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Bearing vs. Non-Bearing Wood for Propagation

Joseph Tweddle, Fruitland, Ont.

FOR several years trouble has been experienced by many orchardists because their fruit trees fail to set good crops of fruit, and even in the case of a light crop, they may have a failure as to color and quality. The Northern Spy is, perhaps, the most common example of this. In most cases it fails to bear for 15 or 20 years, and then only responds with light crops of overgrown, colorless, punky specimens, without keeping quality. Other trees, and sometimes parts of Spy orchards, frequently come into bearing at six or eight years of age and bear regularly from that time on, producing medium-sized, sound, well-colored fruit, of excellent keeping quality. Some orchards of Spy trees have been procured, part from one nursery, and part from another, and after coming to maturity have presented these two extremes of bearing qualities, thus presenting a problem to the grower as to the cause of this great variation. Nevertheless, with the light of recent developments in the science of propagation, the solving of this problem is not such a difficult task.

Experiments have shown that in top working young trees with scions taken from Spy trees of the heavy bearing type, crops of good, sound, highly-colored fruit have been produced in a very few years, and the trees have continued to bear regularly. This clearly indicates the source of the trouble with these non-bearing orchards. The practice of so many nurserymen in propagating their trees from block to block in the nursery, taking the wood from the older blocks and grafting or budding the young trees year after year, probably in some cases without a break for 20, 30, 40, and even 50 years, is nothing more nor less than a perfect method of breeding non-bearing trees.

It must be patent to the ordinary observer that this is the source of the trouble. Not only is this tendency developed in the Spy apple, but, also, in all the moderate bearing varieties, such as Baldwin, Greening, Russet, and others. It is also true with the moderate bearing varieties of plums, peaches, pears, cherries, and even currants, especially the good old Black Naples, all of which come from the same source. The Black Naples currant is perhaps the most notable example of this. The country has been flooded with plantations of great, strong growing, barren plants of this variety, and after being cared for by years of patient toil, they have been found to be useless and had to be destroyed. Here and there, however, plantations of this variety are to be seen showing variations in productiveness, all the way from prodigious to medium, poor crops, and perfect failures.

The source of this, too, is not hard to find. This splendid variety when first disseminated was in great demand, on account of its all round excellent qualities and was procured at high prices, but in limited quantities, by the leading nurserymen. These were planted out in rank growing soil for propagating purposes only. These plants are known as stools, and the wood is cut off from year to year near the ground, so close that no fruit can be borne. This permits the energies of the bush to be expended in wood growing only. Wood is cut in this way from year to year, continuing in some cases for many years and the wood used for propagating.

Is it any wonder that we have the present conditions from such methods? Let us look at it more definitely. Is it not reasonable to conclude that these stools would naturally produce plantations less and less productive until entirely run out? Further, if these various plantations are the source of propagation of other plantations, would they not produce the same degree of unproductiveness as they themselves show? It was the writer's experience, several years ago, to have to purchase 1,000 Black Naples bushes from a reliable United States firm. They were guaranteed true to name, or money refunded. These plants were used to fill orders from growers. In due time they returned and demanded the refund of their money, as they all turned out to be this same worthless, non-bearing stock. Of course we were compelled to pony up, but on application to the producer, the head of the firm replied that this could not be, as he bought the original stocks from the introducer and had ever since propagated from the original stools. Since they were used exclusively for wood production, they must be true to name, but I was just as convinced that they were as untrue to the original type as possible. Another nurseryman told me he cut 20,000 cuttings from a row 20 rods long. We must conclude that this is an easy way to get wood for propagation, but to the grower, an impossible way to get fruit.

Would it not be well that a series of experiments be entered into and conducted by the Ontario Government with a view to the final and definite solving of the problem in its minutest detail? We do not think that the nurserymen are entirely to blame. Trees grown for years in succession from wood procured from nursery blocks, are much straighter and thriftier than those produced from scions taken from heavy bearing trees of the original type, and in nine cases out of 10 the grower will select the straight trees grown from the nursery wood and refuse the less thrifty looking trees, produced from wood off bearing trees. There is little encouragement for the nurserymen to take the proper course. Millions of dollars would be saved to Canadian fruit growers by a complete change of methods.

In the Ozarks region of Missouri and Arkansas if apples fail to bear at four or five years of age the foremost growers are resorting to the method of girdling the trees in June when the sap is thickening. A strip of bark two inches wide is peeled from the trees, girdling them just below the branches where it is most shaded from the sun. In 10 days or so

To the Forefront

"I feel impelled to say that THE HORTICULTURIST has rapidly sprung to the forefront as the best all-round periodical devoted entirely to horticulture which I receive; and I get them all. Follow out that aim and Canada cannot help being proud of you."

A. E. BURKE,
Pres. F.G.A. of P.E.I.

the thickening sap forms a new bark, but during this period the returning sap is by this means forced into fruit bud development for the next year's crop.

When the new bark is formed the tree carries on its natural process till the end of the season. This has a tendency to age the tree and throw it into regular bearing. They are following this process from year to year, and the highest authorities claim that they are getting the best results. Although it shortens the life of the tree, they get their profits in a shorter time with much less expense. It might be worthy of trial to test this on a small scale in these barren orchards, especially of Spy apples. It might be well to girdle a branch or two before going any further.

Various causes bring occasional failures under good care but not continuously with good bearing trees. Sufficient attention is not given to proper selection by the nurseryman when propagating, and the grower when purchasing must remember that the straightest tree may not be the most productive.

A Glimpse at the Cranberry Situation*

J. S. Bishop, Nova Scotia

PREVIOUS to last season, the last six or seven years have been full of discouragements and disappointments to our cranberry growers, so much so that very little effort has been made during this period either in the planting of new bogs, or keeping in repair the old ones. However, those who were not wholly discouraged were at the front last year with a snug crop of berries of most excellent quality. About 2,000 barrels of this fruit were packed and put on the market, where it met with a ready sale for from five to six dollars a barrel.

The failure of the vines to give a crop began with the coming of the fire worm. We were several years learning how to handle this pest. By the time this trouble was fairly under control we experienced a succession of frosty seasons, that either destroyed our prospect of fruit by killing the buds just before coming into flower, or chilling the berries early in September before they had attained a sufficient degree of hardness to withstand the cold that later would have helped to ripen them.

In the fall of 1902 we had every prospect of a good crop of berries up to within about 10 days of picking, when the sharp frost of September 6 nearly ruined them, so instead of a crop of 3,000 barrels or more, scarcely 300 came to maturity. Almost the same condition prevailed the following year.

Since then we have discovered a practical method of protecting the crop from early fall frosts, by covering lightly with coarse hay or straw. Hay is preferable, it causing less litter. About one and one-half tons to the acre is sufficient. This covering can be applied to the vines just before a frost is expected and allowed to stay during the remainder of the season. The berries then will continue to grow and ripen for three weeks or longer, thus extending the time of picking, besides giving a larger and much better quality of fruit. This method was put in practice by many of our growers last season and was the means largely of saving the crop.

*A paper read at the last Annual Convention of the Nova Scotia Fruit Growers' Association.

Another very important idea has come to us of late in the way of gathering the fruit. The principle was first discovered by the Cape Cod cranberry growers three or four years ago, and is now in common use there. By the means of a large scoop the berries can be picked quickly, and at a cost of not over 10 cents a bushel, whereas by the old way of picking by hand the cost is from one to one and a half cents a quart.

The vines are trimmed and fitted for the picking the previous fall, with an instrument something like a hand rake, with sickle-shaped knives in place of teeth. By drawing this in the same direction all over the bog, the cross laterals are cut, admitting the easy working of the picker or scoop in the same direction. This scoop, with its long wooden teeth fixed side by side, gathers the berries in a clean and satisfactory way, and with most astonishing rapidity. On a good, clean bog, where there is a full crop of berries, a man can gather 10 to 25 barrels a day. This pruning of the bog is, also, of great benefit in removing a part of the old growth of vines and giving place to the new.

BOGS IN POOR CONDITION

Not one-third of our cranberry bogs are in anything like proper condition for giving a crop of berries. Bushes, grass, weeds, and shrubbery are to be seen on nearly all of them, and only occasionally a bog can be found that does not need a coat of sand. About half an inch of sand every two or three years is necessary to keep the bog in good bearing condition. A bog that is properly sanded rarely suffers from fall frosts, as the sand retains the heat of the sun, causing the vines to bloom earlier and maturing the fruit more rapidly than when no sand has been applied.

The old idea that you cannot have land too poor for cranberry culture has given way long since to the more reasonable view, that a crop of fruit of any kind cannot be expected from land year after year without giving the trees or plants something on which to feed. It is a thoroughly demonstrated fact that a bearing bog is greatly benefited by a yearly application of any of the commercial fertilizers that are used for raising potatoes. This fertilizer can be applied to the best advantage early in June. It should be sown broadcast when the vines are dry, using about 500 pounds per acre.

The question has been raised of late whether or not we were making a mistake in attempting to grow cranberries in Nova Scotia. In face of frosts and insect pests it has been asked if it would not be more profitable to turn our attention to something that would give a more sure return. May I ask what will give a more sure return? There are apple orchards along the centre of this valley that for the past three or four years, on account of frosts, have been as unproductive as the cranberry bogs.

We are slowly waking up to the fact that our bogs need a little care year after year, just as surely as our orchards do; and that a little intelligent attention will give about as good results on a bog as it will in an orchard.

In view of the increasing demand for this fruit and the prevailing high prices, our neighbors over the line are preparing to plant larger acreage to cranberries this year. It is also time we opened our eyes to the fact that all over the Canadian North-West there are cities springing up that will call for a supply of cranberries. Last fall we had orders from Winnipeg for several carloads that we could not fill because we had not the fruit. There are still problems to work out and much to learn regarding this industry.

Every cranberry growing country known is subject to frost. Insect pests are no worse with us than they are in other places. We have the land to grow the fruit and the market within our own Dominion. If the culture of this fruit has brought $10,000 into the pockets of our people this season alone, shall we pull up the vines and call a halt?

Growers should ascertain what crops their soil is especially adapted to, and then make a specialty of those crops.—H. E. Reid, Toronto.

A Closely Planted Wealthy Apple Orchard

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

CONSIDERABLE interest has been shown in the results obtained from a small, closely planted Wealthy apple orchard at the Central Experimental Farm. There are 129 trees in this orchard, occupying about one-third of an acre, and planted in the spring of 1896. The trees were originally 10 by 10 feet apart, but a few have died. Full details regarding the returns from this orchard were published in the annual report for 1904.

In that report it was shown that the average net profit per acre from the time of planting was $54.13, and from the time of fruiting, $106.19. There was a heavy crop in the orchard in 1904, and the crop in 1905 was medium. The total crop produced was 1,247 gallons, of which 631 was picked fruit and 616 windfalls. Part of the windfalls were sold in baskets as they were good apples, and they brought fair prices.

These receipts and expenditures are estimated from about one-third of an acre (40-121) and the estimated figures per acre are given on the assumption that the percentage of sales in boxes and baskets would be the same from a full acre. A record is kept of the time actually spent in caring for this orchard and the other expenses incurred. Labor is valued at 15 cents an hour. There was no expense for cultivating since 1902, as the trees being close cultivation is impossible. The grass that grows is left to die down and rot.

As the trees were beginning to interlace, about half of them were severely headed back in the spring of 1905, and the remainder were thus treated this spring. The apples on the trees headed back were much larger than on the others, and while the crop was reduced somewhat, the greater percentage of marketable fruit compensated to a considerable extent for the loss of crop. The orchard received a heavy application of barnyard manure in December, 1904.

Sale of Fruit from Closely Planted Wealthy Orchard, 1905

		Estimated Per Acre
Sold, 203 baskets at 17½c	$ 35 52	$107 45
" 22 baskets at 20c	4 40	13 31
" 2 bags at 25c	0 50	1 51
" 42 boxes (Glasgow) at $1.46	61 32	185 49
	$101 74	$307 76
EXPENSES, 1905		
225 baskets and covers at $5.25 per 100	$ 11 81	$ 35 73
42 boxes at 14½c	6 09	18 42
Freight on boxes	14 94	45 19
Commission on sales	6 92	20 93
Rent of land	0 99	3 00
Spraying	2 49	7 53
Picking fruit	9 00	27 22
Grading and packing fruit	8 41	25 44
Barnyard manure (8 tons at 50c.)	4 00	12 10
Pruning	3 00	9 07
	$67 65	$204 63
Net Profit, 1905	34 09	103 13
Average net profit per acre per year, 1896-1905		59 03
Average net profit per acre per year, 1899-1905		105 75

Closely Planted Apple Trees in Fruit at Central Experimental Farm, Ottawa

(Photograph by Prof. F. T. Shutt.)

Pruning Plums and Peaches

"My system of pruning plums and peaches," said Mr. Jos. Tweddle, of Fruitland, "is to head in vigorously and thin out. While this system is more expensive than the ordinary system of thinning, without heading, I find it well repays the extra expense by the increase in the size of the fruit.

"This system has doubled the size of my plums and peaches especially, when the trees have been low in vitality. I also practise this on pears and apples, where trees are below the normal vitality. It invigorates the trees and brings them back into increased growth. Five years' experience has convinced me of the value of this method."

Apples must be grown successfully before much can be accomplished in selling. The greatest difficulty is experienced with growers who have 30 to 50 barrels, and who do not spray or care for their orchards.—D. Johnson, Forest.

Harvesting and Marketing Strawberries

MANY fruit growers who can produce excellent crops do not make as much profit as they should because of improper methods of harvesting and marketing. Some growers are careless, others do not know. With strawberries this lack of care and want of business methods is most disastrous. The sooner strawberry growers dismiss the idea that a gang of pickers, consisting chiefly of boys and girls with little or no experience, can attend to the harvesting the sooner will higher prices be obtained for their fruit. Personal supervision by those who understand the stage of maturity at which the fruit should be picked to reach the market that is being catered to, in proper condition, is essential.

The consuming public is constantly becoming more critical and a fruit of high quality is demanded. Growers who put up uniformly good fruit can find a ready market at all times and obtain the highest prices. If strict care is taken to see that the fruit is graded and the boxes filled and placed on the market in satisfactory condition, no worry will be caused because of low prices. To ensure that he shall receive due credit for the extra care, the grower should have his name or his brand or both clearly stamped on the box.

The method of disposing of the fruit will be regulated largely by existing conditions. If satisfactory help can be secured and a city is not too far distant it may pay best to make direct sales. If, however, transportation facilities are good and help is scarce the most advisable method of disposing of it would be through a commission house. The price obtained from the commission merchants may not at first be as high, but once a reputation for supplying high grade goods is established the price will be raised.

In a recent letter to THE HORTICULTURIST, Mr. W. G. Horn, a successful strawberry grower of Clarkson, Ont., wrote as follows:

"In gathering the strawberry crop all growers have to contend with more or less trouble in getting them picked properly. I believe I am within the mark in saying 25 per cent. of the strawberry crop is picked in a premature state on account of the pickers being more anxious to fill the boxes than to pick the berries properly. To have the berries at their best they should be picked every third day.

"In disposing of them we like to get them off our hands as quickly as possible on account of their perishable nature, and to have them looking as fresh as possible when placed on the market. We depend largely on the commission merchant for handling what we produce. Sometimes buyers are at the stations and buy them there for cash. It is almost impossible for the growers to market their strawberries individually.

SUMMER CULTIVATION

"It is difficult to have land on which strawberries are grown in too high a state of cultivation. Then it is important to keep the patch well cultivated and free from weeds before the runners make a start. The runners should not be allowed to become too thick in the rows or the rows to become too wide. A row 18 inches wide with strong, vigorous plants is the ideal one.

"If the patch has been a good one the first year, and the plants are vigorous, we keep it over almost invariably and occasionally a third year, but very seldom. The treatment for the same is to clean it thoroughly from weeds and mulch it with short, well-rotted manure during the winter. Long manure answers better on the new patch."

NOVA SCOTIA METHODS

In discussing strawberry growing in its different phases before the students at the Nova Scotia Agricultural College, Mr. J. C. Black, of Truro, one of the most successful strawberry culturists in Canada, dealt with the harvesting and marketing end. His address was in part as follows:

"I am a strong believer in intensive farming. There is no crop that will respond better to intensive cultivation than the strawberry. Those who are better acquainted with the productiveness of potatoes than they are of strawberries may be somewhat surprised to hear that an acre of land will produce as many bushels of strawberries as it will potatoes. I have grown 9,000 quarts per acre. The average, however, ranges from 3,000 to 6,000 quarts. The difference results from the condition of the land and the amount of attention given to the crop during the first season, Strawberries have been grown in many places to far exceed the above figures.

"In old land that is more or less overrun with grass or weeds it does not pay to keep the patch for a second crop, but on land that is clean a second crop may be gathered. As soon as the crop is harvested the land should be plowed and everything turned under and some crop put in to be plowed down in the fall. If the matted row system is adopted a new patch should be set out every spring and the old one plowed down.

"In harvesting the crop we pay, by the box, from one to two cents according to the state of the crop, and always try to get the most careful pickers. Sometimes one careless picker destroys more than he is worth.

"In marketing your fruit bear in mind that the market is never glutted with a good article. It is always the inferior fruit that spoils sales. If you have the best fruit and let people know it you can always get the highest prices and secure the best class of customers. Be sure always to have the best. It is a good plan to have your name stamped on the boxes. Do not use old and soiled boxes; let the other fellow have them. Insist on the pickers filling the boxes. Nothing disgusts a customer more than to see a dirty box only two-thirds full of half-ripe fruit or soft and mussy looking.

"There is no cause for alarm about a market for a first-class fruit properly picked and boxed. The more good strawberries people eat the more they want. If the local demand is not likely to be great enough you can always find some other town that is not supplied. If large enough quantities can be grown in any locality to make the venture worth while there is no reason why they may not be shipped to Montreal or even to Boston, as strawberries are scarce in those markets when our fruit is in its prime."

No Non-Suckering Raspberry

Do you know of a red raspberry that is a tip plant—one that will not sucker? I know the Columbian, but I refer to varieties producing red berries.—John Deegan, Meaford

There is no good non-suckering red raspberry known to me. The tip varieties are either black or purple, the latter being hybrids between the red raspberry and blackcap.—W. T. Macoun, Horticulturist, C.E.F., Ottawa.

There is no red raspberry that roots at the tip. They all sucker more or ess. The only garden raspberries that root at the tip are the blackcaps and hybrids between the reds and the blackcaps, like Schaeffer, Columbian, etc.—R. B. Whyte, Ottawa.

"I always apply fertilizer to the small fruit plantation in the spring. I use muriate of potash on my grapes because it stimulates fruit growth. Currants do not need so much potash. Nitrate of soda and barnyard manure give best results."—A. W. Peart, Burlington.

Russetting of the fruit is frequently caused in the early part of the season by two or three fine days following the spraying and then a rain coming. When the fruit becomes more mature no harm results.—N. Jack, Chateauguay Basin, Que.

Do not stir the soil under or about gooseberries, currants and Shaffer and Columbia raspberries. The former will drop their fruit, and the berries will fall off in yield if the soil is stirred. Mulch gives a full crop every time.—Stanley Spillett, Nantyr, Ont.

The Fruit Grower and the Robin

WITH the approach of the cherry season each year many fruit growers begin to worry over the devastation that may be wrought among the fruits by the robin. Some orchardists go so far as to assert that every robin should be killed; others look on this cherry lover with a more kindly eye and consider that the benefit derived from the same bird's destruction of insects more than repays them for the cherries he takes. Statistics from bird enthusiasts who have analysed the contents of robins' stomachs, show that only a small percentage of this bird's diet consists of cultivated fruits.

It is natural for living beings to prefer a mixed diet. The robin, being no exception to this law of nature, selects fruit to mix with his animal or insect diet. Cherries are ripe about the right time to furnish an appetizing food for the fully fledged spring brood, and if no other fruit is supplied he takes the cherry. If that fruit is to be found in great supply and of good quality it is but natural for him to break from his customary insect diet for a few days. At all times, however, it will be found that insects comprise the major portion of the food consumed.

Since the bird is a benefit to fruit men in so far as he devours the more destructive fruit enemies, the insects in various stages, should not something be done whereby robins can be kept in our orchards? Why not supply him with mulberries or wild cherries, or some such fruits, to satisfy his appetite for the fruit crop? A few trees near the groves or shrubberies which the birds frequent would do much to prevent them from taking the marketable crop.

THE HORTICULTURIST has received expressions of opinions from fruit growers in different sections of Ontario, as well as from Dr. Fletcher, of Ottawa. A few of them are as follows:

Dr. James Fletcher, of the Central Experimental Farm, Ottawa, who has given this subject much attention, writes: "I would most decidedly oppose any action on the part of fruit growers tending towards the destruction of the American robin, on the ground that these birds are beneficial, a consideration which affects the whole community. The only evidence against them is from fruit growers in the vicinity of towns. Such a question would have to be decided on the evidence of specialists who have studied the food habits of these birds, and not from the statements of any one class of the community who had been disappointed by the destruction of even the best specimens of one of their crops, unless these statements were backed up by proved facts concerning the food habits.

"Prof. F. E. L. Beal, Assistant Biologist of the United States Department of Agriculture, in discussing How Birds Affect the Orchard, says, 'The robin has often brought itself into unenviable notoriety by its depredations upon small fruits. Sometimes people who grow a few choice cherries do not get even a sample of the fruit, and those who raise fine strawberries for family use secure only a few boxes. On the other hand thousands of fruit raisers in various parts of the country are never troubled by robins, although these birds may be just as abundant in their vicinity as elsewhere.

'An examination of the stomachs of 500 robins collected in various parts of the country shows that cultivated fruit forms less than eight per cent. of their diet, and that practically all of this is eaten in June and July, while wild fruits form more than 43 per cent. of the year's food. Complaints have come from localities that lack those wild fruits which the robins evidently prefer—near cities, where such fruits have been destroyed, and in the prairie regions where they rarely grow, except in restricted areas along rivers.'

"Prof. S. A. Forbes, of Illinois, who made a careful investigation of the food of this bird some years ago, found that enormous numbers of injurious insects were destroyed by robins. He found that the total percentage of injurious insects eaten was February, 18; May, 37; March, 37; April, 39; May, 55; June, 24; July, 10; August, 31; September, 7; while the percentages of fruits and seeds eaten were June, 58; July, 79; August, 56; September, 70; October, 56. In June cherries formed 47 per cent. of the food.

"Mr. A. W. Butler, Ornithologist to the Geological Survey of Indiana, sums up this matter as follows: 'It is safe to say that noxious insects comprise more than one-third of the robin's food. Vegetable food was found to be nearly 58 per cent. of that eaten, wild fruits forming 47 per cent., and varieties that were possibly cultivated a little more than four per cent. They ate 25 per cent. of cultivated fruit in June and July. Wild fruit was eaten every month in the year. Small fruits and cherries that ripen early are almost the only fruits that are eaten to any extent. By July, and after that, there is an abundance of wild fruits that are more to its taste. The robin takes 10 times as much wild as cultivated fruit. The wild plants upon which it feeds most are not those gathered by man or adopted by him for cultivation. It would be well to plant a few extra plants or trees for the birds, or to plant a few of some such trees as the Russian Mulberry, to the fruit of which robins are particularly partial.'

"The above facts," concludes Dr. Fletcher, "are only a few of many that will have to be investigated by fruit growers who consider the robin an injurious bird."

AGAINST THE ROBIN

"Personally, I have no love for the robin," writes Mr. Chris. Firth, of Durham. "There are scores of other insectivorous birds that never touch fruits, and are never mentioned by writers on the subject. These birds are seldom seen chiefly because their nesting-places are destroyed. They are not driven away by the English sparrows, as most writers try to make out. There is no bird more libelled than this same little brownie, but he still lives, and probably will for some time to come.

"About 20 years ago, when I bought the place on which I live, it was a commons and one of the worst, not a tree on the part where I built my house. When the house was up I planted trees and shrubs all around where I thought they would be most effective as shelter, shade and ornament. Some evergreens are now nearly 30 feet high, and some of the isolated ones are beauties. They are mostly natives, such as balsams, spruce and pines. I still continue to plant. The consequence is a great variety of birds nest around my home. For 17 years I have permitted English sparrows to build in the roof of my house, just above my bedroom window, and on no occasion have I known them to interfere with other birds, some of which build within five yards of the house. These birds include warblers, chipping and song sparrows, catbird, kingbird, and others. The scarlet tanager I have not seen for years. The Baltimore oriole and rose-breasted grosbeak I seldom see.

"These are all more or less insectivorous birds. Their absence is due to the same cause—nesting places are destroyed. There is also another cause—the domestic cat. I don't keep them, and kill every one I find prowling around. Then there is the man with the gun who likes to be called a sport. If readers of THE HORTICULTURIST, and others, will plant more trees and shrubs, and then plant a few more, a great many of the birds would return and be of incalculable benefit to the fruit growers."

Mr. W. M. Robson, Lindsay: "It is easy to forget and forgive old feuds and depredations. If opinions were received from small fruit growers during the months of July and August, I fear the verdict would be against the robin. He does not possess compensating qualities equivalent to the destruction and damage done by him. He has a voracious appetite for cherries, strawberries, red currants, white currants, raspberries, peas and grapes. I am sorry to present such an indictment against one of the feathered tribe

which I would fain protect. If it is our business to loop off and prune out all that is detrimental, the robin must be *restricted*, and more valuable birds protected and encouraged, that the balance may be maintained."

Top Grafts on Tolman Sweet

W. T. Macoun, Ottawa

I planted out a young orchard of 70 Tolman Sweet apple trees last spring, with the intention of working them into Spys. They made a splendid growth last season. How long from the time of setting in the orchard till they would be ready to work over? Which do you consider the best way of changing them, grafting or budding? If by grafting, what way would be best, cleft, whip, or root grafting on the branches. Spys being my object, would it pay to mix some other varieties, and of what kind, for the sake of pollenation?—Subscriber, Northumberland.

As the trees made such a good growth last year they might be grafted with success this spring, but we should advise waiting for another year before doing the work, as success would be more assured and a larger proportion of the grafts be likely to take. For young trees such as these whip-grafting should give the most satisfactory results, and as this work would be done in the spring, buds could be inserted on all branches where the grafts had failed in the following summer. As budding gives just as satisfactory results as whip-grafting, budding could be done this summer and the grafting done next spring, where it was certain that the buds failed.

It would be necessary to have some other variety to pollenize the Spys, as isolated orchards of this variety do not produce much fruit. The Tolman Sweet would be an excellent variety for pollenizing the Spy, as it blooms about the same time, and it would not be amiss to leave a branch of the Tolman on each tree for this purpose. We believe that one reason the Tolman is such a good stock for the Spy is that it is a late bloomer, like the Spy, and thus ensures a good crop of fruit. There are few varieties that bloom as late as the Spy, but some of these are Cranberry Pippin, Canada Red, Westfield, Seek No Further and Grimes' Golden.

In the Niagara district the area devoted to grapes is rapidly increasing. It will not be many years until the already large plantings will have increased three or four fold. The Concord is still our favorite, probably three-fifths of all vineyards planted being of this variety, with Niagara second, and Vergennes, Rogers 9 and 15 following. Campbell's Early is promising, but seems to be exacting as to soil conditions. Large areas of heavy land a few years ago not considered suitable for the production of grapes have of late years proved to be the very best when properly drained and cultivated.—W. H. Bunting, St. Catharines.

An Increase of Forty Per Cent.

THAT reports regarding the development of the fruit industry in British Columbia have not been exaggerated is shown by figures sent by Mr. A. McNeill, chief of the fruit division, to THE CANADIAN HORTICULTURIST.

In comparing the crops of 1904 and 1905, it is stated that the crop of the past season has been much heavier, and higher prices have been obtained. The total fruit crop in 1904 was $600,000, whereas an increase of 40 per cent is noted for 1905, giving a total value of $1,000,000.

The fruit grown in the western province is being regarded with increased favor from year to year, and a good market has been worked up in Alberta. For early apples the grower netted $1.00 a box. Early in December the price had advanced to $1.25. An increasing demand has resulted in a further advance and the producers have received $1.50 a box. As a rule the strict laws regarding packing and shipping have been scrupulously obeyed. The shippers have shown intelligence in their methods, and honesty in their dealings, and this accounts in part for the great increase in their trade.

Tall Growing Ornamental Grasses

Roderick Cameron, Niagara Falls South, Ont.

IN last issue some of the grasses of dwarf-growing habit were referred to. They were suitable only for small beds or borders. In this issue I will describe a few of the best and hardiest of the robust growers. These can be used to advantage if put in large beds with broken outlines and set so that the plants of various heights will show a broken sky-line. The more irregular the outline of the bed and the more uneven the plants the better. The one will show off the other to advantage.

We will suppose we have a crescent-shaped bed to deal with. In the centre of the bed I would place a group of Bambusa aurea, the Golden Bamboo of Japan. On account of the bareness of its stems at the bottom, plant Bambusa metake. Variety aurea grows six to eight feet high, and metake, a dwarf grower, covers the lower part of the stem and the ground. I tried both of these outside last winter. Metake seems to be hardy, while aurea is perennial. The roots live and the tops die down. I would advise taking up the plants in late fall, and placing them in a cool cellar where they will winter in fine condition and be green for the following spring's planting.

Half-way between the centre of the bed and the end plant a group of Arundo Donax, the Great Reed of Europe. This plant grows 10 to 12 feet high. Along with it may be planted Arundo Donax glauca, a dwarf variety, growing only four feet high, with bluish-green leaves and stouter stems. Arundo Donax versicolor is about the same height as the last, but variegated with white. It is a very pretty plant, and should be put on the points of the crescent, leaving room for a border. All of the Arundos are hardy here, and should be farther north, particularly if protected. The best protection I find for them is to cut their own stems off about eight or nine inches from the ground and lay them across the bed. This and the stubs left will leave an air space over the crowns of the plants; over all put some coarse barnyard manure.

To give a finish to this bed, and to fill up all the spaces, we have four varieties of eulalias. Eulalia Japonica is the type. It is green, and grows five or six feet high, and is probably hardier than the others. Eulalia Japonica zebrina is the tallest grower and has yellow bars across the leaves, giving it a striking appearance in any position. Eulalia Japonica variegata has stripes of white and green running lengthwise with the leaves, making it also a much sought after variety. Eulalia Japonica gracillima is the dwarfest of the four, growing about four feet high. Its leaves are much narrower, with a white stripe running lengthwise with the mid-rib. All of them should be hardy farther north, particularly if protected as recommended for the Arundos.

A foot from the grass margin a border of Pennisetum longistylum should be planted. The Pennisetum may be grown from seeds each year, but I prefer taking up a few plants and storing them in the cellar until March, when they may be taken up and divided into many plants.

All these specimens look well if planted isolated in the grass near a path, beside a building, or in the hardy perennial border. They may be planted also in groups of one of each, or they make good centre specimens for a bed of other plants. An excellent effect is produced by planting these beside a lily pond. Pennisetum longistylum makes a grand border for a canna bed.

All produce their Pamphas-like plumes of flowers during the fall months, and are very desirable for drying and using for decorating the house during the winter.

Setting Out the Bedding Plants

WITH the arrival of June weather the temperature generally has become sufficiently high to permit of the majority of bedding plants being planted in the open. The main object in filling the beds should be to produce an effect that will be pleasing to the passer-by. The tastes of those in charge of planting vary so much that no two, perhaps, would make the same selections. Besides, the opportunities for preparing the plants will, to a certain extent, control the specimens used. If a greenhouse is at hand in which to propagate plants of all kinds, more variety can be had than if the plants are to be purchased in the spring.

In a recent interview with a representative of THE CANADIAN HORTICULTURIST, Mr. E. F. Collins, of the Allan Gardens, Toronto, discussed the most satisfactory plants for bedding purposes and the cultural conditions that produce the best results. The propagation of some of the plants commonly used for this purpose was dealt with by Mr. Collins in the January number of THE HORTICULTURIST. Those who have greenhouses will have a supply of bedding stock on hand, while those who have to secure their supply from a florist will be benefited by a review of his experiences.

"For bedding purposes on the average lawn," said Mr. Collins, "geraniums rank highest. For best effect they should be planted one to every square foot in the bed. A circular bed 10 feet in diameter would require about 75. The silver-leaved geranium, Madame Saleroi, makes suitable edging for a geranium bed. They should be set about 10 or 12 inches apart. Asters, phlox and petunias also are very desirable on account of the great display that can be made by using them, as well as on account of their cheapness. These plants should never be set closer than 15 inches apart. They soon spread to cover the whole space. Cannas, too, are excellent for bedding purposes. They can be placed two feet apart if the plants are strong, and will present a grand display of both foliage and bloom.

"Nasturtiums fill an important place in the average garden. They are rapid growers and produce a good effect. Except for geometric beds the coleus is being discarded. By using the different varieties a brilliant color effect can be produced, but a late frost gives them a ragged appearance that requires several weeks to overcome, and later in the season the mealy bug frequently becomes troublesome, and the plants are practically destroyed in many cases. The leaves often fall off and the bare stocks present a repulsive appearance. This insect pest cannot be kept down after the plants are set in the open. The woolly covering which nature has provided so protects the insect that any treatment that will destroy it also kills the plant. Irisenes, too, are suitable for color designs and patterns, but are not very commonly used. They are strong growers and free from insect pests. When set in the open they grow so rapidly that no damage is done by insects which are usually found on such plants.

"Begonias," continued Mr. Collins, "are very desirable for bedding purposes. When a bed is planted with some of the better varieties and edged with a plant of low growing and spreading habit, such as the sweet alyssum, the effect is very pleasing. The alyssum seems to have something that blends well with the begonias. Centaurea and such plants are not so suitable for edging beds of begonias. Beautiful effects can be produced on a large open space by planting a bed with yellow coleuses and blue ageratum. The plants should be set alternately with two coleuses to one ageratum. No matter how hot the weather the display is always attractive. Madame Saleroi geranium and the ageratum produce a similar effect. The plants should be set about one foot apart.

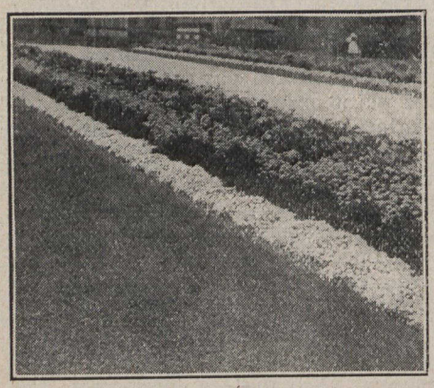
RIBBON BORDERS

"In making ribbon borders," said Mr. Collins, "the main point is to select colors that blend well. There is nothing better than pink, white and blue. Two rows of pink geraniums along the centre

Station Improvement Along the Line of The Canadian Pacific Railway

The Floral Department of the Canadian Pacific Railway, under Mr. N. S. Dunlop, is doing excellent work improving the appearance of the railway stations along the line of the railway from the Atlantic to the Pacific. This illustration is from a photograph of the station at Markdale, Ont. Mr. J. Caesar is the agent.

of the bed, with one row of blue ageratum on either side, and outside rows of Madame Saleroi geranium or sweet alyssum makes an elegant display. The whole object of the planter should be to present a pleasing effect from a distance, and not to have it merely satisfactory to those who are alongside the flowers. A most repulsive effect is produced by some gardeners planting bright red or scarlet geraniums against a red brick wall. If it is necessary to



Ribbon Border in Allan Gardens

have plants near the wall, caladiums or some such foliage plants should be planted, and then the scarlet geraniums will look well in front of the green.

"The plants used and the number of rows of each kind will depend largely on the size of the bed. Small beds with geraniums in the centre and one row of smaller plants around the edge is satisfactory. Beds larger than 12 feet in diameter should have two rows of edging plants. Cannas, caladiums and such plants should never be used in small beds. If there are no large beds in which to put them they will show up to better advantage if set next the house or some wall or fence.

PREPARING THE SOIL

"A bed that has stood all winter, and was left in good shape in the fall, requires no special fertilizer in the spring. If, however, tulips or hyacinths were planted, the bed will require a heavy coat of well-rotted manure before the bedding plants are put in. Cannas, Caladium asculentum, dahlias and such plants are heavy feeders, and need an extra supply of manure. The best results from dahlias are obtained by digging a hole about a foot deep, placing in three inches of well-rotted manure, and filling up with rich soil. The bulbs when planted in this soil develop rapidly, and the roots do not come in contact with the manure until they require it. Hydrangeas do well with this treatment.

"For most bedding plants a medium heavy loam is best. Light, sandy soils require too much watering. The heavier soil retains the moisture for a longer time. Nothing is better than an application of coal ashes. The soil is kept cool and moist in hot weather, and although they do not supply a great deal of plant food, there are very few plants that do not thrive well in soil with a coat of ashes added. Before planting the soil should be forked over deeply. If given a rest during the winter and spring it has regained much of the desirable qualities. Green manure should never be used, as the ground is hot enough during the summer, and the action of the green manure during fermentation develops more heat and cause it to dry out.

"Plants requiring support should be staked when they are set out. If the stakes are not put in when the plants are set there is danger of injuring the roots or bulblets later on. The plants should be tied to these supports frequently as growth develops.

INSECT ENEMIES

"There are numerous troublesome insects," continued Mr. Collins, "that have to be combatted by every gardener. The rusty leaves commonly seen on geraniums are generally due to attacks by the red spider. It is common on dry, sandy soil. This pest can be kept in check by thorough applications of cold water with the hose in the evening. On the ageratum, thrip is frequently found. Syringing with cold water or tobacco water destroys it. Perennials are often attacked by the black fly. A thorough treatment with tobacco water for two or three mornings in succession immediately after they are seen will keep them down.

"The nicotianas and mignonette have the common potato bug as an enemy. If this insect is not watched it will completely strip the foliage off the plant. Dry Paris green or syringing with Paris green and water is effective. The Paris green and water is more satisfacto y because it leaves less stain on the foliage. If they are treated as soon as they make an appearance they can easily be kept in check.

"On roses green fly is the most serious pest. Tobacco water is the most effective remedy, but if it is not used, constant syringing every day with cold water will destroy the flies and prevent others from coming. The cold water bath is specially efficient during hot sunny weather."

Flower Boxes for the Windows

DURING the hot sultry days of summer nothing in the form of plant life is more desirable for brightening the home than well-prepared and well-cared-for window boxes. If rich soil is used and the boxes are not made too narrow and too shallow, a brilliant display can be had during the greater part of the summer. The chief essential is that plants that retain their green and do not shed their leaves are used. Liberal watering is demanded every day.

The enthusiastic amateur can do all the work successfully, but for the average citizen it is advisable to secure the services of a local florist. Competition is keen, and there is little danger of exorbitant charges. Proper soil and suitable plants are sure to be supplied, because this department of the florist's trade is becoming extensive, and he is anxious to hold what he has and get his share of those who make a start each season. Those who do not care to leave the selection of specimens to the florist can secure whatever they require. There are scores of plants that give good effect, but coleuses, geraniums and nasturtiums are perhaps as commonly used as any.

The effect of nicely decorated windows on one residence on a street is to cause others to copy the idea. The result is the whole street is given a more pleasing and a more attractive appearance.

An example of what can be done by means of such decorations is to be found at the beautiful home of Dr. Dryden, of Guelph. In a letter to THE HORTICULTURIST the doctor wrote:

"Window boxes are easily grown and require so little care that the results in the improvement of many homes are greater and more satisfactory than can be obtained for the same expense in any other method of culture, especially for those who have a small plot of ground at their disposal. The price is comparatively reasonable, and will run about one dollar per 4½ foot box containing a good variety of plants. That is 20 to 25 cents per foot.

"The boxes should be of good size, and the depth and width at least six, or better, seven inches, and filled with a loose rich mould that will take up and retain a lot of water. They will do better on a west or north window, as the heat from the sun is very hard on them on a southerly or easterly exposure. With the proper selection of plants they will give good results on the latter as well.

"The great object is to select plants that will retain their foliage and keep green or flower all through the season. The great and only secret in their care is plenty of water and applied every day, as they dry out so quickly from exposure to the sun and wind.

Toronto Factory made Beautiful with Vines and Window Boxes

"In selecting specimens I would suggest for bloom semi-double crimson geraniums, one to each foot in length; bright colored foliage plants, half as many as geraniums; two nasturtiums in a four foot box; in the front part of the box, for trailing or climbing, Cobæa scandens is the best vine, but the miranda is very good—say one of each. Many other plants might be suggested, but in our experience boxes filled with these have given much the best satisfaction.

"Boxes can be made of ordinary inch pine, and if painted a nice color, emptied out in the fall and put away in a dry place for the winter, they will last for years. Any one can make them as well as a carpenter.

"Our boxes are mostly sent to the florists about May 1 and the plants filled in, after which they are left in the greenhouse until May 20 or 24. Then they are safe from the spring frosts, and may be put up on the windows, and the warmth and protection from the nearness to the house keeps them green long after most of plants in the open are frozen.

"Any person who will take the trouble can easily choose the plants and fill the boxes himself, but it does not pay to do this in Guelph, as the florists do it very reasonably."

Give the children a flower bed to take care of. They will learn to love pretty things, and have implanted in their minds the ideas of order which time can never efface.—N. S. Dunlop, Floral Dept. C.P.R., Montreal.

Was Not Coffee

Frank Veal, C.S.I., of Bombay, India

My attention was called to an article in your valuable paper for March, headed "Coffee in Glengarry," in which a Mr. Gamble claims to have some coffee plants growing and bearing berries. This is utter nonsense, as coffee trees take three years to mature and to produce the berries known as coffee beans. Coffee will not grow in Canada, as it is a tropical plant and will not grow nor bear fruit in this country unless in a hot house.

The plant that is being grown by Mr. Gamble probably is the one known under the commercial name of Gram, the seed of which is roasted with coffee and used very largely for adulterating and flavoring coffee. Most people call it chicory.

If Mr. Gamble were to read Wm. Crashley on coffee cultivation in the Brazils, he would find that the coffee plant is a tree which often attains the height of 10 feet. It is not a vine. I have seen the trees growing in a small way in India, and they are much higher than four feet, and have branches the same as other trees. The pods of the real coffee contains only two beans, but sometimes there are three.

I came out from India to Canada to see if tea could be grown in this country, but find the climate would not suit. It was also my intention to grow coffee, cochineal and alloas, but none of these would be suitable. I have examined the ground carefully and find the soil also is not good enough.

Fungus on Wild Rose

W. T. Macoun, Ottawa

Is the black fungus growth on wild rose bushes the same as black knot of plum and cherry? The wild roses on my premises are covered with it. It is several years since it attacked the fruit trees.—C. W. B., Prescott.

The fungus on the wild rose bushes is known as the Rose Phragmidium and is distinct from the black knot. To eradicate this disease, which is a difficult one to deal with, it is necessary to destroy as many of the knots as possible, and then spray the bushes and the ground about the bushes, early in the spring before the leaves open, with copper sulphate in the proportion of one pound of copper sulphate to 25 gallons of water. The bushes should be kept sprayed until the middle of summer with Bordeaux mixture or ammoniacal copper carbonate.

Palms from Seed

A Toronto subscriber to THE HORTICULTURIST wrote asking for information regarding how to obtain palms from date stones. The enquiry was forwarded to Mr. Walter T. Ross, of Picton, who has had great success with tropical plants of different kinds.

In reply to questions regarding the time required to develop and general cultural methods required, Mr. Ross wrote as follows:

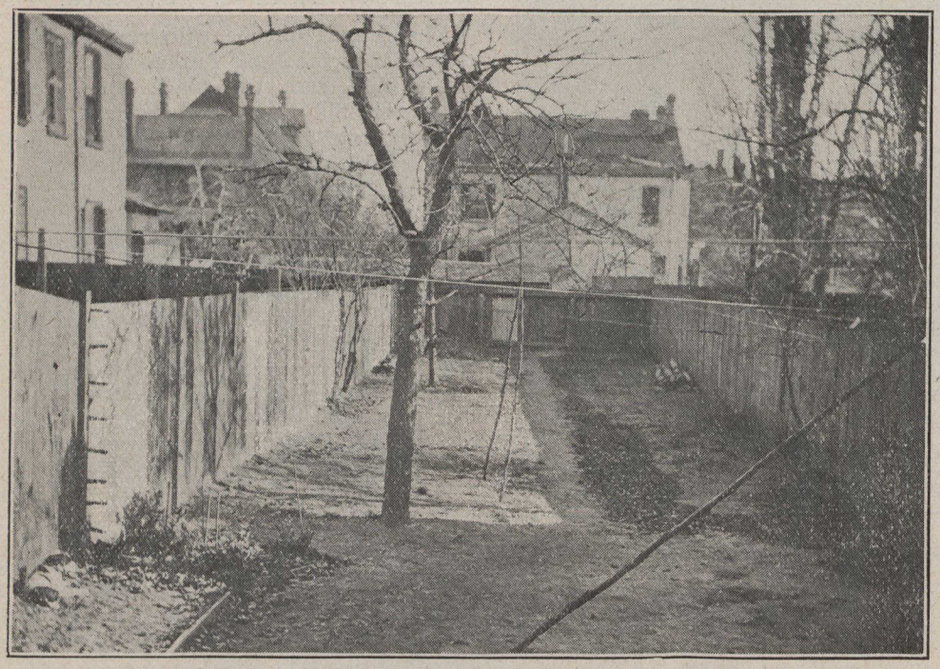
"The seed takes about nine months to start, but if cut or soaked in warm water, it will sprout more quickly. The plant afterwards requires only the ordinary care of a palm. The roots go deeply. I had pots made specially for palms, not so wide as the ordinary pot but much deeper to give the roots a chance. This proved to be a great advantage."

Sowing Aster Seed.—I have learned a lesson this spring about sowing aster seeds. We sow our seed too early in the season. I sowed mine the first of March, and before it was time to set them out the plants either grew too large or became stunted. They were in the house, and the necessary handling resulted in many of them being stunted and not doing well. The growth was very uneven. I believe that the first of April is plenty of time, and I am going to follow that rule in future.—C. F. Coleman, Burlington, Ont.

I prefer roses grafted on their own roots because those struck on wild roots sometimes die back, and when growth comes the wild shoots are the stronger, and the amateur is sure to keep one of the sort that is no use.—Edwin Utley, Toronto.

The Back Yard Beautiful

HOW many citizens of villages, towns and cities keep their front lawns in a presentable condition, but utterly neglect the back yard. Human nature seems to like to make a display for the public eye. Places, however, that are hidden from the view of the citizens at large are neglected, and, in many cases, are a disgrace to the owners. The reason for such neglect can be attributed to nothing else than laziness. The expense is so trifling that it needs no consideration, while the necessary labor can be done in the evenings.



No. 1—Before the Flowers were Planted

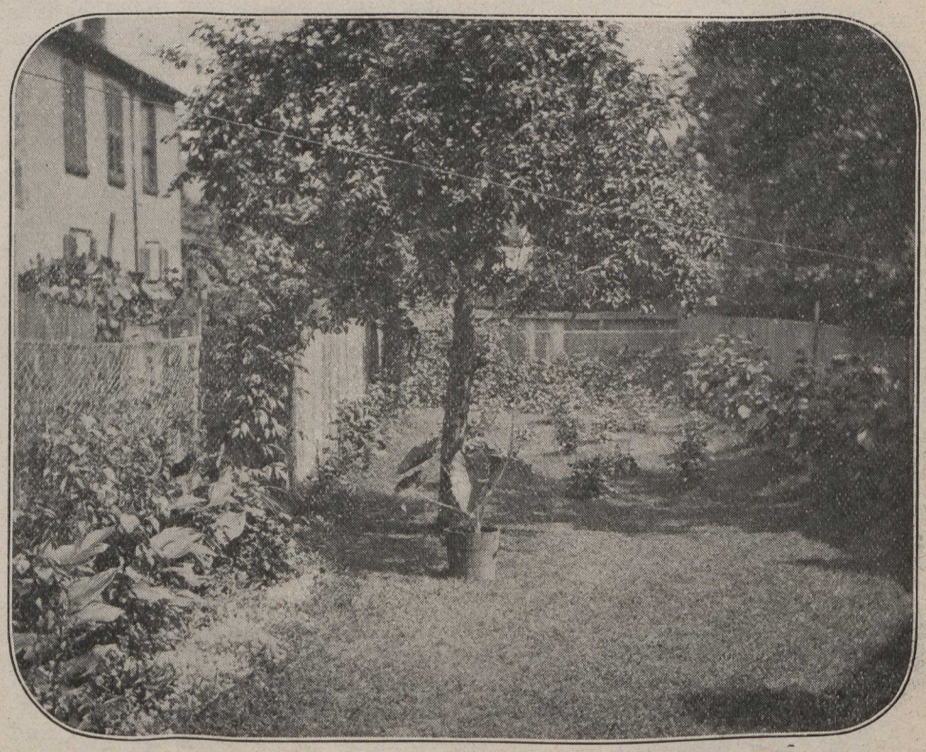
The flower enthusiast may select some costly specimens for curiosity merely to have something different from his neighbor, but for the average back yard such plants as nasturtiums, sweet peas, virginia creepers, wild cucumbers, etc., for covering bare walls and fences and columbines, larkspurs, peonies, the different varieties of lilies, phlox, alyssum and many other plants for planting in front of the climbers can be made to fill the bill admirably. The number of plants suitable for this purpose is legion. Even the common sunflower or hollyhocks and poppies would brighten things up and make it appear as if the place was inhabited by twentieth century citizens.

All who have the welfare of their families at heart should see that the back yard is as clean as the front lawn. In fact, more attention is demanded. As before stated, it is not necessary to go to any great expense. Anything, however, is better than the slimy, bare ground on which dish water and other slops are thrown. For sanitary reasons, if for nothing else, flowers should be grown. Think of the difference between the air coming from a garden bordered with vines and creepers, and dotted with annuals and perennials, or covered with fresh green grass, and that coming from many of the yards.

The educational value, too, must not be overlooked. Every member of every family should know more or less about plant life. The association and acquaintanceship with such forms of nature have an influence for good that cannot be measured. The children are easily made to take an interest. For experiment, buy a few nasturtium seeds, or sweet peas or sunflowers if you will; plant them, and the average child of very tender years will do the rest with very little coaching. Not much instruction is required to have the children do all the work, and the result will be a delight to every member of the family as well as to the neighbors.

"I want no bare ground on my lot," said Mr. Edwin Utley, of Linden street, Toronto, to a representative of THE HORTICULTURIST, who visited his place recently. "My favorite plant for back yard display is sweet peas. I always put a 5 x 4 scantling next the wall or fence and stretch fine poultry netting about five feet wide along for the peas to climb over. I frequently have them grow six or seven feet high. This year I have about 61 varieties. I have also used nasturtiums to good effect.

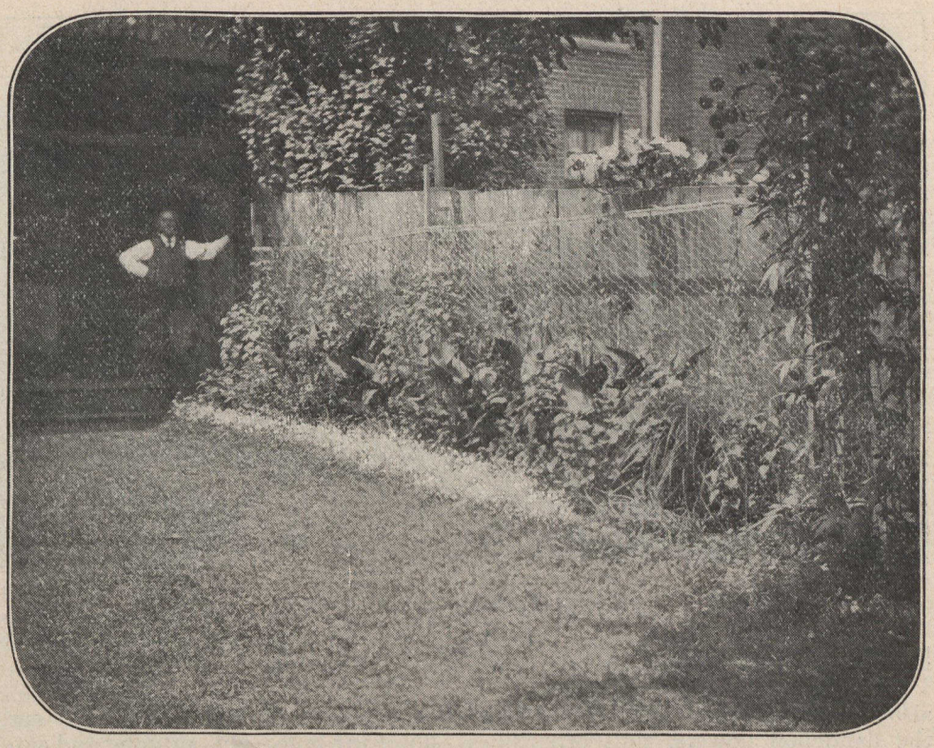
"Perennials, too," continued Mr. Utley, "can be used to advantage by planting taller specimens, such as rudbeckias, larkspurs, columbines, tritomas, cannas, lilies, gladioli, and others, at the back and lower growing ones near the front. Sweet alyssum makes an excellent plant for the front row. It is essential that the amateur gardener keep everything carefully labelled



No. 2—The Change a Few Plants Have Made

so that he can tell his friends the correct names. This year I have several new specimens, including hypericum, geum, galega and others. They are all hardy, and promise to be desirable additions."

The accompanying illustrations are from photographs taken in Mr. Utley's back yard. No. 1 was taken in the spring before growth had begun. No. 2 shows the same view during the summer. As far back as the tree had been sodded. In the spring the space behind the tree was seeded down to grass consisting of equal parts white clover, Kentucky blue grass and red top, and in two months a perfect mat had formed. A narrow path along the board fence on the right is hidden by sunflowers. At the back nasturtiums are supported by wire netting. At the front on the left a brilliant effect was presented by sweet peas on the wire netting, cannas, salvias and geraniums next, and a row of ageratum and one of sweet alyssum along the front. Here and there on the lawn behind the tree, dahlias were planted. Holes one foot square and 18 inches deep were made and filled with a mixture composed of equal parts of sandy soil, rich loam and well-rotted manure. One of the dahlias, Madame Vander Dael, produced bloom 8½ inches in diameter. In the foreground is a caladium in pot. No. 3 shows the clump that appears in the left hand corner of No. 2. The sweet peas have not attained full growth, and do not cover the netting. The tall clump in the extreme right hand corner is rudbeckia, golden glow; Mr. Utley is standing on the steps.



No. 3—One of Mr. Utley's Fine Clumps

Preserving the Beauty of the Lawn

THE members of the Toronto Horticultural Society who attended the monthly meeting in St. George's Hall on May 8 to hear Mr. Wm. Hunt's address, received many valuable hints. The only regrettable feature of the meeting was that more did not turn out. President Frankland was in the chair. Before the address resolutions were passed deploring the mutilation of trees by telephone and telegraph companies. A ladies' committee, comprising ladies who are horticulturists, will be formed to aid in the work of the society.

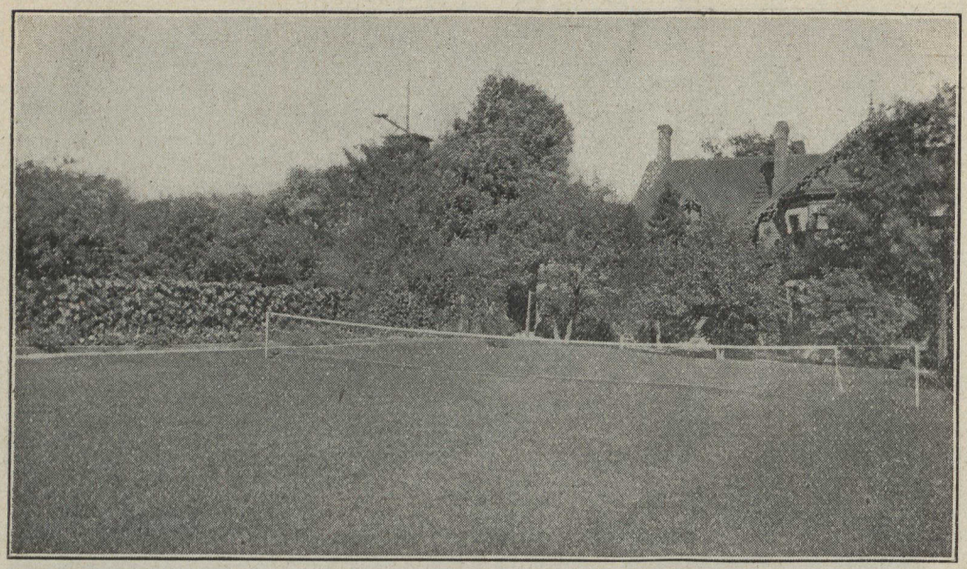
Mr. Hunt complimented the executive and members on the resolutions passed and the steps taken to bring before the proper authorities the matter of the indiscriminate butchering and mutilation of shade trees in cities and towns by the employees of the telegraph and telephone companies. He hoped that every horticultural society in the province would assist in this matter. The spirit of civic improvement and the beautifying of public grounds and streets, as well as of home surroundings, had taken a great hold on our people, and it was oftentimes very discouraging that the scenic and landscape beauties of our streets should be marred and destroyed as they sometimes are from the causes mentioned. Often the civic authorities were, to a great extent, powerless in the matter.

In dealing with the subject of his address, "Among the Plants and Flowers in Spring-time," Mr. Hunt proved himself at home, and gave much useful and seasonable information.

As a remedy for the prevention of trespassing and cutting across corner-lot lawns, the speaker suggested a rockery built diagonally from the intersecting points of the sidewalks to a point far enough from the sidewalk to prevent trespassing. A single plain wire could be stretched along over the top of the centre of the rockery, the two forming a most effective barrier to the too common and destructive practice of cutting corners by pedestrians. The rockery could be planted with ferns or creeping plants, such as vincas, nasturtiums, etc., and a few tulips and other bulbs could be planted in the fall to help brighten up the rockery in spring-time. Where the rockery had been tried as a barrier to trespassers it had proved most effective, as well as adding to the attractiveness of its surroundings.

Another point in the spring care of lawns was the difficulty in getting a lawn roller. The roller is an indispensable article in making and keeping a good lawn. The speaker recommended a flat pounder about eight or ten inches square, made of two-inch planking with a long handle, as a substitute. This pounder for a small lawn would be found as effective as a roller if properly used. The old-fashioned lawn mower with roller attachments was of great service. For a small lawn a mower with roller attachment, especially where it was difficult to obtain an ordinary lawn roller, was recommended.

A lawn rake and a long-handled weed-spud were also indispensable articles in the care of a lawn. A good weed-spud could easily be made by attaching an ordinary broom handle to an old socket-handle carpenter's chisel. A lawn rake was useful in many ways, where an ordinary garden rake would not answer. It was useful for dragging over the lawn in the spring to remove creeping weeds, moss, etc., as well as to drag up the roots of noxious weeds, such as dandelions and plantains, when the roots had been loosened with the weed-spud. These implements saved backaches and made this usually troublesome feature of lawn-keeping a pleasure rather than a laborious task, as is the case when these weeds have to be removed with an ordinary knife. The lawn rake was



A Prize Winning Deseronto Garden

Many members of horticultural societies and readers of THE HORTICULTURIST retain a professional gardener to attend to the lawns and plants. This illustration shows the grounds of Mrs. T. B. Gaylord, of Deseronto. In the competition of the society in that town this lawn was awarded first place.

also useful for removing the buds of the dandelion flowers, thus oftentimes preventing the necessity of mowing them, as well as removing them before there was any danger of their having flowered or seeded. It was only a duplicate of the old English daisy rake, an implement seen on every well-kept lawn in England, where good lawns are one of the greatest features of the grand landscape beauty so noticeable there.

A good spring fertilizer for lawns was that recommended by Mr. Alexander, of Hamilton, made by mixing four or five pounds of bone meal with one pound of muriate of potash and sowing it thinly over the lawn. The quantity mentioned was sufficient for a lawn eight or ten feet square. If an equal quantity of dry fine earth could be added to the above mixture it would add a little substance and aid in the more even distribution. The soil must, however, be dry so as to mix thoroughly before using with the fertilizer.

The best mulch for autumn application on a lawn, the speaker considered, was a mixture of equal parts of well-rotted barnyard manure and some fairly good loamy, friable soil. This was the mulch used very commonly in England, and gave not only the fertilizing property of a mulch, but also added a permanent substance to the lawn. It not only helped to enrich, but also filled hollows in the surface of the lawn and furnished material for any lawn seeds sown in spring to germinate and grow in. The mulch of long manure, as sometimes applied in fall, was unsightly and frequently produced a big crop of weeds. The earth mulch mentioned could be applied early in spring, also, very effectively.

Mr. Hunt also gave very many useful hints as to the care of window plants, etc., during summer, care of spring flowering bulbs, etc., pruning and care of roses, flowering shrubs, and many other seasonable matters. Numerous questions were asked the speaker, and answered satisfactorily.

The speaker was tendered a hearty vote of thanks. At the next meeting, June 5, Professor Hutt, of Guelph, will discuss "Improvement of Home Surroundings."

BULB DEPARTMENT

Questions answered by Mr. Herman Simmers

Gladioli Planting

When should gladioli be planted? How can I have a succession of bloom? How deep should the bulbs be planted?—H. O. S., Simcoe.

The time of planting is in May, and the blooming period from August to October. I have experimented planting gladioli as late as the end of June, and in almost every case they have bloomed in October with every success. The greatest difficulty in planting in late June is that the corm does not have such a good opportunity to make sufficient development to preserve it thoroughly for the following spring. The flowering, however, is just as good as if planted early, and perhaps if new bulbs were purchased each season, better results in blooming would be the result, with less chance of deterioration than when the bulbs are preserved for another season. When the leaves of the trees are beginning to come out, is a good indication that nature is ready to go ahead and similar growth for the gladiolus will take place. Planting would be as well to be made two to three weeks apart to have a succession of bloom.

By cutting the stem when the bottom flower has opened and placing it in water the spike will produce flowers three to four times as long as if allowed to bloom altogether on the plant. Plant the bulbs three inches below the surface of the ground, or if planted shallower, hoe the earth up to give better chance for plant development.

Scotch Thistle on the Lawn

The accompanying illustration represents a specimen of Scotch Thistle grown on the lawn of Mr. Philip Love, of Barrie. When fully matured it stood 10 feet high and was 7½ feet in diameter. Some of the leaves were 4 or 5 feet long and 18 to 20 inches wide. This fine specimen was a centre of attraction in Barrie.

In a letter to THE HORTICULTURIST Mr. Love says this plant is very slow to grow. Being a biennial, it requires two years to mature. Seed planted one season comes up the next, and the plant makes 18 or 24 inches growth. In the fall this dies, and when growth comes

A Huge Scotch Thistle.

next spring it again grows and reaches maturity before winter comes. Thus, to have large specimens continually, young plants must be kept each year.

Very rich soil is required, and liberal watering should be given. This abnormal specimen was grown where an old water-closet had stood. In making the lawn Mr. Love levelled the ground and planted the thistle seed which developed into, what he terms, "the best Scotchman ever grown in Canada." As the root goes almost straight down, plenty of plant food considerably below the surface soil is required. Applications of manure water are practically worthless. It should not be planted in a shady place.

Vegetable Growing in New York and Massachusetts

A. McMeans, Agricultural College, Guelph

AS a result of the request made some time ago by the Ontario Vegetable Growers' Association, that the Department of Agriculture should send some person to investigate the work being done by the experiment stations, and to visit also a few of the leading commercial establishments in New York and some of the New England states, I was recently sent by The Department on such a trip. I left Guelph April 12, and was away for one week. During my absence I visited the New York Experiment Station, at Geneva, N.Y.; the Cornell Agricultural College, at Ithaca, N.Y.; the Hatch Experiment Station and Massachusetts Agricultural College at Amherst, Mass., and leading vegetable growers in the vicinity of Boston, Mass., and Rochester, N.Y.

While indirectly the agricultural colleges and experiment stations at these points have been of great value to vegetable growers, none of them, excepting possibly the experiment station in Massachusetts, have devoted special attention to experimental work for the benefit of vegetable growers. They all realize, however, the need for more work of this nature and are asking for increased grants to enable them to undertake it.

The practical fruit growers, whose places I visited, are conducting their work on a scale of such magnitude as to be undreamed of by the growers n Canada and they are still enlarging their plants. Canadian growers who are thinking of raising vegetables under glass on an extensive scale, would find it a most profitable trip could they visit their greenhouses.

WORK IN NEW YORK STATE

The New York Experimental Station is situated on a nice slope, about a little over a mile from the City of Geneva. The soil is a clay loam. I met Dr. Jordan, who handed me over to Prof. Hedrick, who is the horticulturist, and whose work has been devoted chiefly to fruit. There are two houses, about 20 x 50 feet each, devoted to vegetables. The houses are old and they are asking for new ones.

One house is devoted to head lettuce, of which 32 varieties were tried this season. Mills seedling is about the best, but they are not nearly satisfied yet. Leaf turn has caused considerable trouble. The other house is devoted to cucumbers, grown from seed, without handling or transplanting. The test is not proving satisfactory. They took off a crop of tomatoes from this house early in the season. The average weight per plant of 148 plants was 11 pounds; variety Lorillard. About two acres are devoted to a garden which is used chiefly to supply vegetables to the directors and others connected with the station.

THE MASSACHUSETTS STATION

At Amherst, Mass., Prof. Brooks introduced me to Prof. Stone, who took me in charge, with the excuse that they are not doing the work they should, as their houses are old and they are asking for an appropriation of $15,000 to rebuild at the experiment station and college. At the station there are three houses devoted to experimental work, chiefly in vegetables, especially tomatoes and cucumbers. Experiments have been conducted in sub-irrigation, sterilizing the soil, and in the application of electricity through the soil, and in charging the air. Electrodes in the soil proved beneficial on lettuce and radish. Sterilization of the soil proved of benefit to lettuce. Sub-irrigation was good for both lettuce and tomatoes.

At the Agricultural College, I met Prof. Waugh. Everything is on a commercial scale, flowers, fruit, vegetables and nursery. The students do the majority of the work at 12½ cents per hour. Thousands of vegetable plants were for sale. The houses at the college are devoted chiefly to flowers. Everything is sold and prices rule very high. Some opposition has been raised by the local trade to commercialism on the part of the college.

WORK AT CORNELL

At Cornell College, situated on a hill overlooking the City of Ithaca, N.Y., I found Prof. John Craig, an old Canadian, who took me in charge. The soil is a very heavy clay and unfitted for the carrying on of experiments with vegetables outdoors. The result is that they do their experimental work with the commercial men, in some suitable location. When growers are having trouble with their crops and write the college a member of the staff visits the grower's place and gives all the assistance possible, remaining for several days when necessary.

They have been carrying on some experiments with acetylene gas, using it for lighting purposes and running it at night to watch its effects on vegetables, chiefly beans, under glass. The results this year have not been satisfactory. They have a very nice setting of fruit, with their tomatoes, and find Lester's Prolific and Climax to have done the best.

The best object lesson I received on my trip was in the commercial centre, near Boston. The magnitude of the industry and the number and size of the vegetable forcing houses at Arlington, Belmont and other suburbs of Boston, is almost beyond belief. The largest of the Rawson greenhouses, at Arlington, attains to the great size of 50 x 400 feet, with frames of glass 20 x 30 inches. Hittinger Bros., at Belmont, among others, have one house 40 x 600 feet. There are many other establishments in the vicinity with houses nearly as extensive. Among others, I might mention Wyman Bros., Allen's, Tappan and Scane.

These people grow acres of lettuce, cucumbers, radishes, etc., in the winter, and exchange this product for bank accounts. Now, just a word as to why these men have been successful, and why it cannot very well be duplicated in Ontario. In so far as I could see, the element of success with the Yankee lies in his thoroughness. Nothing is too great for him to undertake, nothing is too small for him to neglect. To give an instance of detail: Hittinger Bro.'s large house, the one I just mentioned, was planted to cucumbers, trained to single stem. All laterals and tendrils were removed every other day. It is just a little thing, but it spelt success.

The Massachusetts type of house is what is known as the three-quarter span, running east and west, about five feet high on the south or long side, 15 feet to the ridge and about 10 feet of wall on the north side. Ground beds are used exclusively. The general plan is to grow two or three crops of lettuce, followed by cucumbers. The Boston lettuce grower begins operations in his forcing house on the following general plan. He first prepares his ground by watering thoroughly and digging into it about three inches of well-rotted horse manure. Then he sets out transplanted lettuce plants about eight inches apart. Should the beds become very dry, they are watered with a hose with no nozzle, giving a gentle stream of water. They try to place the water between the plants, keeping the lettuce itself as dry as possible. As soon as the lettuce covers the soil, all water is withheld until about two days before cutting, when it is watered freely to add increased weight and texture. After the lettuce begins to head the temperature at night is kept down to 40°. During the day it often runs up to 60°, but plenty of air is given. After cutting, the house is thoroughly fumigated, the soil saturated with water, and the process repeated.

A leaf from Mr. Rawson's note book, as I copied it from the wall of a greenhouse, regarding one house, may not be amiss: Lettuce, first crop set Oct. 11, 1902; second crop set Dec. 20, 1902; cucumbers set March 7, 1903. For

each of the two crops of lettuce grown, a very heavy coat of well-rotted manure is used so that when the time comes for cucumbers, the soil is well supplied with plant food. But this is not enough. Trenches about a foot wide and 18 inches deep, are dug from end to end of the house. Fermenting manure, to the depth of 10 inches, is then firmly packed in the trench, after the manner of hot beds. Soil, to the depth of eight inches, is placed on the manure and the general level restored. Cucumbers from six inch pots are then planted from three to four feet apart in these trenches, and are trained on trellises. The trellises are made by using A-shaped trusses of iron or wood (V-shaped at the row, but A-shaped as to the way the trusses or supports are constructed) reaching from the bed to nearly the glass, with wires eight inches apart running lengthwise of the house. The vines grow with great rapidity and are tied to the wires with string or raffia. When the work is well done, the fruit can be gathered from the underside without difficulty.

Anybody who will put their love in the work, who will take the pains and trouble, study conditions and be as thorough in their work as the easterner, should be able to duplicate their success. For the past five years I have been a convert to the ground bed, but after what I saw east, if I had any doubts, they were expelled, for I feel firmly convinced that for the growing of lettuce to produce a superior article, the raised bench is a thing of the past.

A BIG INDUSTRY

In the vicinity of Irondequoit, a suburb of Rochester, I should say there are over 100 different greenhouse plants, ranging from 1,000 to 500,000 feet in each plant, used exclusively for lettuce and cucumbers. It is all Boston Head lettuce which is followed by cucumbers. The majority train their cucumbers to single stems and let no fruit set until they reach a height of six or seven feet. They are planted three by about seven eet apart and trained, on twine, until they reach the desired height, when they are allowed to run overhead. All laterals and tendrils are removed. They use a cross of White Spine and Telegraph. As a result of my trip I was able to gather much valuable information that I believe can be made of value to the vegetable growers of Ontario.

To fight blight successfully potatoes should be planted wider apart than they require to be when there is no danger of this disease.—Jas. Dandridge, Humber Bay.

In growing vegetables under glass it is not sufficient merely to keep the plants from freezing; they must be kept growing or loss will be the result.—H. E. Reid, Toronto.

Home Made Cement Tile

OFTENTIMES when fruit or vegetable soils need underdraining, the work is neglected on account of the cost of tile. Many undrained soils would be drained if tile could be made at home. Ordinary six-inch tile costs about $45 per 1,000, and even at that high price they can scarcely be had. Brickmakers say they are not convenient to make as they take up too much space when drying.

These tiles can be made at home at odd times in winter and spring. Such work is a good means of profitably employing labor in the slack season, and of retaining skilled help that otherwise might be lost. Mr. C. E. Secord, of St. Catharines, makes his own tiles and makes them of cement, at the low cost of $15 per 1,000. During a recent interview he showed the writer the apparatus, and explained how the work is done.

THE APPARATUS

The bottom of the apparatus is a 3-inch plank about 12 in. wide and any length desired, say 18 ft. A heavy plank is used so that there will be no "spring" or "give" when weighted with the tiles. On this plank is placed a number of circular pieces of sheet iron (the bottom of the moulds), 8 in. in diameter, with a small hole in the centre sitting on a pin, or brad, driven into the plank 12 in. apart, and protruding upwards about 2 in. Around this sheet iron disc are a number of stout wire brads driven into the plank to hold the mould in place.

The mould consists of an outer "shell," made of two pieces of common sheet iron, 12 by 15 in. each, and a central "core" of solid wood, a cylinder 6 in. in diameter and 15 in. long. Such a mould will turn out a 6-inch tile with an outside diameter of 8 in. and 12 in. in length. The outer "shells" are bent in half circles, overlapping, and placed at the bottom, within the circle of brads on the plank. At the top they are held in place by an inch board with holes cut 8 in. in diameter and properly spaced, that is, 12 in. apart from centre to centre. The holes in this board fit over the upper ends of the "shells." Within each shell is placed a "core," the bottom end of which, being bored, sits over the central pin on the plank. The core protrudes 3 in. above the mould for ease in handling, and so that it can be twisted occasionally to make the inside of the tile smooth.

THE PROCESS

The mixture is made up of equal parts of fine sand and gravel about the size of wheat kernels, and one-sixth Portland cement. This is mixed in the ordinary way, but not too wet. When the mixture is prepared it is put in the moulds until they are about half full, then "tamped" or pounded well. Then the remainder is added, "tamped" again, and the top levelled off and smoothed. The moulds are allowed to "set" for about 24 hrs., after which they are removed, dried and stored until ready for use.—A. B. C.

The Fertilizers Act

Users of fertilizers are protected against fraud if they care to take advantage of an act passed by the Federal Parliament. Manufacturers are required to guarantee their product and any person that sells, offers or exposes for sale at a higher price than $10 per ton, a fertilizer containing less than eight per cent. available phosphoric acid, or four per cent. of ammonia or its equivalent in nitrogen or nitric acid, or when both phosphoric acid and ammonia are present, at least five per cent. of available phosphoric acid and two per cent. of ammonia or its equivalent in nitrogen or nitric acid shall be liable in each case to a penalty not exceeding $50 for the first offence and $100 for each subsequent offence, and in either case forfeiture of the fertilizer.

A deficiency of one per cent. is not considered as evidence of fraudulent intent. Fertilizers sent to the Inland Revenue Department, Ottawa, will be analyzed on payment of an established fee of $3.00.

Tomato Blight

Prof. W. Lochhead, Guelph, Ont.

The term blight is sometimes popularly applied to a bacterial disease causing the wilting of the stems and the foliage, and for an entirely different disease called the Black Rot of the fruit. The Tomato Black Rot most frequently attacks the fruit and reveals itself as large, black, sunken disease spots. In the real blight, however, it is the foliage that wilts, and at a later stage produces a discoloration of the stems and death results.

With regard to the Rot, it has been prevented by spraying with Bordeaux when the disease first appears, especially if the spraying is repeated at intervals of 10 or 15 days. In the case of the Blight, it is probably transmitted frequently by the potato beetle. If the flea beetles and potato beetles are kept in check there is less liability of the spread of the disease. It is always wise to remove the diseased plants as soon as the wilting shows itself. The crops should be rotated as much as possible.

Fighting Onion Mildew

ONION growers in various sections are seriously troubled with Onion Mildew, and frequently whole patches are destroyed. Several means of combatting the disease have been advised, but in most cases the ravage is not materially checked.

Last year, Mr. W. J. Justice, of Barrie, succeeded in saving a large patch of onions grown from sets. In a recent letter to THE HORTICULTURIST, Mr. Justice wrote: "In fighting the Onion Mildew I used lime and sulphur, dry. A few sprayings with Bordeaux mixture were given, but I don't think it is of any use for the purpose. I had been using lime and sulphur for two or three weeks before I wrote to the Ontario Agricultural College for advice, but was not succeeding as I thought I should. I wrote to the College and asked for a remedy, and found that for once I had guessed right. The onions affected were not seed onions; they were sets.

"A package containing specimens of affected onions were sent the College when I asked for the best treatment for the trouble. Professor Lochhead's reply was as follows:

'Onion Mildew is a destructive parasitic disease. As a rule the bulb is not affected, but if the trouble appears early the bulbs remain very small. After the fungus has secured an entrance into the onions it is difficult to cure. All we can hope to do is prevent it from spreading. In the early stages it can be checked by dusting with powdered quicklime and sulphur—twice as much lime as sulphur. This is best applied with a bellows when the plants are damp. Sulphide of potassium may be used one-quarter ounce to a gallon of water.

"Prevention rather than cure should be aimed at, and this can be assured if the known means are thoroughly carried out. The first appearance of the disease depends on resting spores of the fungus, and they are produced on leaves previously killed by the fungus. Therefore, it is necessary to collect and burn all diseased leaves. If they are allowed to rot on the ground, the resting spores are set free in the soil, and as they retain their vitality for at least two years, there is a constant and certain danger of the disease breaking out afresh. If practicable onions should not be grown on the same land more than once in three years. At the end of that time all resting spores are dead. Damp and shaded situations favor the spread of the summer form of the disease."

Growing the Celery Crop

AT the monthly meetings held by the Toronto vegetable growers during the winter months celery growing in its various phases was fully discussed. Several gardeners belonging to the Toronto branch association have had many years' experience with this crop, and are looked on as authorities.

The celery king of Humber Bay, Mr. Wm. Harris, said that on good celery ground the plants might be set outside about May 24, but much depended on the season. The earlier they were set out the better would be the crop of celery, as greater growth was made during the long days of summer. Later in the season, when the nights became longer, blight is caused if the soil is not well adapted to this crop. On heavier soil the plants should not be set out until June.

Some gardeners recommended setting the plants in rows 2½ feet apart, but Mr. Harris claimed the best celery is obtained when the rows are three or 3½ feet apart. He preferred planting them in double rows with a four-inch space and eight inches apart, because it saved lumber when the plants were being bleached. If the ground is dry more space can be given between the plants so that enough moisture will be furnished. He advised mulching with manure after the plants are six or seven inches high. In the best celery land the less cultivation given the better after the plants have reached that height, as black muck drys out freely when stirred. Besides, cultivation on such soil after the plants are about seven inches high, frequently causes blight. He claimed that this troublesome disease remains in the ground, and said that patches on which refuse from tanneries had been used as a fertilizer produced good celery free from blight. It was thought that the salt in this refuse had something to do with the absence of the trouble. Last year celery planted in double rows was affected more by blight than was that in the single rows.

It was claimed by Mr. Harris that black heart is found only on soil that is not adapted to celery growing. He had found it in his crop in odd places where the soil was not deep. Experience had shown him that celery cannot be grown on shallow soil, and that the deeper the soil the better the crop. Paris Golden Yellow is the variety best suited to his soil, and most sought after on the market. Some growers had said that it had a poor heart, but his experience showed that no other variety filled out as well as does the Paris Golden.

Mr. Courtice said that the supplying of a suitable market until late in the season is as important as the production of an ideal crop. Black swamp soils are suitable for producing celery for the early market, but if celery is wanted to keep late in the season it should be planted on a moderate grade on higher, well-drained soil. This soil must be kept continually cultivated. Celery of better keeping quality can be produced from planting in single rows than by the double row system. It should not be planted too early in the season.

The secret in producing long-keeping quality is to have the crop out as late as possible in the fall. He preferred not to take it in before November 10, and said that every three days it is left out after that time meant three weeks in the keeping quality and also makes it more edible.

The aim of celery growers should be to produce a first-class article. With such it is not hard to hold the trade. Mr. Courtice said he always took his celery to the customers in boxes well lined with paper, and instructed these customers not to leave it loose in the boxes and exposed to the air. If carefully handled and kept away from the air it will keep crisp for a week or longer.

The best keeping celery that he has grown is Evans' Triumph. It has a whole heart and the stocks are crisp. Paris Golden Yellow was much sought after on the market, but it has not as good a heart, and is seldom found free from strings. The length of time that celery can be kept depends on the season. He has kept it as late as March.

It was pointed out by Mr. Joseph Rush that Canadian celery growers have lost the art of keeping that crop. He said that when he first came to Canada he opened a pit on May 17, and sold it as late as June 10. This lot had been stored in a pit with sand in the bottom.

That the market demands a blanched celery, was referred to by Mr. J. McKay. The blanched sorts, he said, do not keep, and the green supply does not sell. If the customers would buy green celery Ontario growers could supply them, and one stick of it would be worth more than half a dozen of the goods now imported from California.

Budding is best performed when there is still sufficient sap beneath the bark to permit of the latter being easily raised with a knife. On the other hand, if the work is done when the tree is still growing vigorously the bud is liable to be "drowned out," or in other words, forced out by reason of too much sap and growth of the stock.— W. T. Macoun, Central Experimental Farm, Ottawa.

The Canadian Horticulturist

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THE EXPORTING OF FRUIT

This year there promises to be another bumper crop of fruit. From all sections, not only of Canada but from the United States as well, come reports that orchards have wintered in exceptionally fine condition and that prospects for a large crop of almost all varieties of fruit are bright. Unless unforeseen events occur there is danger that there may be a glut of at least certain varieties of fruit. This means that those growers who are able to market their fruit in the best condition will receive the top prices, and that inferior fruit may not be wanted at any price, For this reason large quantities may go to waste.

In the past the cooperative fruit growers' associations, where there has been a surplus of fruit, have saved the situation for their members by being able to dispose of their fruit when other growers in the same districts have been unable often to make sales. It is not too late yet for growers, where there are none of these associations, to meet and organize for the joint handling of their crops next fall. This should be done immediately. Only by being able to offer considerable quantities of fruit, properly graded and packed, will they be sure of receiving the best prices.

The increase in the number of cooperative associations of late years has forced another question to the front—the marketing of the fruit in Great Britain. The associations in Ontario, in some cases, have sold their output direct to English buyers, thus saving the middlemen's charges, exacted from growers, who sell to Canadian exporters. It has long been recognized that the consignment of fruit to Great Britain to be sold by auction is thoroughly unsatisfactory. A better system is needed. The Horticulturist has shown that there are many retailers and buyers in Great Britain who would like to establish connections direct with the growers on this side of the ocean. There is a possibility for a great development of this trade. Before it can be made a thorough success two things are necessary: an increase in the number of cooperative associations among the growers of Canada, and some means by which these associations can be placed in touch with the retailers and consumers in Great Britain.

Believing that we are just on the threshold of a vast increase in this work The Canadian Horticulturist has sent a member of its staff to Great Britain, where he will investigate the conditions at first hand, and report his observations through these columns. While abroad our representative, who is now on the ocean, will visit the leading import points, including Glasgow, Manchester, Liverpool, and London, where he will interview leading importers, the officers of retail grocers' associations and other people interested in the handling of Canadian fruit. His main object will be to place himself in touch with firms that are prepared to buy direct from Canadian growers. A list of their wants will be made and the information thus obtained will be made known for the benefit of the readers of The Horticulturist. Any of our subscribers who would like to place themselves in touch with British importers of Canadian fruit, and who believe that our representative while abroad may be able to assist them, are invited to write us immediately. The Horticulturist hopes that it will be able to gather information in Great Britain that will be of great value to Canadian fruit growers.

HORTICULTURAL SOCIETIES

The next two years should show a great increase in the number of horticultural societies in Ontario, and in the value of their work. The new act relating to horticultural societies makes this possible. By this act the two restrictions that have prevented the development of this work have been removed.

After this year it will be impossible for societies to hold exhibitions or to work in connection with agricultural societies. Many societies in Ontario have been doing this, including those at Strathroy, Aylmer, Renfrew, Goderich, and others. These societies have been devoting all their funds to holding exhibitions at the time of their local agricultural exhibitions. In this way they have neglected practically all the other lines of work, which have been carried on so successfully by the other societies in the province. It is not likely that the societies already established at these points will drop out of existence. Instead, they probably will expend their funds in holding separate exhibitions, distributing seeds among school children, civic improvement work, and in other efforts of a more valuable nature.

In other cities, such as Cornwall, where agricultural societies have prevented the formation of horticultural societies, there will be nothing to hinder the establishment of live horticultural societies. This should lead to a considerable increase in the number of these societies. Anticipating the formation of additional societies the total government grant has been increased by almost $1,500. For these reasons a great extension of horticultural work in Ontario may be confidently expected.

The market gardeners around most of the leading cities in Ontario have organized branches of the Ontario Vegetable Growers' Association, and are beginning to make known the fact that their profession is a most difficult one, that requires even more scientific knowledge than any other of an agricultural or horticultural nature. The various steps the growers are taking to develop the industry and to introduce improved methods of culture, are meeting with marked success. There is one point, however, on which not much has been said, but to which attention should be given. There are too many market gardeners who do not pay the attention they should to their personal appearance. They seem to think that no person expects them to dress neatly and to look as well as other business men, and they make this an excuse for a neglect in the matter of their clothes and of their wagons, that results greatly to their own injury. A neat, serviceable suit of clothes and a coat of paint on his wagon would not cost a gardener much in a year, and would help to raise the standing of the profession.

The Toronto Horticultural Society is likely to benefit more than any other society in the province by the new Horticultural Societies Act. In the past the Toronto society, although located in the largest city in the province, has received an annual grant of only $140, although the societies in Ottawa and Hamilton have received grants of $350 each. This has been because a dummy agricultural society in Toronto, that has never held an exhibition, has taken money that otherwise would have gone to the horticultural society. Under the new act the Toronto society will be able to participate in the special grant of $800, made to the four societies in Ottawa, Toronto, Hamilton and London, and also in the general grant to the societies throughout the province. Its grant, thus, will be greatly increased so that it should become one of the strongest and best societies in the province.

The Ontario Vegetable Growers' Association is making a name for itself. It has a membership exceeding 400, which is considerably larger than that of any other association in the province, although its government grant is much the smallest of any of the associations, being only one-third of that of the Ontario Fruit Growers' Association, and less than one-third of the grants to the Dairymen's Associations. Its proposal to offer prizes for the best crops of celery grown in the province and to require the competitors to furnish full information in regard to their methods of growing their crops should create great interest and help to still further strengthen the association.

When giving his evidence before the select standing committee on Agriculture and Colonization, Dairy Commissioner J. A. Ruddick, after announcing that the work of his branch is divided into four divisions (the dairy, fruit, extension of markets and cold storage), had the following to say: "I would suggest, Mr. Chairman, that the matters relating to the Fruit Division be left for the chief of that division, Mr. A. McNeill, to explain to the committee. He is much more familiar with the details than I am, and I think you would prefer to have him give evidence with respect to that particular division." If the chief of the fruit division is better acquainted with the details of the fruit division than is the head of the division, and better able to give evidence before the Committee of Agriculture, why should he not be given full credit for his work and made the fruit commissioner?

Presents for Our Readers

Our readers will be given their choice of the following premiums, **provided that when purchasing from our advertisers they tell them that they were induced to buy goods from them through seeing their advertisement in The Canadian Horticulturist:** 3 months' renewal subscription to The Horticulturist; 1 Cyclamen bulb; 1 Lilium Auratum bulb; 1 Lilium Rubrum bulb; 1 Gloxinia bulb; 1 Asparagus Plumosus Nanus plant; 1 Resurrection plant; 1 new variety Rex Begonia; 1 Pteris Fern; 1 Rubber Plant; 1 Swainsonia plant; 1 Wonder Lemon plant; 1 Boston Ivy; Book on Strawberry Culture; Collection of 6 Tuberous Begonias; Sweet-scented Calla bulb; New Fern, Nephrolepsis Piersoni; Dahlia, "Mrs. Roosevelt," new; Book on Bulbs and Bulbous Plants; Book on Fertilizers; Book on Injurious Insects; Plant Diseases and their Remedies; Book on Onion Culture; Book on Tomato Culture; Book, Your Plants, House and Garden; Collection of 6 Gladioli Bulbs. No premium given to those whose purchase amounts to less than $1.00.

Prince Edward Island Letter

Rev. Father A. E. Burke, Alberton

FOLLOWING closely on the demand made at Ottawa, Inspector Richard Burke, who, unfortunately, has not been retained on the permanent list of fruit inspectors, much as he is needed in that capacity here, will give a series of 12 instruction meetings over the province, four in each county, in the month of June. Mr. Burke was obliged to interrupt this very important work last season, at a time, too, when we needed it worse than ever in our horticultural history. We had gone through a crucial period; great breakdowns were everywhere discernible in our plantations owing to the extraordinary snowfall of the winter of 1905. The people had only started in the orcharding business. A fit of economy struck the department, or some unwise counsel prevailed in the case.

When Dr. James W. Robertson was General Commissioner, knowing P.E.I. better than any other official at Ottawa, and being desirous of helping her in the restricted matters in which she could successfully engage, there was no trouble in getting the assistance required to promote agricultural interests, from dairying to fruit growing. He loved the Island, and knew she could give a good account of herself in the new field. In the Normal School Hall at Ottawa recently, when all the provinces of the Dominion were represented, the Minister said one thing of P.E.I. apples which we were glad to hear. He said P.E.I. apples may be smaller than those of some of the other provinces, but they are the best colored and best flavored in the world. He might have added, too, that they are the longest keeping apples grown—and this not because they are often of the Ben Davis class!

The change which followed Dr. Robertson's relinquishment of government work has not been to our advantage. The whole official horticultural work of Canada has been in some way degraded. It cannot be restored properly to its rightful place and set out on the almost infinite field before it, until its chief has direct appeal to the minister, and until there is a Horticultural Commissioner at Ottawa, as well as a Dairy Commissioner, a Seeds Commissioner and a Live Stock Commissioner.

The meetings which Inspector Burke now undertakes should be of great benefit, not only in repairing and enthusing horticulturally, but in ascertaining the actual state of things, and suggesting the means which must be introduced in order to make this fruitful little province what it easily can be made—an orchard from end to end.

We notice a great deal of erosion of fertile soils this year—a great loss of the fertility of field, which the flood unimpeded carries away to the ocean. The planting of trees in needed localities will greatly help this, and the planting of apple areas at proper distances from evergreen windbreaks will indirectly help this work, as well as directly turn in the dollars so essential to successful husbandry everywhere.

There will be considerable planting out of trees this spring as usual. There is no use in doing so if they are not protected against cattle by proper fencing and fertilized like any other crop. Good money is actually thrown away in buying trees to be stuck out in the open, unfenced, unprotected and uncared. Leave the tree-planting till you are ready for it, and get good and ready at once. There is nothing which will do more to make your life enjoyable in this beautiful place than a plantation of apple trees intelligently tended.

The Winnipeg Market

J. J. Philp, D.F.I., Winnipeg

WHEN one begins to contemplate the wonderful strides that the City of Winnipeg is making, one begins to realize that the reality has the realms of romance practically skinned alive. Probably this is not an elegant phrase, but it is true. Winnipeg at the last census had a population of 40,369. By the estimate of the assessment commissioner (and he is very conservative), there are in this city today not less than 97,000 some hundreds of a population, an increase in five years of almost 150 per cent., or in other words, where there were in 1901 two people here, there are now five.

The bank clearings have reached a point where they are the largest in the Dominion; the taxable property increased last year to the extent of $10,000,000. A year ago it was said that there was a great many more houses being built than was needed; this year up to date the increase is almost double that of last year, and still the patient householder has not received any notice that the burden of rent under which he is laboring, and which is in most cases fully one-third of the average man's salary, is to be reduced.

That the fruit interests have advanced along with the others goes without saying. I have just gathered from the dealers here a count of the number of cars they have severally handled since April 1, and find it reaches the astonishing number of 170 cars of fruit and vegetables, and by vegetables I do not include potatoes and that kind of thing shipped in from provincial points, but pie plant, tomatoes, and new cabbage from the south. About 40 of these cars were bananas, then comes oranges, and all the other varieties of fruit that are in season at this time of the year. One carload of apples cost on arrival here $1,632. There is, also, one car of strawberries in the lot. In commenting on this state of affairs the eastern men can judge for themselves whether or not it is worth their while to try to capture the bulk of this trade, but I wish to draw their attention to one or two points, which are very apparent to me, and in doing so I shall "Nothing extenuate, nor set ought down in malice."

The charge has frequently been made that the Winnipeg people are not willing to pay a fair price for a good article. This is manifestly unfair, and can easily be proven to be incorrect, but one must discriminate. There is a vast difference between a disposition to pay a fair price for a first-rate article, and a refusal to be held up for a big price for something that is worth perhaps but little more than the freight.

In writing these letters it is to be distinctly understood that I am voicing nobody's sentiments but my own, and I am writing ex-officio at that. The press reports an extraordinary good show for peaches at Leamington. If this is correct, now is the time to perfect the plans to get them to this market, and not wait till the week they are to be shipped.

This is a ticklish subject to touch, but without wishing to give offence, one cannot but deprecate the sad want of self-reliance that is apparent in the actions of the fruit growers. They have the Railway Commission at their disposal to help them lick the transportation companies into line, and that is a great advantage compared with the conditions that used to obtain in years past.

The prospects for a great and successful business the present season are better than ever before, but it is only by being prepared and ready to take advantage of the opportunities that one can get their share of the benefits.

If by writing these letters or answering any private communications I can help any one to share in the general prosperity, I shall be only too glad to do all I can.

Montreal Fruit Trade Letter

E. H. Wartman, D.F.I.

Several steamers have left this port for England, but I have heard of no apples going forward on any of them. Usually a few consignments are sent on the first steamers out in May. The reason for none going this year is that number one Spies are worth $7 a barrel here with no risk to run.

The only new fruit coming in is strawberries. Those from North Carolina are in good condition. The boxes contain full imperial quarts, 32 to the crate. Although they are selling cheap for so early, 11 to 13 cts., the demand is not keen The weather early in May was too cool.

If berries can be landed in Montreal from Florida and North Carolina in perfect condition, what about our early apples that ripen in July and August, and arrive on our markets in rotten condition? If they were packed in cool storage buildings, instead of outdoors and in heated buildings, and shipped in well-iced cars, they, also, would arrive in good condition. If our numerous apple houses, which are generally close to lakes and rivers, had ice houses to hold a sufficient quantity, not only to cool the packing rooms, but to ice the cars when ready to load, this would help to remedy matters. There could be tanks at proper distances apart in these packing houses to hold about one ton of ice each. If this were done and the building closed, in a few hours the temperature would be low enough to commence work. There would be plenty of men glad to take a contract to put in ice to fill these houses at 25 to 35 cts. per ton. If apples are put up at a temperature of 70 to 80 degrees and never cooled, what could we expect but disaster? When fruit can be cooled so cheaply it never pays to run any risk. Sometimes even in the middle of October a few hot days come. Hot weather at this time frequently does untold harm and results in heavy loss to the fruit shippers.

Our Nova Scotia Letter

G. H. Vroom, D.F.I.

The spring in N.S. has been cold and wet. The rains have been frequent and heavy. North and east winds have helped to retard the work of cultivation and cause vegetation to come along slowly. The past week has been better and the fruit trees are showing considerable life. On some early varieties of apples the bloom is beginning to show.

All kinds of fruit will bloom full, and the prospect for an average crop is exceedingly good Spraying is being carried on extensively, particularly in the counties of Kings and Hants. The power-spraying outfit is doing good work in Falmouth and giving general satisfaction. The tent caterpillar is very troublesome in this locality as well as the other pests orchardists have to contend with, and the fruit growers are awake and will profit by the demonstrations given this season with the power outfit.

Shipping Green Melons

W. A. Emory, Aldershot

The foolish practice of growers shipping green melons is hurting the melon trade more than anything else. Green melons are fit for nothing else than feeding to hogs. A consumer who buys a green melon never wants another.

We had a good trade in melons in Montreal, but lost it because growers insisted on shipping green melons. We cannot get nearly as high prices as we used to. The fruit inspectors do not seem to know anything about melons or they would stop this practice.

Practical Pointers from Practical Persons

Picked up and Penned by A. B. Cutting, B.S.A., Special Correspondent of The Horticulturist, who is visiting the homes of fruit growers in the Niagara District

THE work of the Dominion fruit inspectors in conjunction with the Fruit Division at Ottawa is highly commended by every progressive person connected with the fruit industry. Our country is so large, and the business of fruit growing is so extensive, it is gratifying to contemplate the amount of good work done in the comparatively short time since the Canadian Fruit Marks Act became law. Although past and present results give us reason to appreciate what has already been done, there is room for more inspectors and for more work in this direction throughout all parts of the Dominion. Among the districts that feel the need of more rigid inspection, particularly in the matter of tender fruits, is the Niagara peninsula. Among dealers and shippers, and all honest growers, there is a general desire for the appointment of a special inspector for that district during the tender fruit season. Such an appointment would not only insure more uniform and honest packing, correct style and size of packages, etc., but it also would be a material boon to the growers themselves. Such a system of rigid inspection would make it easier for the buyer to pay the producer more money for his fruit; for the buyer could then buy almost on a guarantee basis.

WANTED: AN INSPECTOR OF TENDER FRUITS

Mr. E. L. Jennett, of Beamsville, expressed himself on this matter somewhat as follows: "The growers in this district who sell to the dealer are not so particular in the matter of packing as they were when selling on commission. From Jordan west, most of the fruit is sold at the point of shipment, and the principal ambition of the grower seems to be to get it on the hands of the dealer. Under this arrangement, the grower does not seem to care whether the fruit is honestly put up or not. He knows that the dealer hasn't time to inspect every basket of peaches or grapes that he buys on rush days. Then, when the fruit is shipped and turns out wrong, there is no way to trace the original packer or grower. The growers cannot bring their fruit to the shipping house until the last minute, then it has to be rushed off. We have fruit inspectors now, but they cannot be everywhere at once. Yet, what is the good of having inspectors at all if the dealer himself has to do the inspecting? We need a permanent inspector for this district, and one man could cover the whole Niagara peninsula. The inspection should be done at the point of shipment, not at the other end. The dealers themselves would gladly put the inspector wise to any suspicious cases. And the grower would soon see that dishonest methods in packing and packages do not pay. If the growers knew that at any day or hour the inspector is apt to be on the shipping platform there would soon be a marked improvement in these things. The dealers themselves could afford to increase the buying price if they could buy with a feeling of security."

"We need a regular inspector for the Niagara district," said Mr. S. M. Culp, Beamsville, "because it is impossible for dealers to inspect fruit during the rush season. Last season I bought a carload of strawberries and shipped them to the Maritime provinces. They turned out to be mostly trash. They came in to me in a hurry and I had not time to inspect them. I depended on the honesty of the growers and, of course, got all the blame from the consignees in the east. The appointment of a special inspector for this district would do away with cases of this kind. Under existing conditions fraudulent packers get as much money for their fruit as honest ones. The lack of a permanent inspector down here puts a premium on fraud. We need an inspector, and also, I believe, we should have legislation to compel growers to use a number, or their name, on all open packages—the number, if such is used, to be designated by the buyer. By the use of such numbers dishonestly packed packages could be traced to the man who originally put them up."

STRAWBERRIES

In the Burlington district the strawberry prospects are not very promising. Many plantations have been more or less injured by the exceptional conditions of the past winter. Generally speaking, those patches that were covered with some protective material, such as straw or coarse manure, have come through in good shape; while 60 per cent. of those uncovered are injured. Among varieties, the Williams seems to have suffered most, as it is not as hardy as some others.

Many illustrations of the value of mulching for winter protection are to be found in the locality. "I mulched all my patch but a small corner," said Mr. J. A. Lindley, Burlington, "and the result is that those mulched came through in good condition; the unmulched corner is badly killed and going back every day, and probably will do so until picking time."

A few general pointers on strawberries were given the writer by Mr. Wm. F. W. Fisher, one of the best informed strawberry men in the district. He emphasizes the importance, when harvesting, of keeping the rows picked clean, and also of keeping the picked fruit in the shade as far as possible. He said also that it is best never to put more than one variety in the same crate. Two or more kinds in a crate hurt the appearance of the package when placed on the market. For the sake of appearance, also, the top layer of berries may be placed with the hulls or calyx end down, but in a rush this cannot always be done; still, when it is done and done honestly—not "topping off" with large berries—the basket will often bring two cents more than those in which the berries are thrown in a haphazard fashion.

The writer has observed, and Mr. Fisher agrees with him, that those varieties of strawberries that are the most acid or tart in flavor are usually the best shippers and longest keepers. For example, Williams, Lovett, and Leader possess a degree of acidity beyond most others, and it is well known that they are among the best, if not the best, for shipping purposes. Others again, particularly early varieties, like Michel's, that are sweet, but not acid, seldom are good keepers and shippers. We call attention to this point as it may be of value, one way or another, in the selection of shipping varieties and in the manner of marketing varieties already on hand.

CULTIVATING LOW-HEADED TREES

The advantages of maintaining low-headed trees in a peach orchard have already been mentioned many times in the columns of THE HORTICULTURIST, yet there are many growers who object to this practice on the ground of extra labor at the time of cultivating. Mr. Willis T. Mann, Barker, N.Y., in the course of an address in the Niagara district this spring, pointed out a simple method of overcoming this difficulty. His plan in low-headed orchards is to plow in spring as close to the trees as possible, and then use an ordinary low spring tooth harrow to level this down and to loosen up the soil near the trees that cannot be reached with the plow. A harrow must be used that has two sections, and these sections should be extended or separated by means of a wide "evener" or "spreader" fastened between them. The width of the spreader will depend upon the distance between the plowed area and the trunks of the trees. On very light soils a smoothing harrow may be used instead, if adjusted in a similar manner.

QUINCE TREES REQUIRE ATTENTION

Success with quinces is not so general as with most other fruits. Some of the best to be found in our markets are grown by Mr. C. C. Pettit, Fruitland. These are from trees planted on a black clay loam incumbent upon a heavy clay subsoil. The trees are well cultivated, sprayed and pruned. The pruning consists of regularly thinning out the branches with sufficient heading back to correct growth. The two leading varieties are grown, viz., Orange and Champion. The former is the larger, but it is more apt to crack and break open than Champion.

THE PEAR PSYLLA.

"The pear psylla is as bad a pest on pears, particularly on Bartlett's, as the San Jose Scale is on peaches. It is very difficult to combat. Growers should be on the watch for it as it is becoming more prevalent every year," said Mr. Jos. Tweddle, of Fruitland. He recommends for treatment the lime and sulphur wash, applied thoroughly in early spring. For best results the trees should be sprayed four times, going east and west and spraying both sides; then north and south both sides.

GOVERNMENT INSPECTION

Mr. W. E. Biggar, San Jose Scale inspector for township of Saltfleet, Ontario, told the writer that he finds his territory almost free from scale as compared with the situation three or four years ago. The growers have learned that the scale can be controlled by the lime and sulphur wash, and are taking advantage of that fact. Orchards known to be infected are watched and neighboring orchards are protected. "I know of a particular orchard," said Mr. Biggar, "an orchard of 100 acres that three years ago was badly infected in parts with scale. The owner being determined to stamp it out, used the lime and sulphur wash with persistence and thoroughness, and now you would need more than an ordinary microscope to find a live scale in the orchard." Mr. Biggar said also that black knot was practically wiped out of the township, but fears the spread of "little peach," a new disease in this country, which has recently made its appearance, and which is akin in character to peach rosette.

SPRAYING MIXTURE

Mr. Thos Beattie, San Jose Scale inspector for city of St. Catharines, has used all mixtures yet recommended and finds Carlson's mixture to be more practical and more satisfactory than any other. "It is the only treatment for scale that I can honestly recommend. It is the easiest and cleanest to apply, the easiest on harness and machine, and it is the cheapest in the long run. I can cover as many trees with one barrel of Carlson's as with three barrels of lime and sulphur. It is the best for city lots as it does not destroy paint nor discolor buildings like lime and sulphur." In St. Catharines the scale is very prevalent in all grounds where no treatment has been applied. I have found it on all kinds of fruit trees except apricot and sour cherries. Also on mountain ash, on Japan quince, on thorns of all kinds, on privet and very bad on lilacs."

SPRAY AT THE RIGHT TIME.

"Spraying pays," said Mr. Gabriel Overholt, of Jordan, "but one spraying at the right time is worth half a dozen at the wrong time." This

view is held also by Mr. G. C. Caston, of Craighurst, who contends that should growers find time for only one spraying in a season, that one should be with copper sulphate, three pounds in 40 gallons of water, and done early in spring when trees are dormant.

Prizes for Celery Growers

At a meeting of the Executive Committee of the Ont. Vegetable Growers' Assn., held in Toronto May 22, it was decided to recommend to the branch associations throughout the province that prizes be offered this year for the best crops of celery; judges to be sent around to inspect the different crops. As submitted to the branch associations for their approval, it is proposed that the competition shall be conducted as follows: That there shall be two classes, one for growers with 1,000 to 10,000 plants, and one for growers with 10,000 plants or over, competitors to enter their whole crop. Five prizes will be offered in each class of $25, $20, $15, $10, and $5 each.

Competitors must be members of the assn., and must send their entries to the secretary of the provincial assn. by July 10, accompanied by an entry fee of $1. Judging will start Aug. 1, and will be completed by Aug. 15. The committee reserves the right to make such alterations in the regulations governing the competition as later may seem desirable. Should either class have less than six entries, the committee reserves the right to cancel any or all the prizes in such class. Each competitor will be required to furnish full information in regard to his method of growing his crop and the completeness and value of the information thus furnished will be taken into consideration by the judges in awarding the prizes, and later will be published in the annual report of the assn.

The sec.-treas. was authorized to watch the bulletins issued by the various U.S. expt. stations and to purchase extra copies for the members of the assn. when same are likely to be of value and can be bought at reasonable prices.

It was decided to correspond with the Ont. Fruit Growers' Assn. favoring joint action in approaching the Dominion Minister of Agri. to request that the next census figures shall be so arranged as to separate the figures showing the total production of vegetables and fruit which hitherto, in some important sections, have been lumped together.

Ottawa Horticultural Society

Some new features will be introduced by the Ottawa Horticultural Soc. this year. The exhibitions of flowers instead of lasting only one evening, will be continued until 5 o'clock the following dav, so that more people may see them. Exhibitors who remove their exhibits before the close of the show forfeit their prizes.

The inaugural exhibition was held last week and was a great success. At each exhibition three prizes of $8, $5 and $2 are offered for the best displays of cut flowers arranged for effect in a space 20 sq. ft. in size. This is one of the features of the exhibitions. Lady Grey has announced that she will continue the garden competitions that were introduced and conducted by Lady Minto. The work among the school children of the city, that has been conducted for several years by Mayor Ellis and Mr. R. B. Whyte, will be continued this year. Interesting addresses are given at each of the monthly meetings.

Russet apples should be packed in a close box because they evaporate and become wrinkled so quickly. A close box tends to prevent this evaporation. — A. McNeill, Chief of Fruit Division, Ottawa.

THE HORTICULTURIST is going ahead of all others in the matters of horticulture.—Nelson Caron, Prairie de Loup, Que.

A Large Crop of Fruit Probable

THE following reports on fruit crop conditions in N.S., Que., and Ont. were received too late for publication in our last issue, but are still of interest. They show prospects for a large crop of fruit in all three provinces are bright.

NOVA SCOTIA

Trees have wintered all right. I do not see any winter killing; no loss from mice, no breaking with snow. We ought to have a good crop of apples, but it is June that tells the tale. Orchard setting is up to former years. Many farmers are increasing their settings, and commercial orchards as a business proposition are becoming more common. Better care is being taken, clean cultivation and cover crops in midsummer becoming the rule rather than the exception. Spraying for fungii and insects will be practised this year in tenfold ratio, as last year's experience was an eye-opener to many: 100 pumps have been sold for use in this section—R. S. Eaton, Berwick, N.S.

Fruit trees wintered splendidly; even peaches. Every variety of fruit looks well. Quie a few persons have planted 1,000 apple trees each. This has become so common a piece of work that it creates no remarks. Large numbers are planting 200 to 500. Plum, peach and apple were light last year, and we expect a good showing, possibly 800,000 bbls. We should have this if a good year.—R. S. Eaton, Kentville.

QUEBEC.

Fruit trees are in good condition. Many of our orchardists are increasing their acreage year by year, and the present season is no exception. Fameuse and McIntosh Red are the favorite varieties. An unusual amount of dead wood was pruned from old orchards this year, likely due to the excessive cold winter of 1903-4. The past winter has been an unusually open one for this province, and vegetation has suffered more or less. Grass in many sections is injured, also shrubbery, such as rose bushes, raspberries and blackberry canes and strawberry plants, where not properly covered.—J. M. Fisk, Abbotsford.

ONTARIO

Prospects for all kinds of fruit in the Lake Huron district are very good. Trees and plants came through the winter in first-class condition. Very little planting is being done, only a few trees here and there filling in vacant places. The Bruce Fruit Growers' Assn. is making arrangements to put up an evaporator in connection with their packing house.—A. E. Sherrington, Walkerton.

There has been a great appearance of bloom, with buds very full and strong. Even the peach trees wintered well. There was very little planting done. People seem to have got completely discouraged with condition of affairs during last few years. However, I think this will soon change, as I notice more interest being taken in the orchards this spring in the way of pruning, spraying, etc., than for many years. The Georgian Bay Fruit Growers, Ltd., are again to the front with highest prices in British market for apples. March shipments averaged on all grades $4.55 net at Thornbury.—J. G. Mitchell, Clarksburg.

Fruit prospects were never better in the apple line. Pears seem to have suffered some. Peaches are almost a failure. Plums, also, especially the Japanese have suffered. Our section is mainly an apple and pear one, so that we do not feel the loss of plums and peaches very seriously. There may, however, still be a fair crop of these. Apples seem to be in very good condition. We have been busy with two power outfits spraying, and hope for a bumper crop.—W. D. A. Ross, Chatham.

Fruit Preservatives

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

For a number of years past experiments have been carried on to ascertain the most satisfactory fluids for the preservation of fruits for exhibition purposes—fluids which not only would be antiseptic, but also, as far as possible, would keep the fruit with its natural size and color. For the information of those who may have occasion to exhibit fruit several months after it is picked, the results of these trials, with recommendations, have been published from time to time as the work progressed. In the course of investigation the merits of more than 50 solutions with various kinds of fruit have been tested. That the problem is a difficult one will be apparent from the fact that more than 75% of these fluids have been found more or less unsatisfactory.

The experience gained from trials made during the season of 1905 enables us to offer the following recommendations, the final examination of the fruit being made on April 1, 1906. Much credit for the success in this work must be accorded Mr. W. H. Charlton, of the chemical staff, who has had this investigation under his charge.

STRAWBERRIES

The most satisfactory fluid for this fruit is formalin, 2%; hydrogen peroxide, 2%; alcohol, 10%. It has been under trial for two years, and berries kept in it for this period have retained, in a very large measure, their natural appearance.

RED CURRANTS

A fluid of zinc chloride 3% and alcohol 10% has given excellent results, and can be strongly recommended.

GOOSEBERRIES

Copper sulphate 1% and alcohol 10% can be spoken of in the highest terms. Fruit of last season has retained its natural form and color practically unimpaired. There was no splitting of the fruit or apparent shrinkage.

RASPBERRIES, RED AND PURPLE

This is a difficult fruit to preserve without the fluid becoming so dark that the berries can scarcely be seen. By an occasional change of fluid, alum 5% gives fairly good results. It is the best of the many solutions experimented with.

PEAS AND BEANS

Zinc chloride 3% and alcohol 10% has proved very good for preserving peas in the pod. The samples retained their natural color and appearance. For green beans in the pod a solution of sodium sulphide 4% has been found excellent, and can be recommended.

When possible distilled water should be used in making up these fluids. Having determined the quantity of fluid required, the amount of the various chemicals to use may be readily ascertained by remembering that one gal. is practically 160 ozs. Ten %, therefore, means 16 oz., 5%, eight oz. to the gallon, and so on.

We are Booming in Canada.—I must congratulate you on the great improvement in THE CANADIAN HORTICULTURIST. You are doing good work at Toronto. THE HORTICULTURIST is one of the very best papers of many horticultural journals we have on file here. I read with great interest the report of the recent meeting of the Ontario Fruit Growers' Association. Horticultural affairs certainly are booming in Canada.—(Prof. W. N. Hutt, Agricultural Experiment Station, Maryland, U.S.A.

Condition of Vegetable Crops in Ontario

THE following reports have been received from the crop correspondents in Ontario of the Ontario Vegetable Growers Association:

TORONTO

Humber Bay.—Although the season was very late, the ground has worked up well, and the vegetable growers have got a move on, and it is wonderful to see how well the crops are looking and how forward they are. Asparagus cutting is in progress, rather light crop as yet. Rhubarb is rather late this season, and has held its price well. There will not be more than half the quantity there was last year from this district on account of the large amount lifted last fall for winter forcing. Pull light and keep the price up to 20c. per doz. Peas are up and looking well, but in small lots. Large lots of early cabbage are planted and doing well. Early beets, to all appearance, are growing fine, and will be a large crop. Dutch sets are doing well, being planted in large quantities. Some very early ones were ready for market by May 24. Spring spinach is well forward and if the weather continues warm will be ready by June 1. Big supplies of lettuce and radishes from greenhouses and hotbeds are still on the market. Outside radishes will be ready for pulling the last week of May. There are large quantities of early celery planted.—J. W. Rush.

Bracondale.—Crops are not looking as well as usual, owing to the dry, cold weather. The transplanted beets, of which there are a greater number than formerly, are looking well, as are also the transplanted lettuce, but the seed beets and carrots are very poor. Spring spinach is doing very well; growers started to cut May 17, the price being $1 per bush. Outside radishes are very good, growers are pulling them at 30c. to 40c. per doz. We are long on rhubarb at any old price. Asparagus has suffered through the cold weather. There are a number of new beds being planted. The onion sets will be ready for marketing by the end of this week; they are doing very nicely.—A. W. Shuter.

BURLINGTON

Asparagus and rhubarb have not been as abundant as last season, the weather having been too cool and damp, but prices have been good. Asparagus up to date has averaged $1 per doz., and rhubarb 35c. per doz. About the same acreage of early potatoes as usual has been planted, and they are coming along nicely. More unions than usual will be grown; they are doing nicely. Cabbage is growing rapidly, but not a great deal has been put out. Cauliflower will be about the same as usual. All of the vegetables grown under glass for outside planting are in advance of last season, but owing to the weather very little has been planted out as yet. Tomatoes, both early and late, will be extensively planted. Commercial fertilizers are being freely used by most of the gardeners.—J. A. Lindley.

SCOTLAND

There will be about the same acreage of vegetables as last year. About 150 acres of onions have been planted. The plants have come up nicely and the growers have started through them with the weed hoes. Some cucumbers are being grown for pickles.

CHATHAM

The season is very backward and a good many seeds that were sown a month ago have not yet made their appearance above ground. Tomato planting is being delayed. Some that were planted were frozen, but the bulk of the crop is not yet planted in the field. There has been a plentiful supply of lettuce, the demand for which has been increasing very rapidly of late years. Ten years ago very little lettuce was sold, and most of it was imported from Detroit. Now, hundreds of pounds are sold weekly, and nearly all home grown. Radishes (outdoor) have just made their appearance, but are very small in size and quantity. Onions are looking well, but are making very slow growth. Asparagus is plentiful, and a very good size. Strawberries are looking very promising; some of the early blossoms were frozen, but the later ones are only just appearing. Potato planting is progressing; some early ones are making their appearance. Market prices are as follows: Lettuce, wholesale, 15c. per lb.; retail, 20c. per lb.; bunch of 18 radishes, 50c. per doz. wholesale, 5c. bunch retail; potatoes $1 per bag; bunch, 8 in. circumference, asparagus, 50c. per doz. wholesale; 6c. bunch retail.—Fred Collins.

NAPANEE

There will be a marked increase in the acreage of potatoes, tomatoes and unions, owing to the high prices. Potatoes are worth $1 to $1.25 per bag, 90 lbs., according to quality. Onions are very scarce, and are worth for good sample $1 per bush. There is a very large acreage of tomatoes, mostly contracted to Napanee Canning Co. at 25c. per bush. of 60 lbs. Other vegetables are about the same as other seasons. No new growers—at least, I could not find any—E. M. Sherman.

KINGSTON

Vegetation in almost every line is 2 to 3 weeks behind last season's condition at this date. On the night of May 20 we had a severe frost. Early potatoes, beans, etc., just showing above ground perished. Tomatoes have not been taken from the beds, and from present appearances will not be for some time. Cabbages already out are making no progress, except in very favorable locations where soil is a good depth and the rays of the sun reach them directly. Small seeds, such as onions, carrots and parsnips are in some instances above ground and waiting an opportunity to go further. A heavy rain fell May 13 that formed a crust on soils of a cloggy nature. The Egyptian, or perennial, onion seems to make satisfactory progress, and can be marketed. Lettuce taken from the beds and placed in favored spots is making no progress. In quoting prices by quantity on Kingston market, potatoes sell at 90c. to $1 per bag; onions, last year's growth, 20c. to 25c. per peck; exceptionally good ones may reach 40c. per peck. Green onions are sold only in bunch, and are offered at 40c. to 50c. per doz. bchs. Lettuce and rhubarb are offered in same form and sell at a similar price. No increase in area for vegetables is noticeable, though a better system of cultivation, aided by more favorable conditions of weather, will probably lead to an increased yield compared with previous seasons.—Chas. F. Adair.

PRINCE EDWARD COUNTY

The acreage of beans, turnips and tomatoes will be larger this year than last. Corn, peas and berries will be less than last year. As this county is surrounded by water it makes all vegetables late. We had frost May 20.—Stephen Lake, West Lake.

Doncaster.—There will be very little change in the crops grown this season. There will probably be rather more celery grown than last year. Some of the gardeners are dropping seed onions altogether, so that the acreage of onions will be rather less than last year, but it will not be a great decrease.

Early potatoes, cabbage, cauliflower and other common crops will be grown in about the usual quantity. The season is rather backward for early vegetables. While bunched onions and rhubarb are very plentiful, asparagus, radishes and spinach are coming in in very limited quantities, most of the fall spinach having been killed out during the winter.—C. Gibbard.

NIAGARA FALLS SOUTH

Planting of early sweet corn, squash, beans, cucumbers, melons about completed. Several risky ones setting out early tomatoes, peppers and egg plants. Cold winds and weather of the fore part of May retarded the growth of early garden stuff, slight injury being inflicted by 3 or 4 white frosts week of May 20. Tomatoes, corn, beans and beets are being contracted for canning factories at last year's prices. Although there is a new factory starting at St. David's there will be a considerable decrease in acreage planted under contract. A great scarcity of late tomato plants prevails which will further decrease the acreage generally planted. Labor is more plentiful than for two seasons past.—Thos. R. Stokes.

LEAMINGTON

Early cabbage is growing nicely and should be on the market some time during the last of June. The cold season has had its effect in holding back the crop which usually is ready for market about June 15. Wax beans and sweet corn are growing very well. Tomatoes are being planted in the fields and are looking well. The outlook is for a decided increase in the shipments from this part of the Province if the growing season is satisfactory. Several new growers are in the field this year with several thousand more plants, and this means a considerable increase. Some who grew them last season are out of it, not having received enough for their crops to pay for their plants. Considerable lettuce has been shipped, the price being 12½c. to 15c. per lb.—E. E. Adams.

Items of Interest

The Distributors' Co., Ltd., fruit and produce dealers, of Colborne St., Toronto, have assigned, paying only 68 cts. on the dollar. This company had been in operation for a little over a year.

At Hamilton recently, Magistrate Jeffs fined a farmer named Morrow $5 for offering short weight potatoes on the market. Nine bags were confiscated. The total loss to the farmer amounted to about $15.

The fruit growers of Norfolk county have formed an association for cooperation in packing and selling fruit and to encourage the spraying, fertilizing and cultivation of their plantations. The following officers were appointed: Pres., Jas. Symington; vice-pres., W. F. Olds; exec. com., J. E. Johnson, J. Gilbertson, Robt. Waddle, W. F. Olds, Jas. Symington; manager and sec.-treas., Jas. E. Johnson. Norfolk county growers produce fruit of good quality, and it is expected that with proper care in growing and packing they will be rewarded by an increased demand and higher prices.

In order that the members of The Toronto Horticultural Society may become better acquainted with their president, a hearty invitation has been extended to them to spend the evening of June 27, from 7 to 10 o'clock, at his home, corner of Danforth and Pape Avenues. The members will see, also, what Pres. H. R. Frankland knows about horticulture.

In the trade and commerce report of May 7, Commercial Agent Sontum, of Christiana, Norway, states that the Pomological Assn. of Sweden was arranging to get a free distribution office, which would serve as a medium between the producer and the consumer. In preparing for this move an endeavor is being made to bring the seller and the buyer in direct touch with each other in a practical way. Last summer circulars were sent to the members and large fruit growers enquiring how much fruit each had to sell and the price expected. Blank sheets were filled out and returned to the assn., and the sellers awaited orders direct from the buyers. Much fruit was disposed of in this way to the satisfaction of both. Recently a fruit office has been started and fruit is received for direct sale or for storage, being sold on a commission basis. Strict attention will be paid to foreign markets. All fruit is sold by weight.

Encouraging Results

An example of what can be done in a small village having only a widely scattered population, is shown by the work of the Cayuga Horticultural Society. The members have endeavored by public gardens in the Court House Park and at the high and public schools to educate the public and induce them to work on individual lines. In this way they are paving the way for flower shows and garden and lawn competitions.

"By our efforts," writes Secretary Goodman, "a Sunday walk has been established in the summer, by means of which the citizens make a point of enjoying the floral effects in the different parks and grounds, the good result of which has been very apparent on the healthier tone of the town.

"We now purpose to spend all our money for a time on premiums to the members. The work in connection with the public gardens, so propitiously commenced, will not languish. In this way we hope to foster a greater pride in the floral adornment of the individual home, and interest those who, so far, have not assisted in our work."

A Live Horticultural Society

Although comparative disappointment attended the St. Catharines Horticultural Society for a few years, the results of the last two or three seasons have shown that the plans adopted by that society are worthy of emulation. This society has been in existence for six years. During the first three its membership was stationary—being 39.58 and 63 respectively. In 1903 it went down to 51, just barely sufficient to keep the organization intact and be recognized as a society. At each annual meeting it would be considered desirable to hold an exhibition in June, and a committee would usually be appointed, but that would probably be the last heard of it.

During these years, however, if the society had barely maintained an existence, it did not squander its resources, but carefully husbanded them. In 1904 there was a balance in the treasury of $125 or more—sufficient to warrant an aggressive movement.

The new board of directors met practically every two weeks during the spring, and some had arrangements under way for two exhibitions—one in June and one in September. Aster seed was distributed among the school children, and a lively interest awakened among the younger people. The city council gave a grant of $50, and business men generously contributed toward the prize list in the way of special prizes. When it was seen that the society was working, it was not difficult to increase the membership, and the year closed with a total of 98 names on the list and $65 in the treasury, with all bills paid. Being the first year in which flower shows were held in the city, the directors were more concerned in making them an unquestioned success, because of the influence on the efforts of future years, than in maintaining the cash balance with which the year was commenced.

Last year, 1905, we resolved to have three exhibitions, in June, July and September. The first was principally for roses and other early flowers and fruits; the second for sweet peas, pansies, nasturtiums, and other midsummer flowers and fruits; the September show for asters, dahlias and other fall flowers; while the fruit exhibition was looked on as being the principal one of the year. At this show vegetables also were given a place. All our exhibitions this year, as well as last, were successful. An unusually warm night in September, and the counter attraction of a military parade in close proximity to the show, marred the attendance at the last exhibition, but yet our receipts held up well.

The value of the awards offered at the June exhibition was $73.50; in July, $78.90, and September, $87.80, making a total of $240.20. The entries for June numbered 155, for July 312 and for September, 412.—W B. Burgoyne, president.

Seaforth's Loss

The Seaforth soc. recently sustained a great loss when its esteemed secretary, Mr. Wm. Elliott, owing to advanced age retired from his position as town clerk and removed from Seaforth to Owen Sound, that he might live with many of his family relations. Mr. Elliott was one of the first to take hold of the Seaforth soc., and has been its efficient sec., with the exception of the first year, since its beginning up to this year. A large measure of the credit due the soc. for the excellent work it has accomplished may be given to Mr. Elliott for his untiring efforts in its behalf. The soc. is recognized as a power for good in the town.

Wm. Elliott

Horticulture in the West

Horticultural interests in the Canadian prairie country are well represented in the report of the sixth, seventh and eighth annual meetings of the Western Horticultural Society. Important questions of vital interest to all horticulturists discussed by successful and practical men in various lines are fully dealt with. Matters of interest to lovers of trees, fruits, shrubs, flowers, vegetables, and bees fill 108 pages.

Some idea of the scope and nature of the contents may be gleaned from the following list of papers and addresses, by such prominent horticulturists:—Fruits for Eastern Manitoba, by Alex. McPherson; Apple Growing in the Red River Valley, by A. P. Stevenson; Growing Fruit for Market, by W. C. Hall; Hardy Perennial Flowers, by Robert Lloyd; Half-hardy Ornamental and Flowering Shrubs, by Harry Brown; Tree Planting for Fuel, by Rev. J. Fotheringham; Horticulture in Northern Alberta, by Donald Ross; The Ideal Farmer's Garden, by S. A. Bedford; Hardy Fruits for Western Manitoba, by S. A. Bedford; Small Fruit Culture, by Prof. C. B. Waldron; Small Fruits in Saskatchewan, by P. G. Laurie; The Relation of Birds to Horticulture, by George E. Atkinson; Suggestions for the Improvement of our Horticultural Products by Cross-fertilization or Hybridization, by Harry Brown; Small Fruits in Manitoba, by D. W. Buchanan; Ornamental Trees and Shrubs, by A. P. Stevenson; Apples and Plums in Western Canada, by H. L. Patmore; Apple Growing in Manitoba, by John Caldwell; Onion Culture, by Victor Mager; The Improvement of our Native Fruits, by Max D. Major; Hardy Annuals, by Robert Lloyd; Some Branches of Horticulture that are Necessary and Profitable to Western Settlers, by H. L. Patmore; The Progress of Apple Culture at the Brandon Experimental Farm, by Harry Brown; Roses and How to Grow Them, by Robert Barclay; The Peony, the Flower for Manitoba, by C. S. Harrison; The Evolution of Horticulture, by P. Middleton; Apples and other Fruits Hardy in Manitoba, by A. P. Stevenson.

This report is prepared for free distribution to the members of the society. It has also been decided by the Executive that as long as the supply lasts copies of previous reports will be sent to new members coming in for membership during the year 1906. There are three of these past reports still held in sufficient numbers as to allow of continued distribution. The cost of preparing and mailing this latest report amounts to about 30 cents a copy, and this, together with the other three reports, makes up a parcel of literature that is not only worth more than the price of membership to the one who receives it, but has actually cost the Society almost one dollar to produce. Anyone, no matter where he resides, may become a member. The address of the secretary is George Batho, P.O. Box 1310, Winnipeg.

How to Grow Tomatoes

The most approved method of growing tomatoes was discussed by Mr. L. M. Schenk, of St. Catharines, at a meeting of tomato growers at Jordan Station recently. Mr. Schenk first described the making and care of hotbeds. For such plenty of manure should be used and covered, when prepared and tramped, with five inches of good soil. The bed should be started about March 20, and the seed sown a week later. The seeds should be patted into the soil and, unless the soil is very dry, left without water until they are up. The temperature should be about 60 degrees at night. When plants are up, air often to prevent damping off.

Mr. Schenk advised transplanting to a second hotbed with less manure and more soil, instead of to a cold frame, as is the usual custom. By this means, he said, there is less damage of loss, and stronger plants are secured for the field. This transplanting should be done late in the afternoon to lessen danger of wilting. Next morning lift glass and allow sun and air to dry up moisture; when the plants show signs of wilting, shade again. Plants must be stocky for field culture, not long and spindly. This is secured by giving them plenty of room and plenty of sun and air in this hotbed.

From hotbed number 2 transplant directly to the field. Have plot marked off into squares, four feet each way. Manure all the ground—not the hills only. The latter system gives a good start, but is not lasting in results. In addition, a little hen manure, or phosphate, thrown in with each plant is valuable. The night before transplanting soak the soil in the hotbed with water, and again add a little water next morning. When the grower has the time it is wise to retain a ball of earth about the roots. For quick work plant with spade rather than by plowing furrows.

Mr. Shenck did not wish to recommend any particular variety, but favored personally the Matchless, as grown by Burpee. Among other good ones are Success, Livingstone's Perfection, Livingstone's Favorite, Stone and Ignotum, when pure seed can be secured. The Earliana, so largely grown in some sections, is not liked by canners. "There is too much waste," said Mr. Schenk. "They do not ripen evenly. All the green must be cut away, and as a consequence we do not like them." They are, nevertheless, amongst growers the most popular early tomato grown in the province. When the grower decides upon the varieties he will plant he should be particular to get the seed from firms making specialties of those particular varieties.

Mr. J. B. Dolan, of St. Catharines, also spoke, and advised beginners not to start on too small an area. At least two acres should be grown so as always to have a load to take to the car. A smaller quantity is scarcely worth the trouble. He also advised growers to strongly fortify themselves with crates.—A.B.C.

FROM THE FAR WEST—I enclose my renewal subscription for that valuable paper THE HORTICULTURIST. In this district great interest is shown in fruit raising, and all who have seen THE HORTICULTURIST speak very highly of it and of the suggestions continually in its columns, and no doubt 20 subscriptions could be obtained here. I note the strides THE HORTICULTURIST is making in up-to-dateness. The latter improvements are worthy your efforts.—L. B. Pangman, Salmon Arm, B.C.

Apples Not the Most Profitable

"The low price of apples in the Niagara district, most years," said Mr. Adolphus Pettit, of Grimsby, to THE HORTICULTURIST, "demonstrates that apples are not the most profitable crop for large growers, when land is worth $300 to $500 an acre, as it is in the Niagara district, and prices for apples are such as they have been during the past few years. Other crops, such as pears and grapes, are much more profitable in districts where they can be grown successfully.

"Fifteen years ago I had about 20 acres in apples. At that time we only got a crop every three or four years. We were unable to grow any Baldwins. A well-known grower told me that at that time the best orchard would not average over one barrel per tree yearly. As I found peach trees, planted every alternate row in my apple orchard, were paying me considerably the best, I gradually cut out the apple trees and substituted peaches. In one of my peach orchards I have hardly missed two crops during the last 15 years, while for 10 years I have not lost a crop in the second orchard.

"I have never sold my peaches for less than 27½ cents per basket, while in 1904 the price ran as high as 80 cents per basket wholesale. Apples to pay as well would need to realize the grower at least $2 per barrel. It has seemed to me that I have realized as much from one of my peach orchards in the last 10 years as an apple orchard of the same extent would have netted in 30 years."

The Fruit Tariff

E. Morden, Niagara Falls South

It is possible that fruit growers in asking for an increase of the tariff are acting without sufficient information. Has it been shown that the ordinary summer fruits of New York and Michigan enter Ontario and compete with similar fruits in their season of ripeness to as great an extent as do ours in their markets? No one, so far as I can hear, has ever attempted to do this. Let us remember that this Dominion has 4,000 miles of frontier, and that it includes Nova Scotia, New Brunswick, Quebec, British Columbia and other Provinces that do not look to Ontario for their fruit supplies. They never will do so. Let us remember that in winter, spring and early summer we necessarily import largely from the south. Let us remember that bananas, oranges and lemons come in for twelve months in the year either free or with a very light duty, and that these fruits really do injure our fruit industry very seriously, while apparently no one is asking for an increase in their case.

When we take the entire fruit imports of the Dominion for a year the sum total looks large and fearful fruit growers conclude that we have undue competition.

During the fiscal year ending June 30, 1905, imports of green fruits were as follows: Bridgeburg, $407; Niagara Falls, Ont., $6,339; Sarnia, $8,868; Windsor, $17,303, giving a total of $32,917. How much of this amount represents similar fruits that came in to compete with our fruits in their season of ripeness we know not. We do know that by far the greater portion consists of distinctly southern fruits, such as oranges, lemons, bananas and pineapples that come at all seasons, and of early fruits from the south that cannot compete with our similar fruits not yet ripe.

During 1904, Buffalo imported from Ontario as follows: Berries, 118,558 quarts, valued at $8,636, and apples valued at $1,305. The following figures are for the year ending June 30, 1905, and are below former years in most cases. Niagara Falls, N.Y., imported 123,161 quarts of berries, valued at $8,841. 768 bushels of apples, valued at $410, with some cherries and other fruits. In July and August of this year, with a short Canadian raspberry crop, Niagara Falls, N.Y., took 72,120 quarts, valued at $5,095. Detroit took up to June 30, berries valued at $5,396; apples, $1,511; pears and cherries, $1,843. At Port Huron fruits to the value of $7,536 were imported.

These points are directly in front of the best fruit growing sections of New York and Michigan. The sum total of these Canadian exports at these four points is $35,478. Our fruits compete directly with similar fruits in New York and Michigan, and in doing so face a specific duty that has been generally condemned by Canadians. When Canadian fruit growers can show that the Americans are invading our markets with similar fruits to a greater extent than we invade their market, they may decently discuss a tariff increase. Can it be shown? The challenge is open!

Trade in Fruit with Australia

Harry H. Davey, Melbourne, Australia

There are chances for Ontario to supply Australia with fruit, but the railage from Toronto would generally prevent any profit. British Columbia can supply us. We received Canadian apples in Sydney, Melbourne and New Zealand November 20, 1904, and also tested a few sample lots. They were much liked, and a few thousand bushels in good condition could be sold per week in Melbourne, Sydney and New Zealand to begin with. The lots received were consigned by Mr. J. E. Chipman, Vancouver, B.C. They sold up to 17s. per bushel of 40 pounds.

Canadian apples can only obtain a market from about October 30 to January 12 in each year; pears from July to January. Most other fruits would find bare markets because of an opposite season.

Cold storage in steamships from Vancouver is 60s. per ton. To this add freight from Toronto and other charges, and you will see how the matter looks. If Ontario growers can do something to promote this trade we shall be glad to know and to reciprocate with Australian choice fruits when your markets are bare of local supplies. Mr. J. E. Chipman, Vancouver, will be glad to work with Ontario growers in the matter of freight rates from Toronto to Vancouver for Canadian fruit, and from Vancouver to Toronto for Australian fruit in the reverse season.

Much can be done with small packages of choice fruits, well ventilated and kept at an average temperature of not more than 40 degrees nor less than 34 degrees Fahrenheit.

Fruit Trade with France

A. McNeill, Chief of Fruit Division

Several French firms have been buying Canadian apples in a small way for a number of years. The trade has grown somewhat irregularly until last year, when it formed a very marked feature of the business. The French trade demands a fairly firm apple, such as the Russet, Ben Davis or Stark, a class of apple that is increasing very rapidly as the newer plantations come into bearing. Unfortunately, the French buyers in a few instances fell into the hands of the apple sharks, and the reputation of Canadian fruit suffered accordingly. As the buyers increase in experience the trade is likely to assume large proportions.

The following extract from a letter to the Fruit Division has been received from a prominent Paris firm: "We are able to say that generally speaking the fruit marked XXX is all right, there being only four or five per cent. of the barrels wasted in this mark. In XX fruit there is a larger proportion of wasted apples. Many packers leave in this brand apples that should be placed in the X brand, so that the XX mark cannot be depended on. Canadian XXX fruit can be sold in the original package, which is not usual in the French trade, but we are obliged to resort all the XX grade. If Canadian packagers would pay as much attention to the packing of XX fruit as they pay to the packing of XXX fruit, their apples would meet with a greater demand than those from the United States, which do not reach us in as good condition."

This firm also referred to the very great difference in the weight of barrels, noting that they varied from 165 to 150 pounds gross, partly as the result of different varieties, but mostly as the result of lack of uniformity in the size of the barrels.

There is a very strong argument in this letter in favor of a definition of No. 2 apples as well as for uniformity in the size and weight of the package. These two points have often been referred to as ones that it would be desirable to have settled, but it is only when an actual customer in a foreign land marks them out as real hindrances to trade that the full force of the arguments in favor of these reforms comes home to the Canadian fruit grower.

Fruit Growing in British Columbia

J. C. Cooper, Brampton, Ont.

Probably no industry of British Columbia has been so full of surprising results as fruit growing. By leaps and bounds it has emerged from comparative insignificance until now tons upon tons of delicious fruits are shipped annually to the prairie districts as far east as Winnipeg, netting the growers handsome profits.

The observing traveller, steaming along the beautiful mountain lakes, although overwhelmed with the grandeur of the scenery, finds it hard to understand where any fruit could grow. A short distance up from the lake, however, there are large tracts of level, fertile soil. The luxuriant growth of the trees and the choice quality of the fruit convince the sightseer of the adaptability of these tracts for fruit culture. The soil is kept very rich and constantly moistened by the little mountain springs trickling down from the higher parts.

It was my good fortune to be at Nelson during the annual fruit show, and examine a large quantity of fine specimens from these orchards. Apples, peaches, plums and pears, as well as a large display of excellent vegetables, were in splendid assortment from the various districts, and as the president pointed out the results from each I was struck by the magnitude and unlimited possibilities of this productive territory.

Several boxes of fruit packed ready for shipment were on exhibition, and were a great credit to the growers. They make a specialty of this department, and a large portion of their success is due to this fact. Many Ontario growers might well profit by their example.

Remembering that this industry is of very recent development, we may hope to see it yet eclipse even the mining and lumbering resources.

Great Britain's Demands

While in Toronto last fall Mr. Thos. Russell one of Glasgow's leading fruit dealers, in an interview with THE HORTICULTURIST, said: "There has been a great improvement in the packing of Canadian fruit during the past few years, and the eight-hooped barrel is far ahead of the one with only six hoops. Nothing but the very best fruit should be sent to Glasgow in boxes. Even No. 1 should be sent in limited quantities, as only a small supply is wanted for first-class customers.

"The Canadian Government should have a more definite standard for number two fruit. Very frequently apples are sent to us marked XX when the fruit is not at all uniform, and sometimes nothing but trash. Canadian growers should not attempt to export number three fruit. We like to see fruit nicely packed. The finer the packing the more money is made, whereas poor packing means low profit or perhaps none."

The life histories of the common insects found on vegetables, fruit and shade trees in Ontario are outlined in the report of the entomologist and botanist of the Central Experimental Farm, Ottawa.

Interesting Bulletins and Reports

SEVERAL of the colleges and fruit esperiment stations have been more liberal than usual this season in supplying valuable information to the fruit growers by means of bulletins. In addition to those outlined in recent issues of THE HORTICULTURIST, the following bulletins and reports will be found of interest to those engaged in horticultural pursuits:

ONTARIO FRUIT GROWERS

The work done by the Fruit Growers' Association of Ontario is outlined in the 37th annual report of that association. This volume includes the discussion that took place regarding the revision of the constitution, as well as the addresses given by the leading speakers at the various sessions and the discussions that followed. Reports from fruit growers in Algoma regarding fruits that are hardy in northern sections, and from Prof. H. L. Hutt, of the O.A.C., and Mr. W. T. Macoun, of Ottawa, regarding new fruits that promise to be of value, are contained. Spraying, cover crops, cooperation and other subjects of vital interest to orchardists, are carefully discussed by competent horticulturists. This report can be had by applying to the Dept. of Agri., Toronto.

SPRAYING FOR SCALE

Bulletin 273 of the N.Y. Expt. Sta., Geneva, N.Y., contains an outline of tests of spraying mixtures made in treating San Jose scale. These tests confirm the results of previous experiments that the sulphur washes applied in the fall are effective. No advantage was shown by the addition of salt to the sulphur wash. The self-boiled mixtures did not give as satisfactory results as those boiled by fire or steam. The experiments indicated that kerosene-lime sprays were not as efficient nor as uniform in their effects as the sulphur wash. Among the soluble oils, Scalecide was satisfactory, and was said to be promising as a dormant-season treatment for the scale. Spring applications, however, retarded the development of buds, while the summer spraying caused severe injury. The results of the tests did not lead the officials at the station to advise the abandonment of the well-known standard sprays.

SPRAYING AT NEW JERSEY STATION

A valuable compilation of information regarding spraying with the different insecticides and fungicides in treating the enemies of the different crops, and a description of spray pumps is given in bulletin 194 of the N.J. Expt. Sta., New Brunswick, N.J. The crops are arranged alphabetically, and the improved methods of treating each pest carefully outlined. The merits of the various insecticides and fungicides, including formalin, carbon bisulphide and hydrocyanic acid gas, are fully discussed. Spray pumps recommended for small gardens and orchards, as well as power sprayers and the nozzles that are most satisfactory, are described.

A DELAWARE BULLETIN

The results of experiments conducted at Del. College Expt. Sta., Newark, Del., to show the effects of different strengths of kerosene lime emulsion on San Jose scale are given in bulletin 73. It is pointed out that the principal causes of non-success were improper preparation of the mixture and incomplete spraying. Two thorough sprayings, one in late spring and the other in late fall, it is said, should be the minimum. It is claimed that if there is any one best time it is late Oct. or early Nov., as the insects at that time have not glued their scaly covering to the bark and the remedy reaches the tender body beneath the scale very easily. Besides, the trees have ripened their wood and can endure a moderately strong insecticide. The preparation of the kerosene lime is outlined as follows: Stir the kerosene and lime in a barrel thoroughly; add 10 to 20 gals. of water, and stir to loosen the kerosene and lime from the bottom and sides of the barrel; pour in water until the barrel is more than three-fourths full, then with a hoe splash and pound the mixture for 4 or 5 mins. to emulsify it, and fill the barrel with water. Where carefully made and thoroughly applied it is claimed that this mixture is equal to any of the standard remedies. The 20% mixture, which consisted of 10 gals. kerosene, 40 lbs. lime and 38½ gals. water, was more effective than lime, sulphur and salt, or kerosene emulsion. As a general rule nothing stronger than 25% strength is advocated, but in spring, when the trees are crusted with the scale, it is said to be more economical to use 30% on peach trees and 30 to 35% on other trees. The 25% K.-L. mixture is composed of 12½ gals. kerosene, 50 lbs. lime and 34½ gals. water, while the 30% mixture consists of 15 gals. kerosene, 60 lbs. lime and 30½ gals. water.

MAINE ORCHARD NOTES

Bulletin 128 of the Me. Expt. Sta., Orono, Me., contains notes on spraying for scale insects, caterpillars, apple scab and pink rot, results of unbalanced ration on fruit, winter injury from freezing and from mice, and suggestions regarding handling fruit and pruning. A canvass of the orchards in Wayne and Orleans counties showed that 66 sprayed orchards, representing 626 acres, yielded at the rate of 280 bus. per acre in 1903, while 107 unsprayed orchards, representing 673 acres, yielded at the rate of 253 bus. per acre. For the sprayed fruit the average price was $2.02 per bbl., while the unsprayed fruit brought only $1.80. The value of spraying is clearly shown by the following figures: Trees unsprayed, average income per acre, $103; trees sprayed once, average income, $139; trees sprayed twice, average income, $143; trees sprayed three times, average income, $184; trees sprayed four times, average income, $211.

In spraying for the apple scab it was clearly demonstrated that even in a bad season there was a difference of 50% in the amount of fruit on sprayed and unsprayed trees. The best results were obtained from the use of Bordeaux mixture. When there was no crop of fruit the increased vigor of the trees, resulting from clean, healthy foliage, more than repaid the cost of spraying. Applications just before the buds burst and immediately after the blossoms fall give the best results. On a wet season at least four treatments, at intervals of two or three weeks, are recommended.

HORTICULTURAL SOCIETY REPORT

A report of the 51st annual meeting of the Western N. Y. Horticultural Society contains much that is of interest to fruit growers. Among the subjects discussed are: "The Formation of Fruit Buds," "The Blight Canker of Apple and Pear Trees," "Relation of Tillage to Improvement of Orchards," and "The Prospect for Education in Horticulture." Garden vegetables, shrubs, flowers and bedding plants also are discussed. These subjects are handled by such horticultural authorities as Prof. L. H. Bailey, of Cornell; G. T. Powell, of Ghent, N.Y.; W. H. Jordan, of the N. Y. Expt. Sta., and others. A copy of the report can be had by writing to Jno. Hall, Sec., Rochester, N.Y.

BULLETIN ON CRANBERRIES

Varieties of cranberries, cultural methods, insect pests, grasses usually troublesome in cranberry bogs, and various other information of interest to those engaged in growing cranberries is to be found in bulletin 119 of the Agri. Expt. Sta., Madison, Wis. Flooding, and other means of preventing frost, are fully outlined. Various methods of planting, the care of the young plants, and the methods of harvesting adopted in the leading cranberry districts, are described. Those interested in the cultivation of cranberries should secure this valuable bulletin

SPRAYING FOR POTATO BLIGHT

Results of experiments conducted in spraying for potato blight during the season of 1905, are given in bulletin 236 of the Mich. Agri. Expt. Sta. Correspondence with potato growers throughout the state showed that a large number did not know what Bordeaux mixture was, and most of them believed the blight to be incurable. The reasons for so few growers spraying were attributed to: (1) Ignorance as to the cause of the disease, (2) Not knowing there is anything that will prevent it, and (3) A belief that the results will not repay for the time and trouble required to do the spraying. The bulletin attempts to set the growers right on these points. After outlining the cause of the disease and describing it fully, the results of numerous experiments conducted at the college are given. Unsprayed potatoes gave a gross gain of $20.50 per acre; those sprayed with lime water every four days, from July 22, netted $26.25; those sprayed with Bordeaux mixture (4 lbs. copper sulphate, 4 lbs. lime, 50 gals. water) netted $34.40; those sprayed with Bordeaux mixture every 15 days netted $36.75; those sprayed with Bordeaux mixture every 10 days netted $40.25; and those sprayed with Bordeaux mixture every four days netted $40.75. The cost per acre per application was found to be about 72 cts., but it would be much less on large field operations. It is claimed that two acres or more could be sprayed thoroughly at a total outlay of 55 cts. per acre.

ONTARIO VEGETABLE GROWERS

The first annual report of the Ont. Vegetable Growers' Assn. contains the history of the formation of the assn. and an account of the valuable work done during the short time since its organization. The report of the first annual convention includes the following addresses: Truck Farming in Delaware, by A. N. Brown; Growing Vegetables at Guelph, by H. S. Peart, B.S.A.; Fertilizers for the Vegetable Grower, by Prof. R. Harcourt; Growing Vegetables under Glass, by J. L. Hilborn; Experiments in Potato Growing, by Prof. C. A. Zavitz; Injurious Insects and Fungii of the Garden Crops and How to Combat Them, by T. D. Jarvis, B.S.A.; The Growing and Marketing of Cauliflower, by A. McMeans; and Experiments in Vegetable Growing at the Central Expt. Farm, by W. T. Macoun. Many interesting discussions, also, are included.

The Outlook in the West

J. J. Philp, Winnipeg, Man.

To one standing on the high ground in the centre of the continent and looking toward the east and the west, and then withdrawing his gaze for a look at his more immediate surroundings, those surroundings being the city of Winnipeg, there must come a feeling of intense satisfaction at the prospect for this season's business. And to no line of business activity is the prospect more encouraging than to the fruit interests of Ontario fruit growers.

Meeting at the Dominion Fruit Conference in Ottawa, as we did, the principal men from the several provinces, one could not help but admire the unlimited optimism and the exhilarating breeziness of the B.C. contingent. Granting, however, all they claim that they can grow fruit without spot or blemish, there is this to be remembered that the western provinces are becoming populated with such rapidity that it will take the B.C. growers all their time to attend to the wants of those nearer home than is Man.

As a result of the labors of the convention and the improved legislation in connection with the Fruit Marks Act. This act in the future, will take higher ground than it has ever done in the past. One may search in vain during the course of an extended trip, as I did,

and not find any one who objects to the principles or operations of the act.

In none of a number of large cities in the U.S. and Canada that I visited while on my way to the conference did I find the same impulses to business or the same impetuous rush as in Winnipeg. One has but to pause and consider for a moment the causes that are today contributing these impulses and this rush, to feel that it is all legitimate, and to a very considerable extent lasting. These causes are threefold: immigration, railroad building and the hope and prospect of a bounteous harvest.

But what has all this to do with the fruit business? Very much indeed. I rejoice to know that the Ontario fruit growers are awakening to the immense possibilities of this country as a market for their fruit, as well as to know that there is being aroused a feeling that they are able to compete, and they are going to compete with any or all other fruit growing sections for the supremacy in this market.

But out of all this there arises a great danger, the danger that many will allow their hopefulness and desire for large returns to get the better of their good judgment, and thus be led into the mistake of letting everything go. This will prove a very grave mistake. Care in selecting and attention to methods will always pay, and the greater the care and attention the greater will be the satisfaction attending the results of your ventures. More care and attention in the future will be exacted from the rank and file of the average apple packer.

The Longhurst Peach

J. W. Brennan, Grimsby, Ont.

The Longhurst is what I would call the best commercial peach grown. When I say *best*, I mean best in quality. This statement is confirmed by the canners, and there also appears to be a growing demand by the domestic canners of the household. It is surprising to read over the list of peaches recommended by the Board of Control of the Experiment Stations, and find that the Longhurst is not in the list of commercial peaches. Is it because some growers make a lamentable failure of this peach? If it is, it is a very lame excuse.

I once had the impression that it was a poor, useless, ugly, forsaken looking peach, but my convictions have turned. Two years ago I shipped a customer a few baskets of nice Longhurst peaches, and I presume it was the first of that variety he had received. His customers found them all that could be desired. Last season I received the same customer's order for peaches, but for no specified variety. Unfortunately for myself as well as for his customers he did not receive any Longhursts. In a short time I received a letter from him saying his customers were complaining that the peaches were not of as good quality as those sent the year before. This is only one of many instances that could be given, but it shows that the Longhurst is a commercial peach. If Longhurst peaches are planted money can be made out of this crop, but you must attend to business and give them attention; in return they give standard oil dividends. They must be pruned severely and thinned rigorously. If you prune as thin as you should, you will have a feeling of compunction that you are overdoing the thing. Never mind that; go ahead and you will look brighter in the autumn. Plenty of nourishment, too, is demanded. Experiments conducted at the N.Y. Expt. Sta. showed that it required much more than Elberta. The recommendations made by that station are: Longhurst, 90 lbs. nitrogen and 85 lbs. potash per acre; and Elberta requires 56 lbs. nitrogen and 50 lbs. potash per acre. It is owing to its high feeding propensities that it is such a rich fleshed peach of beautiful color when canned, and sweet and delicious. If you are prepared to give the Longhurst the attention which any good thing requires, you will be amply repaid by a crop of the best commercial peach grown.

Impressions of the Fruit Conference

FRUIT growers from the different provinces have settled down to business after the big conference at Ottawa. That much benefit was derived by the delegates, and that the fruit industry in Canada has received a mighty boost is the opinion of all who know anything about the business done and the questions discussed. Expressions of opinion have been received by THE HORTICULTURIST from several of the delegates regarding the most important matters attended to.

A BRITISH COLUMBIA DELEGATE

A communication from Mr. Martin Burrell, of Grand Forks, B.C., read: "What I considered most important at the conference may be summed up thus: (1) The desire, so largely carried into effect, of creating a uniform system of packages for the Dominion; (2) The evident determination on the part of those present to simplify the grading and branding of packages, which must have a most beneficial effect on our export trade; (3) The emphatic opinion expressed that the size of the fruit industry now warrants the most systematic and comprehensive work along statistical lines; (4) The soundness of the contention that express companies should be placed under the control of the Railway Commission.

"In addition to these definite accomplishments, the mere fact of representatives of the industry from all over the Dominion meeting in such a way to co-operate in all matters which make for the advancement of horticulture in Canada has done, both in a direct and indirect way, an immense amount of good."

WHAT NEW BRUNSWICK THINKS

Mr. J. C. Gilman, of Fredericton, N.B., expressed his satisfaction with the results of the conference as follows: "It was pleasing to note, at the late fruit conference, that the prevailing sentiment was Dominion interests first, Provincial or local afterward. It was also encouraging to the provinces where fruit culture is yet in its infancy, to learn that sections where fruit growing has become well established, still recognize the importance of missionary work in the form of object lessons practically given on each part of the fruit growers' work, from the setting of the tree to the closing of the package of well-graded fruit ready for market.

"The suggestion that fruit inspectors and others capable of such work, should continue to visit as many fruit growing sections as possible, to instruct and encourage farmers in adopting the best methods to ensure success, was a good one. Cooperation gives a good account of itself, in grading and packing and selling, showing the advantage and need of more skill for this part of the work than the average farmer can hope to bring to it, with such help as he can employ, for the rest of his farm and orchard work. The uniform grade, and such quantities of each variety, as will attract the attention of buyers, must be a strong argument in favor of co-operation for this end of the work, where enough fruit can be furnished to make a central packing and storage house a paying enterprise. Some future conference will find it necessary to deal with the introduction of new fruits, to restrict, to some extent, the multiplying of varieties, many of them of little value, while those considered by some competent and recognized authority as worthy of cultivation, shall be properly catalogued as such for the guide of planters."

HOW NOVA SCOTIA GROWERS FELT

Mr. S. C. Parker, of Berwick, N.S., wrote: "A very interesting feature of the gathering was the comradeship established, almost from the beginning, between the delegations from B.C. and N.S. By a happy coincidence they met at the same hotel, and before the conference formally opened, these delegations were bosom friends. Living at the same table; vieing with each other in telling big stories of both fish and fruit; united for offensive and defensive work at the conference.

"Perhaps it is local prejudice, but it seemed to me that the N.S. contingent had a fuller idea of the situation and understood the questions better than our colleagues from the other provinces. The continuous threshing of the topics in the Fruit Growers' Assn. had given our men a thorough understanding of all the questions coming before the conference, and a complete grasp of the details. R. S. Eaton made a big score by suggesting an interview with the Minister of Agriculture regarding an experimental orchard in the Annapolis Valley."

Horticulturist Books for Sale

The following books relating to flowers, fruit and vegetables may be purchased through THE CANADIAN HORTICULTURIST for the prices given. Or, for every new subscription you send us for THE HORTICULTURIST at one dollar a year, we will allow you 50 cts. on the price of any book you select:

BOOKS ON FRUIT

Insects Injurious to Fruit, Saunders	$2.00
Principles of Fruit Growing, Prof. Bailey	1.25
The A.B.C. of Strawberry Culture, T. B. Terry	.50
The Orchard, Fruit & Garden, E. P. Powell	——
Fungi & Fungicides, C. M. Weed	1.00
Insects & Insecticides, C. M. Weed	1.50
Plums & Plum Culture, Prof. F. A. Waugh	1.50
Systematic Pomology, Prof. Waugh	1.00
Successful Fruit Culture, S. T. Maynard	1.00
Fruit Harvesting, Storing and Marketing, Prof. Waugh	1.00
Spraying Crops, C. M. Weed	.50
Irrigation for Farm, Garden and Orchard, Henry Stewart	1.00
Field Notes on Apple Culture	.75
Practical Fruit Grower, S. R. Maynard	.50
Peach Culture, J. A. Fulton	1.00
Grape Culturist, A. S. Fuller	1.50
Charlton's Grape Grower's Guide, Wm. Charlton	.75
Pear Culture, for Profit, P. T. Quinn	1.00

FOR FLOWER LOVERS

Prize Gardening, G. P. B. Fiske	1.00
Bulbs & Tuberous Rooted Plants, C. L. Allen	1.50
Garden Making, Prof. L. H. Bailey	1.00
House Plants & How to Succeed with Them, Lizzie P. Hillhouse	1.00
The Rose, its Cultivation and Varieties, H. B. Ellwanger	1.25
Home Floriculture, E. E. Rexford	1.00
Hedges, Windbreaks, Shelters, etc., E. P. Powell	.50
Gardening for Pleasure, P. T. Quinn	1.00
Gardening for Profit, P. Henderson	1.50
Window Flower Garden, J. J. Heinrich	.50

BOOKS ON VEGETABLES

Cabbage, Cauliflowers, C. L. Allen	.50
Mushrooms and How to Grow Them, Wm. Falconer	1.00
New Onion Culture, T. Grenier	.50
Asparagus, F. M. Hexamer	.50
New Rhubarb Culture, J. E. Morse	.50
Greenhouse Management, Prof. Taft	1.50
Greenhouse Construction, Prof. Taft	1.50
Asparagus Culture, Barnes & Robinson	.55
Market Gardening, Burnett Landreth	1.00

GENERAL

Ginseng, M. G. Kains	.50
Landscape Gardening, Prof. Waugh	.50
Nut Culturist, A. S. Fuller	1.50
Fumigation Methods, W. G. Johnson	1.00
Cranberry Culture, J. J. White	1.00

Plant Breeding

Horticulturists who are interested in the production of new forms of plant life will find much that is interesting and of value to them in their work in Prof. L. H. Bailey's book entitled "Plant Breeding." Variation in its different phases is outlined. The influence of physical environment, food supply, climate, etc., are fully discussed. The production of new varieties and the most approved methods to be adopted in acquiring the qualities desired are fully taken up.

To more clearly explain the principles and discussions, concrete examples of work done with dewberries, blackberries, apples, beans, and cannas, are outlined. "There is nothing mysterious about the subject," says the professor, "so far as the cultivator is concerned. He simply sets his ideal, makes sure that it does not contradict any of the fundamental laws of the development of the plant with which he is to work, then patiently and persistently keeps at his task. He must have good judgment, skill, and inspiration, but he does not need genius." This book can be procured from THE CANADIAN HORTICULTURIST.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge fifty cents in advance.

LANDSCAPE GARDENING, PLANS FOR PARKS, cemeteries, public or private grounds. Drawings made to scale. Any gardener may carry them out. Correspondence solicited. CHAS. E. WOOLVERTON, Landscape Designer, GRIMSBY.

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POULTRY DEPT.

Conducted by
S. Short, Ottawa

Poultry can be kept with profit by any person who has a small garden. Three runs should be supplied so that they will not be too closely confined. Apple and plum trees and black currants may be planted in two of the runs for shade purposes, and the third run may be used to grow early vegetables.

The fowl may be kept in the two runs containing the fruit trees until just before the fruit ripens, when thep may be changed to the run which has grown the early vegetables, for the fowls are fond of ripe fruit. In this way the land produces fruit and vegetables, as well as furnishing a run for the poultry. I have kept fowl in this way for years. The hens and the garden work in harmony and benefit one another.

A sensible breed of fowl must be kept, that is a breed that can be easily managed, and one that is hardy and does well in confinement. In the poultry world there are varieties and colors to suit all tastes. The best breeds for a suburban home are the Plymouth Rocks, Wyandottes or Orpingtons. These combine laying and table qualities. Fowl of the breeds mentioned will seldom fly over a fence five feet high, made by a bottom board a foot high and four-foot poultry netting stretched between posts.

Hens in a garden do considerable damage in a very short time. If at liberty they go at once to wherever the ground has been freshly dug to scratch and dust themselves, They eat half-grown gooseberries and red currants, raspberries and strawberries, but not black currants. They delight in picking holes in the tomatoes just as the latter are coloring, they walk over freshly painted verandah floors and go into sheds and upset things if you let them. But there is a place for everything, and the hens should be confined in their runs during the summer. Early in the spring, before vegetation starts, they may be allowed their liberty and will scratch up and devour many a cut worm, pine beetle and other destructive grubs that do much damage later on. After cultivation begins they may be allowed to run through the garden half an hour before roosting time, and they will not stop to scratch, but dart through the berry patch catching bugs, worms and insects that are just coming out from the ground at dark for their nightly prowl, a fact well known to the hens. Darkness drives the hens to roost, and you have only to shut the gate to the run before going in for the night.

Another benefit is derived by confining in a portable coop, placed in the garden, a hen with a brood of chickens. The hen cannot get out, but the chicks can, and being too small to scratch, they roam through the garden picking insects from the leaves and stems of plants, thus doing good. I always put chickens in this way among my asters, and have no trouble with the aster beetle. Lastly, a valuable fertilizer is obtained from the poultry which gives excellent results when applied properly.

Overripe corn, peas, tomatoes and other vegetables can be fed to the fowls and much reduce the cost of their food. Hens treated in this way lay well, keep in good condition for table, and the chicks grow rapidly. If hens are kept, by all means keep pure breeds, for as flowers, fruits and vegetables are exhibited, so may pure bred fowl be exhibited, and the showing prove just as interesting, and in many cases just as exciting, as the exhibiting of any other line of agricultural production.

PROFIT ON A CITY LOT

A reader of THE HORTICULTURIST enquires as follows: "Can hens be kept profitably on a city property where they have a run of about 30 x 6 ft., and how many fowl could be kept properly on such a space?"

Not more than eight females and one male, nine in all, should be kept in a run of the above size. That number, with ordinary and regular care, would do exceedingly well the first year, so well perhaps, that the temptation would arise to increase the number, which would be a fatal mistake. As the first crop of fruit or vegetables from new ground is always the heaviest and largest, so will fowl always do better the first year in new quarters.

Any of the utility fowl would answer. If the soil is sandy or porous, white birds would look well, but if the soil is heavy or clayey dark plumaged birds are better, because they would not show the mud or dirt that would inevitably stick to their feathers. Also, if the soil is heavy, a dust bath must be provided. Kept in such small quarters, grit and lime must be supplied. An excellent plan is to get a load of broken plaster from the ruins of a dwelling house that has been pulled down. This material may be had usually for the expense of carting, and is a combination of grit and lime.

The fowl spend most of their time as near the entrance to the pen as they can get, and this part of the enclosure rapidly becomes coated with droppings. These should be dug under at the first indication of that fact. I would not recommend trying to raise chickens in this pen in addition to keeping the layers, and would suggest that early pullets be secured from some breeder who has raised them on grass runs, for reared that way the birds have usually a much stronger constitution than those raised in cramped quarters.

COST OF BUILDING

Another question: "What would a building cost to properly house the fowl kept in such an enclosure?"

The cost would depend on the kind of house built, and which is the best kind is a much debated question. The trouble most breeders have to contend with is to keep the frost from forming on the walls inside. There are three ways of building to prevent this. The first and cheapest is a building with walls of one inch matched lumber, and windows hinged at the top, so that they may be opened on the inside every day. Houses of this description have been used with success where the temperature does not go below zero. They are cold but dry. Another form of building with walls two inches thick is made of inch boards and matched lumber with paper between. Large window frames with strong grey cotton neatly stretched over instead of glass, are hinged at the top so that they may be opened from within. This gives perfect ventilation. In each of these houses the roosts are put in the warmest corner and enclosed with tight boards on three sides and the front closed at night by dropping a curtain.

The third way of getting good ventilation is to build warmly, use double windows, put in a chimney and use artificial heat. If the temperature is above freezing, the frost will not form on the walls, and any moisture in the atmosphere will pass off through the stove or furnace.

Fowls have done well in houses built in the manner described in the first plan. They were allowed to eat snow and had to rough it generally. They did well under these conditions in the States of Connecticut and Rhode Island. The second plan would, I think, be better for the colder parts of Ontario, and the third is the method most used by the professional poultry men, who keep Leghorns for the production of eggs in winter. When building, allow at least six sq. ft. for each bird, and the lower the roof the warmer the pen. The shape of the building may be regulated, for the sake of convenience, to the position in which it has to be placed.

Boiling the Lime Sulphur Wash

ED. CANADIAN HORTICULTURIST: I notice the article referring to lime and sulphur used in this section and the diversity of opinion among growers. The criticism is a little misleading. There is not as much difference as would appear first as to boiling with steam and by the action of the lime alone. All agree that it is possible to boil by action of lime heat, *if lime is good and everything works right*, but if something happens you cannot add more heat, as can be done by the steam, and therefore we feel that it is not safe to encourage the grower to take any chances with having a bad batch, as one tank full of mixture not up to standard will leave from 40 to 60 trees with scale not killed to breed for another season. The new beginner

always wants the easiest plan naturally, and learns later, to his sorrow, that he had better have taken the advice of some older grower.

Then the lime and sulphur is very hard on the hose, hands and the eyes, and the grower thinks that it may be too strong, and if he hears anyone or reads of someone saying that less sulphur and lime can be used, he at once wants to use less material. Now, the way to arrive at the results and quantities most in use is to take the results of our representative growers for two seasons. A committee appointed by the Niagara Peninsula F. G. Assn., after careful examination, and after comparing results, reported that 18 lbs. of sulphur and 20 lbs. of lime to the bbl. gave the best results. A bbl. holds 45 to 48 imp. gals. Less than this is not safe to use; more, I believe, will not do any harm. The mixture should be boiled until it begins to turn a greenish color. When this has been applied thoroughly in every instance, examinations later in the season have shown that nearly all the scale has been killed A little extra trouble or cost in preparation is time and money well spent. We cannot be too careful in spraying.—Robt. Thompson, St. Catharines.

How to Grow Ginseng

An excellent book for those interested in growing ginseng has been published by Mr. M. G. Kains. A short account of the history and botany of this plant precedes the directions for cultivation, harvesting and marketing. In discussing the methods of starting the crop Mr. Kains says: "The easiest way to commence ginseng cultivation is to collect the plants in the neighborhood and transplant them. Dig them either early in the spring, as new growth begins to appear, or in the fall when the tops are dying. It is better to transplant in the fall, because the roots are more easily found and are not so easily injured. Always take the greatest care to preserve the bud at the crown of the root."

If it is decided to start from seeds they should be gathered while the pulp is still soft, after they are fully ripe and before they become dry. The seed can be sown at once, or stored over until spring. If sowed at once no more trouble is entailed, but 18 months must elapse before it can be made to sprout, and there is much risk because the seed bed may become dry, and the seed thus be rendered worthless.

The best way to store the seed is to stratify it. Put a mixture of leaf mould, sand and loam in the bottom of a box and scatter the seed in layers not more than one seed deep, with at least half an inch of earth between the layers. The boxes can be stored in a cellar or buried where there is no danger of them becoming wet, but where they will always be moist enough to prevent drying out. Frost improves their germinating qualities and does not injure the seed. Friable loam, light rather than heavy, clear of stones, chips and other obstructions, and well supplied with decayed vegetable matter, is recommended as the best soil. Those interested in growing ginseng can procure a copy of this book from THE CANADIAN HORTICULTURIST.

Fruit Outlook in Niagara District

FRUIT prospects throughout the Niagara district are promising. The season is later than usual, but no reports of serious damage to any crop are heard. Everything, at this date, indicates that crops in all lines will be a full average. The following reports from leading centres in the district speak for themselves:

ST. CATHARINES

Never in my recollection has the country looked better than at present. This, possibly, is due to the fact that all varieties of fruit appeared to come into bloom at nearly the same time, and what came in first hung on the trees well. We have had favorable weather for the setting. On the nights of May 19 and 20 we had a close call from frost. The thermometer registered 30°, making 2° of frost, but no injury of any kind was caused and the weather has again turned warm.

Early tomatoes are planted out in many instances and looking well, and the late plants are coming along finely. Strawberries just commencing to bloom and promise a fine crop, as hey have wintered well. In many of the fields the plants are rather thin, owing to the depredations of the white grub last season. Pears and apples are very full of bloom. Yellow-fleshed varieties of peaches have a medium show of blossoms.—Robt. Thompson.

JORDAN STATION

Strawberries are in full bloom; about two weeks later than usual, and the plants have made less growth than usual, which, to me, indicates a light and late crop. Raspberries and currants and all other varieties of fruit at this time are promising a full crop, yet in many of them it is too early to give any definite expression as to the final outcome.—C. M. Honsberger.

BURLINGTON

Strawberries probably will be a little below an average crop and possibly the season will be a little later than last year, which began about June 18. Raspberries will be an average yield, and with more acreage there ought to be a plentiful supply of this fruit. Other small fruits will not vary much from last year's figures.—The Burlington Canning Co., Ltd.

ESSEX COUNTY

A report from Leamington is as follows: "The fruit outlook is good. Peaches promise a full crop; cherries very good; pears, also good; strawberries, full of blossom and in some favored spots berries are now ½ to ¾ inch in diameter. Plums show a full crop, apples now in full bloom. —E. E. Adams.

Pointers on Transportation

In an address delivered at a meeting of fruit growers in the Niagara district, Mr. P. J. Carey, D.F.I., Toronto, pointed out a few particulars in which the facilities for transporting fruit to the N.-W. may be improved. The railway companies should make special fruit runs to North Bay, say twice a week, and these specials should be scheduled to connect with the fast freight that regularly runs from North Bay to Winnipeg—this scheduled connection should allow plenty of time for re-icing. Five days should be the maximum time from points in Ontario to Winnipeg.

Shippers should bear in mind that the greater the number of cars in a shipment the better the treatment received at the hands of the transportation companies. The question of icing and re-icing is important. Mr. Carey found on one occasion, when accompanying a shipment to the west, the bunkers only three-quarters full immediately after re-icing—a serious matter.

According to the experience of the St. Catharines Cold Storage and Forwarding Co., it is better to cool the fruit before it is put in the

car. This pays in the saving of ice alone, besides its advantage in extending the keeping period of the fruit. For best results, fruit should be wrapped and the paper for wrapping should be lighter than newspaper and heavier than tissue paper. Shippers should use uniform packages for ease in loading cars, and for appearance on the market, to say nothing of increasing the selling price. Only the higher grades of fruit should be shipped to the west.

Always the Same Standard

A. McNeill, Fruit Division, Ottawa

In reply to a complaint that certain apples were not good enough for the No. 1 grade, though thus marked, a grower says: "I supposed the year would have quite a lot to do with governing the trade. If the strict letter of the law is put in force with regard to No. 1 apples there will be very few in this neighborhood."

It cannot be too generally impressed upon packers and growers that the description of a No. 1 apple never varies. Our export apples reach many persons who have no idea of the crop conditions in Canada, and this export trade could never be built up except by maintaining a uniform quality in our No. 1 grade. A No. 1 apple in any year is an apple practically without blemish and of good size and color.

Picking Cherries for Market

The cherry, unlike most other fruits, does not separate readily from the stem or tree. If pulled it is liable to be bruised or torn. The common way is to catch the stem with the thumb and finger and tear the fruit from the tree with others in the same cluster, and put them in quart boxes or half bushel baskets for the market. In recent years, however, there has been an increasing demand for "clipped cherries." There are several reasons why dealers prefer them to those that are pulled. The buyer wants fruit and not stems, Long stems and clusters occupy too much space in the box, and with the dried brown calyx they do not present the bright, pleasing appearance of the "clipped" fruit. Some growers claim that the trees from which the cherries have been clipped are in better condition for a crop the next year than those from which the fruit has been pulled. In pulling, many buds, small twigs and fruit spurs are injured, bark stripped, etc.

There are several methods of clipping. Some use shears in one hand and try to catch the fruit in the other. This is not satisfactory because the hand is too small to hold many, and some fall to the ground. Some spread sheets under the trees and shear off the cherries and let them fall into it. The sheets are more or less in the way of the ladders and pickers, and the fruit must all be gathered up and separated from leaves and twigs that fall and are, consequently, sometimes bruised.

An instrument has been devised that will shear and catch the fruit and at the same time is easily managed with one hand and not too

large to be handy among the limbs of the tree. The other hand remains free to hold the twigs and bend in the limbs or steady the operator. The maker says that he got the idea from the rabbit's mouth, with the incisors for cutting and the cheeks to retain. Necessary modifications were made to adapt it to the work that it was expected to accomplish. The cutting edges pass like shears, and are about 1½ in. wide. The attached tin cup holds about a pint, and is easily emptied into a basket or nest of boxes hung in the tree or on the ladder. The few leaves and faulty fruit can be thrown out as it is emptied. This device can also be used to advantage in gathering currants. It is claimed that one operator can gather 150 to 200 lbs. per day.

For particulars see advertisement in this issue, or write Elwood Tatum, West Branch, Iowa, for testimonials.

The Disastrous Glut

Nothing is more trying to the hard-working fruit grower, after having overcome the onslaughts of the insect world, and escaped the terrors of the late frost, the driving hail-storm or the ruinous wind, and having brought to perfection a fine crop of fruit, to find that all his care has been in vain, for the fact that all his neighbors have been equally successful and the market is glutted. To see his fruit rot under his trees or sold for next to nothing at the auction block, is a bitter pill.

The remedy, however, is not far to seek. The fruit grower must not depend on fortune and follow in the wake of the crowd. He must do as other producers, other manufacturers do—seek out new markets for himself.

It is a well-grounded fact that there is not more than enough fruit produced in Canada every year to meet our requirements if properly distributed. While the Toronto market may be overwhelmed with supplies, there are scores of towns and villages throughout Canada where a good, fair price could be had for this fruit if the buyers and sellers could be got together.

There are fruit growers in Ontario who have developed along this line and have no trouble in disposing of all the fruit they can grow or buy in this manner, never touching the big centres.