STAIR BUILDING, TORONTO

The Canadian Horticulturist

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The Canadian Horticulturist

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The Control of Moisture in Orchard Soils

F. T. Shutt, M.A., Chemist, Dominion Experimental Farms

I SHALL briefly state some of the more important conclusions from researches that have been made at Ottawa. For the figures and details, consult the publications of the Dominion Experimental Farms.

1. The growth of rye, oats and buckwheat as cover crops in the orchard has always resulted in the removal of larger amount of soil moisture than those lost by the growth of one of the legumes—clover, hairy vetch, soya beans, etc. The draft made by the cereals upon the stores of soil moisture is greatest between May 1st and July 15th—a period when it is most required for the use of the orchard trees. We have found that the equivalent of approximately ten inches of rain may be lost in this period from soil carrying a grain crop, over and above that lost from a cultivated soil.

It seems more than probable that the smaller amount of water lost from the soil carrying the cover crop—clover, vetch, etc.,—as compared with that carrying a grain crop may be in part accounted for by the more perfect shade from the sun and protection from wind afforded by the former crops.

2. More moisture may be conserved by sowing the cover crops—hairy vetch, soya beans, horse beans—in drills and cultivation between the rows from time to time throughout the summer, than by sowing these crops broadcast. In other words, the earth mulch is more effective than the shade offered by the crop in conserving moisture. This method of growing cover crops seems to offer a means of furnishing material for enrichment of the soil without making any excessive demand on the soil moisture supply—and hence may prove valuable for adoption in districts that are subject to drought in the late summer. It is quite possible for a soil to become so dry in the autumn months that the fruit ripens prematurely. On such soils, of course, the ordinary cover crop, sown in July, may do more harm than good.

3. There appears to be little difference between the moisture content of soils constantly cultivated throughout the summer and that of soil under a thick mulch of straw. Ten to twelve inches of straw seems to be very effective in conserving moisture, but the objections that may be urged to such a method are cost of material, application and removal—for the latter would be necessary if there were danger of the trees continuing their growth into the late autumn—and the probability that the straw mulch would cause a surface development of the root system, resulting in injury to the trees from winter killing.

4. Undisturbed fallow land readily dries out, and further, may be taken possession of by weeds which serve to increase the loss of moisture. We have instances in which such land has been found to dry out to the same extent as land in sod.

The desirability of immediate cultivation after plowing an orchard has been shown, if soil moisture is to be conserved. A period of three or four days with the upturned soil as left by the plow may very seriously diminish the soil's store of water.

6. Rape has proven an excellent cover crop for drying out the soil in the late summer and autumn months. In this repect it is fully the equal of the legumes usually sown for this purpose.

In conclusion, we may emphasize the essential points we have endeavored to bring out: First, very great value of cultivation for conserving soil moisture and the desirability of employing in many districts this means during the first three months of the growing season, to supply our orchards with the water necessary for the full development of their fruit. Secondly, we have proved the extremely exhaustive effect on soil moisture of sod and of grain crops. Their injurious influence on the growth of the tree—especially the young tree—and the development of fruit, so often to be observed on dry soils, is fully accounted for by the results of our investigation. And, lastly, that legumes and rape are suitable crops in most districts to sow in mid-summer when the drying out of the soil is considered desirable to hasten the ripening of the wood before winter sets in.

*Important conclusions from researches made by Mr. Shutt and told by him in an address before the American Pomological Society of St. Catharines, Ont., last fall. Readers that desire more complete details may obtain same by referring to the publications of the Dominion Experimental Farms, or by writing direct to Mr. Shutt, Ottawa.

Box Package for Export Apples

J. A. Webster, Sparta, Ont.

Packing in boxes has appealed to me as the best way to market Lake Erie apples; therefore, I have only used boxes for the past three years and am satisfied that boxes in this district will pay better than barrels.

Success with boxes depends upon good fruit, well graded and packed. The whole secret lies in painstaking care in growing, handling, grading, packing and then marketing, so that the fruit shall reach the consumer without a bruise.

To dispose of undergrade fruit, I have put up a small evaporating and canning plant at my orchard. This I consider the best outlet for fruit not good enough to box and it enables me to put up a fancy pack of manufactured, as well as green, fruit with my carefully handled crop, and besides dried and canned fruit will bring better returns than the usual No. 2 barrel.

I would advise papering every apple tiered in the box for export. What is not worth papering is not worth exporting. The cost of the box and paper used is slightly more than one-third of the cost of a barrel and the returns are better. However, the labor in connection with boxing is much more than in barrelling.

I have shipped apples to the British market and have personally seen them sold and would advise others to put a new brand of boxed apples on the market there by a private sale broker. Last year I called on a number of fruit brokers in Great Britain and I selected a firm to handle my crop. It is worth something to see your broker and have a chat with him about the business. I know that there are some brokers not as reliable as others. It will pay an exporter to see his apples put on the market there and to keep his eyes open from the time the ship reaches port until the fruit is retailed.

Good fruit brings a high figure at retail in the Old Country markets. I have seen apples on show for sale at retail at a guinea a box and at one franc each.

We need at St. Thomas a pre-cooling and shipping depot for our fruit. With such a warehouse, the value of our whole crop would be increased but especially our early apples. If we could pick our fruit in season and take it to such a depot immediately, where it could be properly cooled, packed and shipped, we could save an immense waste in our crop.

Success with Strawberries

One of the most successful growers of strawberries in Canada, is Mr. James E. Johnson, of Simcoe, Ont., and his methods as described by him at the short course in fruit growing held in Guelph last winter, were listened to with great eagerness.

Last year Mr. Johnson harvested from ten acres about 84,000 baskets of berries. This he considered to be a small crop, claiming that about 10,000 baskets an acre is a good average crop.

The main requisite to success is a thorough knowledge of the business and of the habits of the plant. A wide knowledge of the methods in use by the best growers is of the greatest aid to the beginner. Mr. Johnson's plantation is partly on sand and partly on clay.

Plant only the best plants to be had, was Mr. Johnson's advice. Do not take plants from the outside of the row. Dig the whole row and reject all small plants.

The rows are made forty-two inches apart, with plants set three feet apart in the row. Thus horse-cultivation can be kept up both ways for a considerable length of time. The ground is marked both ways by means of markers. The plants are set at the intersection of the marks. Cultivation is kept up once or twice a week regularly for the first season.

In growing the matted row, which is the method followed, it is necessary to place them by hand in their proper place. The plants are not allowed to develop fresh runners as all the strength of the young plant is needed in order to establish it. When the placing of the runners commences, cultivation one way ceases.

Mulching in winter is always practised with straw or very coarse manure. Last year the wind blew the straw off and the result was a diminished crop.

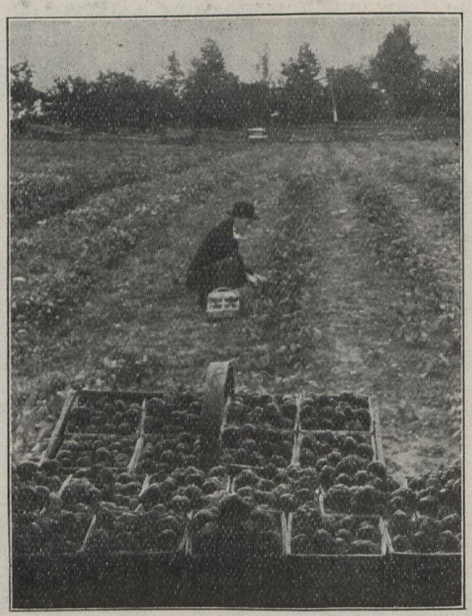
Two crops are harvested from each patch. To renew the patch is perhaps one of the greatest problems. Just after harvest has ended the mower is run over the plantation; then the mulch is stirred up with a hay-tedder and fire run over the patch. The ground between the rows is then plowed in such a way as to narrow the rows to about a foot in width. The cultivator and hoe is set to work and the patch made thoroughly clean.

Spraying for the rust is considered by Mr. Johnson to be one of the best means of securing a heavy crop. Heavy applications of spray are made once or twice just before bloom. Thoroughness in this is necessary. Bordeaux mixture is used according to the following formula: Blue stone, six pounds; lime, ten pounds; water, fifty gallons. The spray is applied by a traction spray cart with a set of six nozzles attached, such as is used for potatoes.—D. S.

Marketing Strawberries

J. C. Gilman, Fredericton, N.B.

Boxes and crates for strawberries should be procured early in the season, with extra slats, so that you will not have to stop in a hurried time to hunt up laths and shingles before you can pack your berries, and keep the grocer and custom-



Some New Brunswick Grown Strawberries

Glen Marys last year on farm of Mr. J. C. Gilman, near Fredericton.

ers waiting while makeshifts are brought into use.

Different growers have different methods at picking time; most, however, use what is called a stand, a field basket or picker's basket, which in most cases is simply a shallow box with four legs, three or four inches long, and a handle made out of a barrel hoop, or anything suitable for that purpose. These picker's stands are made just large enough to hold six boxes.

Keeping tally of the pick must be provided for. After trying several ways, each of which had objections, we have found nothing better than a picker's ticket with four rows of figures totalling 100; the top row has ten sixes, the second row ten twos, while each of the other two rows have ten of the figure 1. Write the picker's name on each ticket given out. This will often prevent difficulty arising when tickets are lost and found. A punch similar to a conductor's punch should be used to punch out the figures to tally with the number of full boxes brought in by each picker.

Have a corn whisk for your pickers to remove the factory dust from the boxes before using. Give beginners a few simple directions. Explain the difference between picking and pulling. Show them that by picking a berry it may be placed in a box without harm, while by pulling the ripe berries are bruised, stems are broken and green berries are wasted.

Pass among your pickers and see that your instructions are being carried out. Some new hands will be apt to damage the fruit at first, but by patiently showing them you may soon find them quite expert. A convenient shelter should be provided, to which the berries may be taken, and packed for market.

The chief methods of disposing of the crop are shipping to some distant point, to be sold on commission, supplying local trade by selling to the grocers and private customers, and sending to the canning factory, the last method for disposing of any surplus. Whichever plan we follow, we should aim to be prompt, to deliver our fruit free from the dust of the street, and in the best possible condition.

Cultivating Raspberries

Charles F. Sprott, Burnaby Lake, B. C.

For cultivating raspberries I find the Planet Jr. cultivator a most useful tool. After the patch has been cleaned up and the land more or less hard from the walking up and down of the pickers, a reversible single horse extension disc harrow is an exceedingly useful tool to get the land in condition for the next year's crop. Care must be taken that neither the disc nor the wheel hoe is allowed to go deep into the soil to cut the roots of the plants. It is not safe to cultivate much deeper than two inches or the cultivator will cut or damage the roots.

The raspberry crop wants a rich soil, and takes more potash than strawberries or potatoes. If profitable returns are required the soil must have sufficient of the three main elements of plant food to make a strong growth of new wood and also a big crop of berries.

There are several large fruit tracts to open up in the Okanagan valley, British Columbia. Areas still unimproved mostly require extensive reservoirs back at headwaters or long flumes or pipe lines to get water on to the land. There is an ample snowfall in the mountains, but the big rush of water is over by July 1. With wise conservation the irrigation supply may be increased for many years.

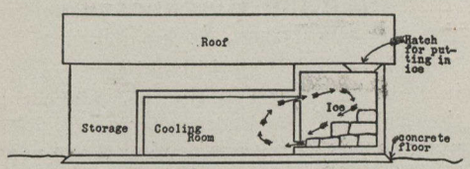
A cool moist soil is best adapted to the growth of currants. It should tend towards clay rather than sand.

Ice Storage on Fruit Farms*

J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa

I BELIEVE that a small room where berries and tender fruits could be cooled, held over Sunday, etc., would be a very useful adjunct to many fruit farms. I would not advocate a low temperature for such rooms, possibly not lower than fifty degrees, because of the damage that would result from "sweating" when the fruit was removed for shipping if lower temperatures were employed. At a temperature of fifty, it would be practicable to have a cement concrete floor and to get some cooling from that source, which is a great advantage.

The walls should have one course of matched lumber and siding on the out-



Section of Ice Cooler

side, with damp-proof paper between, and double boarding and paper on the inside, with a space of twelve inches between the inside and outside sheathing to be filled with shavings. About one-third of the building should be set aside for the ice chamber with a partition between the ice chamber and cooling room with same insulation as for the outside walls. An additional course of matched lumber on the inside, making a one-inch air space, is advisable for the ice chamber. The air space in this case is to prevent moisture from the ice penetrating the insulation.

The floor of the ice chamber should be constructed in the same manner as the floor in the basement of the cold storage, (See last issue of THE CANADIAN HORTICULTURIST), with a slope of one inch in four feet to a gutter at one side to provide drainage from the melting ice. The drainage outlet must be trapped to prevent the passage of air. The floor of the ice chamber should be covered with a wooden grating on which the ice will rest. No covering or packing material is used on or around the ice in such a chamber. Provision is made by means of openings in the partition between the ice chamber and the cooling room, at the ceiling and near the floor, for the circulation of air through the cooling room and over the ice. As the air is chilled, it deposits some of its moisture on the surface of the ice, thus making a fairly dry cold storage. Neither the ice chamber nor the cooling room should be ventilated. The air is changed sufficienly by the occasional opening of the door. Ventilation means the introduction of warm moisture-laden air, which causes dampness. The circulation over the ice tends to keep the air purified.

It is permissible to have small windows in the cooling room, but they should be located at the ceiling, and have at least double sash, each double glazed. There should be an ante room which can be used for storing empties, tools, etc.

Fruit growers will be able to determine individaully whether one of these cooling rooms would be of use to them or not.

*Part of a paper read at the last convention of the Ontario Fruit Growers' Association. Mechanical refrigeration was dealt with in the May issue.

Mistaken Ideas in Fruit Growing

B. H. Lee, Berwick, N.S.

Last season was very warm and fruit for some reason did not keep or ship well. Many lots of choice apples left here and arrived in England in very poor condition. This is not an unusual thing in ordinary years, but last season there were very few reports of apples arriving in good condition. There were some lots, however, which did arrive in good condition and brought most excellent prices. This was especially noticeable in the case of one of our Kings County growers, and has led a great many of his neighbors to the conclusion that they are making a mistake in not adopting his methods, which are not generally considered orthodox among fruit growers.

His methods, briefly, are: Keeping the orchard partly in sod; leaving a strip ten or twelve feed wide in sod at the trees, and cultivating and fertilizing the remainder; very little or no pruning; picking the fruit as soon as the seeds commence to turn black; and storing in a cool place. As a result he gets a medium sized but very much firmer apple which carries well and has for a number of years brought the highest prices and last season netted him more money per barrel than any company or individual shipper.

We are growing what has always been considered by us a much better fruit, as we have been educated to believe that the large apple (colored well, if possible) is what we need. Money is what talks in this business and this man's success seems to proclaim with no uncertain sound that we are making the mistake of catering to the English market with an overgrown apple that will not stand the knocks it is bound to get in transit. In such a season as last, it is sure to carry bad. On the other hand, we will make no mistake if we put such fruit upon our local markets, which demand the kind of apple we are growing.

The varieties intended for foreign shipments should be planted in blocks, so that they may be given the treatment required. Pruning and thinning, under these conditions and with some varieties, may not be such important factors as some would lead us to believe.

We are making a mistake in not getting after the younger trees and heading them in so as to more easily spray, prune and pick. Many farmers are still clipping off all fruit spurs near the trunk and compelling the fruit to develop at the top of the tree and at the tips of the branches.

Cultivating the Apple Orchard in Ontario in the Spring
On farm of Mr. F. C. Hoar, Bowmanville, Ont.

Cherries on the British Columbia Coast

W. J. L. Hamilton, South Salt Spring

IN the island district of British Columbia, cherry growing is likely to prove a profitable industry, as the climate is suitable, the crops heavy and the prices good. Cherries can be divided roughly into two classes, the sweet and the sour.

The sweet cherry is the descendant from the European *Prunus Avium*, and is characterized by white birch-like bark, erect growth, large leaves and flowers opening in clusters, whilst the tree is green. It is, on the coast, much subject to the cherry aphis, the cherry slug (saw-fly) and also to gummosis.

The sour cherry, derived from the European *Prunus Cerasus*, is low growing and spreading, has small leaves, and the flowers open before these develop. It is little subject to diseases or pests, and is altogether the more satisfactory to grow.

The cherry aphis, a pest of the sweet cherry, and very closely allied to the peach aphis, is black in color, and generally appears on the leaves in May or early June. It causes the leaves to curl up and eventually die, and, naturally, the curling of the leaves makes it very difficult to kill by spraying, as it is almost impossible for the spray to reach the insects safely protected by the incurving leaves. Fortunately the larvæ of the lace-wing fly, of the syrphus fly, of the various lady birds, and some small parasites, all feed on these pests, and are often numerous enough to practically clean the tree.

In winter, these aphids are found on the tree roots, where they are, sometimes at any rate, carried by the ants, who regard these insects as their milk cows, since they secrete honey dew, and, like provident husbandmen, the ants remove their cattle to winter quarters.

The cherry tree slugs, the larvæ of the cherry saw-fly, can be killed by summer strength lime-sulphur solution, or by an arsenical spray, whilst the gummosis, caused by the rapid expansion of the cambium, due to sudden sap flow, and consequent exudations, owing to the lack of elasticity of the outer bark, can best be overcome by making a longitudinal cut, with a sharp knife, down the stem and main branches, taking care to cut only through the outer bark, thereby releasing the bonds of the inner layers, and keeping the sap in its proper channels.

As, however, the sour cherry is free from these troubles, and as it brings as good a price, these are mostly grown, and prove very profitable. I have a sour cherry seedling which ripens in September, is of large size, prolific, and brings twelve and one-half cents a pound. Besides this, the Early Richmond for early use, the Morello and Olivet are good value.

Other profitable cherries are Ostheim, Bing, and, for shorter distances, Royal Ann, but these being sweet cherries, need more care.

Sour cherries may be set twenty feet apart, and sweet ones twenty-five to thirty feet. They are not hard to please as regards soil, but it can be too rich and too moist; a good, somewhat sandy loam, suits them well.

Clean cultivation, disking for choice, is necessary and must be constantly repeated during the dry season to ensure good crops of fruit.

Pruned in the low-headed vase form, after about four years this form should be established, and after this as little pruning as possible should be attempted.

All fruit should be picked with the stem on, and carefully packed and faced to secure best prices.

The Grape Growing Business

In last November CANADIAN HORTICULTURIST, a portion of an address on grape culture in the Chautauqua grape belt was published. This address was given by Mr. D. K. Falvay of Westfield, N. Y., at the convention of the Ontario Fruit Growers' Association. His remarks on the cost of producing grapes are published herewith:

"The cost of production varies somewhat, taken individually, but as a whole, may be conservatively figured as follows, on vineyards producing an average of 900 eight-pound baskets or three tons per acre: Labor and expense to time of harvesting, $13; baskets, $18; harvesting, $18; interest and taxes on investment at $200 an acre, which is low value in New York, $14; total, $63 an acre. If grapes sell at ten cents a basket net, they would bring $90, which would leave a net profit per acre of $27 above interest on investment. If an average yield of 600 baskets or two tons an acre be figured it would be as follows: Labor and expenses to time of harvesting, $13; baskets, $12; harvesting, $12; interest and taxes on $200 an acre, $14; total, $51. If the grapes sell at ten cents they would bring $60, leaving but $9 profit above interest and taxes..

"Not taking the value of the investment into consideration it costs the average Chautauqua grape grower to put an eight-pound basket of grapes on the cars as follows: Labor to time of harvesting, two cents; package, two cents; harvesting, two cents; total, six cents. It is easy to figure the profits or losses if you know the size of the yield per acre.

"Treating the subject in ton lots, we must figure the cost per acre to time of harvest the same as in baskets, namely, $13. Picking a ton of grapes in trays at three cents a tray and sixty trays to the ton costs $1.80; delivering with team and extra man, labor in vineyard, $2 a ton; total, $3.80. It requires an extra good vineyard to produce three tons an acre, the average with us being two tons. On a three-ton basis per acre, it costs $11.40 for harvesting and $13 for expenses up to beginning of harvest, or a total of $24.40 an acre, without interest on investment included. It will be readily seen that the grower will have nothing left after paying interest and taxes with grapes selling at $11 and $12 a ton. We make no charge for packages as the buyer pays for the package after deducting its weight."

Planting Blackberries

John Ferguson, Murches, N.B.

To best understand blackberry culture, it must be known in the first place that the canes of blackberries are only biennial; that is, canes are produced one year, bear fruit the next and then die. There is no such thing as two-year-old plants (as with trees and vines) when we refer to the stems, though the roots may remain alive and growing for several years. One-year-old plants are used for transplanting in all cases.

It is considered best to plant in rows and then restrict the plants to hills. The rows should be four or five feet apart according to the variety to be cultivated, and the plants two feet apart in the rows. Be sure that the plants have small fibrous roots and do not set them any deeper than they were before removal. Cut the canes of these plants down nearly to the surface of the soil, because if not cut they will take away from the strength of the root in forcing growth. The whole strength of the root is required the first season to produce canes, as upon this growth will depend the fruit of the next year.

The weeds should be kept down and the soil level, as the blackberry plant should never be banked up. There must be clean cultivation or the fruit-bearing canes and those for the following season will suffer from lack of moisture.

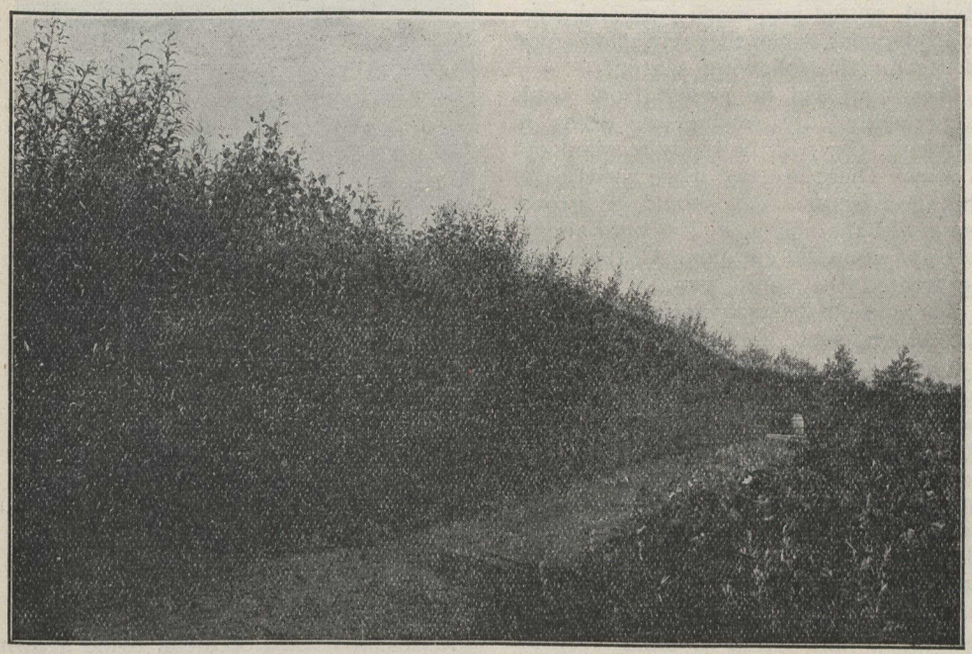
Two years ago Dr. Wm. Saunders of Central Experimental Farm, Ottawa, sent out a few specimens of two new standard apples; viz., "Charles" and "Tony." I received two young trees. They have grown rapidly, and though the winter of 1908-09 was extraordinarily severe, the trees have shown no signs of injury from the weather.—Brenda E. Neville, Cottonwood, Sask.

Do not apply nitrogenous manures too liberally on a blackberry patch, as they induce a rank growth of canes at the expense of fruit.

Willows for Prairie Windbreaks

Norman M. Ross, Indian Head, Saskatchewan

FOR a quick growing shelter belt or windbreak suitable for the prairie farm or garden, there is practically nothing better than the hardy varieties of tree willows. The best kinds are the Russian golden, the acute leafed willow and the laurel leaf willow. Though the golden willow cannot be called tender, parts of the new shoots are occasionally frozen back. The acute leaf variety seems to be the hardiest and is recommended for southwestern Alberta in preference to the others.



Windbreak of Golden Willow Planted as Two-Year Roots in 1905
Photograph taken in August, 1908

A belt of willows can be started very cheaply. This variety roots very readily from cuttings, so that it is usual to set the cuttings immediately in their permanent positions. For a belt of several rows the cuttings should be set from three to four feet apart each way. If properly cultivated they will grow very rapidly and quickly cover the ground, so that no further work should be needed after the second or third season.

For a single row the cuttings should be placed from eighteen inches to two feet apart. Shoots from two to three feet should be made the first season. It would be advisable in the following spring to cut these shoots back almost to the ground in order to induce the plants to branch out thickly from the roots and thus make a better shelter. In the third season the new belt should provide good protection for the vegetable garden. Under prairie conditions, when only a single row is set out, cultivation will, of course, be necessary every year to obtain the best results. In order to keep the belt within bounds and also to help thicken it up, the ends of the growing side shoots may be trimmed off once or twice during the summer.

Under ordinary conditions a willow hedge should be from ten to fifteen feet high when five or six years old. In moister soils the growth will be more rapid than on high, dry land. Although it is generally suposed that willows must have a great deal of moisture, we find that the Russian varieties commonly used in the west withstand a considerable amount of drouth and are quite suitable for ordinary upland soils when given proper cultivation.

The great advantage of the willows in a comparatively treeless country, where many new settlers can ill afford to spend much money in nursery stock, is that they are so easily propagated. Any farmer having a few willows once established on his place can take cuttings from them every spring and extend his planting operations indefinitely without incurring further expense for stock.

Some Desirable Shrubs

J. McPherson Ross, Toronto

The shrubs mentioned in the March issue of THE CANADIAN HORTICULTURIST, page 62, are attractive and desirable enough for limited home grounds but for large parks a more extended list is necessary. I shall mention six small shrubs that do not grow over two feet or so and are, from their habits and flowers, worthy of a place in every ground. The *Daphne Mezereum* blooms the first thing in spring. It has small pink flowers clustered tightly on the branches and quite fragrant. It grows quite freely in the Niagara district naturally but can be had from most nurserymen.

The sweet-scented shrub (*Calycanthus floridus*) is a charming shrub bearing chocolate or purplish-brown flowers at intervals during the summer. As its name indicates, it is quite fragrant and is a desirable and pleasing plant.

The Japanese rose (*Kerria Japonica*) is a spreading delicate shrub with yellow tassel-like flowers. There is a variegated variety of this plant.

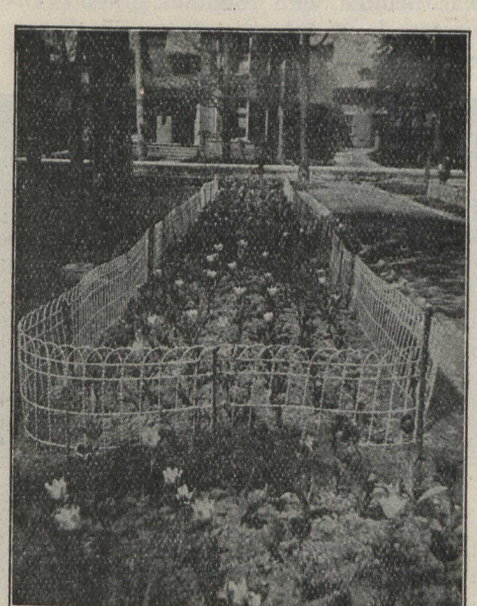
Spiræa Fortunei in its varieties *alba* and *rosea* makes a shrub almost suitable for bedding. So profuse is its blooming and being of a dwarf habit, it is useful for cemetery planting.

The dwarf barberry (*Berberis Thunbergii*) is a pretty little plant with small foliage and of a coppery-red colour, valuable for small hedges or borders. *Viburnum Opulus nana* is a neat dwarf variety of the snowball, but does not bloom.

Saving Aster Seed

What methods are practised to obtain the best seed from asters?—L.W.B., Morrisburg, Ont.

Aster plants from which seed is to be saved should be selected early in the season when the first flowers have developed. Select the best types possible. Keep the small blooms cut off. Save seed only from the largest and best developed flowers. Cut the flower-heads when the seed is nearly ripe. Dry them thoroughly before putting away for the winter. Keep seed in a dry, cool place.—Wm. Hunt.



A Tulip Bed Protected Against Dogs

Victoria Park, Peterboro. In this bed last spring some excellent blooms were grown but the crooked fence marred the general effect.

Some Hardy Ornamental Grasses Worth Growing

Roderick Cameron, Superintendent of Parks, Toronto

"ORNAMENTAL grasses" is a subject not much thought of or understood in this country, not half as much as it should be. For my own fancy, I would sooner plant them on my lawn than geraniums. The time is at hand when they will be more in demand for decorating our lawns than in the past. A bed of grasses and their allies to my mind are more beautiful and interesting than a bed of geranium or tulips, and in saying this, I have in my mind's eye the bed of them that was at the Pan-American Exhibition in 1901. It was a broken, irregular shaped bed and looked fully better than any other bed there. The varieties it contained as far as I can remember were as follows:

Eulalia Japonica (*Miscanthus Sinensis*) five feet, six inches high, green; in flower September 27.

E. Japonica variegatus, four feet high, variegated; in flower September 25.

E. Japonica gracillimus, three and a half feet high, narrow, mid-rib white; in flower September 20.

E. Japonica Zebrinus, bars of yellow across the leaves, zebra-like, and grows to from four to five feet high, a grand species; in flower September 20.

These composed the centre of the bed, and here and there were several varieties of bamboo, *Bambusa Metake*, and several others that I cannot now remember. Plume grass (*Erianthus Ravennæ*) and ribbon grass (*Phalaris arundinacea variegata*) filled up towards the edge of the bed and to break the level sky line there was a plant here and there of the giant reed of Southern Europe, *Arundo Donax*. The edge or border of the bed was planted with fountain grass (*Pennisetum longistylum*).

All of these, or any one of them would be a welcome ornament in groups upon the lawn, up next to the verandah, or in a border next to the line fence, or to hide any unsightly object, such as outhouses. Any of them look well around a fountain or lake, or small stream of water, and all of them are hardy at Niagara Falls, but the Pennisetum. I find that if these plants are taken up and potted in the fall, or placed in boxes and put into a cool greenhouse until coming spring, they may then be divided, potted into small pots and placed in the heat, when they will make good plants for the following season.

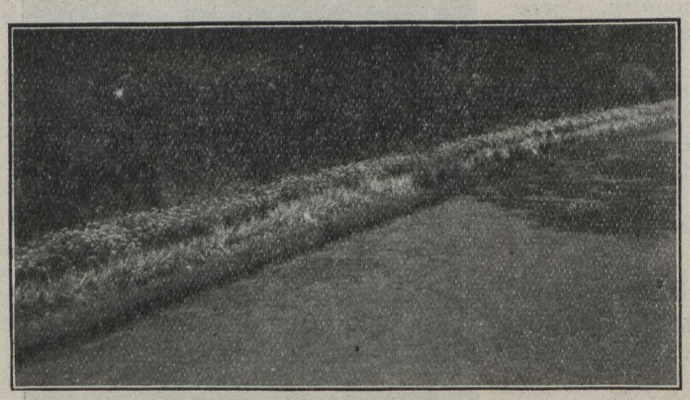
They can also be grown from seeds very readily. By sowing the seeds in February, they will be ready to plant out in May. There are two more varieties of this Pennisetum that should be grown along with the above, *P. Ruppellii* and *P. macrophyllum sanguinium*. All three may be treated the same way.

There could be many others added to the above, such as *Poa trivialis variegata*, a very dwarf plant, and beautifully variegated, four inches, grand for edging a bed, very hardy, in flower September 1.

Blue fescue (*Festuca glauca*), would make a grand second line along the edge, six inches high and hardy, from Britain, in flower June 13; using *Molinia cærulea* from Central Europe, one foot high, as a third.

The variegated oat grass of garden origin, *Arrenatherum bulbosum variegatum*, grows fifteen to thirty inches high. This would make a very bright fourth line, in bloom September 1. The *Elymus glaucus* from Turkestan, growing to three to four feet and giant rye grass (*Elymus condensatus*) could be made use of among those already mentioned.

I must not forget to mention *Arundo Donax glauca* four to five feet high, and *Arundo Donax variegata*, four to six feet high, and one of the most beautiful variegated grasses or reeds I know of. The type *Arundo Donax* grows fourteen feet high. These three reeds are hardy at Niagara Falls, but they would have to be protected farther north, or grown in tubs and kept in cold storage during winter. I found also that *Bambusa aurea* was hardy at the Falls; farther north it would have to be tubbed.



Poa Trivialis Variegata (Four to Six Inches High) Used for Edging

There are many other varieties of grasses that could be used to good advantage in many ways as follows: Melica grass (*Melica altissima atropurpurea*) and *Melica ciliata*, beautiful and graceful. *Gymnothrix latifolia*, *Gymnothrix Japonicum* and beard grass, (*Andropogon Sorghum*), seven feet high, of North America, should be in this collection. Pampas grass (*Gynerium Cortaderia argentea*) also should find a place in the collection but must be grown in tubs and wintered in cold storage.

I hope this list will be the means of introducing some of these beautiful grasses, if not all of them, to be grown upon lawns. They are well worth a trial.

Arundo Donax Variegata

The Forget-me-not

This flower succeds best in cold, damp ground, and in partial shade, but care must be taken that the soil is not sour. It frequently happens that low, damp soil in shady locations becomes sour, and unfit for growing flowers. Sow the seeds in rows covering to a depth of one-eighth of an inch and when the plants are large enough thin out or transplant to stand six inches apart.

Forget-me-nots grow and spread very rapidly and will soon cover the whole space. They are fine for edging beds of other flowers or for bordering the shady walk or drive. Seed sown in the spring will bloom in the fall and if given the protection of coarse strawy manure during the severe winter weather, will bloom much more freely during the cool moist weather of the following spring. For spring flowering, seed may be sown any time up to the middle of August, and protected, as mentioned, during the winter.

Myosotis palustris is the true forget-me-not, but some of the newer varieties such as *M. P.* var. *semperflorens* and *M. sylvatica* var. *alpestris*, are stronger growing and, while equally pretty, have larger sprays of bloom. Keep the ground constantly moist.

Even on the barest of prairie farms, hardy flowers of many sorts grow with but little care. No home in the west need be without their bright faces.

The Best Gladioli and Their Culture

C. M. Bezzo, Berlin, Ontario

THERE is no class of flowers which will give better results with little care and under varied circumstances than the gladiolus. But this does not mean that they will not resent neglect, or repay care and attention. Neither does it mean that they have not their likes and dislikes. The gladiolus has a preference for sod ground, but in small gardens this is, in most cases, impossible. But we merely state the conditions best suited and leave the planter to be guided by the necessities of his environment. The gladiolus does not do well on heavy clay land; the ideal soil is a good sandy loam. It succeeds best on soil that has been made rich the year previous and when planted in such soil will not require any additional fertilizer; but when manure is used it should always be well rotted and used sparingly.

Prepare the bed in the usual way, digging the ground as deeply as can be done with the spade or fork, making it thoroughly fine all the way through. Plant the bulbs about four inches apart each way, covering to a depth of four or five inches in light soil, and half that distance where the soil is somewhat heavy. For a succession of bloom plant at intervals of ten days or two weeks, making the first planting as early in the spring as the ground is in thorough condition for working. Or the bulbs may be planted singly in flower pots in the house and set out when the weather gets fine and warm.

The date of the last planting must be governed by the time it is usual to have fall frosts. In localities where it is usual to have heavy fall frosts about the middle of October, the last planting should not be made after the middle of June. Four months back from the time the first fall frost is expected is the latest date we would recommend for making the last planting. Always plant the smaller bulbs first, as they will lose their vitality if left too long unplanted, leaving the larger ones for the last planting.

When the foliage appears above ground loosen the surface soil with the hoe and keep it loose throughout the season. This not only admits the air to the roots and prevents evaporation of moisture, but also keeps down weeds. Do not allow them to suffer for water, especially during the blooming period.

If the bloom is heavy, it is advisable to give support either by staking or by strings arranged as follows: Drive stakes in the ground at intervals of every five feet in each direction in such a way as to form a block five feet square, allowing the stakes to project out of the ground from twelve to eighteen inches according to the height the bloom spike is expected to grow. To the top of these fasten a strip of board of sufficient size and strength for the purpose, stretching from one stake to the other. If good stout stakes have been used and driven firmly into the ground good strong twine or wire will answer the purpose of the strip of board. Take a good stout twine and fasten the end to one of the strips, running it between the rows to the other end of the square, bring it back between the next row, and so on until the whole square has been gone over. Then start at the other side and run the string the other way of the bed, knotting firmly at each cross string. This will leave each spike in a perfect square by itself, provided the bulbs were planted at regular intervals.

The Best Gladioli

Among the lists of plants presented to the Ontario Horticultural Association at its last convention by the committee on plant nomenclature, were lists of the best fifty, the best twenty-five and the best twelve hybrid gladioli. The list of fifty is published herewith in full. The best twenty-five are indicated by this sign (°), and the best twelve by an asterisk (*).

*°Afterglow. — Salmon fawn shade, with pale blue centre; large flowers; massive spike.

Aline.—Pure white, striped crimson; large flower.

*°America.—Pale delicate pink; large flowers; strong habit.

*°Augusta.—White with blue anthers; large spike, lateral spikes well developed.

°Attraction. — Detp, rich crimson, white throat; medium grower.

*°Baron Joseph Hulot.—Deep violet blue; medium flower.

Berlinia.—Shell pink, shaded and flaked darker.

Blanche.—White with purplish rose markings.

°Blue Jay, (Groff's).—Purplish blue with lighter shading.

°Brenchleyensis. — Bright scarlet; large spike; strong grower.

California.—Rosy lavender, lighter markings in throat; large spike.

Canary Bird.—Pleasing shade of yellow, carmine markings at base of petals.

Cardinal. — Dark cardinal scarlet; large showy spikes.

Ceres.—Pure white with purplish rose markings.

Contrast.—Reddish scarlet, white centre.

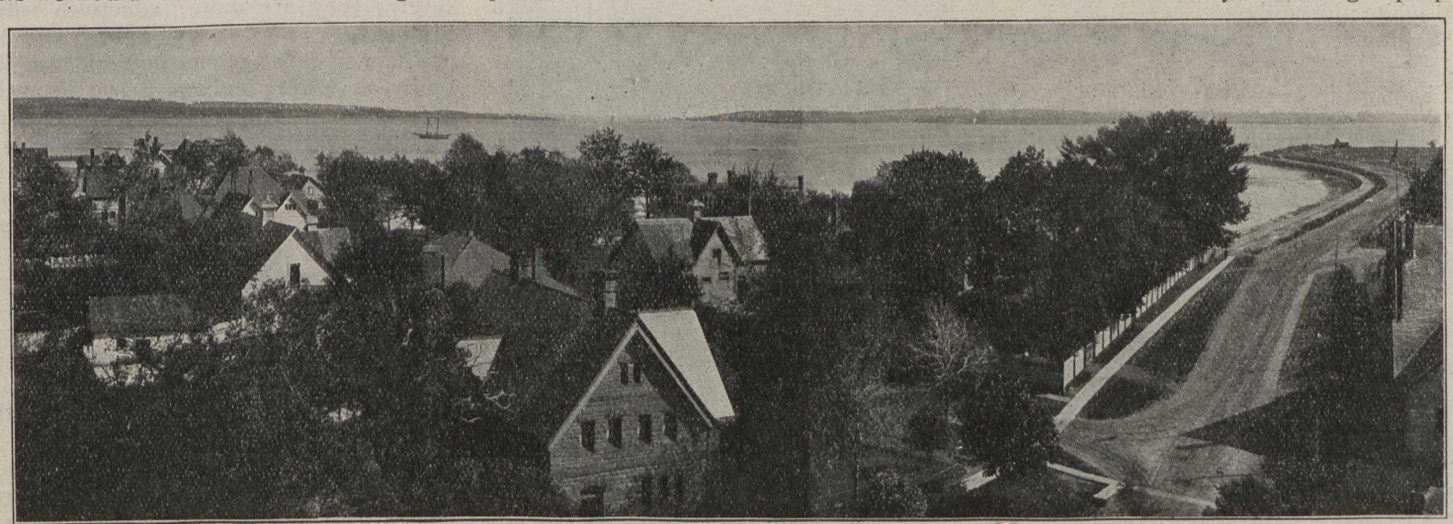
*°Dawn, (Groff's).—Pale salmon shaded lighter, suffused with carmine or claret on inferior petals.

Dr. Hogg.—White, heavily striped and marked with carmine; large spike.

Eldorado.—Yellow spotted maroon; medium sized flower.

*°Evolution.—Delicate rose, shaded darker; good spike.

Gen. de Nansouty.—Rich light purple,



A Corner of Charlottetown, Prince Edward Island, where the City Meets the Waters of its Fine Harbor—A City where Tree Planting is Fully Appreciated

Photograph kindly furnished by Mr. A. B. Warburton, M.P.

lower petals shaded crimson, creamy spots.

*°Eugene Scribe. — Pale rose shaded carmine; good habit.

°George Paul.—Deep crimson shaded yellow, spotted violet-purple.

George B. Remsen.—Carmine red veined and shaded lighter; large spike and flower.

°Giant Pink.—Deep rose with markings of deeper pink; strong flower.

°Jane Dieulafoy. — Creamy yellow, blotched crimson.

Klondyke.—Primrose yellow, blotched crimson.

°Lady Howard de Walden. — Bright yellow, inferior petals flaked with carmine.

*°La Luna. — Creamy yellow heavily blotched with chocolate carmine.

Lamarck.—Cherry red, tinted orange and carmine, centre white.

°Little Blush.—Creamy white shaded yellow, heavily striped and shaded carmine.

Magnificus. — Rich reddish crimson, with white and carmint markings; strong grower.

May.—White shaded cream with rosy carmine markings.

°Meadowvale. — Almost pure white, slightly shaded crimson and pink.

Mephistopheles. — Large flower, red with dark red and creamy shading.

Mrs. Beecher.—Rich crimson scarlet, with white throat.

Octoroon.—Salmon pink; pleasing.

Pacha.—Dull orange with reddish markings on throat on creamy ground; large flower.

*°Peace.—White, slightly suffused pale carmine; large spike; very conspicuous.

°Philadelphia. — Deep pink, shaded and diffused lighter; strong grower.

*°Princeps.—Bright red, lower petals streaked and blotched lighter.

*°Prophetesse.—Pearly white almost pure; round, compact flower.

°Rosella. — Light rose shaded purple and white; large flower.

°Scarsdale.—Lavender; strong grower.

Shakespeare. — White, blotched rose color shaded carmine.

Snowbank.—White slightly marked red at base of petals; large spike.

Sulphur King.—Clear yellow shaded lighter.

*°Victory.—Bright yellow; large spike and flower.

Waukesha.—Lily-shaped flower; crimson scarlet, centre creamy white and carmine.

White Lady.—One of the best whites.

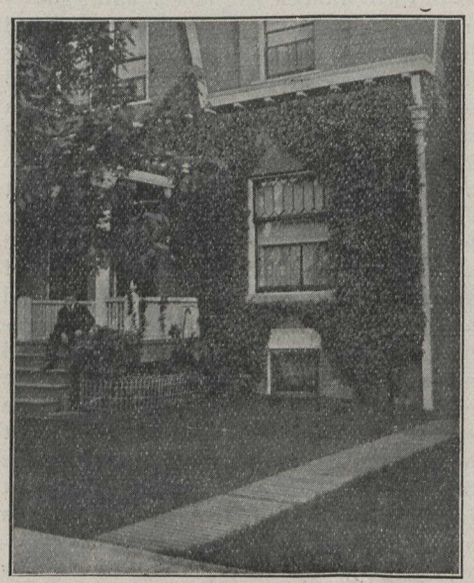
°Wm. Falconer.—Creamy rose shaded and spotted red and carmine.

Send enquiries to our question and answer department. The replies may help you and others. Send name and address. Only initials will appear in print.

Lawn and Garden Hints for June

COMPLETE the sowing of seeds of hardy garden vegetables. If the garden is small and there is room for only a few things, sow salad crops, radishes and other kinds that make quick growth and do not require much room. Carrots, parsnips, turnips, cabbages, cauliflowers and similar kinds, need not be considered for gardens of small area. Where there is plenty of room, however, grow everything that you can.

As soon as the young plants appear commence cultivation. Use the hoe frequently. Do not wait until the weeds get a start. By stirring the soil early many weed seeds that have sprouted and not yet made an appearance above ground, may be killed. Surface cultivation also prevents the evaporation of soil moisture. It



A Neat House Front in Toronto

forms a loose earth mulch through which water cannot escape.

Apply water to the vegetable garden in the evening; but water at any time rather than allow vegetables to suffer. Mere sprinkling is useless. Give the ground a good soaking. It is better only to water a portion of the garden properly at one time, rather than to water all in a half-hearted way.

Hand weeding and thinning will be necessary in the case of onions, parsnips, carrots, beets and so forth. When once thinned, however, late weeding may be done with the hoe. When thinning beets the leaves of discarded plants may be used as table greens.

The Swiss chard, a type of beet, is excellent as a boiled green. Sow the seeds early. Thin the plants when up. Other little known vegetables that are worth trying are kale, Brussels sprouts, cardoon and Chinese cabbage.

Sweet corn may be sown any time now. A sweet flavored variety with yellow kernels is Golden Bantam.

Transplant cabbages, cauliflowers and tomatoes. The latter may be trained on stakes and on fences.

When danger of frost is past, sow the seeds of tender vegetables such as cucumber, pumpkin, squash and melon. Early maturing varieties of muskmelons will grow in many districts where usually it is thought impossible.

WITH THE FRUITS

The blossoms of newly set strawberry plants should be removed. This will divert all the plant's energy to growth and the production of runners. Cultivate the new patch continually.

To get larger and better fruit on your trees thin them after the so-called "June drop." If you think this operation unnecessary, experiment this year by thinning the fruit on some trees and leaving others unthinned. Note the difference in results.

Spray fruit trees and bushes with Bordeaux mixture and Paris green. This is the best-known remedy. There are others that give equal satisfaction and are easier to prepare and handle. Consult the advertising columns of THE CANADIAN HORTICULTURIST.

THE FLOWER GARDEN

Plant gladiolus corms. This is a flower that should be appreciated and grown more than it is by amateurs. Read the article on page 141.

In the annual flower beds be sure to have plenty of mignonette. It is a useful flower for cutting. Among other common annuals that should be in every garden are marigolds, petunias, eschscholtzia, calliopsis, salpiglossis, balsam, zinnias and poppies. For edging, use portulacca, sweet alyssum, lobelia and candytuft.

One of the best general purpose border plants is the hardy perennial phlox. Give it a good rich soil and keep the grass and weeds away.

The hollyhock is useful in the background of borders. Do not plant them singly; they are more effective when grouped.

The names of plants suitable for the hardy border are legion. Select from the seed catalogues a good assortment, and have this year a border that will surpass past efforts.

Plant dahlias and cannas when all danger of frost is past. At that time also set out bedding plants such as geraniums, coleus, caster oil plant and iresine.

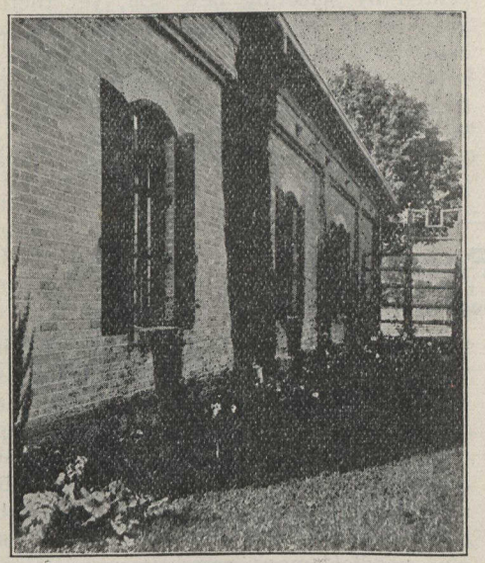
Grow water lilies at home. Fill a half-cask about one-third full with soil (good loam, sand and leaf-mould), set the plants in this and fill the tub with water. The tubs should be sunk to the rim in the border of the lawn.

Roots of grasses near flower beds are apt to undermine them and rob the flowers of food and moisture. Better run a sharp spade into the ground about the edges of the beds once a month.

Tuberous-rooted Begonias

By "Amateur"

OF late years the use of tuberous-rooted begonias as decorative plants for the outdoor garden has very largely increased and no doubt their popularity for this purpose is due to their



A Border of Tuberous Begonias

variety and brilliancy of color, their freedom and continuity of bloom, as well as to the fact that they succeed best where most other plants would fail and that their cultivation involves neither trouble nor expense. They range in color from purest white through delicate creamy shades to yellow and from yellow to brilliant orange, from pale pinks and delicate salmon shades to the deepest rose; and from the brightest of scarlet to blackest crimsons. They are a mass of bloom from June to November, and do best in shady spots where few others would bloom at all.

To grow begonias successfully requires just three things—and by the way these are the identical three things that any other plant requires—viz., the right kind of soil, a suitable situation, and proper care. The right kind of soil is one composed of equal parts of well-rotted sods, good garden loam and sand. The most suitable situation is one on the north side of a building where they will be shaded from the sun all day except a short time morning and evening, and where they will be sheltered from strong winds. After they are once planted out all the care required is to mulch them with thoroughly rotted farm yard manure and water them so often that the soil is always moist but never wet.

The preparation of the plants previous to their transfer to the garden requires some care and attention. In starting the tubers they should be planted in shallow boxes during March or April using a mixture of rotted sods and sands and planting them about one inch or less deep. They should be watered somewhat sparingly until growth begins, when they will require more moisture.

In planting the tubers, be sure that you plant them right side up and it is not always easy to tell which is the right side; usually, however, there is a depression where the last season's stem was which will show you, and quite frequently they have begun to grow by planting time and then, of course, there is no difficulty in telling the right side.

When all danger from frost is past, say at the end of May or beginning of June, transfer them to the garden, placing them from one to two feet apart, and in a very short time they will be in full bloom.

It is advisable to buy mixed varieties because in the first place, you are almost certain to get mixed varieties even if you pay the extra price for separate colors; and in the second place, they can be moved so easily that if you find that you have a color where some other would look better, you can move it after giving it a good soaking and the next day it will show no sign of its removal.

Do not water them when the sun is shining on them or the leaves will likely be scorched. At any other time even the heaviest rains do them no harm; the flowers are not broken and though they droop and bend they will rise again uninjured as soon as the rain is over.

After the first heavy frost in fall, they should be carefully dug and the greater part of the top cut off and then carefully dried in the shade and stored where frost will not reach them; but not near a furnace or hot water pipes.

Begonias may be grown from seed but as the seed is as fine as dust, there is great danger of covering them too deeply, so that the ordinary amateur will no doubt prefer to buy the tubers, especially as they can be had for about three cents each when bought in quantities.

Have you the right soil and the right position for them? If so, try a hundred and you will have every satisfaction; if not, don't plant one or you will be disappointed.

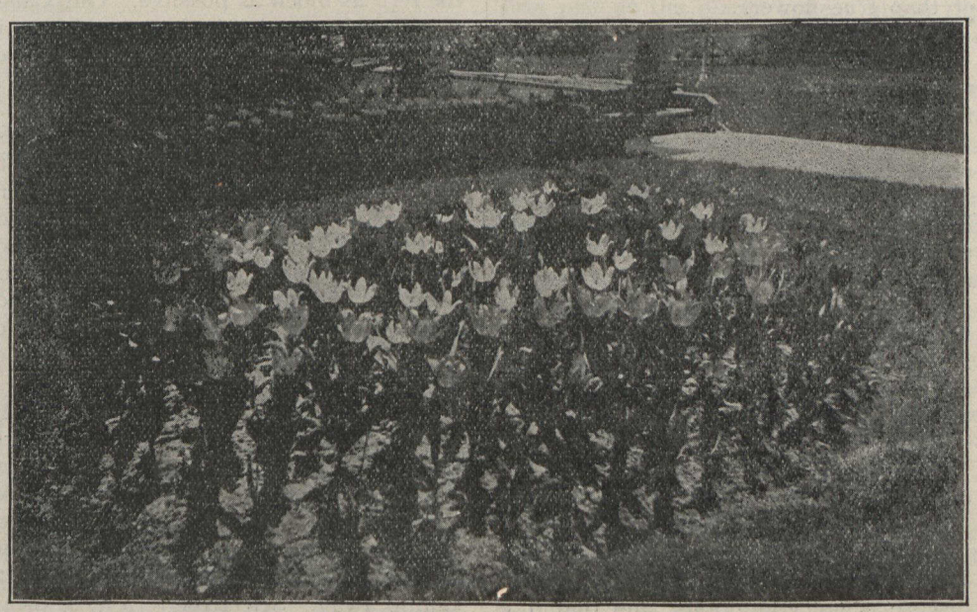
The Old-Fashioned Cockscomb

The cockscomb (*Celosia* sp.) is almost too stiff and formal for effective planting but is worth having for the sake of curiosity alone. Many of the flowers will measure nearly a foot long and two inches or more across the top if given good cultivation. Seed may be sown in the open ground any time after the weather becomes fine and warm. It may also be sown in the cold frame in the early spring.

When transplanting select the most stocky plants as they are most likely to give the finest and largest heads of bloom. Set the plants one foot apart each way in rich soil that has been thoroughly pulverized. They may be used for the outside row of taller growing mixed plants and are sure to attract attention wherever grown.

Give plenty of water during dry weather and keep the surface soil loose and fine at all stages of its growth. If the flower heads are cut before the seeds ripen and hung up to dry in a cool place, they will retain much of their brilliant coloring and make fine inside decorations. They are grown in many shades and colors.

All hardy currants, black, red and white, may be planted in any soil in Saskatchewan where wheat does well. Currants need no special protection or shelter in that province. They respond quickly to good treatment, but stand more neglect than almost any other fruit.



A Tulip Bed Furnishes Almost the First Burst of Bloom in the Springtime

Yellow Disease or Blight of Asters

L. Caesar, Ontario Agricultural College, Guelph

LAST fall, Mr. Wm. Hunt, florist at the Ontario Agricultural College, asked me to look into what appeared to be a disease of asters that seemed to be fairly prevalent last season in many districts. After examining a number of plants at the college, I found that the trouble is the same as was described in Bulletin 79 of the Hatch Experiment Station. Prof. R. E. Smith of that station investigated this disease very carefully seven years ago and gave it the name of the Yellow Disease or Blight of Asters.

SYMPTOMS

The symptoms are so conspicuous that anyone can easily identify affected asters. The diseased plants are characterized by the leaves and upper parts of the stem being of a sickly greenish yellow color. When the flowers appear they too take this greenish yellow color instead of being the normal white, red or blue, and so on. Moreover, each flower assumes more of a globular shape than is the case with healthy flowers. This is caused chiefly by the outer or ray florets curving in towards the centre instead of expanding somewhat horizontally. If the disc or central florets are examined it will be seen that they are more cylindrical and elongated than is the case in healthy flowers, and the stigma and style of the pistil protrude about twice as far as they should in normal plants. The leaves in addition to being sickly and yellowish, are usually narrow and small, thus giving many of the affected plants a spindly appearance. Sometimes one or more branches will show very little or almost no sign of the disease, while all the other parts are affected. Very badly diseased plants become dwarfed and though many flowers may appear they look like clusters of very narrow greenish-yellow leaflets rather than true flowers.

CAUSE NOT KNOWN

Professor Smith has given much study to the cause of the disease and has not found any organism present in any part, so that it is in no way associated with root aphis, white grubs, fungi or bacteria. Hence the true cause is still a mystery. Practically all that has been discovered along this line is that the plant for some reason is unable to assimilate to the proper extent the food that it manufactures in its own green parts. Hence we have an excess of starch and of certain acids and of tannin present; failure to use these, of course, means semi-starvation.

It is supposed by some that one flower will contract the trouble from another, or that it will be worse if plants are placed in the same bed year after year, or grown from seed from infected beds. Professor Smith's experiments tend to show that the disease is not contagious, and that it is not spread by seed or by soil. He finds moreover that it cannot be due to lack of certain substances in the soil because it is about equally prevalent on different kinds of soil, such as sand, sandy loam, clay loam, and heavy clay. No variety seems to be exempt, though some years, as for example last year at Guelph, white asters are worse attacked than others. This does not seem to hold in every case. It has been found that the plants are not so likely to be attacked if they are grown on the raised benches of greenhouses or on raised boxes outside. The cause of this is not known. From the fact that some seasons the disease is much worse than others, it is believed that weather conditionstions must have a great deal to do with its severity.

PREVENTIVE MEASURE

Though this disease, according to Professor Smith, is not to any extent prevented by selecting new soil, yet there are certain other diseases that attack asters and as rot aphis are often severe, it is wise to endeavor if possible to have fresh soil, or soil that has been sterilized, in the hotbeds where the plants are started, and also to place the permanent beds in fresh soil.

Make a Fern Bed

C. M. Bezzo, Berlin, Ontario

A GROUP of fine ferns makes a most magnificent display and should be found in every flower garden where a suitable place can be found for them. Select a place in the shade of trees or buildings. Make the conditions as near as possible like those under which the fern lives and thrives in its native haunts. The best ferns are not found in dense shade where the tree tops form a complete canopy impenetrable to the rays of the sun, nor in the open where they may be exposed to the full blaze of the noon-day heat. The ideal place for ferns is where the tree tops are sufficiently thick to merely break the direct rays of the sun during the greater part of the day. Where the shelter of trees cannot be obtained, an east or northwest exposure may be used. But in these locations they should be protected by a fence or some other arrangement, from the biting north and east winds.

The underground conditions should be studied the same as those overhead with a view to imitating the native haunts of the fern as much as possible. Our Canadian woods are rich in ferns, and here is the ideal place to study their requirements. The best are usually found in a heavy leaf mould and wood-dirt.

Go to your native woods for your ferns. In this Canada of ours there is no need to buy from abroad ferns for the garden. There is hardly a county in this province of Ontario, and certainly not a province in this Dominion, in the woods of which ferns do not grow in plenty, which for beauty of form and foliage, and ease of culture, cannot be surpassed by those of any other country in the world.

In transplanting ferns they should be lifted while the ground is wet, either early in the spring before the ground has dried out, or immediately after a rain. Take several pieces of burlap, one for each fern, and large enough to cover the roots and tie at the top to prevent the earth falling away. Select the fern most pleasing to your fancy and, after cutting the top off, if it has grown to any size, lift it very carefully with a spade, leaving as much of the soil as possible around the roots. Wrap immediately in the burlap to keep earth and roots intact, and plant in the fern bed as soon as possible, after removing the burlap. Give a thorough watering and put on a two-inch mulch of pine needles, moss, sawdust or anything that will prevent the rapid evaporation of the moisture.

Early in the spring is the best time for removing ferns, although it may be done any time during the summer, but much more care is required in order to be successful. Where the moving is done in the summer and the fern has made some considerable growth, the leaves and young shoots should be cut back two or three days in advance of the removal, in order that the plant may regain in some measure its physical equilibrium before the shock incident to its removal and the mutiliation of its roots is imposed upon it.

To prepare a bed for ferns the space should be dug out to a depth of twelve to fifteen inches and filled in with a compost, made as follows: Two parts leaf-mould, two parts meadow soil, or well rotted sod, one part well rotted cow manure, and one part sand. Add one pint of charcoal to each bushel of the mixture as near as can be estimated. There is very little danger of adding too much. Where the bed is made some little time in advance of the planting, one pound of wood ashes may be added to each bushel of the mixture.

After the plants are well started and in active growth, they may be given liquid food in considerable quantities—pulverized cow or sheep manure one ounce to two gallons; or potash one ounce to five gallons of water.

Planting varieties not adapted to soil and climatic conditions is one of the worst errors in fruit growing.—Col. G. B. Brackett, United States Pomologist, before the American Pomological Society at St. Catharines last September.

Some Insects Injurious to Vegetables

Arthur Gibson, Central Experimental Farm, Ottawa

AT the time the seed leaves of turnips, radishes and other cruciferous plants first appear above ground they are often attacked and the plants completely destroyed by the so-called "turnip fly," which is a small, very active, shining, black beetle, about one-eighth of an inch long, wit ha yellowish stripe on each side of the wing-covers.

As soon as the beetles are noticed, the plants should be dusted with Paris green and land plaster, one pound of the former to twenty of the latter. This is best done when the plants are covered with dew. If turnips are not sown until the third week in June, injury from this insect will be avoided, as by that time the swarms of beetles from the first brood have, as a rule, disappeared.

THE SQUASH BUG

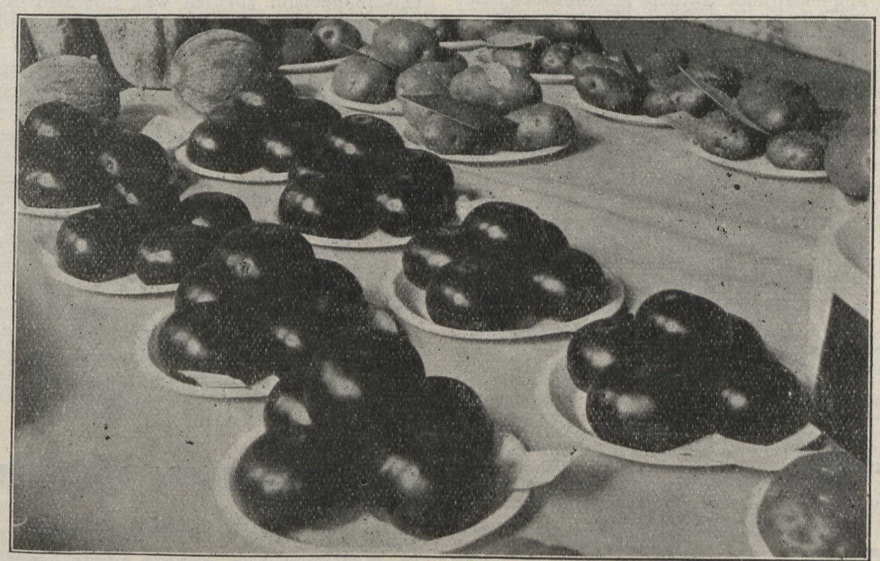
Although the squash bug is seldom abundant enough as far east as Ottawa to do any serious harm, still it is one which should be familiar to all growers of cucurbits. In western Ontario the squash bug is usually abundant enough to be decidedly injurious. It is dark brown in color, about three-fifths of an inch long, and, being a true bug, gets its food by suction. The winter is passed under rubbish, etc., and as soon as the young plants are up in spring they immediately begin their depredations. The sexes pair at once and soon the clusters of eggs may be found on the under side of the leaves. There are two broods in the season.

In the earlier part of the season the old bugs may be trapped by placing shingles or short pieces of boards among the plants. The bugs hide under such shelters at night and the next morning when the boards are examined can be easily destroyed. When the bugs are young they can be killed by spraying the vines with kerosene emulsion, or whale oil soap. As soon as the crop is gathered if the vines are burned at once many of these insects in all stages will be destroyed. It has been found a good plan in districts where the squash bug is prevalent, to plant a few hills of the ordinary squash among melons, cucumbers, etc., so that they will appear above the ground a week or so before the other plants. The bugs are particularly fond of squash and will at once collect upon them, where they can then be killed.

THE STRIPED CUCUMBER BEETLE

The striped cucumber beetle passes the winter in the perfect state and as soon as the young cucumbers, squashes and melons appear above ground, it at once begins to attack them. The beetle is yellow with three black stripes down the back and is about two-fifths of an inch in length. The larvae are slender, white, worm-like grubs with dark heads; they live in the ground, feeding on the roots of the plants, sometimes even burrowing up into the stems.

If frames of cheese cloth are put over the young plants, these will be protected from the attacks of this insect. When the plants have grown large enough to require the removal of the frames, these of course can be dispensed with, and by that time most of the first brood of the beetles will have disappeared. If the young plants are sprayed with the poisoned Bordeaux mixture, they will also be protected largely from the attacks of this beetle. The beetles of the second brood are very active and fly freely from plant to plant. Paris green and land plaster (one of the former to fifty of the latter) if dusted over the plants at short intervals will kill large numbers of the beetles.



Tomatoes Grown in a School Garden by the Children

The school gardening idea is rapidly gaining ground and should be encouraged in every way. The tomatoes illustrated were exhibited at the Niagara District Horticultural Exhibition two years ago by the Rittenhouse School at Jordan Harbor, Ont.

ROOT MAGGOTS

These well known small white maggots which bore into the roots of radishes, cabbages, cauliflowers and so on, and into the bulbs of onions, may be treated of, from a practical standpoint, as the same species. The perfect flies are similar in appearance to the ordinary housefly, but are smaller and more slender. They appear in gardens as soon as the young plants are above ground and lay their white eggs on the stems close to the earth. The maggots hatch in a few days and work their way down beneath the soil and into the roots, or bulbs, which are eventually destroyed. Unfortunately, no good practical remedy is known for these insects. In our experiments we have found that where white hellebore had been dusted along the rows of onions once a week, from the time the young plants first appeared above ground, good results were obtained during some years.

For cabbages and cauliflowers, the tarred paper disks which are made from ordinary tarred building paper, cut three inches in diameter, with a slit running to the centre, so as to allow of their being put round the plants, have proved very useful. The disks, of course, should be pressed down close to the ground. The flies do not lay their eggs to such an extent on plants thus protected.

The Cook carbolic wash which is made with one quart of soft soap, or one pound of hard soap, half a pint of crude carbolic acid, and one gallon of water, has proved very useful for radishes. This mixture after it has been boiled together for a few minutes is the stock solution, and, before using, one part by measure is added to fifty of water. It should be applied first just as the plants appear above the ground, and afterwards once a week until the radishes are a marketable size.

During the last two years we have been experimenting with sulphate of iron as a remedy for root maggots. This was highly recommended to us. From results obtained, the late Dr. Fletcher thought it wise to advise its use in the proportion of two ounces to every gallon of water, the application to be the same as in the case of the Cook carbolic wash.

In many Saskatchewan homes it is thought that no fruit can be grown. Try it once, and give the bushes as good a chance as you would give a cabbage plant.

"Be up-to-date!" is the feeling among the best orchardists in Nova Scotia. Old lines of hose, old pumps, old methods are being thrown aside and the best taking their places.

The Canadian Horticulturist

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PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

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

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

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, 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		
July, 1909	8,447		
August, 1909	8,570		
September, 1909	8,605		
October, 1909	8,673		
November, 1909	8,750		
December, 1909	8,875		
Total for the year	107,638		

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

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

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 advrtisers, 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.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO.

EDITORIAL

BRITISH COLUMBIA INSPECTION

During the shipping season for nursery stock just passed, we received from British Columbia another strong argument in favor of the establishment of an inspection station at or near the eastern boundary of that province. On more than one occasion nursery stock arrived at Vancouver in such quantities that much of it was tied up for days before it could be handled by the inspectors there. On a particular day in April, at least six cars were on hand at one time, and it was over a week before all the stock was inspected. At a critical time of the year with the season advanced and the warm weather starting the buds, six carloads of nursery stock were held up, and some of the stock perhaps killed by the delay, because the inspection service was not sufficient to cope with the situation! Is it any wonder that we hear frequent rumors to the effect that eastern stock is discriminated against to serve the personal interests of certain parties employed by the government and interested at the same time in local nurseries?

If these reports are true, and they should be investigated, they constitute an outrage against not only eastern nursery concerns, but also their customers in British Columbia. The fact that on one day six cars or more of outside-grown stock arrived in that province—and the season's operations extend over many weeks—proves that there is plenty of business to warrant the establishment of an inspection station at the eastern door of the province. A just consideration of the situation would settle the matter in favor of a fair chance to everybody.

BRITISH COLUMBIA APPLE SHOW

Those interested in the proposed apple show to be held at Vancouver, B. C., early in November are making plans for a show that will be a credit to the province. It is announced that probably $25,000 will be offered in prizes, ranging from $1.000 for carload lots down to small amounts for plate exhibits. Various organizations, including fruit growers' associations, have promised their support, and many prominent individuals are backing their promises with active work. No class of citizens in Canada can make such a show a success better than can the fruit growers of British Columbia. When these men decide to do a thing they usually do it.

An apple show such as is proposed would be a great advertisement for the fruit industry of British Columbia. It would bring the buyers and producers in close contact and many things would be learned one from the other. Of particular importance in this regard is the selection of the dates for the show. If it is held either the week preceding or the week following the Spokane show, a greater attendance of buyers from across the Atlantic may be expected. It is hoped that nothing will be left undone to make the show a huge success.

As mentioned in our February issue, there is one factor that admits of criticism, and that is the attempt to designate the show a "Canadian National" one. In this connection it is misleading to use the word "Canadian" in its broadest meaning. The proposed show will be confined to British Columbia effort and to British Columbia products alone. It will be Canadian in a restricted sense—just as any fall fair is Canadian, being held in Canada—but the use of the word in connection with the proposed apple show is incorrect.

The British Columbia people are literally adopting the suggestion that appeared in our February issue to the effect that better provincial shows are needed. They are planning to hold a big provincial apple exhibition that will eclipse anything of the kind ever held in Canada. May they realize their ambition! Eastern Canada will applaud the effort and take pride in the result. But be accurate in name and call the show the British Columbia Apple Show.

A PACKAGE FOR TENDER FRUITS

To market tender fruits satisfactorily, particularly peaches and plums, it is necessary that a suitable package be used. The Climax basket, used so largely in the Niagara district, is unsuitable in every way for the carriage of the better grades of fruit. This was pointed out in THE CANADIAN HORTICULTURIST for August, 1906, and in an appendix to the report of the Ontario Fruit Growers' Association for 1906, and is not a new question as has been stated recently. It is, however, a question of importance and one that requires the earnest consideration of the fruit growers.

In our previous remarks on this topic this statement was made: "The time will come in Ontario, as it has in nearly all states across the line, when better packing and a better package will be demanded for the best class of peach trade." This opinion we still maintain. The fruit industry has grown so rapidly in recent years and as each succeeding year has shown the worthlessness of the Climax basket for certain purposes, it would seem that the time predicted is near at hand. In the article mentioned we recommended the adoption of the six-basket carrier, commonly called the "Georgia carrier." Except for long distance shipments, as to the west, for which the California flat box probably is better for some fruits, no package would give more general satisfaction for a variety of fruits and purposes than this carrier. It is light and strong, holds three-quarters of a bushel, gives good ventilation, is neat in appearance, and with the divider, six baskets and cover, the cost is not great. It is put together with strong wire staples, well clinched on the inside. The panel heads afford a sure grip to the hands, and damage from breakages rarely occurs. When loaded in cars, the shape of the package permits a perfect fit; the tiers are separated for ventilation by means of inch slats tacked across the ends of the package.

The Climax basket is not suitable for fancy packing. Practically the only style of pack that can be used in it is a straight 4-4, three-layer pack, with the fruit on end. Packing tender fruits on end is bad practise, but the flimsiness of the sides and handles of this basket permits no other. Spreading the handle to admit the cover loosens the fruit, and as a consequence fruit packed in any other way than the pack mentioned would be squeezed out of place, and even the 4-4 pack often arrives at destination in a confused state. Furthermore, the Climax basket is too light to stand much handling and long shipments. The leno cover, and even the veneer cover, permits pilfering of the fruit and allows dust and dirt to enter. This package may be useful for placing inferior grades on a near market, but for putting fancy grades on any market it is unprofitable.

Again, we recommend to our fruit growers, particularly to those in the Niagara district, the adoption of the six-basket carrier. It may cost a little more than the Climax basket for same bulk of fruit, but it would pay. The gain in lessening loss from dam-

age in transportation, through breakage of package and pilfering of fruit, and in increased price for fancy packed fruit in a better package would more than offset the extra cost. Our fruit growers should look into the possibilities of the six-basket carrier.

Among the many schemes adopted by horticultural societies to interest their members and others in floriculture, none appears more novel than one recently instituted by Mr. Geo. Vickers, president of the Barrie Horticultural Society. Mr. Vickers is a dry goods merchant and recently distributed broadcast thoughout his town this notice: "One Geranium in Bloom in a three and a half or four-inch Pot with every $1.00 Worth of Stockings Bought and Paid for on Friday and Saturday." The plants were grown by a local florist, and Mr. Vickers took this means of combining business with his hobby, horticulture. As anything that will help to make people more appreciate flowers and floriculture is worth promoting, this scheme might profitably be adopted by merchants elsewhere.

PUBLISHERS' DESK

We desire for our files one or two additional copies of the February, 1910, issue of THE CANADIAN HORTICULTURIST. Any of our readers having a copy of this number they do not desire to keep will confer a favor by mailing it to this office.

The illustration on the cover of this issue shows a scene in University Park, Sackville, N. B. More views of maritime province horticulture would be published on our front cover and on the inside pages if they were available. Our friends in those provinces are asked to send photographs of orchards, parks, lawns, gardens, and so forth, for use in this magazine. With them, send notes descriptive of the particular scene photographed.

"I am well satisfied with the results from my advertisement which has been running in the last four issues of THE CANADIAN HORTICULTURIST. I shall continue this advertising another year if all is well." This is an extract from a letter recently received from C. P. Newman of Lachine Locks, Que., grower of small fruits. We are constantly receiving from advertisers statements of this kind. They show the value of our columns as an advertising medium. Take the hint!

On another page of this issue will be found our classified advertising column headed "For Sale and Wanted." It will pay you to glance through this column of small advertisements. There may be something there that will interest you.

There are many of our readers to whom this column can be of value. The man who has something to sell that fruit growers or gardeners buy, the man who wants to get a position on a fruit farm or as a gardener or who perhaps wants to employ such a man, the man who has a fruit farm to sell or who wants to buy a good fruit farm, and in fact a large percentage of our readers, could profitably use this column. You may never have advertised before. Here is a good opportunity to learn at a small cost the value of advertising.

Whether you place an advertisement there or not, read this column each month, and when writing to advertisers be sure and tell them that you saw their advertisement in THE CANADIAN HORTICULTURIST.

Horticulture on Prince Edward Island

Rev. F. A. Wrightman, Montague

PRINCE Edward Island, though a small province does its farming generally speaking on the large. Intensive farming in the true sense has not been practised to any considerable extent. This is not because of any lack of adaptation, but because of the comparative absence of a sufficient demand in the local markets and the further lack of proper facilities for reaching more distant ones. Lack of express arrangements, iced cars and too frequent handlings are serious defects in our transportation conditions. Market gardening, therefore, with the exception of what little may be needed to supply the limited demand of the small towns is not followed, except for the farmer's table. So limited are the markets that even with the small attention paid to this aspect of agriculture, a glutted market is the common condition in the season of fruit and vegetables; and the prices are often of the lowest.

Oats, wheat and potatoes are the Prince Edward Island staples and these wholly occupy the farmers thoughts and attention. He cannot seem to adapt himself to a small acreage. A hundred acres, and often double this amount, is as little as he cares to bother with. Here he uses his gang plows, combination seeders, harvesters and other complicated machinery. This is his ideal of farming. A few acres in fruits and vegetables, largely cultivated with hand tools, would strike him as a serious drop in the dignity of the profession. This would seem to be a more fitting occupation or diversion, by way of pastime, to the man who had retired from active life. These ideas are the outcome of generations of usage—a usage that has largely been made necessary because of market conditions.

NATURAL CONDITIONS FAVORABLE

Notwithstanding the comparative absence of intensive farming as represented in the cultivation of vegetables and small fruits, it is doubtful if there is any part of the Dominion where the natural conditions are more favorable than here. The Island itself is often spoken of as "the garden province." This is not because of its diminutive size, but on account of its uniform fertility. The land is smooth, gently undulating, free from rocks and swamps, and unencumbered by small stones. The soil is a light sandy loam, warm, and wonderfully easy of cultivation. The natural drainage is about perfect. The summers are bright and warm with generally cool nights, while the rains are, as a rule, frequent but not excessive. The autumn is mild and open to a degree not experienced on the main land. Insects and diseases are much less numerous and destructive than in other places. The season being a little later than most main land sections, Prince Edward Island products are matured when outside markets are clean, thus removing competition. It will be seen, therefore, that these conditions, both of soil and climate, are about perfect for the purpose of the small fruit and vegetable grower.

This claim is borne out by the actual results. Anyone attending our provincial exhibition or the Charlottetown market will be surprised at the excellence and variety of the stuff grown. The small fruits, such as cherries, strawberries, raspberries, blackberries, currants and gooseberries do amazingly well. I believe it is a law of nature that the higher the latitude where fruit will come to full maturity the better will be its quality. There seems to be something in this alternating of cool nights with bright warm days to give firmness and flavor and lusciousness to fruits and vegetables grown under these conditions. These qualities are noticeable to a marked degree in the fruits and vegetables grown in Prince Edward Island; but, the great need is a market.

MORE AVAILABLE MARKETS WANTED

Charlottetown, the capital, has about 12,000 inhabitants. It is not an industrial centre, but is largely a city of homes where people have some leisure, and many of whom possess gardens of their own. The largest cities in the maritime provinces have but 50,000 inhabitants, and they (St. John and Halifax) are at present a day's journey distant. These, and other disadvantages, make even these limited centres impossible to the Prince Edward Island grower. But the cities of the maritime provinces are growing in size and increasing in number, and no doubt with their growth will come a corresponding improvement in transportation facilities. If there were in the maritime provinces a city of say, the size of Boston, within reasonable distance, it would simply revolutionize this industry in Prince Edward Island. A number of our maritime cities are bound to grow to large industrial centres in the not-distant future, and when this takes place it will transform agricultural methods on Prince Edward Island.

When these conditions prevail it will not only change our methods of agriculture, but will be of great advantage both economically and politically. When the Island is transformed into a province of vegetable and fruit gardens rather than one of oat and wheat fields, the average farm would be large enough at 25 acres. This would make possible an increase in the population by about 400 per cent. In other words, instead or having 103,000 population, with no vacant lands, we would have room for about 400,000 people by thus reducing the acreage of the farm. Such an increase would tend to attract manufacturing, and thus give corresponding growth to our towns and cities. It is easy to see that such an increase would at least help to restore our lost representation at Ottawa, and give us such an importance as to bring the tunnel, now a fond hope. in the realm of practical certainty. In the light of these facts a fruit and vegetable garden assumes a great and new significance.

OPPORTUNITY FOR CHERRY TRADE

Something could even now be done by a little improvement in transportation facilities, and a little more business enterprise. To illustrate we may refer to the Kentish cherry orchards which everywhere obtain here. The various varieties of sweet cherries do exceedingly well in different parts of Nova Scotia and are about the only ones cultivated. These cherries are largely sold in St. John and Halifax, and are put on the market about the middle of July. Their season is, however, short and frequently they fail almost entirely. Cherries of all kinds throughout New Brunswick, for some reason, are made conspicuous by their absence. On Prince Edward Island, however, the Kentish cherry is grown with the greatest of ease, and in splendid abundance. There is scarcely a farm, large or small, between East Point and North Cape, that has not a cherry orchard of some description. The crop very seldom fails; in good years, the yield is enormous, and the local demand is comparatively limited. These cherries come into maturity about a month later than the Nova Scotia crop, and being equally suitable for preserving as for table fruit, it will be seen that they should have a splendid demand in the cities of the ad-

joining provinces. But as a matter of fact I have never heard of a shipment of these cherries being made, and when the local demand is supplied the balance of the crop is either given away or left for the birds or, perchance, to rot upon the ground. It will readily be seen that the owner of a cherry orchard at the present time it at a distinct disadvantage, since any neighbors that may be invited to share the bounty of his crop invariably share the bounty of his table.

Since this cherry is firm and a good shipper, it seems strange that some attempt is not made to market them outisde of the Island. In the vicinity of Summerside or Charlottetown, cherries could be picked in the morning and arrive in St. John or Halifax in time for delivery the same evening, under present arrangements. At greater distances from these centres, they would require to be picked the evening before; but, in any case, they should reach their destination in a prime condition. As they come on the market when there is generally a scarcity of small fruit they should meet a ready sale at good prices. Here it would seem is where a little enterprise might make profitable a wasted asset.

Large Fruit in England

At a fruit show in Evesham, England, last fall, the quality and size of the fruit shown was remarkable. From the Birmingham *Daily Mail* the following information was taken:

"Some idea of the size may be judged from the fact that six Belle de Jersey cooking pears turned the scale at no less than 11½ lbs., six Cattilac pears weighed 10¼ lbs., six Pitmaston Duchess pears 9½ lbs., and six Doyenne du Comice pears 8¼ lbs. A similar number of Sterling Castle apples weighed 7½ lbs., six Lord Derbys 7 lbs., six Bramley's seedlings 6½ lbs., and six Lane's Prince Alberts 5¾ lbs."

This shows what English fruit growers can do in the way of size. Three of these pears are grown in Ontario. the Belle de Jersey, the Doyenne du Comice and the Pitmaston Duchess. The Pitmaston Duchess is not by any means common; but there are a few. THE CANADIAN HORTICULTURIST does not know of any one growing the Catillac in Canada; but the size of this and all the varieties mentioned is somewhat remarkable.

With the exception of Lane's Prince Albert, none of the apples have been grown in this country, and the Prince Albert is but little known here as yet. THE CANADIAN HORTICULTURIST (Nov. 1892), comments on specimens received from Cobourg, Ont., thus: "Lane's Prince Albert is a winter cooking apple, large, clear skin, marked like our Cayuga Red Streak."

If any growers in Canada have tested any of the varieties of pears or apples mentioned, they are requested to send brief reports of their characteristics and value for publication in THE CANADIAN HORTICULTURIST. The list was submitted to Mr. Linus Woolverton, Grimsby, Ont., author of "The Apple Growers' Guide," a work now being published and the following is his reply:

"The Belle de Jersey pear is quite distinct from the Louise Bonne de Jersey. The latter is an excellent dessert pear, quite to be recommended for culture in Canada; the former is another name for Uvedale's St. Germain, a very large cooking pear, sometimes weighing three pounds, and in use in England from January to April. It is not recommended for Ontario.

"The Comice is favorably reported by pear growers in Ontario, for it is of good quality, large size, ripens late in the autumn and keeps well after being fully ripe.

"The Catillac is a French pear of large size, and keeps through the winter, but the flesh is hard and only used for baking or stewing.

"The Pitmaston has been grown for sometime in the writer's experimental grounds at Grimsby. It is large, of good quality, and of a fine clear yellow skin, free from blemishes and running fairly uniform in size. It appears to be a desirable export pear.

"Of the apples, Lane's Prince Albert is a large, handsome English apple, raised by H. Lane and first exhibited in 1857. Hogg in his Fruit Manual says it measures three and a half inches wide by three and a quarter high, is a clear pale yellow when ripe, often with broken streaks of bright crimson, and the flesh is tender, juicy and agreeable, so that it is considered an excellent cooking apple. The tree is a marvellous bearer in England.

"Lord Derby is another large English apple, which in that country sometimes reaches four inches in diameter. It is something like our big Gloria Mundi. It is a cooking apple only and keeps in England until about Christmas.

"Bramley's Seedling is also an English apple; it resembles Blenheim in appearance and is counted a valuable cooking apple up to January.

"On the whole, these English apples are not well adapted to the climatic conditions of our province. Some of them succeed well in British Columbia where the conditions seem to be more suitable to them."

In England it is proposed to hold an International Horticultural Exhibition in London in 1912. Preliminary arrangements have been made. Further details will be published later.

American Pomological Society

The American Pomological Society passed its 62d milestone at the time of its last meeting in St. Catharines, September, 1909. The formal meeting which brought this historical horticultural organization into existence was held in New York in September, 1848, although that meeting was preceded by a preliminary conference held by those interested in the organization some time previous in the city of Buffalo.

The report of its 31st biennial session is now going through press and will be distributed to its members in a few weeks.

In view of the many inquiries regarding the scope and purposes of this society, the secretary makes the following statement: The society is non-sectional, and is as comprehensive in its aims as the broadest interests of fruit growing demand. Its purpose is to co-ordinate, unify and further the interests of the various horticultural societies by stimulating the best methods of culture, popularizing scientific advances, and urging the planting of varieties characterized by high quality.

The society has no limitations in regard to membership. It is open to the amateur as well as to the commercial grower of fruits, to the nurseryman as well as to the orchardist. The fees are light, being two dollars for the biennial two-year period. The reports are exceedingly valuable as well to the teacher as to the practical fruit grower.

Life membership in the society is of two kinds: To institutions, it is secured for a 30-year period on payment of a 20-dollar fee. Individuals may secure life membership on payment of the same fee. In addition to the forthcoming reports, the society gives each life member, on entering, copies of as many of the back volumes of the Transaction as are now available. These are becoming rare and valuable.

The society is of special interest to the fruit breeder. It promotes development of improved varieties by offering prizes for distinctly worthy new kinds. To this end it maintains a committee whose duty it is to examine and report on new originations and make such recommendations as in their judgment are appropriate. One of the earlier presidents of the society, the late Marshall P. Wilder, left a small fund which is used to provide silver and bronze medals to be awarded to originators of worthy new fruits.

The officers of the society are: Pres., L. A. Goodman, Kansas City, Mo.; sec., John Craig, Ithaca, N. Y.; treas., L. R. Taft, East Lansing, Mich.; executive committee, C. L. Watrous, Des Moines, Ia.; W. C. Barry, Rochester, N. Y.; C. W. Garfield, Grand Rapids, Mich.; G. L. Taber, Glen St Mary, Fla.; W. T. Macoun, Ottawa, Ont.

Horticulture in Toronto

The Toronto Horticultural Society is doing active work this year in interesting the residents of the city in the improvement of their home grounds. Action has been taken also in the work of improving certain streets in unimproved parts of the city. The response of the citizens shows that the society's efforts are bearing fruit. Through bringing the matter of civic improvement directly to the attention of a number of leading and wealthy citizens, Mr. W. G. MacKendrick, one of the vice-presidents of the society, has been successful in augmenting the funds of the society by personal subscriptions, which are being applied to the work of street improvement. The chairman of the committee directly in charge of this work is Mr. Roderick Cameron. The scheme of improvement is as follows:

The committee selects the blocks where they think the prizes would be appreciated and where there is a chance for considerable improvement to be made, endeavoring to scatter them through the city. A first prize of $3, second of $2, third of $1, is offered in each block for the best climbing roses; the same prizes for the best Virginia creeper; the same prizes for the best flower bed; and the society bronze medal for the best general effect in each block.

Chairman Cameron has appointed a practical gardener to take charge of each block. They will meet the citizens on these blocks and endeavor to work up a desire to improve their premises, and will tell them and show them how it can be done.

As the judge for each set of prizes will be confined to one block, and to specific articles in that block, it is anticipated that the judges will not have much difficulty in reaching satisfactory judgment.

Three prizes are being given in one block, consisting of $12, $8 and $5, first, second and third prizes, for the best lattice work or chicken line wire fence between two properties covered with climbing animals, vines or shrubs; by drawing attention to these matters it is hoped in time to make an improvement in the hideous back yard fences which disfigure the city.

The Walkerville (Ont.) Horticultural Society is planting a privet hedge around the Pere Marquette grounds, and is putting four or five large beds for flowers in conspicuous places.

I greatly appreciate your interesting paper—THE CANADIAN HORTICULTURIST.—A. F. Figerstedt, Koria, Finland.

Summer Spraying for Apples

John P. Stewart, State College, Pa.

Using a combined insecticide and fungicide, either lead arsenate and Bordeaux, 2-4-4-40; or lime-sulphur, 1.01, with two pints of arsenite of lime per 40 gal. (For preparation and dilution of lime-sulphur, and making of the arsenite, see Pa. Expt. Sta. Bul. 92 or 99.) Instead of the arsenite of lime, two pounds each of lead arsenate and lime may be used in the diluted lime-sulphur, making the addition as late as practicable. The lime-sulphur preparation is preferable on varieties subject to russetting and other spray-injury by Bordeaux.

If any of the enemies indicated are unlikely to be present, the corresponding sprays may of course be omitted.

(1) When blossoms are just showing pink or slightly before. For apple and pear scab, canker worm and bud moth.

(2) Within 8 or 10 days after blossoms fall. May begin when petals are two-thirds off. The most important spray. For scab and codling moth or apple worm.

(3) About three weeks after blossoms fall. For codling moth and apple blotch

(4, 5 and 6) If orchard is endangered by bitter rot or apple blotch, spray three times with Bordeaux at intervals of about three weeks, beginning 8 or 9 weeks after petals fall.

(Other Sprays): To be made where needed if not sufficiently provided for by those above.

(a) For fungous fruit-spot of Jonathan, etc., Bordeaux or lime-sulphur, as above, about July 1.

(b) For second brood of codling moth, and for the foliage-eating caterpillars of late summer; lead arsenate and lime (2-2-40) about Aug. 1.

The Georgian Bay District

An excellent quality of apples can be grown in the Georgian Bay district of Ontario, but the fruit industry is not receiving the attention that should be given to it by the growers. There are far too many neglected orchards in which spraying is never practised and pruning is very seldom done. A large number of orchards are in sod and are not manured or given any special attention. There are a number of reasons for this state of affairs, the chief one probably being that the farmer looks on his fruit as a side issue and only devotes such time to it as he finds convenient after his other work is all done. If it can be proved to the farmer that his orchard is one of the best paying propositions on his place, will he then take good care of it?

In order to test this matter, Mr. I. P. Metcalf, the district representative of the Department of Agriculture, with the co-operation of the fruit branch of the Department of Agriculture at Toronto, has taken over the management of six orchards in as many representative parts of the township of Nottawasaga. These orchards are to be manured, plowed and cultivated by their owners until just before haying, when a cover-crop is to be sown. Mr. W. F. Kydd of Simcoe has been engaged to look after the pruning and spraying of these orchards. An effort is to be made to keep an accurate account of the actual expenses and also of the value of the crop so that it can be figured out just how much money was made by giving the orchard the best of treatment. If a good profit is shown by this management it is believed that the farmers will take the time (at the right time) to do the necessary work.

THE CANADIAN HORTICULTURIST is too good to miss.—F. S. Carr, Edmonton, Alta.

The Common Crab Apple

From "The Apples of New York" by Beach

The crab apples which we cultivate for their fruit are for the most part hybrids between the apple, *Pyrus malus*, and the primitive Siberian crab, or berry crab, called by Linnæus *Pyrus baccata*. This species, *baccata*, in its pure forms, is readily distinguished from the apple, *P. malus*. The calyx is eventually deciduous, instead of persistent. The leaves are firm, smooth, bright green and are borne on long, slender hard leaf-stalks. The twigs are smooth and slender. The ripe fruit is brilliant in color, red or yellow, does not get mellow, varies from three-eighths to three-fourths of an inch in diameter, and is borne on long, slender stalks. The flowers are large and usually pure white. In some of the hybrids, as for example, Martha and Currant, the calyx is on some fruits deciduous, or partly so, while on other fruits borne on the same tree, the entire calyx may be persistent; also the fruit is large and it is clear that other characters which they show are derived wholly or in part from either *baccata* on the one hand or from *malus* on the other.

It is well to remark that the name crab apple is not applied exclusively to the Siberian crabs and their hybrids, but is popularly used to designate indiscriminately small apples whether of the *malus* species or of some other species, but the term Siberian crab is properly used to indicate the *baccata* species and its kin.

Box-Packed Apples in England

M. Mussen, Canadian Trade Commissioner, Leeds

One of the most important changes which the past season's trade in Canadian apples has brought to light in this part of England is the greatly improved popularity of box-packed apples. Many merchants now declare themselves to be whole-heartedly in favour of this system of packing apples in bushel boxes.

Not only are these boxes, they say, more conveniently stored on the ship, but they are easier to handle in their warehouses, and meet a long felt want in supplying the demands of small retailers who cannot dispose quickly of the larger amount of apples contained in the ordinary barrel. Although, of course, the retail price of the apples is slightly higher than that charged for fruit in barrels, yet the attractiveness of the packing and the selectness of the apples themselves is declared to be usually found sufficient to counterbalance any disadvantage in this respect.—Extract from Weekly Report of the Department of Trade and Commerce, Ottawa.

Spruce Gall-Louse

In many parts of Ontario spruce trees and hedges are infested with the spruce gall-louse. The usual remedy advocated for its control is kerosene emulsion. That the lime-sulphur wash may prove to be another valuable remedy is intimated in the following extract from bulletin No. 177, recently issued by the Ontario Agricultural College:

"So many enquiries have come to the department of entomology for the best remedy for the spruce gall-louse that it seems desirable to mention here that contrary to writers' expectation one thorough application of the home-boiled wash applied the first week in May exterminated these insects on Mr. J. W. Smith's beautiful spruce hedge at Winona. The date above given or the last week in April is the proper time to do the spraying."

Renew your subscription now.

Arsenite of Lime

L. Caesar, O.A.C., Guelph

Prof. W. M. Scott of the Bureau of Plant Industry, Washington, D. C., has reported that in his experiments in Arkansas arsenite of lime used with lime-sulphur burned apple foliage severely. In my experiments on apples, pears and potatoes the two substances were used together with safety. Prof. J. P. Stewart of Pennsylvania also found them safe. Professor Scott, however, is considered a careful investigator; so, it is just possible that different weather conditions this year in Ontario might cause this spray mixture to be injurious.

It seems wise, therefore, to advise the fruit growers of the province not to use the arsenite of lime in any but an experimental way this year and to wait for another season until the question will have been definitely settled. Meantime investigators agree that arsenate of lead, two pounds to forty gallons, is the proper poison to use with lime-sulphur, as it is both effective and safe.

Cold Storage of Apples

J. A. Ruddick, Cold Storage Commissioner, Ottawa

The experiments in the storage of apples which this branch of the department has been conducting the past winter, by authority of the minister of agriculture, has shown conclusively the possibility of keeping apples in a sound condition and wthout waste if placed in cold storage as soon as taken from the tree, no matter what the conditions are at harvest time. Seven carloads of apples were purchased in the orchards last fall and were removed to cold storage immediately after being picked. They were carried at a temperature of 30 to 32 degrees all winter, and in April at London, St. John and Montreal we had Baldwins, Greenings and Spys in perfect condition, crisp and juicy, showing no appreciable waste. Apples that were packed in barrels in the orchards last fall were shipped in April without re-packing. This saving will pay the extra cost of cold storage.

Cold storage of apples is not always so successful, for the reason that they are generally allowed to remain too long after picking before they are put in storage. The damage is usually done during the first week or two after picking. There is no use of depending on cold storage to preserve overmature, bruised or imperfect fruit Full details of these experiments will be published in bulletin form as soon as the final results are available.—From Census and Statistics Monthly for April.

THE CANADIAN HORTICULTURIST is improving with every issue. There has been marked improvement in the past year.—J. A. Moore, Queens Co., P. E. I.

I should have sent my renewal subscription to THE CANADIAN HORTICULTURIST sooner, but I have been very busy. I cannot afford to be without your excellent publication.—Sam L. Long, Yale-Caribou, B. C.

"Weeds and How to Eradicate Them" is a question of much concern to farmers, fruit growers and gardeners everywhere. An excellent little book bearing this title was written by Prof. Thos. Shaw when he was professor of agriculture at the Ontario Agricultural College. It treats the subject in a thoroughly practical manner. Bound in cloth and containing over 200 pages, it makes a neat and valuable addition to any book shelf. Copies may be had from the Webb Publishing Co., St. Paul, Minn.

NOTES FROM THE PROVINCES

British Columbia

R. M. Winslow

The conference of the British Columbia Fruit Growers' Association held at Kamloops on April 13 and 14 was well represented by fruit growers from all over the province and in addition was well attended by transportation officials connected with the C. P. R. and Dominion Express, also by a number of members of the northwest fruit jobbing houses, who came for the purpose of getting acquainted with the fruit growers of the province.

Aside from the transportation and marketing discussions, the chief business of the conference was the re-organization of the British Columbia Fruit Growers' Association. This organization as reconstituted has for its object the spreading of information with regard to the marketing of British Columbia fruit. The general opinion of all who have investigated the British Columbia fruit industry, as was evidenced at the convention, was that we needed principally not only to grow more fruit, but to procure a more uniform grade of packing, and consequently a higher quality of fruit. There is also greater need of co-operation. It will be the aim of the provincial association to assist the growers in every way, by giving information with regard to proper methods of harvesting, packing, co-operation and the marketing of our fruit.

The association will publish crop reports throughout the summer, detailing information with regard to British Columbia, Oregon, Washington and Ontario crops. Shippers and associations affiliated with the provincial association will receive weekly reports on prices being received in northwest and coast city markets. A price list of supplies available for fruit growers has been published, and supplies obtained at these prices will effect a considerable saving for members of the association.

The association is organized so as to permit of the affiliation of local fruit growers' associations throughout the province, and it is one of the duties of the association to encourage these local associations to make the best success of the marketing of their fruit. Members of the local associations can secure all the advantages of membership in the central association at a lower cost. Local associations through the province are asked to co-operate with the provincial association to make the marketing of our fruit the greatest possible success. The principal officers elected were: R. M. Palmer, president; J. C. Metcalfe, market commissioner, vice-president. These, with R. H. Agur of Summerland and W. C. Ricardo of Vernon, the Minister and Deputy Minister of Agriculture, constitute the executive. The secretary is R. M. Winslow, Victoria.

The association will hold an annual conference in January next, along the lines of the one at Kamloops. All fruit growers of the province are cordially invited to become members of this association.

Okanagan Valley, B. C.

A meeting of the Vernon Small Fruit Growers' Association was held on May 2 at the house of the secretary, Mr. E. Henderson, Coldstream. It was decided by the meeting that the handling of this season's small fruit crop be again put through a wholesale house. The question of hauling the fruit to the packing house was left in the hands of the executive to deal with.

The following officers were elected for this year: Pres., A. F. Venables; sec., E. Henderson; executive committee, W. R. Grieve, E. A. Davey and W. S. Foggo.

Growers of small fruits in Vernon and vi-

cinity will be welcomed as members of the association, the annual membership fee being one dollar.

Vancouver Island

W. J. L. Hamilton

Referring to Mr. J. Spencer's article on pruning in the March issue of THE CANADIAN HORTICULTURIST, I might mention that I find it pays to prune twice a year. In the spring, just before growth starts, and just before the last application of winter strength lime-sulphur spray, I prune to form the head of the tree; that is, I cut back to the buds I want to form the leading shoots. Again, about June (generally towards the end) I prune for the formation of fruit-bearing spurs.

The winter pruning, which generally means cutting back about one-third of the leading shoots, starts into growth all the buds that are left. Of these the leading shoots are left and the other shoots checked by pinching off with the finger and thumb at about the fourth or fifth bud of the new shoot. By doing this we tend to produce fruit-bearing spurs, which are really abortive branches. I am speaking of apple trees.

I believe in a low open head, even if we don't sell the apples that drop, which will not keep. There is no trouble in cultivating around low-headed trees if a side draft cultivator is used, and we can gather the fruit cheaper and so make more profit. Conditions, probably, vary much from province to province.

A Progressive District

W. G. Horne, Clarkson, Ont.

Clarkson is one of the best fruit and vegetable districts in Canada. Thousands of packages are shipped from this station each year, chiefly strawberries and raspberries. Clarkson has the reputation of growing as fine strawberries as can be produced anywhere in America. A large percentage of the small fruit is sold on the platform at station to buyers and shipped to different points in Ontario and Montreal and Toronto.

In vegetables, potatoes are the most extensively grown. Some growers plant as many as 20 acres. Within a mile and a half circle, some 400 to 500 acres are grown averaging 150 bags to the acre or more. A large amount of sweet corn is grown each year. About 10 acres of onions yielding an average of about 400 bags an acre are planted Nearly all kinds of vegetables are grown on a greater or less scale and the most of them are teamed into Toronto.

Manure is a large factor in producing both fruit and vegetables. Clarkson expends each year about $5,000 for manure brought in in carload lots, principally from Toronto. Clarkson has quite a strong branch of the Ontario Fruit Growers' Association, numbering some 70 members who paid in cash for fruit packages alone last season some $10,000, through tender and contract.

THE CANADIAN HORTICULTURIST is very rapidly improving. I feel that I cannot do without its very helpful articles.—Arthur J. Tufford, Lincoln Co., Ont.

A booklet entitled "Fruit Tree Sprays and How to Use Them" has been received at this office from the Niagara Brand Spray Co., Burlington, Ont. It contains up-to-date and reliable information on spray mixtures and spraying. Fruit growers in all parts of Canada will find in it much valuable information. Copies will be furnished on request to the address above-mentioned.

Grape Refuse from Wine

F. T. Shutt, M. A., Chemist, C. E. F., Ottawa

This waste product consists essentially of the skins and seeds of grapes used in the manufacture of wine. From such information as we can gather it has no commercial value, but can be obtained gatis by farmers or others on application at the wine factory. At the request of several fruit growers in the Niagara district, where it has been used of late years to some extent, we have determined its composition.

Two samples were forwarded, collected some weeks apart at the same factory, and their moisture-content on arrival at the laboratory was 54.59 per cent. and 66.20 per cent. respectively. The samples were mixed and an analysis made, the results being calculated on the basis of 60 per cent. water.

ANAYSIS OF GRAPE REFUSE.

	Per Cent.
Water	60.00
Organic matter	38.60
Mineral matter or ash	1.40
	100.00

	Per cent.	Per ton. Lbs.
Nitrogen	.77	15.4
Phosphoric acid	.20	4.0
Potash	.36	7.2

The amounts of the fertilizing constituents are by no means large, and consequently the profitable use of this refuse would be confined to districts in the immediate vicinity of wine factories. Much of its plant food is, of course, in the grape seeds, and this naturally would not become availabie until they have at least partially decomposed.

It is difficult to say how long such seeds might remain in the soil intact when the crude material is applied to the soil, but it is evident that a previous composting would be advantageous in bringing about a liberation of the fertilizing elements. If wood ashes were used in the compost heap, the resulting material would be the richer in potash, and any acidity developing in the fermentation of the refuse corrected.—Extract from 1908 report of Chemical Division, Dominion Experimental Farms.

The White Grub in Lawns

A grub that often is troublesome in lawns is the larva of a robust brown beetle, commonly spoken of as a "June Bug," or May beetle, the big, clumsy fellow which buzzes into open windows and about the lighted lamp in early summer. This insect belongs to the genus *Lachnosterna*, and the species we have commonly with us appears to be pretty evenly divided between *fusca* and *rugosa*. Not only do the young of these beetles work havoc on lawns, but the adults are active at night, they work "while you sleep," feeding upon the leaves of fruit and shade trees, and capable, when very numerous, of stripping the trees of their foliage. Eggs are laid amongst the roots of grass, and the young grubs when hatched begin to feed upon the rootlets, sometimes killing patches many square feet in extent, and leaving the grass brown and dead, easily separated from the ground below; in fact, it can be lifted and rolled up with the hands. It takes two years, or longer, it is believed, for this larva or grub to become mature, hence a lawn laid waste in 1908 would not, if all the grubs which caused the injury were full grown at that time, show any further injury from this source until 1910. In other words, this year's (1908) grubs would change to beetles next

spring, when mating and egg-laying would take place; the young hatching from eggs laid in the spring of 1909 would not be large enough to work appreciable injury until the summer of 1910.

To be effective, any treatment against this pest must be begun as soon as the first signs of injury to the lawn are observed. To wait until the grass is brown and dead is like shutting the door after the horse is stolen. The most acceptable treatment at this date appears to consist of copious watering of the lawn where possible, accompanied by the use of some artificial fertilizer, like nitrate of soda (from 250 to 350 pounds to the acre), thus enabling the lawn by vigorous growth to keep ahead of the grub. One should at least resort in each case to abundant watering when possible, even though the fertilizer is not applied. J. B. Smith, state entomologist of New Jersey, claims to have obtained relief by the liberal use of ground tobacco stems scattered broadcast and liberally over an affected lawn, followed by copious watering. He states that grubs disappeared after this treatment. This suggests, naturally, the frequent sprinkling of lawns with a tobacco decoction. Evidently, this would have to be quite strong and used generously. We have killed them by the use of bisulphide of carbon without injuring the grass, but the process is a slow one and impracticable where large areas are involved. Clover is not seriously affected by this insect. After the lawn is dead in patches nothing remains for the owner to do but to re-sod or re-seed.

Robins greatly aid in the extermination of the white grub, and may frequently be seen pulling them from under the dead grass. They should be encouraged in this good work. Moles and shrews eat them and we believe that skunks are also fond of them. If the grubs should be carefully removed and destroyed when brownish patches are first observed in the lawn, their injurious work is at once stopped. They will be found just below the sod if they are responsible for its condition.—From Bull. 112, Agricultural Experiment Station, St Paul, Minn.

Quebec Pomological Society

At a meeting of the Pomological and Fruit Growing Society of the Province of Quebec, held at Macdonald College a year ago, Mr. R. Brodie, of Westmount, who was president at the time, gave an interesting short history of this organization and of its parent society, the Montreal Horticultural Society.

"Previous to 1877," remarked Mr. Brodie, "the Montreal Agricultural and Horticultural Society existed, having each year its county exhibition, but unfortunately it published no report of its procedings. In 1877, the provincial Act Relating to Horticultural

Societies, was amended in such a way as to give the society an annual government grant, and also a new name, which henceforth became the "Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec."

"This change was for the better; it gave renewed vigor into what had already become an active and enterprising society. Annual exhibitions were held, reports were published and the society occupied a prominent position all over the Dominion and also in the New England states. It was in 1878 that the society opened its prize-list for the best county collection of apples, which added greatly to the display of apples at the exhibition.

"The present meeting is not the first time that prizes have been offered for the best winter seedling apples. In 1883, the society secured the help of the late Rev. R. Hamilton and others, who collected a large number of choice seedling apples. The late Chas. Gibb, Dr. Horkins, of Newport, Vt., Mr. Webster, of South Northfield. Vt., and myself were appointed a committee to examine and select the kinds that were worth retaining, to test their keeping and other qualities. We kept about 75 varieties. These were put in the basement of the warehouse belonging to the late Mr. Wm. Evans, seedsman. Unfortunately, the river rose and flooded the basement, destroying in a few hours what took months of hard work to accumulate. We hope that our present attempt to secure, amongst seedling apples, something akin to what the Baldwin apple is in Ontario and western New York, will meet with better success.

"The society was greatly indebted to the late Henry S. Evans for a large measure of its prosperity; for 13 years, he was its secretary. The society had also on its board of directors, the late Chas. Gibb, of Abbotsford, who proved to be its leading spirit. He was such an enthusiast in horticulture that he, accompanied by Prof. J. L. Budd, of Ames College, Iowa, left in June, 1852, for Russia in search of hard varieties of fruit. He returned from Russia in February, 1883, bringing with him a lot of valuable information and hardy varieties of fruit that have been a great benefit to the colder parts of our country. On his way home from India, he took dangerously ill, and died at Cairo, Egypt. By his death, the society, with which he was so long connected, and the whole Dominion at large, suffered a severe loss.

"It was in the winter of 1892, at Abbotsford," concluded the speaker, "that the Pomological and Fruit Growing Society of the Province of Quebec was formed. It was thought we could do greater provincial work, which has since proved true. We have had meetings north, south, east, and west of our province, spreading the leaven of fruit growing and horticulture in general, and now we are beginning to see the results—more orchards are being planted. We have better appliances to combat fungous and insect enemies, better means of transportation, better markets and better prices, for we can grow the best apples in the world."

FOR SALE AND WANTED

Advertisements under this heading 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.

IMPORT BULBS and Perennials, direct from Holland, at quarter price. Get import list at once. Morgan's Supply House, London, Ont.

PIPE FOR SALE.—All sizes for steam, hot water heating, posts, green house construction work, etc., very cheap. Send for price list, stating your needs.—Imperial Waste and Metal Co., 7 Queen Street, Montreal.

MARKET GARDEN — One of the best in this country, 11 acres, 2 story brick house, barn, root house, 3 greenhouses; land all planted to crop now; immediate returns; adjoining the City of Brantford, one of the best markets in this country. Have a look at this. Stock, chattels and crops can go with this going business. Address R. J. Taylor, Rose Lawn Gardens, Brantford.

WANTED — Young men who desire to learn the trade of Blacksmithing, Woodworking, Body Making, Painting, Trimming or Machinist; also men experienced in the above trades, with a reliable concern, in one of the healthiest cities in the world. Write full details, giving references, age, experience, if any, and whether single or married. Address H. V. Kimble, c. o. Studebakers, South Bend, Indiana.

FRUIT LANDS

FRUIT FARM WANTED for rent. Might purchase later.—Box S., Canadian Horticulturist.

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.

OKANAGAN FRUIT LANDS grow prize-winning fruits, commanding top prices. Ten acres irrigated land assure independence and delightful home. Low prices; easy terms. Illustrated booklet.—Panton & Emsley, Vancouver, British Columbia.

FORT GEORGE, BRITISH COLUMBIA, Grand Trunk Pacific Railway terminal. Centre richest farming area. Banks, business establishments, already purchasers—lots $150 up; ¼ cash. Farm lands also.—Northern Development Co., Vancouver, B. C.

BRITISH COLUMBIA FARM LANDS.—80,000 acres on Grand Trunk Pacific Railway. Fort George District—retail or en bloc. Rich soil, ideal climate, easy terms.—The Mercantile Trust Co., Ltd., Vancouver, B. C.

BRITISH COLUMBIA—Fort George lands—50,000 acres fertile wheat and mixed farming lands. Send for photographs and surveyors' reports.—The Wright Investment Co., Dominion Trust Building, Vancouver, B. C., Canada.

IF YOU WANT to buy a good fruit farm, read the advertisements in this column. If you have a fruit farm you wish to sell, tell our readers about it in The Canadian Horticulturist.

LATEST—BEST—British Columbia Fruit District—Kaleden in South Okanagan—4 miles lake frontage—Apricot and Peach Belt; high priced high grade varieties of apples, European grapes. Decomposed lava ash soil; reservoir gravity pipe water system to every lot. Finest domestic water. Very long summer season; early spring; dry climate. Illustrated Booklet Free. Send for it to-day.—T. G. Wanless, Kaleden, 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, fishing, shooting; school, church, stores, post 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.

Tillage vs. Sod Mulch

To determine whether the apple thrives better under tillage or in sod, the New York Experiment Stations at Geneva is conducting two experiments. A preliminary report on one of these is given in Bulletin No. 314, of the station. The method of tillage chosen was to plow in the spring, cultivate until late July, and follow with a cover-crop. The sod method chosen was that known as the sod-mulch method, in which the grass is cut as a mulch. The results show that tillage seems to be better than sod for the following reasons:

"The results of 120 moisture determination in the orchard (where the tests were conducted) show the differences in tree growth and crop in the two plats of this experiment are mainly due to differences in moisture, the tilled plat having most moisture.

"As a consequence of the reduced water supply in the sod plat, there is a reduced food supply; for it is only through the medium of free water that plants can take in food. Analyses show that the differences between the actual amounts of plant food in the two plats are very small.

"Analyses show that there is more humus in the tilled plat than in the sod plat, contradicting the oft made assertion that the tillage method of managing an orchard "burns out the humus."

"At a depth of six inches, the tilled soil is 1.1 degrees warmer in the morning and 1.7 degrees at night, than the sod land; at 12 inces the tilled soil is 2.3 degrees warmer in the morning and 1.8 degrees in the evening.

"We are justified, without the presentation of specific data, in saying that a tilled soil is better aerated than sodded land.

"Soil investigators are well agreed that beneficial micro-organisms are found in greater numbers in a cultivated soil than in other soils.

"The following application of the results of this experiment may be made:

"Nearly all the plants which minister to the needs of man are improved by tillage; the apple does not seem to be an exception.

"Results as positive as in this experiment can be made very comprehensive; they should apply to all varieties of apples and to nearly all soils and locations.

"The experiment does not show that apples cannot be grown in sod; it suggests, however, that apples thrive in sod, not because of the sod, but in spite of it.

"While moisture is by no means the only factor to be considered in the controversy over the sod and tillage methods of managements, it appears to be the chief one.

"There is nothing in this experiment to indicate that trees will become adapted to grass. The sodded trees began to show ill-effects the first year the orchard was laid down to grass and each succeeding year has seen greater injury."

COMING EVENTS

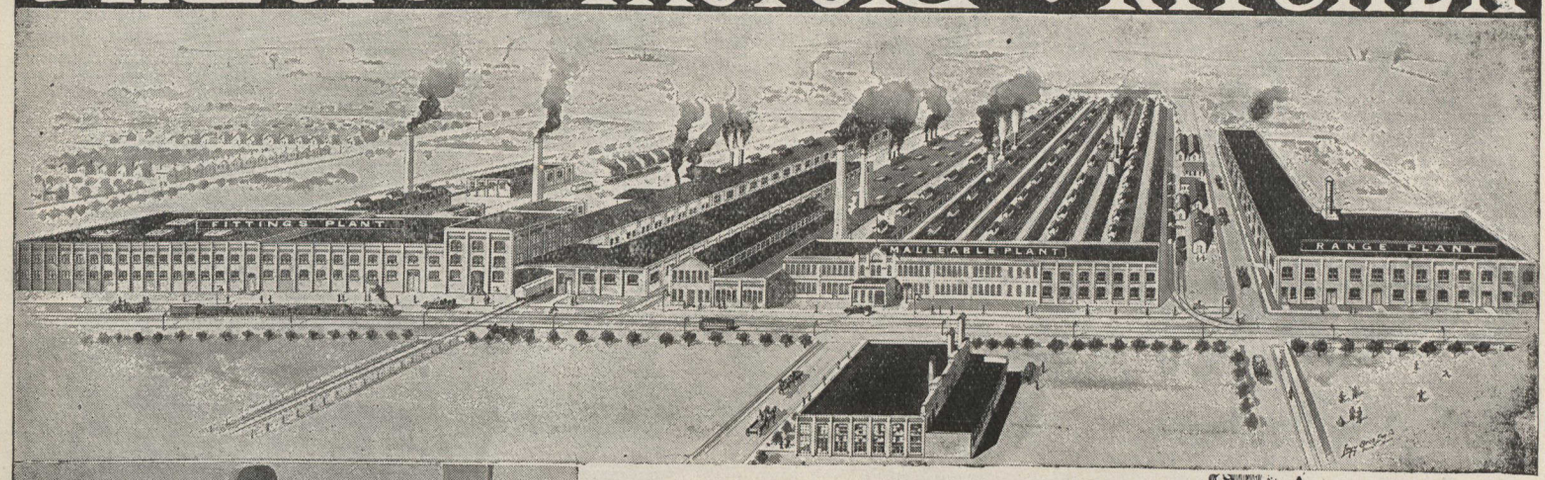
Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

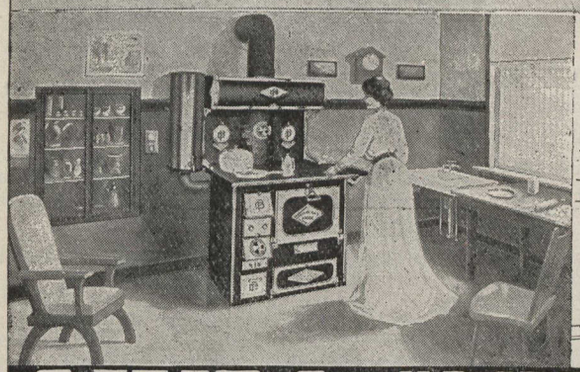
Calgary, Alberta Provincial..June 30-July 7
Charlottetown, P. E. I. Provincial.....
.....Sept. 20-24.
Halifax, N. S., Provincial...Sept. 28-Oct. 6.
London, Eng., Royal Horticultural Show (for colonial-grown fruit and vegetables)
.....Dec. 1-3.
London, Ont., Western Fair.....Sept. 9-17.
New Westminster, B. C., Provincial.....
.....Oct. 4-8.
Ottawa, Central Canada.....Sept. 9-17
Regina, Sask., Provincial.....Aug. 2-5.
Sherbrooke, Quebec Pomological Society (Summer Meeting) .....Aug. 30-Sept. 1.
Sherbrooke, Que., Great Eastern.....
.....Aug. 27-Sept. 3.
St. John, N. B., Dominion Exhibition....
.....Sept. 5-15.
Toronto, Canadian National.....
.....Aug. 27-Sept 12.
Toronto, Ontario Horticultural..Nov. 15-19.
Vancouver .....Aug 15-20.
Victoria, B. C. .....Sept. 27-Oct. 1.
Winnipeg, Industrial ..... July 13-23.

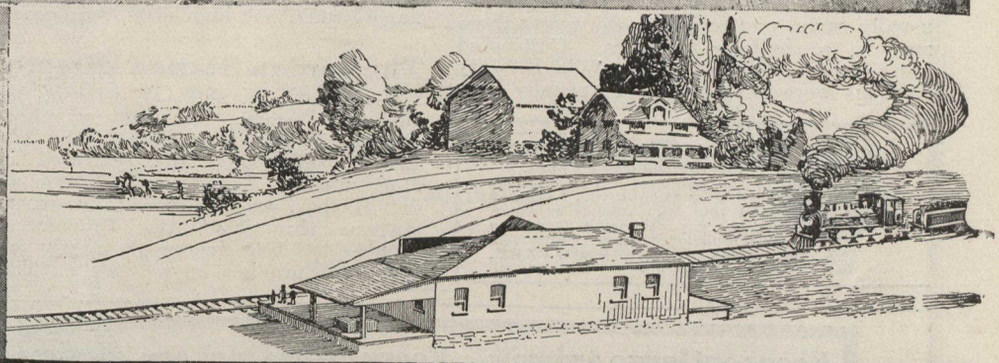
A very complete bulletin (No. 143) on "The Codling Moth," has been issued by the Agricultural Experiment Station at Durham, N. H. Among the subdivisions are life history, experiments in spraying, directions for spraying, cost of spraying and co-operative spraying.

The plans for Welland Park at Welland, Ont., that were submitted by Brown Brothers Company, Nurserymen, were accepted and the planting was done this spring. The plan provided for paths, lawn, shade trees and shrubbery beds. Brown Brothers Company supplied all the trees and shrubs for the work. They are adepts at landscape planning, and their nursery stock is the equal of any grown on the continent.

DIRECT *from* FACTORY *to* KITCHEN







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(In Writing Please Mention this Paper.)

Annapolis Valley East, N.S.

Eunice Watts, A.R.H.S.

At the time of writing, the fruit trees are heavily laden with blossoms, but it is not every egg that will hatch, or every flower that will fruit; there are possible frosts and other things with which to contend before the harvest. Already severe frosts with snow during the last week of April have damaged the fruit buds of the Duchess, Gravenstein and Wagner varieties. On some trees a few of the buds and young green leaves are dead, but nature has only done a little thinning, and at present there are plenty of flowers left for a crop. Vegetation is about a month earlier this year, and pessimistic people thought that the fruit crop was ruined. Twice the asparagus was cut down by frost.

Peas planted about March 17 are doing nicely, although May has been showery and cold. The wild small fruits blossomed unusually early, and owing to the frosts there may be a shortage in these. Cultivated cherries have suffered badly. Wild Bilberry blossoms were out on May 1; usually they are not seen until the middle of the month, when it is considered time to plant corn. The rhubarb stalks which ventured upward about a fortnight before their time suddenly collapsed one frosty morning.

Pears From South Africa

Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, received on May 18 from London a case of South African Keiffer pears in perfect condition. The pears were grown by the Rhodes Fruit Farms, Ltd., Cape Colony, and were procured for Mr. Ruddick at Covent Garden on April 30, and forwarded to him in cold storage. The pears were packed in single layer cases—18 pears—surrounded with excelsior. Mr. Ruddick was kind enough to send one of these pears to THE CANADIAN HORTICULTURIST. We hope to be able to publish a reproduction from it in our next issue. It reached us in practically perfect condition. The quality and flavor, while not high class, was good.

The Jordan Station Directorate

Hon. James S. Duff, Minister of Agriculture for Ontario, has made a number of changes in the membership of the Advisory Board, which supervises the work of the Horticultural Experiment Station at Jordan Harbor, and the other fruit experiment stations throughout the Province. The number has been increased slightly so as to cover the province more widely. The new members are: Henry Robertson, Morrisburg, Dundas county; Wm. E. Weese, Albury, Prince Edward; John McKee, Duntroon, Simcoe; James E. Johnston, Simcoe, Norfolk; F. A. Goring, Homer, Lincoln. These, with E. D. Smith, ex-M.P., Winona; G. C. Creelman, President Ontario Agricultural College, Guelph; P. W. Hodgetts, Director Fruits Branch; W. T. Macoun, Ottawa, and H. S. Peart, Superintendent Horticultural Experiment Station, Jordan Harbor, now make up the entire board.

Messrs. Harold Jones, Maitland, and J. L. Hilborn of Leamington, being experimenters, have been dropped from the board, but will be continued as experimenters. The Department of Agriculture intends to make the station of value to the whole province.

Items of Interest

The British Columbia government has declined to make a grant to the first Canadian National Apple Show that it was proposed to hold in Vancouver next November. A deputation of prominent people interested in the project waited on the government some time ago and asked for $19,000. A similar grant was asked for from the Dominion government. The city of Vancouver had pledged $6,000. This means that there is little probability that the show will be held this year.

The Ontario Horticultural Exhibition will be held in the St. Lawrence arena, Toronto, Nov. 15 and 19. The city council at first decided not to grant the use of the arena, but later reversed its decision. This year's exhibition will be much the largest and best yet held.

Arrangements are being made in British Columbia for the making of a series of exhibits of British Columbia fruit at the chief centres of population in the prairie provinces, and later at Toronto and London, Ont. Exhibits will also be made at the principal old country exhibitions. The exhibits will be in charge of E. Bullock-Webster, assisted by W. J. Brandrith of Ladner.

A labor saving device which is getting to be looked upon not simply as a great convenience but almost as a necessity in a large number of our homes is a vacuum cleaner. The improvements which have been made in this device of late years, its simplicity, low cost and the infinite variety of uses to which it can be put, make it something which should be in every home. Those desirous of learning more about the vacuum cleaner may secure an interesting and instructive little booklet, well illustrated, by writing to the Onward Mfg. Co., Berlin, Ont., and mentioning this paper.

A Valuable Insecticide.—The insecticide Aphine is producing good results, according to reports from those who have tried it. The Superintendent of Golden Gate Park, San Francisco, Cal., stated that one application of Aphine entirely destroyed the aphis with which the outside rose bushes in the park were badly infested. The Department of Floriculture of the Massachusetts Agricultural College, after an extensive test of Aphine, just completed, fully endorses in its report all that has been claimed for this insecticide. Green fly, black fly, white fly, brown scale, Belgian long scale, red spider, thrips and mealy bugs were treated, and in every instance they state the test was successful. Aphine may be secured from the Aphine Mfg. Co., Madison, N. J., or through their Canadian agents, whose names will be found in their advertisement.

Renew your subscription now.