The Canadian Horticulturist

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JANUARY

I block the roads and drift the fields with snow,
I chase the wild fowl from the frozen fen;
My frosts congeal the rivers in their flow,
My fires light up the hearths and hearts of men.
—*Longfellow.*

THE ONLY HORTICULTURAL PUBLICATION IN CANADA

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Contents for January

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Vol. XXXII JANUARY, 1909 No. 1

The Western Provinces as an Outlet for Ontario Fruit*

J. W. Crow, Ontario Agricultural College, Guelph.

ACCURATE or even approximately correct figures on the quantities of fruit shipped to the western provinces year by year are difficult to obtain. Transportation companies and shippers are in possession of the only sources of information on matters of this kind, and these are not often open to public inspection.

I am indebted to Mr. Charles F. Roland, Development and Industrial Commissioner for the City of Winnipeg, for the following estimate of the total quantities of fruit received in that city from all points during 1907. Fruit from Ontario and from the central United States is usually distributed throughout the prairie provinces from Winnipeg, and is included in this estimate. These figures do not include, however, large quantities which enter these provinces from British Columbia, Washington, Idaho, Oregon and California, and which are distributed from Regina, Brandon and other points west of Winnipeg.

"Fruit received in Winnipeg in car lots from all points during 1907: 48 cars of strawberries, 430 cars of tomatoes, 680 cars of peaches, pears and small fruits other than strawberries, over 600 cars of oranges, and upwards of 1,000 cars of apples. Large as these receipts may appear, one can judge that the receipts will be even double in a very few years, as the population of Winnipeg has grown from 67,000 in 1904 to 118,250 in 1908. I am informed that over seventy per cent. of these receipts was consumed locally."

IMPORTS TO WINNIPEG

The proportions of fruit received from different points and handled in Winnipeg, are estimated by the McNaughton Fruit and Produce Exchange as follows: California, Oregon and other north-western states, fifty per cent.; Ontario, thirty-five per cent.; British Columbia, fifteen per cent.

Mr. A. Mallinson, who has this season bought very largely in Ontario for western firms, estimates the total quantities of fruit shipped to the west from Ontario this year as follows: "83,500 barrels of apples, including a few boxes, estimated at three boxes per barrel; 220 car loads of grapes, estimating 2,400 six-quart baskets as one car load; 73 car loads of tomatoes, pears and cantaloupes. Included in the last item would, in some cases, be a few baskets of plums. A few peaches went forward also."

SHIPMENTS HAVE INCREASED

Mr. A. Gifford informs me that fully twenty per cent. can be added to the above estimate of total shipments. Mr. Mallinson states further that shipments of fruit from Ontario to Winnipeg have increased fifty per cent. during the last five years, and fully 100 per cent. in the last ten years.

From a communication received from Mr. A. McNeill, Chief of the Fruit Division, Ottawa, I quote the following: "With reference to the apple trade of 1907, the North-west Transportation Co. handled 100,253 barrels; the C. P. R. handled 18,720 barrels; other boats handled about 10,000 barrels; a total of 128,973 barrels; the G. T. R. and American lines, not known, probably half the C. P. R."

ONTARIO FRUIT IN WEST

These figures show that a large and growing market for fruit exists in the prairie provinces. They show also that large quantities of fruit are annually being marketed there. They fail to show, however, anything regarding the kind or quality of fruit most in demand in that market, and on this point a great many westerners have most decided opinions. The writer had the pleasure(?) of interviewing large numbers of people at Winnipeg Fair this year regarding Ontario fruit methods. The opinions obtained regarding the grading and branding would have delighted the heart of a British Columbia or Oregon shipper, but they surely operated to humble an Ontarian's pride in the quality of our goods and in the honesty of certain of our citizens. A very large number of western people know from experience on the old homestead in Ontario, of the quality of fruit produced here. They will tell you emphatically, however, that since residing in the west they have too often been unable to secure value for money invested in fruit from the home province. They will tell you that in order to get what they pay for, they are compelled to purchase the honestly marked and attractive packages from British Columbia, Oregon and other western points. This condition of affairs, it must be admitted, is not universal, but it is far too common. It is unfortunate that we have in Ontario careless, ignorant, or dishonest growers and shippers, as our hitherto enviable reputation has suffered severely at their hands.

A WESTERN HANDICAP

One hears, too, of wilful unscrupulousness at the other end of the line and it must be said in fairness to Ontario men that not all of the fault lies at the latter's door. In some cases, if we can believe all one hears, western receivers have encouraged misbranding of goods by such advice as this: "Send on your No. 1s if you have any; if you have none, send on your No. 2s, and either change the brand yourself or leave it to us to make No. 1 stock out of it." This is not intended as an arraignment of all fruit shippers and handlers and the honest men in the business (fortunately they are in the majority) will not take it as such. There can be no good reason, however, for trying to hide the real state of affairs and one learns with pleasure of a very radical change which has taken place this season in the methods of transacting business.

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

Fungous Diseases of Ontario Orchards: Pear Blight

M. B. Waite, Pathologist in Charge, Investigation of Diseases of Fruits, U. S. Department of Agriculture

THE well known bacterial pear blight caused by a tiny bacillus is one of the most prominent orchard diseases in Ontario. It attacks particularly the pear and the apple, but also affects the quince, the Siberian crab apple, the wild crab apple, the hawthorns, and practically all the fruits of the pome family. The germs producing the disease enter the tree in three different ways: First and most commonly, through the blossoms, being distributed from flower to flower and tree to tree very widely through bees and other flower visiting insects; second, through tender tips of growing shoots, including the water sprouts at the bases of the trees; and third, directly into the fleshy bark. Infections of this latter type are few in number but result in a very serious form of the blight. The amount of damage resulting from an infection may vary enormously. Thousands of infections simply kill the blossom cluster or a few inches of the tip of a growing twig. On the other hand the blight may run down on to large branches or run clear to the ground, killing the whole tree, or it may spread from a lateral infection, doing more or less damage. The spread of the disease, the number of infections and the amount of extension of the blight on a tree after infection are dependent upon a number of different conditions. The factors controlling an outbreak of pear blight may be summed up as follows:

First.—The presence of the germ and the amount of holdover blight available for reinfection.

Second.—The amount of bloom on the trees. It is difficult for young orchards to catch pear blight until they blossom.

Third.—The number of insect visitors available. This is largely, however, constant if the next is favorable.

Fourth.—The weather during blossoming time. If the weather is favorable for insect activity and nectar secretion, the blight germs are generally carried about. On the other hand rainy weather or cold dry sunny weather discourages the spread of blossom blight.

Fifth.—The variety and species of the tree. Each different horticultural variety and each species of pomaceous fruit has a different relative resistance to the disease.

Sixth.— The age of the tree. Young trees are more susceptible than older ones. The most susceptible age comes at the time the trees are first in bearing, say the first four or five years they are in bearing.

Seventh.—The vigor of growth. This is influenced by fertility of the soil, soil moisture conditions, favorable weather, artificial manuring, fertilizing and cultivation. In general, those conditions most favorable to vigor of growth of the tree are most favorable to the blight, and conversely those influences which dwarf or check the growth of the tree tend to hinder the progress of the blight.

Most of the blight dries out in the trees during the summer. On the other hand, occasionally at the bases of the blighted twigs or more commonly on the thick, fleshy bark on the large limbs and on the bodies of the trees, the blight keeps slowly progressing until the close of the season. The germs die out of the dead bark but keep alive on this advancing margin and the cool, moist weather of winter, though it checks their growth, tends to keep them alive until spring. This type of blight we call "holdover blight" and is the source of the new infections each season when the trees spring into growth.

COLLAR BLIGHT

I wish to call particular attention to the forms of pear blight known as body blight and collar blight. Body blight occurs abundantly on young trees, more particularly on young Bartlett and other pear trees, but it may even kill young apple trees. Frequently the blight gets into the thick fleshy bark on the body of young trees either by running in through a fruit spur or water sprout or by means of the punctures of insects or mechanical injuries. Possibly the germs may enter directly into the fleshy bark through growth cracks. Once in the fleshy bark the germs rapidly spread in all directions. They extend vertically in the direction of the vessels and fibres more readily than they do laterally. Oftentimes the infection is at the ground line or at the collar of the tree. Sometimes even below the soil line. The blight then spreads on the moist soil in all directions. Below the soil it more readily spreads in a lateral direction around the collar and down the bark of the roots. Frequently large irregular areas are formed and quite often they girdle the trees, absolutely killing them. Sometimes a V-shaped area runs up from the point of infection on to the body. French stocks are often more susceptible to blight than the grafted top even though the latter may be the susceptible Bartlett.

Trees affected with body blight usually take a year to die. This is unlike the branches, which are, of course, killed by the blight of the current season. Trees often live another year, and sometimes a second, even though completely girdled, and show the destructive effects the season after the blight has done its work. Sometimes the blight germs have died entirely out of the bark and the dead bark has dried up and yet the tree dies the following year from girdling.

In case of collar blight, where it does not completely girdle the tree, the tree often takes two or more years to die, but finally does so from the girdling. A small amount of blight at the collar or around the body does the maximum amount of injury.

This type of blight may be regarded as the most injurious and more trees are killed by this form as a rule than from blight in the top. It is also the hardest for the orchardist or inspector to find. However, it produces one very striking symptom that often leads to its detection. The foliage on these girdled trees, or even on the particular side of the tree attacked, begins to take the reddish autumnal color from midsummer on. In walking through the orchard after the first of August these reddish trees or reddish parts of trees are usually distinguishable from a distance. These premature reddened or bronzed leaves often contrast very strongly with the normal dark green foliage. This is particularly true of well-kept orchards. The reddening of the foliage is not always an infallible guide as sometimes branches color their leaves red from other diseases, root troubles, girdling by mice, and unknown causes. On examining these reddened trees, however, the blighted area can usually be found.

At least two types of frost injury also very closely resemble pear blight at the collar. In one of these the tree is injured from the soil line upward, usually on the sunny side but not always so. Blight is easily distinguished from this winter sun scald when the latter occurs as an elliptical are on the main trunk of the tree from the soil or snow line nearly to the branches. On the other hand, another type of frost collar girdle reaches but a little above the soil line or only occasionally extends upward in a V-shaped area but spreads well under the ground, partially or wholly girdling the tree. Still another type is that of root winter killing. In this case the roots near the surface of the ground are frozen and killed, while the top of the tree may or may not be injured by frost. It is necessary to know these other collar injuries in order to distinguish them from true collar blight.

(To be Continued in Next Issue)

Photographs of pruning and spraying scenes are requested for publication in THE CANADIAN HORTICULTURIST.

Young Trees vs. Old Trees*

Prof. G. Reynaud, Oka Agricultural Institute, La Trappe, Quebec

ONE of the most difficult problems that confronts the fruit grower of the province of Quebec, is that of labor at the time of picking, packing and shipping. What a torment to him when the trees are loaded with ripe fruit and there is no one to pick them?

If, perchance, he discovers a few trained pickers and packers, then on account of their scarcity he is at their mercy in as much as salary and also celerity and perfectness in work are concerned. Hence, in too many cases the sale of the crop *en bloc*. This means a loss to the grower who desperately throws himself directly into the hands of the fruit dealer, as the latter appears to him as a being sent by Providence itself to save the situation, but who too often saves the situation at the expense of the grower and of the development and prosperity of the fruit growing industry.

Encircled between extra high price of labor and the decidedly too low prices offered by the dealer, who buys the fruit *en bloc*, and picks it himself in the grower's orchard, the latter quite often chooses to neglect the orchard, and the fruit industry of the country is by no means pushed forward by such neglectfulness. I know growers, who, for want of decent laborers at decent prices, are compelled to shake and throw down the fruit from the trees and sell it bruised and harmed, as it is, for what they can get on the streets. Having eventually to deal with that scarcity and high price of labor, one must have recourse to some means or methods which will reduce to a minimum the amount of labor required, especially in the fall.

OLD ORCHARDS REQUIRE MUCH LABOR

If one compares the amount of labor an old orchard necessitates, with that required by a younger plantation, he finds out that the comparison as to lighter work is in favor of the junior orchard. Forty-year-old trees have acquired such a height and width that taking the fruit from them is long and sometimes hard or unpleasant work. Some of the fruits are so much out of reach that the pickers are tempted, perhaps compelled, to simply fling them on the ground by shaking the boughs. This fruit will necessarily be harmed, and will bring but a low price.

Even if the fruit is not cast on the soil, it is liable to be damaged by the fingers of the picker who is annoyed by the work he has to perform in the midst of long and numerous branches and boughs. The fruit is seized nervously, sometimes rudely, by the fingers, squeezed too hard, and then goes to the poor stock and with it on the ground often go the fruit buds, which are the hope of the next crop.

The fruit dealer's men care not for the future of the orchard, as the orchard is not theirs, and when they leave it void of fruit, you oftentimes can behold the soil strewn with fruit buds, broken branches and even boughs violently torn off the trees. Thus mutilated, bruised and weakened, how can the tree win the battle it has to fight every day and every season against insects, parasites, diseases, or the influences of the weather?

It is important, therefore, that the grower should limit the acreage of the contemplated orchard to the sum of competent labor he supposes he will be able to dispose of when the trees have grown tall.

Young trees generally bear larger fruits. The Yellow Transparent apple trees illustrate this fact, at least in the orchard I have charge of. As they grow old, their fruit grows proportionately smaller, and is therefore less saleable. So, I consider that it is not business-like to keep old Yellow Transparent trees. The same may be said of a few other varieties, and although proper fertilizers can remedy the evil, at least to a certain extent, the tendency to give small fruit remains with the old tree.

With young trees not only is the fruit larger, and, in consequence, more fit for the best market, but the picking is easier and costs far less. No long ladders and encumbrances are necessary and the work is swiftly, easily and properly done.

The younger orchard at La Trappe comprises two varieties of apples,—Wealthy and Ben Davis. In one day we picked and packed eighty-seven barrels of No. 1 Wealthy apples, and another day, eighty barrels of Ben Davis, not even using a table to grade the fruit; whilst with the same staff in the old orchard, it is a heavy task to get out thirty barrels a day.

From this, and other facts, I conclude that in this province our aim must not be to secure gigantic trees but simply medium-sized trees, and to care for them so that they will give the maximum of their producing ability before they grow too old, too large, and too tall, and before they give smaller fruits. When they begin to do so, we can have their place taken in the orchard by a younger and stronger generation of fruit trees.

Perdrigon Plum Trees at the Oka Agricultural Institute
Professor Reynaud, the President-Elect of the Quebec Pomological Society, stands in foreground

Mr. Craig told us last year that he had seen in Missouri a 2,000-acre peach orchard, and he added that in the same district apple and peach trees lived very few years, thus compelling the proprietor to keep busy renewing the plantation. Sooner or later we shall have to do the same, on account of the scarcity of labor at the time of picking and packing. The same gentleman also told us that at Grimsby, peaches, plums and smaller fruits have now taken the place of apples. It would be interesting to investigate this in order to know whether the difficulty of picking apples from large trees has not had something to do with this change.

USE ORDINARY SIZED VARIETIES

How can one obtain an orchard of only fair-sized trees? There are two

*A paper read at the convention of the Quebec Pomological Society held at Macdonald College, last month.

ways. Firstly, if the trees to be planted are grafted on seedling stock, the orchardist must stick to ordinary sized varieties and plant closer together. A striking illustration of this plan can be seen at the Central Experimental Farm at Ottawa, where Mr. Macoun has planted a very interesting orchard of Wealthy. Other varieties, such as Yellow Transparent, Duchess, Lowland Raspberry, Wealthy, McIntosh Red, Wolf River, Ben Davis, Salome and Fenouillet Gris, will answer the same purpose. Their fruit is early, large and quickly picked. Those who can obtain more labor, can have Fameuse, Golden Russet and Canada Red.

PLANT DWARF TREES

Another way is to plant dwarf trees. I have seen such an orchard in Quebec. The small trees which composed it were hardy and their fruit within hand reach. It contained a young Perdrigon plum tree from our nurseries, and although it was only in September, and in Quebec climate, the little Perdrigon was heavily laden with nearly all ripe fruit. It may be objected that such an orchard or such orchards would require what we call intensive culture and also special knowledge, but thanks to those two neighbor-institutions, the Macdonald College and the Oka Agricultural Institute, the country will soon be supplied with competent young specialists in orcharding and fruit-growing, who besides having knowledge that they can use for themselves will also be endowed with the necessary qualities and training to communicate their knowledge to their fellow-countrymen.

What Amateur Gardeners Can Do in January

THERE is not much to do outdoors in January. During warm days, watch the trees and bushes for eggs and cocoons of insects. Destroy all that can be found and decrease the number of pests for next year. Some pruning may be done. Remove dead limbs and branches and cut out any limbs and branches that are directly crossing others and injuring them by rubbing when blown about by the wind.

Indoors, give the house plants proper attention but do not over-do it. Most window plants delight in a moist atmosphere. Keep a pan or two of water under the hot water or steam radiators to keep the air moist. It is desirable occasionally to sprinkle the foliage of plants with clear water on warm, sunny days.

As a rule, fertilizers need be applied to house plants only when the pots have become too full of roots which have exhausted the soil. Use some prepared commercial plant food.

In temperatures, avoid extremes of either heat or cold. For most window plants, a temperature of sixty-five to seventy degrees Fahrenheit is ample during the day, and from fifty to fifty-five degrees at night. The plants nearest the window can be protected from zero weather on cold nights by placing sheets of newspapers between them and the glass.

Ventilate the room on fine, sunny days. To avoid direct draughts on the plants, admit the air by lowering the top sash of the window.

Be on the look-out for aphids, red spider, scale and mealy bug. For the former, use a strong solution of tobacco water. Red spider may be kept in control by sprinkling the foliage occasionally, especially on the lower side; it does not like a moist atmosphere. To get rid of scale, wash the leaves with strong soapsuds and rinse afterwards with cold water. An old toothbrush dipped in soapy water also will remove scale easily. Remove mealy bugs by brushing them off. Good culture is the best preventive of disease in plants.

Give your potted bulbs proper care. Do not allow the soil in the pots to become dry. To prevent extremes of temperature, remove the pots from the window at night.

If you want home-grown plants for Easter, begin now. Try hortensias, greenhouse spiræas and freesias. Buy spiræa roots now and pot them. Spiræas must be kept constantly moist. From the time they start to grow, they will require about twelve weeks to come into bloom.

An occasional hour may be spent profitably and pleasantly in making plans for next year's gardens. Draw a diagram of the vegetable garden and of the flower garden to scale. Draw lines to represent the rows and the beds as you want them to be, and write the names of the vegetables and flowers that you intend to grow in them. Change the positions of the various kinds of vegetables from that of last year. Most of them do better when not grown in the same place annually.

If you intend to have a new lawn next year, make your plans and selections of shrubs now. Bear in mind the first principles of landscape gardening, which is that the lawn is the basis of the whole picture, and should not be treated as a nursery for planting all kinds of trees and shrubs promiscuously. Keep it open and plant the trees and shrubs around the borders. Place the latter mostly in groups. Shrubs may be planted at the junctions of driveways and walks. The latter features should be as few as possible. If the grounds are large enough, plan to have the roads and walks curve gracefully from the point of entrance to the house.

A Field of Asters and Gladioli
Grown by Mr. Jas. Gilchrist, Guelph, who stands in center of illustration

The Civic Improvement Movement in Ontario

Prof. H. L. Hutt, Ontario Agricultural College, Guelph

(Continued from last issue)

IN some places, the local board of trade has taken the initiative in promoting civic improvement, because they realize the fact that beautiful surroundings are a potent factor in attracting citizens and increasing trade. The Orillia Board of Trade a couple of years ago published a neat little booklet encouraging the citizens to unite in making Orillia an attractive spot for summer visitors.

From the *Ottawa Citizen*, we clip the following: "The people of Ottawa are taking an increasing pride in the appearance of the capital, which the Dominion Government has also done so much to beautify. Ten years ago there was only one park in Ottawa, and the most of the private residences were walled in by high fences; now there are seven parks, nearly all the fences have been taken down, so that gardens and lawns are open to the street, and those having available grounds for the purpose are planting them with flowers and shrubs, and generally adding to the beauty not only of the premises but of the locality." And so the improvement is going on steadily in many parts of the country.

VALUE OF HORTICULTURAL SOCIETIES

In some places the local horticultural societies have taken an active part in promoting civic and rural improvement, particularly along horticultural lines. In other places the work has been confined too much to a few special features of improvement, such as floriculture or window gardening. Such societies should be encouraged to reach out and take a broader view of their opportunities. I would suggest the following as a few of the avenues through which the local societies might work to good advantage in promoting improvement in their respective communities:

1. By conducting an educative campaign in awakening public interest to an appreciation of the value of neatness, order, and beautiful surroundings. To this end it is well to make good use of the local press.

2. By enlisting the support of the rising generation by flower competitions, and also by making school as well as home surroundings as beautiful as possible. Young people brought up amid beautiful surroundings may be counted on in later years to work for rural and civic improvement wherever they may be placed. I am looking forward to an early awakening of school boards to the importance of improving school grounds, and have prepared a bulletin on that subject for the Ontario Educational Department this year.

3. By seeking the co-operating of other influential local organizations, such as the town council, board of trade, or school board, which may be willing to assist in making local improvements. In union there is strength.

4. By working for the appointment of progressive local park boards or commissions and urging such boards to get possession of suitable lands for park purposes while they are cheap. Plans can then be adopted for their gradual development and improvement.

The Ontario Parks Act provides that one-half mill on the assessment may be used by any park board so appointed for such purposes. And whenever such money is judiciously expended, the increased value of adjacent lands will soon pay a good share of the cost of such improvements in increased revenues from taxes.

The park board in any town might also be asked to establish a small nursery, where trees, shrubs, and vines could be grown in quantity for civic improvement work, and could be supplied to the citizens at cost for planting in their own grounds.

5. Every property holder should be encouraged by precept and example to contribute his share to the general improvement of the place by making his own lot as attractive as possible. If every citizen did his share, what a change would take place in the appearance of our country. Tourists from all over the world would come to see Beautiful Ontario.

LEGISLATION DESIRED

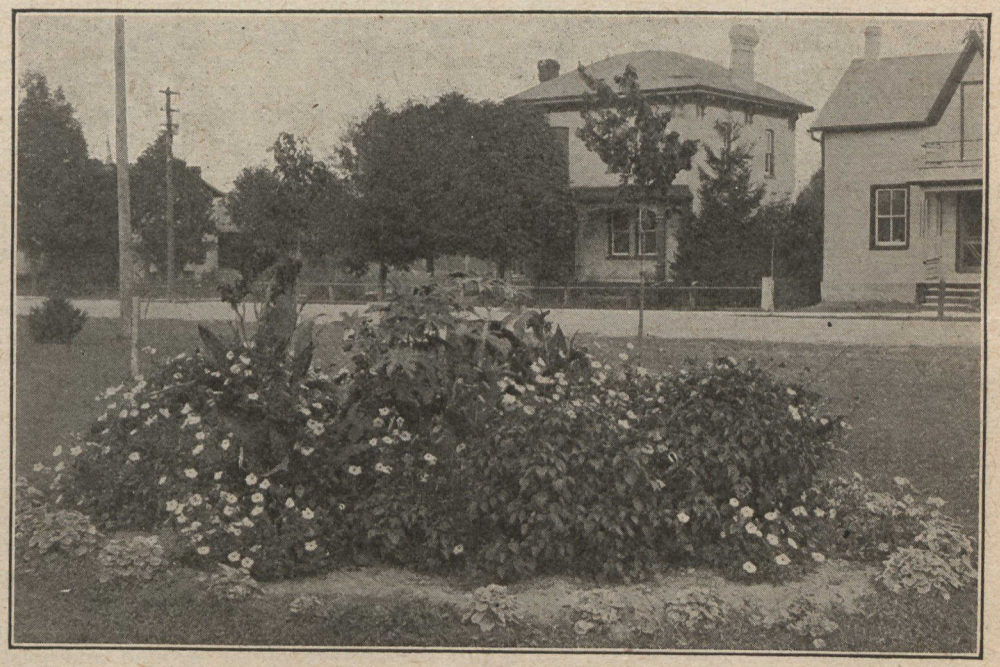
There are a few things upon which it would be desirable to have some legislation in this country, and which this association might be instrumental in getting, if it were to join forces with other organizations which have been asking for the same:

1. Legislation to control the bill-board nuisance and advertising monstrosities which disfigure architectural beauty as well as natural scenery.

2. To prohibit the butchery of street and roadside trees by telephone and telegraph companies, and to compel the placing of their wires underground wherever they enter town or city limits.

3. To prevent dogs running at large within town or city limits.

There may be room for diversity of opinion upon all of these questions, but there can be no two opinions about it, that dogs and bill boards and unsightly telegraph and telephone poles are at enmity with civic improvement.



A Bed in Gore Park, Elmira, Ontario, Planted by Local Horticultural Society

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Some notes on new peonies, by Mr. R. B. Whyte, Ottawa, will be published in an early issue.

An illustrated article on "Window Boxes, Hanging Baskets and Rustic Stands," by Mr. William Hunt, Ontario Agricultural College, will appear in the next issue of THE CANADIAN HORTICULTURIST.

Best Half-hardy Tub Plants*

Roderick Cameron, Assistant Superintendent of Parks, Toronto

THE topic, "Tub or Half-hardy Plants, their Usefulness and the Care of Them during the Winter," is a large, varied and very difficult one. The plants that could be made to do duty in this respect are legion, but I intend to draw attention only to a few that I consider the best or most useful that I have had to do with. The varieties of plants best suited for such purpose are as follows:

Buxus or tree box, which can be got in about a dozen varieties, green, golden and silver-leaved, large and small-leaved, standard and pyramidal forms. The *Euonymus Japonicus* as evergreen bushes can be got in many varieties, green, golden and silver-leaved, beautifully marked and of first quality.

The *Acuba Japonica*, like the euonymus, can also be got in several varieties and beautiful markings, and there is no plant grown that will stand soot, gases and dust better. The acubas are the plants that are so much used in vases and so forth, in smoky cities in the old world where little else will grow but them and the ivy. While on the ivy, let me say that if the different varieties were trained in pyramidal form on wire frames, especially the variegated forms, there are few plants that can surpass them in beauty.

The *Laurus nobilis* is probably used for this purpose in America more than any other plant, and these sweet bays can be procured in standard and pyramidal forms; their dark green, prim form claim for them a place for all decorations in church, cemetery or hall.

The *Nerium Oleander* can be used to good effect in the angles of buildings, along with them may be planted the *Elæagnus pungens*; they can be got in different varieties of varigeation, green, silver and gold.

Large plants of *Caryopteris Mastacanthus* can be used to good advantage in corners along the paths; this plant and the chaste shrub *Vitex Agnus-castus* are two of the latest to bloom and both are much admired for their fragrance.

Here and there among such plants, but separate from them on the lawn, may be placed *Hydrangea hortensis* in several varieties to give some bloom to the whole setting. *Catalpa bignonioides* var. *nana* (*C. Bungei*) is quite hardy, and, when good heads are formed, they look quite conspicuous when grafted as standards. *Ulmus parvifolia* is also hardy and will make excellent standard round-headed plants. *Yucca gloriosa* and *Y. aloifolia* should be used in such planting and would tend to give a more tropical effect. *Abelia floribunda* and *A. grandiflora* make excellent tub plants and bloom all summer if kept in cold storage all winter. *Thuyopsis dolobrata* and its variegated form should also be employed in such planting since they are evergreens of choicest quality.

*Extracts from a paper read at the last convention of the Ontario Horticultural Association.

USE OF WIRE BASKETS

I have been mentioning the above as tub plants, but tubs at their best look out of place, are expensive, and require constant care and watering. In place of tubs, I use baskets made of half inch mesh chicken netting. They can be made by any handy man. Line the same with moss or thin tough sods. Place the plants and fill up tightly with soil. Water well by dipping. They are then ready to be planted where wanted, as if planting a tree with a ball of soil attached to it. It will be seen that by adopting this method the plants can be lifted in the fall without disturbing the roots. The plants will require no care with water from the time that they are planted until they are taken up again in fall.

STORAGE FOR WINTER

For storage for the winter, I build a cold storage pit—a hole dug in the ground twenty-five feet by fifty and ten feet deep. Against this soil, there was a wall built of concrete all around except a space for a door to let in or out the plants. This wall was built up to the surface of the ground and joists were thrown across every two feet. On top of this was built a green house roof —bars fastened to a ridge pole; the bars were made to hold glass on both sides with air space between. At the ends of the house was left a space for a small door to act for an entrance to the loft above, to give air and let out excess of moisture. In the bottom of this cellar was placed from two to three feet of good loamy soil, and a month before planting the soil was saturated with water, or rather a month before the danger of severe frost.

When it became dangerous to leave the plants out any longer, they were collected and planted in the soil in the aforesaid cellar, baskets and all, the same as they were outdoors. In this position again, the plants get no water until they go out next spring, the moisture in the soil being sufficient. The joists overhead in this cellar are used to run rolls of tar paper along when the temperature reaches zero outdoors. When fifteen degrees below zero outside, I had seventeen degrees of frost in the cellar. Here lies the secret to success: While the plants and soil is frozen keep them dark; as soon as the frost is gone give them the light again. I have taken such plants out in zero weather in an open wagon to decorate without any apparent harm to them.

THE BEST PLANTS

The following is a full list of the plants that may be used for a changeable garden, and will do well in such a cellar as I have just described:

Yucca gloriosa, Y. aloifolia, (variegated), *Nerium Oleander, Abelia floribunda, A. grandiflora, Thuyopsis dolobrata, T. dolobranta* var. *variegata, Hydrangea hortensis, H. h.* var. Thos. Hogg, *H. h.* var. *variegata, Elæagnus pungens* var. *maculata, E. p.* var. *variegata, E. macrophylla, Caryopteris Mastacanthus, Vitex Agnus-castus, Buxus sempervirens, B. s.* var. *pendola, B. s. aurea, B. s. aureo-marginata, B. s. argenteo-marginata, B. microphylla, Euonymus Japonicus, E. J. aureus, E. J. aureo-variegatus, E. J. macrophyllus, E. J. medio-pictus, E. J. albo-marginatus,* and *E. J. argentiuo-variegatus.*

An Uncommon Cactus

J. H. Callander, Peterboro, Ont.

Mamillaria nivea cristata is one of the rarest forms of the cactus family, seldom seen in cultivation, and highly prized by those fortunate enough to possess one. It is extremely odd in its style of growth, constantiy becoming more twisted and contorted as it increases in size. In its original form it is a simple, round specimen of the pin-cushion shape, the change in character being due to the coxcomb-like growth taking place, after which it never reverts to the parent form.

It needs greenhouse or conservatory treatment, sometimes being grown under glass domes, and thriving in the limited air space thus provided. When well established it is of easy growth, and may be watered with impunity, but needs careful handling while being rooted. Its most successful treatment, however, is by grafting, when results are rapid and satisfactory.

Mamillaria Nivea Cristata

Growing Peonies and Gladioli from Seed

W. E. Saunders, London, Ontario

ON ACCOUNT of the short period of reproduction in annuals, it is possible by selection of the seed to fix color and other variations so that they come reasonably true from seed, but with perennials the case is entirely different. A person does not want, as a rule, very many specimens of any individual species of this class and those desired can usually be obtained by splitting the original plant and one may thus procure blooming plants in a much shorter time than if they were raised from seed. Sometimes this is objectionable, as, for instance, in the case of the peonies, which are very apt to sulk if divided, unless perhaps the plant is taken up and thoroughly divided into small fractions.

PEONIES FROM SEED.

If one undertakes to raise peonies from seed he is appalled by the amount of time required before bloom is obtained, but if one owns his garden and expects to remain long the very novelty of the procedure has a charm and the fact that few of the seedlings may be expected to resemble the parent very closely, adds interest to the experiment. The young plants are easily cared for, and do not take up a great deal of room and, after they have once bloomed, they may be thrown out or transplanted to permanent quarters as preferred.

This year I have flowered my first seedling peonies, one five years old and the other three. It chanced that one plant bore a very pretty flower which I was quite glad to get, but the other one has earned its discharge. I am inclined to believe that one will not, as a rule, obtain good flowers from half of his seedling peonies; but one thing the grower is nearly sure to get, and that is a good variety of single-flowered plants which are very beautiful but which are, at present, in very few gardens.

RAISING GLADIOLUS SEEDLINGS

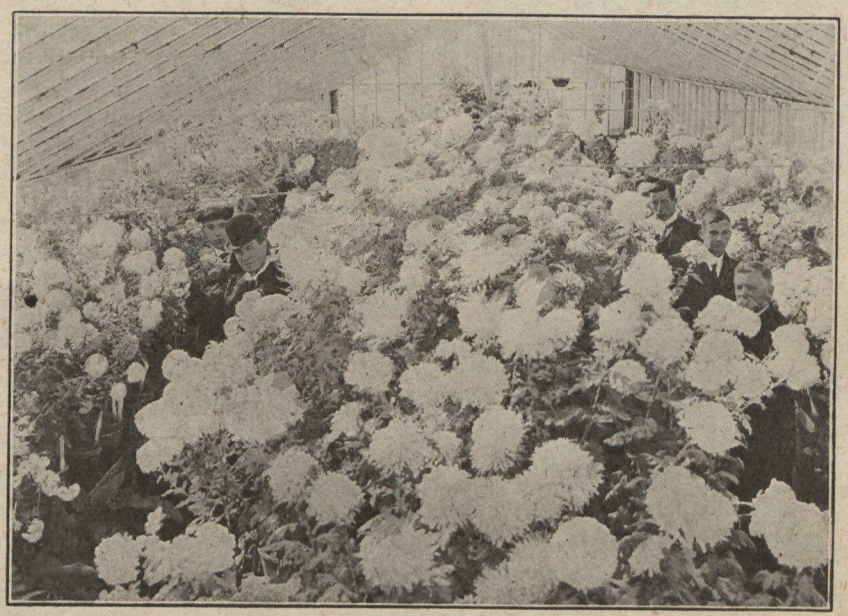
The most interesting perennial that I have raised from seed is the gladiolus. It is popularly supposed that these take a long time to bloom, namely from three to five years, but such is not the case. In spite of the fact that I have never yet treated my seedlings as well as I thought they should have been treated, I have had quite a number of flowers the second year. To begin at the beginning, my plan of operation is as follows: First, to carefully select the parent, using only a vigorous plant with a good flower. Almost invariably I hybridize this by rubbing a stamen of some other selected variety across the pistil of the one from which I wish to raise the seed. Without this precaution the plants very often fail to produce seed and, when one goes through the hybridizing process the chance of obtaining something desirable is good.

When the seeds are nearly ripe, the stems may be picked and placed in a box with others where it will dry and the pods will open and shed their seed. The following spring these should be planted in a rather light, rich soil where there is no recently added manure whatever, as the gladiolus is well known to be intolerant of manure, even if well rotted. The seeds should be covered with one-half to one inch of earth and after that, weeding and possibly watering is all they require. They winter just as readily as the larger bulbs and under the same conditions.

When one comes to plant them the following spring there is a severe tendency to give them too little room. One hardly realizes that a bulb one-half inch in diameter is likely to flower, but even a three-eighth inch bulb will often flower if given the best conditions. It seems absurd to put these little things three inches apart. "One inch, surely, is far enough for a quarter inch bulb," says one's gardening mind, but this is not true. At this distance few of them will flower, but if planted with two or three inches between, the grower will be surprised to see how many will reward his efforts with bloom. The yearlings produce a large number of bulblets. I do not know how soon this character is lost, but I am inclined to think that it persists for some time and, by planting them, one can readily multiply any desirable form which he may have produced.

Thus in growing these bulbs from seed, one has the opportunity of extending his collection in the colors which he prefers. It happens that I want flesh and salmon tinted varieties, and these are exceedingly hard to buy, there being only two or three varieties that I know of whose colors please me, but I have raised one or two seedlings that are very handsome and I hope that I have more on the way. There seems to be little or no tendency towards depreciation in size but rather the reverse. I have seedlings which are five and one-half inches across, grown under the same conditions as Groff's "Peace," which does not reach four and one-half inches in my garden, my location being too dry and sandy to suit it very well.

There are also other plants from which the gardener may obtain a great deal of pleasure during the process of growth from seed, but it is necessary that the plant should produce variety in order to give that interest to the operation which peonies and gladioli yield.



Chrysanthemums at Ontario Agricultural College, Guelph See next page

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It may interest the readers of THE CANADIAN HORTICULTURIST to know that in 1890 there was not a single flowering or other foreign shrub know or grown in the whole of the then three territories of Assiniboia, Saskatchewan and Alberta, while to-day we have no less than forty families, with 230 varieties, that are quite hardy or nearly so. The mountain ash, which does so well in the east, killed back to the ground for years, but to-day is one of our most beautiful flowering trees.—Angus MacKay, Indian Head.

Take an interest in our question and answer department. It will help you.

Three Essentials in Aster Growing

C. M. Bezzo, Berlin, Ontario

TO grow asters successfully, there are three things that are absolutely necessary: 1, Good, rich, mellow soil; 2, kept loose and mellow by constant cultivation; and, 3, moist by

Daybreak Asters and Dahlias
At "Flora Villa" the home of Mr. C. M. Bezzo, Berlin, Ont.

frequent waterings in dry weather. Of course we are assuming that the grower has good seed to start with.

Aster seed may be bought for two cents a packet up to twenty-five cents a packet. In the majority of cases the higher priced seed is the cheapest. But, in order that this article may not be unduly long we will confine our attention as far as possible, to the above mentioned three essentials, and deal with them in their respective order.

KIND OF SOIL

Good rich soil—by this we do not mean ground that has been heavily manured regardless of method or quality. An aster bed, to be in best condition, should be well fertilized the year previous. Soil that has been well enriched for dahlias should grow good asters the following year. But it would be advisable after the dahlias have been removed to dig in a good dressing of well rotted manure. If this is not obtainable, the bottom of the manure pile that has been accumulating since last spring will answer. Then, in the spring, as soon as the ground is dry enough to cultivate, and long before the plants are ready to plant out, it should be dug over again; dig it with a fork, and dig it well, thoroughly incorporating every particle of manure with the soil. When the time arrives for setting out the plants, dig the bed once more, this time, merely to loosen up the soil to a depth of eight or ten inches.

The next two essentials are so interwoven that they ought to be treated under the one head. As soon after each rain (or watering with the hose or watering-pot) as can be done without the soil sticking, the surface of the ground should be loosened with the hoe or small rake, to a depth of one and one half to two inches. Care should be taken, not to hoe too closely to the plant at this depth as the aster throws out roots very close to the surface of the soil. This constant loosening of the surface soil not only prevents the formation of a crust which would exclude the air and smother the roots, but by forming air spaces between the particles of earth enables them by capillary attraction to draw up, in dry weather, moisture from depths far below. It also enables the roots to strike down deeper, reducing the danger of uprooting by the wind, while cutworms, wireworms and other like enemies can find no abiding place in ground that is constantly stirred.

PLENTY OF WATER REQUIRED

Asters should never be allowed to suffer in the least from want of water. Water in the evening unless the nights are very cool, in which case, if the hose is used, the watering had better be done in the morning. But water any time, morning, noon or night, in any kind of weather, rather than have them suffer from thirst. The plants when watered, should never be merely sprinkled, but should always be thoroughly soaked.

If the plants are massed and have become so large as to render dangerous the operation of hoeing, a two inch mulch of straw, grass clippings or half rotted manure shaken up finely will be of great benefit in keeping the ground moist and cool. Water is the enemy of the red spider and the aphis. Those who use the hose liberally on the foliage, sprinkling underneath and all around, will experience very little trouble from these pests.

Mikado Asters at "Flora Villa"

Chrysanthemums at Guelph

The display of Chrysanthemums at the Ontario Agricultural College, Guelph, this year, probably excelled those of any previous year. This was the general consensus of opinion expressed by the hundreds of visitors who saw the collection this season. Not only was this true in regard to the quantity and quality of the blooms, but also from the fact that the collection was thoroughly typical in character, representing as it does every known type of this gorgeous autumn flower, from the smallest of the pompons to the largest of the popular incurve and loose style of Japanese blooms, in all the many sub-types and colors to be found among these popular flowers.

In this respect the educative value of the collection was a prominent feature, more particularly from the standpoint of the amateur flower-grower, the habit and type of plant as adapted for home culture in pots being a strong point considered. Quite a number of the newer varieties were tested. THE CANADIAN HORTICULTURIST is promised a few notes on these for publication in a later issue. See illustration on page 7.

Interested in Lilies?

Editor, THE CANADIAN HORTICULTURIST: I wish to know from you or any of the readers of your magazine whether the whole family of lilies is known to be hardy in the greater part of southern Ontario. Would it be safe to plant any or all of them in our autumns for spring flowering? If not, which ones are unsafe and what would be required to protect them if so planted?

How about the Japanese species, such as *Lilium auratum*, *L. Brownii*, and so forth, and the whole species known as *L. speciosum*, including *rubrum*, *Melpomene* and others, and the species *L. elegans*? If it is necessary to take them up in the fall, how best can they be protected during the winter?—B. Gott, Strathroy, Ont.

NOTE.—Readers of THE CANADIAN HORTICULTURIST are requested to give their experiences in the culture and care of lilies for publication. The lilies are amongst the noblest of garden plants. A discussion of their behaviour in Canadian gardens will be of much interest.—*Editor.*

Irrigation and Its Effect on Vegetables and Small Fruits*

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE were few places in Canada during the growing season of 1908 where the weather was not very dry for a longer or shorter period. In some parts of the country, and particularly in eastern Ontario, the weather was too dry to obtain average returns from vegetables and small fruits from early in June until October 17th, when the drought was broken. At Ottawa the rainfall was about four inches below the average from April to October during that time. Not for many years has the need for a regular supply of moisture been so impressed upon vegetable and small fruit growers as this year, when thousands of dollars were lost to them through an insufficient supply of moisture during the growing season. In eastern Ontario the potato crop was, in places, almost a failure owing to the continued dry weather. Cabbage and celery suffered badly, the latter where it can be used at all being very short. Onions were much affected, the crop being greatly reduced, and other vegetables suffered also. Strawberries were scarcely more than half a crop, and raspberries the same. The time seems opportune, therefore, to find out whether in the province of Ontario it is likely to pay to supplement the rainfall with artificial irrigation.

The droughts in the province of Ontario are usually of short duration and in an average season rain will come before the effect of the dry weather is apparent, although the growth may have been checked, but so gradually that it is not noticed. This probably accounts for the fact that irrigation has not received much attention in this province, but if we think of the marked improvement which rapidly takes place after a rain, is it not suggestive that moisture might be given artificially a few days sooner and thus ensure a continuously rapid growth of the crop?

In arid regions, where practically no rain falls during the growing season irrigation is, of course, absolutely necessary to ensure a crop, but it is quite a different matter in Ontario, where the average rainfall is a fairly liberal one during the growing season and where the number of times during the season when it is desirable to irrigate is limited, and where in some seasons it may not be necessary to irrigate at all. Such conditions would not apparently be conducive to the establishment of expensive irrigation plants which in some seasons might be altogether idle. The point to consider, therefore, is how can the vegetable and small fruit growers maintain a sufficient supply of moisture, available to the growing plants, to ensure maximum crops each year?

The soil must, first of all, be in the best possible condition to retain what moisture falls as rain during the growing season and to conserve the ground water. If the surface soil be shallow with a hard sub-soil, moisture which comes in the form of rain will not sink fast enough and it may be evaporated again in a short time. The ground water also will be evaporated quicker than if the subsoil were broken up, thus lowering the water table and also permitting the rain water to go down to a reasonable depth. Good tillage and good drainage also will ensure the quick disappearance of surface water. Thorough cultivation is essential, both for the conservation of moisture and the aeration of the soil. But it is scarcely necessary to bring these facts before vegetable growers who practise such intense methods that they could not obtain the crops they do unless their soil were worked to a good depth and the surface soil kept loose. Notwithstanding the intensive cultivation practised by vegetable and small fruit growers, their soils do become too dry at certain times, some soils becoming drier than others.

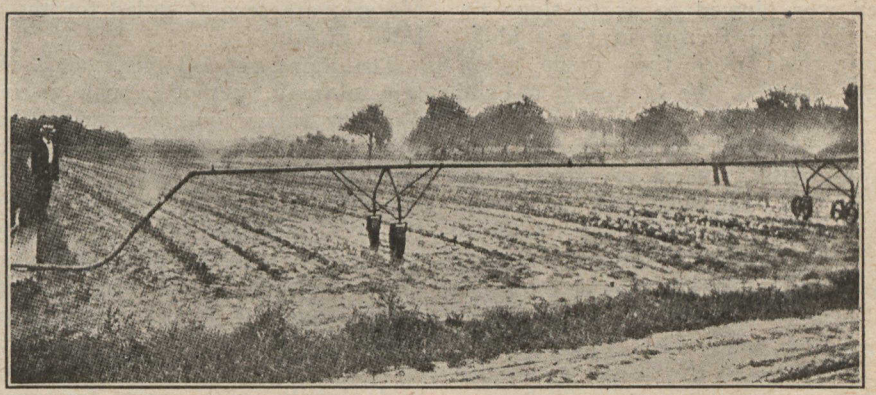
Vegetables and small fruits may be injured by too much moisture, the crop suffering both from the direct effect of the excess of moisture and from the increase of disease favored by moist conditions, some kinds of vegetables suffering more than others, just as certain kinds suffer in dry weather more than others.

In the province of Ontario water may be obtained for irrigation purposes from streams, surface and artesian wells and from ponds and reservoirs constructed for holding the rainwater. Sometimes it may be possible to obtain water from the city or town supply. Water may be pumped either by a gasoline, electric or steam engine, by wind power, or by horse power.

There are several methods of applying water to the growing crop, and we cannot do better than quote from Bulletin 87 of the Office of Experiment Stations, Washington, D. C., on "Irrigation in New Jersey," for descriptions of methods used there, where there has been some attention to irrigation:

FURROW IRRIGATION

"Irrigation by furrows consists simply in allowing water to flow between rows when the plants are large enough to fill the ground with roots, or in making a furrow in which to run the water next the row on one or both sides of small plants. Furrow irrigation has been most successful on potatoes where there was just enough slope to make the water flow slowly when a large volume is started down the row. With greater slopes irrigation washes the soil in proportion to the steepness of the slope.



A Movable Sprinkler for Irrigating Vegetables

"When the ground has too little slope to make the water flow well, several lengths of tarred hose may be laid down the row, and when the water has flowed nearly the length of the first piece a connection is made and the water let out at the end of the first length, and so on. This plan should be followed when the row is so long that the upper end gets too wet before the lower gets wet enough.

"Where the land slopes so much that a large volume of water washes the land, the difficulty can be partially overcome by dividing the water into small streams and running it down several rows at once. This is done by making small ditches or furrows with the hoe to carry the stream to the different rows, or it may be done with a distributor. A small hose is attached to the openings and carries the water to the row desired. With these pieces of small hose, about twenty-five feet long, there is no need to change the position of the distribu-

*A portion of a paper read at the last convention of the Ontario Vegetable Growers' Association. The construction of irrigation plants will be dealt with in the next issue.

tor until a space fifty feet wide has been watered. The distributor is made of tin or sheet iron.

"Where there is a long, gentle slope, the lower end of the land is often more moist than the upper end, although rows of potatoes 500 feet long have been successfully irrigated by starting the water at the upper end of the row and allowing it to flow the entire distance.

"In connection with furrow irrigation, the question naturally arises, 'How far does the water soak laterally?' When potatoes are ridged and the water runs between the rows, there will be lateral soakage enough in sandy soil to make the soil under the potato row quite moist.

FLOODING SMALL BEDS

"Small beds of plants often need careful and thorough watering. It is quite commonly supposed that sprinkling is the only available method in this case. Two methods of flooding were tried on beds of cabbage plants. In one case, the bed was plowed so as to slope towards the dead furrow in the middle. Small furrows were then made along the two edges of the bed with a hand plow. Water was run down the two small furrows, and made to overflow by damming with a board at short intervals. Water was also run down the centre furrow and allowed to overflow, but this was not very effective.

"In another case the bed was plowed so as to leave the whole a slight ridge. A furrow was made with the hand plow down the centre of this ridge, and water ran down and was allowed to overflow on one side only (at a time). Both of these methods were found to be very satisfactory. When the plants were of considerable size, the ground was thoroughly wet without wetting the leaves. It worked better after the first irrigation, or after the freshly plowed ground had been rained on. One irrigation was performed on the freshly made bed, and although it was successful, considerable trouble was caused by the washing away of the bank of the small ditch.

"Mr. John Repp, of Glassboro, N. J., irrigates three acres of field lettuce when small by means of movable sprinklers attached to rubber hose. When the lettuce is large he floods the ground by letting the water flow out of the open ends of hose, moving the hose from place to place. He considers the method very satisfactory." Another method is to have overhead sprinklers.

TIME TO APPLY WATER

The time to apply water will of course depend on the weather, but the judgment of the grower is also an important factor. In the dry districts, the plan is to thoroughly soak the ground at fairly long intervals, then follow with good cultivation. In Ontario, where there is usually a fair supply of rain during the growing season, it will probably be found better to irrigate oftener and not quite so thoroughly, as, if a heavy rain followed a soaking from irrigation, more harm than good might be done. The judgment of each individual grower will have to be used also as to the amount of extra water it is desirable to apply, the character of the soil and subsoil and the slope of the ground being important factors in determining the amount of water that the land requires to give the best results.

Foes of Vegetable Crops*

T. D. Jarvis, Ontario Agricultural College, Guelph

THE annual losses due to insect and fungus attacks on vegetable crops is estimated at thirty-three per cent. It is important, therefore, that the progressive vegetable grower be well equipped with a knowledge of insects and fungous diseases. "Insects Injurious to Vegetables," by F. H. Chittenden, Sc. D., United States Department of Agriculture; "Insect Life," by J. H. Comstock, of Cornell University; and "Plant Diseases," by George Massee, are recommended for the vegetable grower.

The more general observance of certain farming methods, such as involve no extra outlay for machinery or insecticides but require modification of ordinary farm practices will greatly lessen the losses from this source. They are the most advisable methods of dealing with crops of low value, such as turnips, cabbage and other vegetables which would not justify greater expense. Clean culture includes the destruction of weeds, especially those of same natural family with crop, for example, lamb's quarters, spinach and beets.

DESTRUCTION OF RUBBISH

Many insects hibernate under trash, boards, chips, and so forth. Cutworms, army worms, squash-bugs and other pests pass the winter in such places. Fence corners harbor many like insects and also grasshoppers in young stages. The cleaning out of such places, burning trash, and so forth, during winter will aid. Even the whitewashing of board fences is an aid in sealing up the corners and cracks where flea-beetles, and some others, hide.

DESTRUCTION OF REMNANTS

Remnants should be destroyed, preferably by burning, as soon as the crop is gathered. Many insects multiply or pass the winter on or in the remnants of crops, as worms and aphids on cabbage and cauliflower remnants, cutworms and flea-beetles on tobacco, stalk weevils on potato vines, squash borers in squash vines, and so forth. All these may be checked by promptly burning or putting in compost heaps all such remnants as soon as the crop is gathered.

Rotations are good for the land, for crops, and deter insects. Crops of same nature should not follow each other when attacked by insects or fungous diseases; for instance, when crops like potatoes, tomatoes and tobacco, follow one another, flea-beetles, tomato worms, potato beetles and various blight diseases thrive, but if the land is rotated with corn, onions, and so on, alternating with other crops, much injury will be averted.

Plowing at certain times often checks insects, especially underground species, by exposing to cold and weather, or by starving through destruction of natural food. Wireworms, cutworms and white grubs may be checked in this way. Fall plowing is usually best for this purpose.

Fertilizers stimulate the plant to resist insect and fungus attack.

SPRAYING

Vegetable growers should be provided with a complete outfit for spraying operations and should keep on hand or know where to obtain at short distance a good supply of necessary insecticides. Arsenate of lead is coming into use in place of Paris green. It may be had in paste or powder form and used in water or Bordeaux mixture at from two to four pounds to fifty gallons. It adheres to leaves well and is not likely to burn. The mixture is said to remain in suspension fifteen times as long as Paris green. It may be purchased from the St. Catharines Cold Storage and Forwarding Company, from the Spramotor Company, London, or the chemicals may be obtained from druggists and the preparation made at home.

The chemical department at the Ontario Agricultural College, recommends for home use: Arsenate of soda, ten ounces; acetate of lead, twenty-four ounces; water, 150 to 200 gallons. The arsenate of soda and the acetate of lead (sugar of lead) should be dissolved separately and then poured into a tank containing the required amount of water. A white precipitate of lead arsenate is immediately formed and, when thoroughly stirred, is ready for spraying.

In a recent bulletin published by the experiment station at Cornell University, a formula is given for an adhesive fungicide which is not washed off by rains: Resin, two pounds; sal-soda crystals,

*A paper read at the last convention of the Ontario Vegetable Growers' Association. It will be concluded in next issue.

one pound; water, one gallon. Boil the mixture until you get a clean brown color which usually takes about an hour and a half. For onions, asparagus, cabbage and salsify, add forty gallons of Bordeaux to mixture, and for other plants eighty gallons of Bordeaux to the mixture.

Insects with sucking mouth parts, such as aphids and leaf hoppers are killed by contact poisons. One of the simplest and most effective remedies consists of a mixture of soap and water. Shave soap in thin pieces in water and boil to dissolve.

QUESTION AND ANSWER DEPARTMENT

A Peculiar Effect

I am sending an apple that is peculiarly marked. About one-sixth of its skin is totally different in color to the normal and the marking is well defined from base to apex. How do you account for it?—R. D., Middlesex Co., Ont.

The apple shows the effect of what is known as "superfoetation," or the immediate effect of pollination. It is rather unusual to see apples marked in this way, but they are found occasionally. It is supposed to be caused by the influence of the male parent being made evident during the season of pollination, when as a rule the influence is not sufficiently marked to be seen until the seedlings fruit.

Dracæna Indivisa

Give proper winter treatment of *Dracæna indivisa* that was used in a hanging pot last summer and fall.—S. R., Huron Co., Ont.

The proper treatment for *Dracæna indivisa* would be to put it into good soil—one part sand, one part leaf soil, six or eight parts of a rich loamy soil—and plenty of drainage. Keep the plant in a temperature of sixty to seventy degrees, and in not too sunny a position in the window. Sponge or sprinkle the leaves with clear water about once a week.

Echeverias

1. What varieties of Echeveria are the most suitable for carpet bedding? 2. What is the proper time to sow seed of Echeveria for bedding purposes in June, 1909?—P. M., Wentworth Co., Ont.

1. The varieties of Echeveria (Cotyledon) best suited for carpet bedding are *E. metallica*, *E. secunda*, *E. atropurpurea* and *E. secunda* var. *glauca*. These are tender plants and must be kept in a rather cool temperature in winter, forty-five to fifty degrees. The house leeks (*Sempervivum spp.*), similar plants to the Echeverias, many varieties of which are quite hardy, are also suitable for carpet bedding, but are not quite so showy in appearance.

2. To secure good large effective plants of Echeveria from seed for bedding out in 1909, the seed should have been sown during the past summer. By sowing in January or February, small plants can be obtained, but the time is too short to secure large plants. These plants are usually propagated from the terminal growth or from the young growth on the old stems, or from the leaves. They are seldom grown from seed. The Echeverias named like a rather sandy soil and should be kept moderately dry, not over watered, especially in winter.—Wm. Hunt, Ontario Agricultural College.

Propagating Alternanthera

How are alternantheras propagated, and when is the best time?—R. T., Lanark Co., Ont.

Alternantheras are propagated from cuttings or divisions of roots. Cuttings can be stuck in sand in March or April in a hotbed or greenhouse, temperature seventy to eighty degrees, or old plants can be cut back and the roots divided into small sections at the same time as cuttings, potted in small pots in sandy soil and grown in a hotbed. When quite small they should be shaded from very hot sun.

Maidenhair Ferns

How can maidenhair ferns best be propagated?—C. A., Haldimand Co., Ont.

Maidenhair ferns can be propagated from spores or by dividing the roots. Florists usually propagate from spores or seed. But without the aid of a greenhouse, it would be better to divide the roots. Ferns like a light soil, plenty of drainage and partial shade at all times. —Wm. Hunt, Ontario Agricultural College.

Wintering Geraniums

Would you tell me the best way to save old geraniums after taken up. Some say to hang them up and others say to put in earth.—O. L. B., Lincoln Co., Ont.

The surest method of wintering old geranium plants is to cut the tops back well and pot the plants in sand or sandy soil, or if you have many of them, the roots could be put rather thickly in a shallow box about four inches deep with small holes through the bottom for drainage. The pots or boxes could then be stood in the window or placed in a basement or a cellar at a temperature of forty-five or fifty degrees, and the sand or sandy soil kept moderately moist. They could be potted later into better soil if started in the window. If kept in the cellar they should be brought up in March or April and when started pot into small pots. Hanging the plants up in the cellar is a very uncertain method of saving them.—Wm. Hunt, Ontario Agricultural College.

Dutchman's Pipe

Would *Aristolochia sipho* thrive and flourish planted along a porch on the north side of a residence?—C. A., Haldimand Co., Ont.

The Dutchman's Pipe (*Aristolochia sipho*) would compare as well on the north side of a building as in any other aspect, providing soil and other conditions are favorable. This plant is quite hardy in the neighborhood of Hamilton. I have sometimes found it advisable in very exposed positions to take it down from the trellis and lay it close to the ground during winter.—Wm. Hunt, Ontario Agricultural College.

Treatment of Cannas

After the first slight frost I lifted my cannas and planted them under a bench in my greenhouse and cut off the frosted leaves. In a short time, a fungus, similar to the damping-off fungus, grew on the cut surfaces. I sprinkled sulphur over these growths and it stopped them, but I am at a loss as to how to keep them through the winter. Will it be all right to lift them and store them when dried in a frost-proof cellar??—C. R. R., Peel Co., Ont.

The canna roots should have been dried in a room free from frost before putting them under the greenhouse bench. They should not have been planted at all. Dig the plants up and place them in shallow boxes and dry the roots as stated. Keep them in a temperature from forty-five to fifty degrees, not lower than forty degrees at least. A lower temperature is dangerous. If kept in a dry place, a little sand may be sprinkled over the roots.

Two or three questions and communications, unsigned, have been received recently by THE CANADIAN HORTICULTURIST. Always give name and address.

THE CANADIAN HORTICULTURIST would like to hear from peach growers who have been trying new varieties. Tell what they have done and their probable value for planting.

The Canadian Horticulturist

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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., 1907. 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.

Circulation Statement

January, 1907	4,947	January, 1908	7,650
February, 1907	5,520	February, 1908	7,824
March, 1907	6,380	March, 1908	8,056
April, 1907	6,460	April, 1908	8,250
May, 1907	6,620	May, 1908	8,573
June, 1907	6,780	June, 1908	8,840
July, 1907	6,920	July, 1908	9,015
August, 1907	6,840	August, 1908	9 070
September, 1907	7,080	September, 1908	9,121
October, 1907	7,210	October, 1908	9,215
November, 1907	7,257	November, 1908	9,323
December, 1907	7,500	December, 1908	9,400
Total for the year,	79,525	Total for the year,	104,337

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year over 2,000)

Sworn detailed statements will be mailed upon application.

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EDITORIAL

NAME ACCORDING TO SEX

New creations in fruit varieties should be named in accordance with sex. Many varieties of fruits produce blossoms that are more or less distinct in sexual characteristics. This is particularly true of strawberries. It has been the custom to name new varieties of these before the sex of the blossoms is determined. In many cases, this has resulted in somewhat ludicrous appellations and, to the un-informed, in confusion. Varieties that are bi-sexual in flower should be given masculine names and those that are pistillate, feminine names.

In strawberry plants, there are two types of blossoms, bi-sexual and pistillate. Bi-sexual varieties bear flowers that contain both stamens (male) and pistils (female). These varieties are also called hermaphrodite, perfect, staminate or male. The term staminate or male is not quite correct as the flowers contain both male and female elements. Some of these varieties differ widely in the number and strength of their male organs, the stamens. All of them, however, will bear fruit when planted alone. Pistillate varieties bear flowers that contain pistils only. They are referred to sometimes as imperfect or female. Occasionally pistillate varieties are found to bear a few stamens, but not enough to make it safe to plant the variety alone. The blossoms of all pistillate varieties must be fertilized with pollen from bi-sexual varieties. In our remarks, we shall deal with the two types broadly as bi-sexual and pistillate.

When strawberry plants bloom it is an easy matter to determine this difference in sex. It should be just as easy to determine the sex of known varieties by their names. Of the hundreds of varieties that have been originated or discovered and cultivated in our gardens, many have been given names that are directly opposed to sex and some have names that are neutral. We have bi-sexual or male varieties that have names such as Lady Thompson, Lady Garrison, Annie Lawrie, Empress, Malinda, Margaret and Ella, and pistillate or female varieties named Minute Man, Oom Paul, President and Longfellow. One of the most glaring examples of this point is found in the cases of Mark Hanna, which is pistillate, and Mrs. Mark Hanna, which is bi-sexual. Among the "neuter" names might be mentioned Clyde and Excelsior, bi-sexual, and Crescent and Kansas, pistillate. Scores of similar discrepancies in strawberries could be mentioned. They are to be found, also, in grapes and in all classes of fruits that have sexual differences in their blossoms. On the other hand, many instances of proper naming in this respect can be cited, such as, in bi-sexuals, August Luther, Senator Dunlop, Wm. Belt, Van Deman and Williams, and, in pistillates, Margaret, Mary, Carrie, Nellie Hubach and Kittie Rice.

While it would not be practicable to alter the names of existing varieties, it would seem reasonable to suggest that the names of all new varieties be left in abeyance until the sex of their blossoms is determined and then, if they are worthy of propagation, apply names that in themselves will tell definitely the sex. This is a decade of plant breeding effort and the start only has been made. Varieties are increasing rapidly. We would suggest that new creations in varieties with bi-sexual flowers be given male names and pistillate ones, female names. As the tendency of strawberry growers appears to favor the planting of bi-sexual varieties and as in consequence, these will predominate, even "neuter" names could be given to this class—provided that pistillate sorts are given names that are distinctly female. It would mean much to the plant breeders and growers of the future.

QUEEN VICTORIA PARK

The incompetence of the present management of Queen Victoria Park at Niagara Falls, Ont., has already been noted. Not one of the men who now hold important positions at the park were appointed with due regard being given to their qualifications as gardeners and horticulturists. Not one of them can be considered an authority on horticulture. Furthermore, there are too many "bosses" there. There is reason to believe that some positions have been created to furnish situations for party-heelers.

There is little or no need for an assistant-superintendent. The present holder of this office was a farmer and later a wine merchant, who ran for the local legislature and was defeated. The chief gardener scarcely knows the first principles of plant life. A number of other examples could be cited.

There is need for an improvement in the personnel of the park officials and "bosses." The rapid deterioration that has taken place in the appearance and character of the park in general and of many plants, trees and shrubs in particular, proves the necessity. Unless a change occurs, the park will soon become commonplace. Now that its attention has been called to the matter, the horticulturists of the province will expect the Government of Ontario to see that the management of the park is placed in competent hands.

A BIOLOGICAL DIVISION NEEDED

There should be a re-adjustment of the work in biological science at Ottawa. The regrettable death of Dr. James Fletcher, who labored faithfully for the agriculturists and horticulturists of the Dominion, makes a change possible. For years the work in economic entomology and botany has been conducted, for the most part, on a propaganda basis. The propagation and dissemination of principals and knowledge regarding insects and plants is a primary necessity. It was ably performed by Dr. Fletcher and his associates at the Central Experimental Farm. Not only should this work be continued, but the time has come for an advance. The needs of the country demand more work in original investigation.

The fruit and seed divisions of the Dominion Department of Agriculture need the assistance of a botanist and entomologist. While these divisions and others always have worked in harmony with the Central Experimental Farm, they have no legal right to call upon the farm for assistance. There should be an expert biologist in the department. With a staff of assistants, he could lend the necessary aid to other divisions. The present known information about insects, plant diseases and plants could be spread as formerly. In addition, the biological problems of the country could be investigated by studying the life histories and characteristics of obscure and new forms of animal and plant life and by discovering new methods of controlling those that have to do with the agricultural interests of the Dominion.

In the United States Department of Agriculture, there are scores of experts who devote all their attention to investigation in these branches of science. They have saved millions of dollars to the agricultur-

ists of that country. The time is opportune for undertaking similar work in the Dominion Department of Agriculture. At the start it would be necessary to establish only one division, to include botany, plant pathology and entomology. It could be called the "Biological Division." Its establishment would necessitate a re-distribution of the work. In addition to his other duties, Dr. Fletcher spent much time on weeds and weed seeds. We would suggest that this phase of the work be transferred to the seed division for a while. For some years, Mr. W. T. Macoun, the horticulturist at the Central Experimental Farm, looked after the work in plant pathology. As the strictly horticultural interests of the country are sufficient for one man's endeavor, the investigation work in fungi, at least, should be incorporated in the work of the suggested biological division. There are other subdivisions that could be made in the interests of agricultural and horticultural progress. It would seem that the extension and increase of the work in biology at Ottawa would warrant the establishment of a general division of biology in connection with the Department of Agriculture and that this line of work should be transferred from the Central Experimental Farm to the proposed division.

GRANT SHOULD BE INCREASED

The president of the American Civic Improvement Association, Mr. J. Horace McFarlane, who is one of the best known horticultural authorities on the continent, and who is in close touch with the work that is being done in the various states of the American Union, is authority for the statement that Ontario has the best law relating to horticulture that exists on the continent. Under this law, the membership of the horticultural societies of Ontario, during 1908, increased by about fifty per cent. There are now live horticultural societies in important centres all over the province. These societies are doing a vast work for the improvement of home and public grounds and buildings, and are interesting thousands of people in the growing of fruit, flowers and vegetables.

These societies have reached the stage where, unless their grant is to be materially increased, their work and growth will be seriously retarded. The great increase that has taken place in their membership, is the best indication of the value of the work that they are doing. The societies have decided to ask Hon. Mr. Duff, the Minister of Agriculture for Ontario, for an increase in their grant of from $8,000 to $10,000 a year. Hon. Mr. Duff has had an opportunity of acquainting himself with the work being done by the societies and, for that reason, the officers of the horticultural societies throughout the province, are confidently expecting that their request will be granted.

Horticulturists should take advantage of the short courses in horticulture that are offered each year by the agricultural colleges at Guelph, Ont., Ste. Anne de Bellevue, Que., and Truro, N. S. These courses are held for two weeks in January, and are exceedingly practical. There is no expense other than railway fares and board. It will be worth your while to attend the one that is nearest your locality.

We congratulate *The Farmer's Advocate* on the excellence of its Christmas number for 1908. It is an achievement worthy of the publishers. Handsomely illustrated, pleasing in variety of topics and typographically complete, it is a credit to Canadian agricultural journalism.

Quebec Pomological Meeting

AN enthusiastic convention of the Pomological and Fruit Growing Society of the Province of Quebec was held on Dec. 2 and 3 at Macdonald College. Delegates and friends were present from all parts of the province and some from Ontario. Some valuable papers were read and discussed. The president, Mr. R. Brodie, of Westmount occupied the chair. His opening address will be published separately. The election of officers for 1909 resulted as follows: President, Prof. G. Reynaud, La Trappe; vice-president, Prof. W. S. Blair, Macdonald College; secretary-treasurer, Peter Reid, Chateauguay Basin; district directors, 1, G. B. Edwards, Covey Hill; 2, E. Buzzel, Abbotsford; 3, G. P. Hitchcock, Massawippi; 4, A. D. Verreault, Village des Aulnaies; 5, Auguste Dupuis, Village des Aulnaies; 6, C. P. Newman, Lachine Locks; 7, Dr. W. Grignon, Ste. Adele; 8, H. W. Thompson, Hudson; 9, N. E. Jack, Chateauguay Basin.

President R. Brodie, 1908

An expression of condolence in regard to the passing-away of Dr. Jas. Fletcher was unanimously passed. A resolution was passed thanking Dr. Jas. W. Robertson, of Macdonald College, and his staff for their hearty co-operation in making the meeting a success. It was moved also and passed that, "Whereas this society appreciates the good work that was done at the Dominion Fruit Conference held in March, 1906, and realizes the rapid development that is taking place in the fruit industry of all Canada, and feels that there are yet many problems that require national consideration and discussion to bring about their solutions, be it resolved that this society ask the Dominion Department of Agriculture to hold another conference during the coming winter and that a copy of this resolution be awarded to the Hon. Sydney Fisher, Minister of Agriculture."

THE FRUIT EXHIBIT

The fruit display was the best that has ever been held by the society. With a few exceptions, the quality of the apples was excellent and showed that the province of Quebec can produce some varieties that are equal to and probably surpass similar ones grown in any other part of the Dominion.

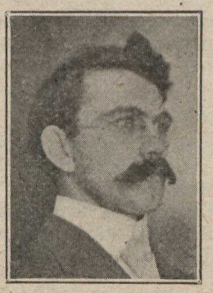
The competition in the class that called for best collections of fruits, brought out a fine lot of apples. The first prize was won by A. A. Johnston, Cowansville; second, R. W. Shepherd, Montreal; third, A. Lalondè, Isle Perrot. About 25 seedling varieties of apples were shown in competition. Many of these were fairly good, two in particular being very promising.

Secretary Peter Reid

For the best winter seedling, Peter Reid secured first prize; A. A. Johnston, second, and C. P. Newman, third. For the best 12 commercial varieties and for six best export varieties, A. A. Johnston won first, Mr. R. W. Shepherd, winning second in the latter class. Mr. R. Brodie, Westmount, won first for the best barrel of apples. For the best box, first went to Chas. Fisk, Abbotsford, second to R. Brodie and third to A. Lalonde. The successful exhibitors in the plate sections were, A. A. Johnston, R. Jack & Son, P. Reid, Chas. Fisk, R. W. Shepherd, A. Lalonde, C. P. Newman, W. L. Davidson and T. A. Bishop. Mr. W. T. Macoun and J. M. Fisk acted as judges. Mr. Macoun also exhibited a large number of fruits originated in Canada and grown in the orchards of the Central Experimental Farm.

CULTIVATION OF ORCHARDS

"The cultivation of orchards in Quebec and Eastern Ontario," was the subject of a practical address by Mr. Harold Jones of Maitland, Ont. The speaker stated that in most sections of the country cultivated orchards are the most profitable. That is the verdict of fruit buyers. Orchards in sod do not bear as much fruit as those under cultivation but they suffer less from injury from cold and freezing. Mr. Jones referred to the methods adopted in his own orchards. He cultivates in spring and early summer and sows a cover crop of red clover or oats about the first of June. During the summer months, these crops do not take as much moisture from the soil as the sun and wind would were the ground left bare. When oats are sown, they are kept cut constantly so as to keep the growth green all the season. In respect to the causes of root-killing, Mr. Jones stated his theory to be that the cambium layer of the wood or the growing tissue is squeezed by the action of frost in the ground. He believed that injury is not caused directly by freezing. If this squeezing is caused three times by alternate thawing and freezing the roots become killed.



Vice-Pres. W. S. Blair

"There are not enough young orchards set out," remarked Mr. Jones. "More of them should be found on our farms. The difficulty is that most men think that it takes too long to wait for a crop. Prepare the ground the fall before as for potatoes and have it well manured. The following spring, set out the trees and plant potatoes between them. Dig the potatoes in October. This will prevent danger of starting late growth, which happens sometimes when the inter-crop is disturbed late in season. In place of growing a cover crop, apply manure at the rate of one load to eight or ten trees." The following year Mr. Jones plows his orchard in spring, levels and plants a low-growing variety of corn. He cultivates to the first of July and then sows between the corn rows 10 or 12 pounds of red clover seed an acre. The third year, the clover is cut early and the after-growth is allowed to stand. The fourth year, the sod is plowed down and the soil cultivated. The rotation is then repeated.

An interesting discussion followed Mr. Jones' paper, during which, Mr. W. T. Macoun, horticulturist of the Central Experimental Farm, Ottawa, said that the most important thing in respect to winter-killing is to have the wood of the trees perfectly ripened in autumn. When this is done, they usually come through all right. "On account of the dry summer of 1908," said Mr. Macoun, "there is not enough

moisture in the trees and there may be some loss this winter. Trees must not go into winter too dry. Root-killing occurs most often in dry soils and is due also to low temperatures." Mr. N. E. Jack, of Chateauguay Basin pointed out that air drainage has something to do with root-killing. Trees in valleys and low places will kill first. Respecting sod vs. clean cultivation, Mr. C. P. Newman of Lachine Locks, said that the color of Fameuse, McIntosh, Wealthy and Alexander is much injured by cultivation. As these varieties are sold largely on the value of their color, it is better to grow them in sod, or at least some compromising system of culture.

SOME NEWER PRACTICES

An interesting discussion on "Some of the Newer Practices in Pomology" was introduced by Mr. N. E. Jack. He advised growers to keep up-to-date in all orchard operations. Mr. Harold Jones touched on co-operation. He said that this system of growing and handling fruits attracts buyers because they can get what they want. It widens the market. It brings higher prices because complete cars can be filled at one time with the stock that buyers want. It economizes in the buying of material for spraying, marketing and so forth. Most important is its influence in improving the pack. Growers that pack co-operatively can pack more uniformly.

"Boxes vs. Barrels," was discussed by Mr. E. H. Wartman, Dominion Fruit Inspector, Montreal, who said that ten per cent. of the export fruit in barrels that left Montreal and Quebec was slack. As 60,000 barrels went forward, this means, estimating a loss of $1 a barrel, $6,000. Barrels are heavy to handle. They are too big for stevedors to carry carefully. As a result, they receive ill-usuage. Boxes are more easily handled. They are the best for the highest grades.

GRAFTING

In a short talk on grafting, Mr. Macoun said that the scion and stock when grafted constitute merely a mechanical union, not an organic one. Sometimes the top will outgrow the stock because not enough sap is supplied. The peculiarity of the stock always remains. There is individuality in trees as there is in animals. Each bud on the tree is really an individual. Top-grafting increases fruitfulness. It may not increase the total amount but it will make the scions earlier in fruiting.

An illustration of individuality in trees was given by Mr. Macoun, who referred to two trees of McIntosh growing in the same orchard. A record for ten years showed that one of them gave in that time 485 gallons of fruit and the other 197½ gallons, making a difference of 287½ gallons. One tree was therefore, two and a half times better than the other. In ten years, the difference amounted to 12 barrels, which, at $2 a barrel, means $24 or a difference of $2.40 in one year. Estimating 40 trees to the acre, this would mean a difference of $96 a year per acre. Many similar cases were cited.

The crab was recommended as a stock on account of its hardiness. Prof. W. S. Blair of Macdonald College said that crab stock varies; the Martha is a strong grower and makes a good stock. Prof. G. Reynaud of La Trappe said that he has had good success in grafting Spy on Transcendent crab. Mr. J. M. Fisk of Abbotsford stated that he has abandoned the crab as a stock on account of its propensity to suckering. Mr. Clark of Massiwippi, cited cases of Spy and Newtown Pippin on Duchess stock which came through a hard winter all right, while those grafted on Longfield killed back. Mr. Macoun pointed out that there is no influence exerted by the stock on the hardiness of the scion. Spys have killed down to the union.

PLANT BREEDING

A valuable paper on "The Principles of Plant Breeding," was contributed by Prof. Wm. Lochhead of Macdonald College. This will be published in full in a latter issue of THE CANADIAN HORTICULTURIST.

Mr. W. T. Macoun, contributed a paper on "Some Results in Plant Breeding," in which he doubted if our friuts in the wild state have made any improvement from an economic standpoint during the last 4,000 or 5,000 years; they might have made some. But when we consider the tremendous development that has taken place in the strawberry since we got the Wilson seedling as a cultivated variety, about 40 or 50 years ago, the improvement is something wonderful. This shows that once a plant is brought under cultivation the advance is very rapid.

The art of cross-breeding was known in the 18th century, but it is only within the last half century that much progress has been made in breeding fruits by this method. Most of the tree fruits in commerce have originated as chance seedlings, or as seedlings with only one parent known. This was not the fault of the method of artificial cross-breeding, but because until recently few men could or would devote the time and the land necessary for the work. With bush fruits and vines it has been different, as less time is needed to bring them to fruition; and with ornamental shrubs, annuals and herbaceous perennials the advances from cross-breeding had been very marked.

The increase in population in cities demanding more food and the increase in competition resulting therefrom, made the desire for better fruit imperative. After a time the government took up the work, and in the last 50 or 60 years it has undertaken to provide the means for carrying on the work, and within that time some of the greatest results have been obtained, some of them by private individuals. More has been done, however, in the production of new varieties of flowers than of fruit. Florists have appreciated the great importance of getting new varieties for commerce, and as they were able to produce flowers in shorter time than shrubs and fruits, they went to work and obtained improvement in orchids, gladioli, cannas, begonias, phlox, roses, deutzias, lilacs, and so forth.

Mr. Macoun referred to some of the Canadians and others who have been prominent in plant breeding—Dr. Wm. Saunders, who began working in 1868 on the gooseberry, red and white currant, raspberry, blackberry, grape and apple, as well as several species of flowers; Charles Arnold, Paris, Ont.; P. C. Dempsey, Cobourg, Ont.; W. H. Mills, Hamilton, Ont.; Wm. Hoskins, Hamilton, Ont.; James Dougall, Windsor, Ont.; E. S. Rogers, Roxbury, Mass.; T. O. Munson, Denison, Texas, and Ephraim W. Bull, Concord, Mass. He touched, also, on some of the men who had been prominent in flower breeding—Lemoine, Eckford, Crozy, Groff, Dickson, and Ward. We have heard much, he said, of Mr. Burbank's work, but he did not think that it compared in value with the work of those he had mentioned. Burbank's results have been largely confined to the western parts of America. Practically none of his introductions have had a large reputation, so that, although we have heard a great deal about him, we should always remember that there are other men who had done more for plant breeding from an economic standpoint than Burbank has up to the present.

A Part of the Quebec Pomological Society's Fruit Exhibit

Mr. Macoun called attention to the work which had been done at the Central Experimental Farm, under the direction of Dr. Saunders, and concluded by saying that he was a great believer in plant breeding. He was of the opinion that they would in time get apples which would cover the season in this part of Canada and in others, apples of the finest quality and of the highest color. That is what they are working for at the farm.

In a discussion that followed Mr. Macoun's paper, Mr. A. B. Cutting of THE CANADIAN HORTICULTURIST suggested that new varieties of fruits that are more or less distinct in sexual characteristics be given names that coincide with sex. He pointed out that many varieties of strawberries in particular have been wrongly named in this respect and that it would be better to give bi-sexual or male varieties, male names, and pistillate or female varieties, female names. This point is referred to at greater

length in the editorial columns of this issue of THE CANADIAN HORTICULTURIST.

A BUSY MAN'S GARDEN

A talk on "A Busy Man's Garden," was given by Mr. R. B. Whyte, Ottawa, who remarked that a garden was a part of the home and, therefore, should be so arranged in summer that the owner could live for a large part of the time out-of-doors. Consequently, a certain amount of privacy was needed. It should not be open to the public. It should be a place where a person could grow that in which he was most interested. Some grow vegetables, others fruit and others flowers. To be complete, more or less of the three should be included.

How can a garden be made to fill these conditions? In the first place, a point very much overlooked was that of having wide, roomy paths, which must be soft to the feet and dry, clean, and easily kept clean, Secondly, there must be pleasant resting places here and there. It is important to have summer-houses in suitable and proper places, where a person could sit down and read, or pass the time in any way he wished. Thirdly, time being limited, it is important to have labor-saving tools and to always have them sharp and ready for use. The things worth growing in such a garden are the best of vegetables and fruits, but it does not pay to grow turnips or potatoes.

The great interest of the garden is the flower department. Grow such flowers as will give a continuity of bloom all summer and up to the time of frost. They should be grown in masses, as this gives an idea of the mass of color and beauty. They should be grown for quantity, garden decoration and cutting. For best results spring and summer bulbs are required, also bedding plants, annuals, perennials and climbers. For early flowers, Dutch bulbs are necessary. In May the first perennials come into bloom, and June, which is the great flower month, is the month for the iris, rose and peony; in this month, too, the first annuals come.

"One of the great problems in a garden," remarked Mr. Whyte, "is to have no waste ground; things should be coming up all the time." He spoke of the pleasure he experienced when in England last spring in visiting some peony gardens and seeing the wonderful improvement that had taken place in the last two or three years in the size and color of peonies. He said that 25 years from now everybody would be growing peonies.

MISCELLANEOUS

A valuable paper on "Young Trees vs. Old Trees," was read by Prof. G. Reynaud. It is published in full on page 3 of this issue. An address on "The Antiquity of Certain of Our Cultivated Fruits," was given by Prof. F. C. Harrison, of Macdonald College. "Insectivorous Birds," was dealt with by Dr. John Brittain, of Macdonald College. "From the Garden of Eden to the Gardens of St. Anne's," was the subject of a pleasing address by Dr. J. W. Robertson. These will be referred to at greater length in subsequent issues. Those present at the convention expressed themselves highly pleased with the success of the meetings and with the reception afforded them by the staff of the college.

An index to Volume XXXI of THE CANADIAN HORTICULTURIST has been prepared. Copies will be sent to all readers that request them.

There is money for you in securing new subscriptions for THE CANADIAN HORTICULTURIST. Write for our terms to agents.

Western Market for Fruit

(Continued from page 1)

Representatives of western firms have this year bought very largely in Ontario on the f.o.b. plan, subject to inspection by the buyer at shipping point. This method has given entire satisfaction both to buyer and seller. As evidence of the fact that the western consumer desires fruit of first quality and that a suitable article can be procured in Ontario, we may say that the Norfolk County and Forest Co-operative Associations have sold 14,000 and 5,000 barrels respectively, in this way this season. Prices secured were very satisfactory. In this connection, the fact is worthy of note that the westerner is a free buyer and is more willing to pay a good price for an article which suits him than is any other class of customers within our reach.

MUST PACK HONESTLY

As further evidence of the wisdom of careful grading and honest branding, the following is quoted from a communication dated November 3rd, 1908, received from a Winnipeg firm: "We had three cars from the Georgetown Fruit Growers' Association. The first car made them very little money; the second improved quite a little, the buyers getting next to the brand, and the third car sold to good advantage. It was fifty per cent. No. 2, and is going to net them back $2.35. We are using this to show what it means to the shipper to have stuff properly graded, packed and branded. We have other shippers who have marked their stuff No. 1, and whose apples will average them only from $1.00 to $1.50 a barrel. This is my best explanation regarding packing, grading and branding."

TRANSPORTATION AND RATES

Other problems which relate themselves to this subject are those connected with transportation rates, express and freight service and the customs tariff. In point of time Ontario is nearer Winnipeg than are California, Washington, Oregon and British Columbia. The new route of the C.P.R. places Winnipeg within thirty-six hours of Toronto by express. British Columbia shipments reach the same market in three days. The same rate of charges is paid in either case, $2.00 per 100 pounds in carload lots, and $2.40 in part car lots

By freight, the average time from Ontario points to Winnipeg is five and three-quarter days, while from Oregon and British Columbia the time required is from six to eight days. The freight rate from points in Ontario to Winnipeg on fresh fruit in boxes, baskets or barrels and also on vegetables when shipped as part carload of fresh fruit is 66 cents a cwt. To Brandon the rate is 86 cents, and to Regina 126 cents. On straight car loads of apples in either boxes or barrels, the following rates apply from Ontario points to the west: To Winnipeg, 55 cents; Brandon, 68 cents; and Regina, 83 cents. The foregoing tariffs are for all-rail shipments.

By lake and rail, the following rates apply: To Winnipeg, 48 cents, and to Brandon, 61 cents. From points in British Columbia to Regina, Brandon and Winnipeg, I am informed that a flat rate of 100 cents a cwt. applies. From points in Washington and Oregon along the O. R. & N. the rate to Regina is 124 cents. From these points to Winnipeg there is a competitive rate of 118 cents.

Our western competitors for the markets of the prairie provinces enjoy no advantages in the way of transportation facilities. The ventilated or "blower" express cars are in common use here as well as there, and are very satisfactory. It is felt, however, that the rates charged on Ontario shipments are rather out of proportion to those asked of British Columbia shippers. For shipment by freight of summer and early fall fruits, including early apples, refrigerator cars are used. Excellent results have been secured by re-cooling this class of goods. For long distance shipments in warm weather this operation is coming to be regarded as essential. Mr. Robert Thompson, manager of the St. Catharines Cold Storage and Forwarding Co., states that peaches handled in this way can be laid down in Winnipeg in good condition, and at a moderate cost. Large quantities of fruit go forward during favorable weather in the fall in ordinary box cars. After Nov. 1st, however, there is danger of frost, and refrigerator cars are again resorted to. A sufficient supply of these is not available at this season, however, and as a consequence heavy losses often occur. From a circular issued by the C. P. R. to shippers and consignees, I quote the following regarding the handling of green apples, via lake and rail from eastern Canada to Manitoba, Saskatchewan and Alberta: "The Canadian classification provides for the carriage of green apples at owner's risk of freezing and prepayment of charges between Nov. 1st and April 30th.

"Notice is hereby given to connecting steamer lines, shippers and consignees that the railway companies will not assume responsibility for damage to green apples by frost, delivered to them at the above ports (Duluth, Fort William, Port Arthur, and West Superior) at the head of the lakes, on and after Nov. 1st, nor will the railways guarantee to furnish refrigerator equipment for all such traffic, it being impossible to do this owing to the practice of confining the shipment to a short period late in the season. Railways will, however, as far as possible, supply refrigerator cars and permit the owners of such apples to equip these cars with their own means of heating. When box cars are used, the owners will also be permitted to line and place stoves or other means of heating in them, providing that in so equipping the cars with heating apparatus, damage will not be caused to cars. The railway company will also furnish free transportation for attendants accompanying cars for the purpose of looking after the heating and will return such attendants to the starting point free of charge."

As a matter of fact, a shortage of cars usually exists by the all-rail route as well. It is, of course, practically impossible to equip a box car with heating equipment sufficiently to render shipment in cold weather reasonably safe. Refrigerator cars themselves are not safe in severe weather, and it will be one of the problems of the future to devise methods of avoiding frost injury to late fruit intended for distant markets.

Mr. A. C. Macpherson points out that at the present time the export trade is receiving favors in the way of relief in icing and cold storage charges from the Dominion Government, and that inter-provincial trade would also seem to merit similar encouragement.

THE TARIFF

Following is a statement of the customs tariff at present in force on fresh fruits entering Canada from the United States: Bananas, plaintain, pineapple, etc., free; oranges, lemons and limes, free; blackberries, gooseberries, cherries, strawberries, and currants, the weight of the package to

be included in the weight for duty, 2 cents per pound; cranberries, plums and quinces, 25 per cent.; peaches, weight of package included, 1 cent per pound; grapes, 2 cents per pound; pears, apricots and nectarines, 50 cents per 100; apples, per barrel, three boxes estimated as one barrel, 40 cents each.

MR. E. D. SMITH'S OPINION

From a letter recently received from Mr. E. D. Smith, Winona, Ont., I quote the following: "The west is an outlet which enables us to very largely increase our acreage in many lines of fruit. Our chief difficulties are the high express rates and the low duties. If we had high duties or low express rates we could capture nearly the entire western trade for peaches and plums, which would amount to hundreds of thousands of dollars annually, but betwixt the low duties and the excessively high express rates we are seldom able to compete with California peaches and plums laid down there by freight under a low duty. In grapes we have a high duty amounting to practically 200 per cent. What is the consequence? The consumers are able to buy grapes as low as 1½ cents a pound, so they are not hurt very badly by the prohibitory tariff. The consequence is, however, that we are able to grow a sufficiently broad acreage to supply the entire wants of the Canadian public from ocean to ocean. That is the way it should be in peaches and plums. On articles such as grapes, pears and apples, which we can lay down by freight in the north-west, we have no difficulty in competing except in the early part of the season. Even in these fruits with higher duties we would secure a greater share of the market, which would mean our ability to plant increased acres and not hurt the consumer one iota if our fruits are in the market."

ESSENTIALLY FOR ONTARIO

A careful summary of western market conditions, competition and transportation problems, cannot but lead one to the conclusion that the western market logically belongs, in great measure at least, to Ontario. It only remains for Ontario men to come to an appreciation of the opportunities which are opening to them in that vast new country and to make united and intelligent effort in order to secure their proper share of that important trade.

Gum on Peach Trees

The alarming increase in the number of gum exudations on peach trees in the Niagara district during the past season brought about an investigation into its causes by Mr. L. Ceasar, O. A. C., Guelph. It was found that brown rot of the peach and plum is the chief cause. The following ways of preventing the trouble are therefore suggested:

1. Be sure to remove as soon as possible all mummied fruit, not only from peach trees but also from plum trees near by. These should be collected and burned and not left on the ground. Such fruit should be destroyed each season as soon as possible after picking has been completed.
2. In the spring of the year prune off all diseased twigs and open up the trees to the sunlight and air.
3. Spray with lime-sulphur before the buds open. Cover every part of the tree thoroughly.
4. Thin the fruit. Where peaches touch each other the rot gets a better chance to thrive.

Many American peach growers claim to have done much to keep off the rot by summer spraying with the commercial lime-sulphur or with the self-boiled lime-sulphur of half the ordinary strength

Where trees have been badly attacked this year it will pay to spray them this fall with Bordeaux mixture to destroy the spores in crevices and in the old diseased parts.

About Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—Surely the Ontario Government is not going to allow politics in any way to influence the appointment of a Parks Commissioner or Superintendent for Queen Victoria Park! That would be a calamity. There should be a general superintendent, who would have charge of the work and oversight of things in general, and also one of the best landscape architects that can be procured. Should the latter's time not be fully occupied in Queen Victoria Park, there are other public grounds owned by the government that need the attention of such a man. The government should have an A1 landscape architect in its employment, who would lay out and make plans and specifications of any grounds for any city or town who might want such services.

The possibilities of this Queen Victoria Park are very great. Few realize its importance and possibilities. The situation is unique. The park is visited by tens of thousands of tourists every year from all parts of the world. It should be made a model, not so much in fine detail, as in general lay-out and planting of trees and shrubs for landscape effect.

While the shrubbery is very fine (what there is of it), there are not the varieties there that there should be, neither are there many varieties of trees. Both trees and shrubs should be the leading features of this park. Highland Park, Rochester, N. Y., has some 1,400 varieties of shrubs in it. Why should not Queen Victoria Park have quite as many? Every tree, native and foreign, that will stand the climate should be there.

When such cities as Chicago, New York and Detroit, can spend 50 to 60 cents per head of population per annum on their parks, park-ways and boulevards, surely the wealthy province of Ontario should spend a few hundred thousand dollars on a national park. Queen Victoria Park should be made one of the most attractive features for visitors to Niagara Falls.—John S. Pearce, London, Ont.

Re Queen Victoria Park

Editor, THE CANADIAN HORTICULTURIST:—Your editorials in recent issues are right to the point. Owing to the favorable climatic conditions, Victoria, on Vancouver Island, and Niagara Falls, Ontario, seem to be the best spots in the country for botanic gardens or, at least, for horticultural gardens—the one for the Pacific half of Canada and the other for the Atlantic half. The writer has never visited Victoria, but believes that there is something of the sort already there. It would be interesting if one of the correspondents of THE CANADIAN HORTICULTURIST would give some description of these gardens and also something about the management of them. Mr. Roderick Cameron, before leaving Queen Victoria Park, at Niagara Falls, for Toronto, did good work on these lines, and had collected there a most interesting collection of herbaceous plants, trees and shrubs, probably the best, if not the largest, collection in the country.

From current reports it is to be feared that this collection has sadly deteriorated during this year, an effect of the sinister workings of politics, the introduction of which into these matters must be deeply lamented by all interested in horticulture. The politicians possibly are unaware of the mischief done, but if so no time should be lost by the horticulturists of the country in acquainting them with the facts of the case.

The best man in the country should have charge of this magnificent park (Queen Victoria). The "best man" will have no time and most likely no inclination either

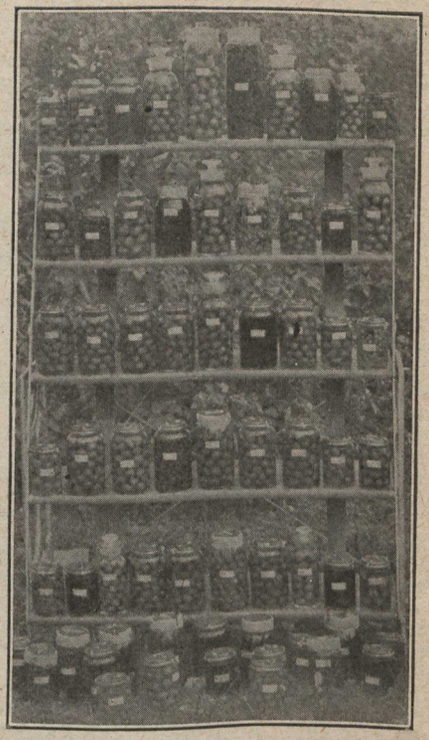
to dabble in politics or anything else outside of his own profession. The possibilities of the place, its beauty and grandeur should so fill his mind and fire his imagination that he would give his life to the bringing forth of his conceptions, and the exercise of his knowledge.

Niagara Falls is the Mecca of all tourists to this continent from other lands as well as to those of the continent. Is it not, therefore, up to the government, which owns the border of the river from lake to lake to keep up and improve the national attractions of the place to the highest possible degree?—*Veritas vincit.*

On account of the drought last season, strawberry plants made poor growth and the strawberry next summer probably will be a scarce article. Growers will plant largely, therefore, for the following year. They will be able to sell all that they can produce for the two succeeding years. Plant only the best varieties from stock of the best strains. Only the best is grown by the R. M. Kellogg Co., of Three Rivers, Mich. Read their advertisement on another page.

Nova Scotia Fruit

The Nova Scotia Department of Agriculture sent a large display of fruit to the Royal Horticultural Show in London, England. Besides the fruit in packages, an excellent exhibit of small fruits bottled in antiseptic solutions went forward. About 200 jars were put up mostly by growers in the counties of Hants and Kings. Mr. Peter Barrett, of Truro, N. S., bottled a large collection of gooseberries and currants of many varieties grown by himself from bushes of imported sorts and many that he has originated. A portion of the lot is illustrated on this page. A list of the Nova Scotia prize winners is published elsewhere in this issue. In a letter received by THE CANADIAN HORTICULTURIST from Mr. Barrett, the following point is well taken:



Small Fruits Bottled in Preserving Solutions

"At our provincial and local exhibitions there is very little encouragement for this class of fruits. It is to be regretted. The

prize money offered will not pay for the cost of fruits preserved in this way, which includes cost of jar, solution, fruit, labor and so forth. The small fruit industry is worthy of more encouragement."

Toronto Vegetable Growers

A meeting of the Toronto branch of the Ontario Vegetable Growers' Association was held on Dec. 15, the president, Thos. Delworth, occupying the chair. A large number of the members were present. The annual report was presented by Secretary Frank F. Reeves, showing a membership of 136, and balance on hand of $210. It was decided to hold a monthly exhibition of some vegetable to be selected for the occasion; only members can compete. Prizes for Yellow Globe Danver onions exhibited at this meeting were won by: 1st, J. G. Brown; 2nd, Frank F. Reeves; 3rd, James Dandridge, all of Humber Bay.

The election of officers for 1909 resulted as follows: President, Thos. Delworth; Weston; vice-president, James Dandridge, Humber Bay; secretary-treasurer, Frank F. Reeves, Humber Bay; provincial directors, J. W. Rush, John McKay, Jas. Dandridge, Frank F. Reeves, H. J. Sharpley, and Thos. Delworth; executive committee, H. G. Carter, J. W. Rush, H J. Sharpley, John McKay, James Stevens, Frank R. Reeves, and Thos. Delworth; representative on Canadian National Exhibition Board, Thos. Delworth.

I have been a subscriber to THE CANADIAN HORTICULTURIST since its second year. It has more than kept pace with the general advancement in horticulture, and is unquestionably the best paper in its line that reaches me.—Watson C. Orr, Wentworth Co., Ont.

Dipping Nursery Stock

Dipping nursery stock in lime-sulphur wash or other insecticides has recently been much advocated as a substitute for fumigation with hydrocyanic acid gas The Agricultural Experiment Station at Geneva, N.Y., finds, however, that this treatment, if used at all, must be handled with care to secure scale destruction without injuring the trees. With the sulphur wash, exposure of the trees for too long a time or at too high temperature resulted in injury; while with any of the materials used, exposure of the roots to the mixture resulted in serious injury to the stock.

For nurserymen, the station still recommends fumigation as most effective and least liable to injury; and would advise orchardists to use the lime-sulphur as a spray after the trees are set, rather than as a dip when they are received.

Large orders for Nursery Stock.—As an illustration of the expanding business of Mr. M. J. Henry, the foremost nurseryman of western Canada, it might be mentioned that recently shipments were made from his head nursery, 3010 Westminster Road, Vancouver, to St. George, Bermuda, to China, and to Bellray Castle, the home of Sir Arthur Middleton. Mr. Henry recently supplied also the full order for ornamental trees, shrubs and vines for the Empress Hotel, Victoria. This order was secured in open competition with many outside points. The total weight of the shipment was over four tons, probably the largest shipment ever sent to a single purchaser on Vancouver Island. This is only another instance of the phenomenal development of this great industry.

Did you ever read "The Hoosier School Master?" This book would make a splendid Christmas gift. See the advertisement elsewhere.

NOTES FROM THE PROVINCES

Nova Scotia

Eunice Watts

Nova Scotia has again been carrying off medals for apple exhibits at the Colonial Fruit Exhibition in London. The government collection was awarded a gold medal while private exhibitors having more than 15 boxes were awarded as follows: Silver and gilt Hogg medal, F. A. Parker, Berwick; silver and gilt Knightian medals—W. H. Woodworth, Berwick, and H. A. Blanchard, Upper Dyke; silver Hogg medal, J. Howe Cox, Cambridge; silver Knightian medals—H. D'Almaine, Wolfville; R. J. Messenger, Tupperville; J. A. Kinsman, Lakeville, and F. H. Johnston, Bridgetown; silver Banksian medals—A. L. Morse, Berwick; E. T. Neilly, Middleton, and F. Foster, Kingston; bronze Banksian medals—Berwick Fruit Company, Berwick; William Sangster, Falmouth, and Ralph S. Eaton, Kentville. Those persons exhibiting less than 15 boxes were not awarded prizes, but their exhibits were to be sold with the rest. Very favorable comments with regard to the Nova Scotian exhibits appeared in the English papers.

The apple shipments from Nova Scotia to the end of November were as follows: Shipments to Newfoundland, U. S. A. and local ports, about 78,000 barrels; to the British Isles—London, 161,190 barrels; Liverpool, 64,662 barrels; Glasgow, 21,590 barrels; a total of 227,442 barrels, as against 199,435 sent in the same period last year to the Old Country. The last returns for apples showed a drop of about two shillings in the English markets.

Western Annapolis Valley

R. J. Messenger

Apples are looking up. As high as $2.50 a barrel has been paid for Baldwins, which variety seems to be regaining popularity after being in disfavor for some five years. One buyer told me that he would pay more for Baldwins this year than Nonpareils. This last named variety has generally been conceded one of the highest selling varieties. Not such a general purchase of all varieties is noted this year as last, but buyers are buying only as each variety becomes seasonable for shipping. They are much more cautious than usual.

The bud moth scare seems to have given place to the fear that our orchards may be devastated by canker worms next year. During the past summer several orchards in Kings and Annapolis counties were more or less defoliated by the canker worm and it has become quite fashionable among orchardists, good, bad and indifferent, to paint a strip of bark around the trunks of their trees with a mixture of resin and castor oil to catch the female as she ascends the trunk to lay her eggs. This treatment, with a thorough spraying next summer with poisons, will eradicate this pest.

Send fruit news for publication.

The wonderful results to be obtained by the use of potash in growing strawberries are shown on Page IV.

Turn to Page IV and read the special offer of Dupuy & Ferguson Seed Co., of Montreal.

FOR SALE AND WANT ADVERTISEMENTS

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.

FARM WANTED.—Anyone having good farms for sale may find cash purchasers by sending description and price at once to Buyers' Co-operative Company, Minneapolis, Minnesota.

STRAWBERRY PLANTS FOR SALE.—Twelve standard varieties. First class, well rooted plants, $2.50 per 1,000; 40 cents per 100, post paid. Send for list. Ontario Nurseries, Wellington, Ont.

At the convention of the Ontario Fruit Growers' Association, very favorable opinions were expressed as to the splendid results received from the use of "Niagara Brand Lime and Sulphur." The Niagara Sprayer Co., who make this material have an advertisement on another page that is worth reading. They have a staff of experts on spraying that are always willing to furnish free information to those desiring it.

Fruit growers in Canada will be pleased to learn that one of the largest manufacturers of Spray Pumps in the United States has opened a Canadian branch. This move has become necessary owing to the great increase in the demand for "Gould Pumps" in Canada. The reputation of this company in the United States as makers of high-grade pumps, is unquestioned and doubtless their name will soon be a household word among Canadian fruit growers, as it now is among the leading United States growers. Their Canadian address is Goulds Pump Co., Coristine Bldg., Montreal. See their advt. on another page.

Apterite.—In reference to Apterite, I feel sure that it is destined to become a useful and necessary article in the production of all plant life. I have tried it on several plants and the results are good. Begonia Gloire de Lorraine potted into five and six-inch pots in soil in which Apterite was used, gave very fine results and seem to hold their flowers much longer than usual. A few young crotons were tried with Apterite and give promise of fine growths, with no signs of insect life. I have no hesitation in saying that I feel sure that Apterite will be much used in the production of all horticultural produce with good results in the near future.—(Signed) E. F. Collins, Secy., Toronto Gardeners' and Florists' Association.

At the Colonial Fruit Exhibition in London, England, in November, British Columbia won many prizes. Among the winners of medals were: Thomas G. Earl, Lytton; Kamloops District; Kaslo District Agricultural Association; Summerland District; Mrs. J. A. Smith, Spence's Bridge; Salmon Arm Farmers' Exchange; Victoria District; Salt Springs Island; Jas. Johnstone, Nelson; Jas. Gartrell, Summerland; and Chilliwack District.

The New Brunswick Fruit Growers' Association will hold its annual convention at Fredericton, on Jan. 14, and 15. An interesting and valuable meeting is being looked forward to. Among the speakers will be Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa, and Mr. G. H. Vroom, Dominion Fruit Inspector, Middleton, N. S. The New Brunswick Cold Storage Co. will be represented and a number of small fruit growers are preparing papers. All persons in the province shoud plan to be at this meeting. For further particulars write the secretary Mr. S. B. Hatheway, Fredericton, N. B.

The big apple show held at Spokane, Wash, was a great success. It was the largest show of its kind ever held in the world. British Columbia, to her credit, secured about 1-7th of the $35,000 offered as premiums. About $5,000 of this was won by Mr. F. R. E. DeHart of the Kelowna district. Lack of space prevents the publication of a full account of this big show. It will appear in the February issue.

The Nova Scotia Fruit Growers' Association held its annual convention last month at Middleton. Many important papers were read which will be referred to in later issues. A resolution was passed asking for a better tariff arrangement with Germany. The officers for the ensuing year were elected as follows: Pres., Miles Chipman; senior vice-pres., E. E. Archibald; sec., S. C. Parker; asst.-sec., J. H. Cox; treas., George W. Munro. The county vice-presidents remain practically the same.

Poultry Notes

At this time of the year, the question to be settled is very frequently, "which is the best cockerel to keep for next spring's breeding?" Too often, the largest male is reserved, or if one is purchased, the largest is chosen on the principle of getting the most for one's money. In no case, should the preference be given to any male that is large or overgrown to clumsiness. Do not use one that is abnormally large in any section. Some males have very long ungainly legs. With long legs usually there is a very long neck or mis-shapen body. This extra size is only attained by extra feeding or over-eating which takes extra or longer time to develop, especially in the American classes.

These are very undesirable qualities to breed into a utility flock. A slovenly male begets lazy females. Lazy females are indifferent layers. All males have their own characteristics. Some are dull, slow moving, greedy birds, (usually the overgrown) while others are sprightly, quick in action,

graceful and symmetrical. These are the medium-sized well-balanced, even proportioned birds, full of life and vigor—the males that, when mated will not eat themselves until they know that the hens have had plenty. Provided these birds are not too small, they are the ones to use for breeding purposes.

It will be noticed that these cockerels are usually the first to begin to crow, which indicates that they mature more quickly than their long-legged brethren, which means that females bred from cockerels of this build and disposition will mature more quickly and lay earlier than those bred from larger-sized phlegmatic parents.

From reports, the recent stock show at Guelph last month, was larger and better than ever before, particularly in the poultry department. There were exhibited over 4,000 pure-bred poultry, chiefly from Ontario. This shows an increase over last year; in fact, year by year shows increases in nearly all poultry shows. Probably the value of these birds in the aggregate would amount to $25,000, a conservative estimate placing the value of each bird on the average at about $5 or $6 each. Of course, there would be about 100 of these worth $50 each and others not worth five. The growth of fancy poultry breeding in Ontario prevails likewise in the other provinces of the Dominion and indicates, in a measure the value of the poultry industry to the Dominion.

Cut This Out - - Then Fill It In

MAY we ask a slight favor of you? There are no doubt several persons of your acquaintance who are interested in Horticulture, and who would like to see a copy of **The Canadian Horticulturist.** Will you fill in, on the form given below, the names and addresses of **Ten** such persons, cut it out and send to us. We will agree to send these people free of charge, a copy of the next issue of **The Canadian Horticulturist,** ***and to extend your own subscription Three Months Free of Charge.*** In addition to this, if you are willing to see these people and try to induce them to subscribe, ***we will allow you a generous commission*** on all subscriptions we may receive through your efforts.

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