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THE CANADIAN HORTICULTURIST

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No. 1

The Future of the Apple in Ontario*

A. McNeill, Chief, Fruit Division, Ottawa

THE future of the apple trade in Ontario rests upon several natural conditions, soil, climate, markets, transportation and the trend of trade, as well as upon the character of the men who are growing the fruit and the character of the men who are handling it. I will also assume that men will do what is for their best interests, although I am perfectly well aware that not infrequently this rule of action is violated. On the whole it would be more correct, perhaps, to say that I am endeavoring to show the lines along which the apple industry should develop rather than the actual development that will take place.

Of the various elements that enter into this problem I propose to select a few, the importance of which has been overlooked, or which are not likely to be handled by others. Some of the most important I will pass over with just a simple reference. Transportation, for instance, is a most important element in connection with the future development of the apple industry. Soil is also another important element. Fortunately here I need say little, inasmuch as there are few parts of Ontario where the soil is unsuitable for the culture of apples. Some parts may be slightly better than others, but on the other hand the conditions are so uniform and the question so local that it may fairly well be omitted in an investigation of this kind.

GEOGRAPHY, TOPOGRAPHY AND VARIETIES

I shall confine myself more particularly to questions of climate and the selection of suitable varieties for local conditions and the trend of trade with special reference to the markets. For the purpose of developing these points, I have drawn a map marking the various portions of it to suit the conditions which I believe prevail with reference to temperature and climate generally. I will use this map for the purpose of drawing your attention to certain physical features that have a most important bearing on the development of apples, a bearing that has been entirely overlooked in the planting of the orchards of Ontario. Nevertheless, by a process of the survival of the fittest, the

trend of apple orcharding is shaping itself very nearly as the physical features of the province would dictate. In any case, the development of markets and the distribution of population has proceeded so rapidly within the last quarter of a century that those who planted the orchards 25 years ago can scarcely be blamed if they did not foresee some of the results that were inevitable now that their orchards should be in full bearing.

APPLES AND ALTITUDES

I would first draw attention to the heights of land. This element in the determination of climate is not a striking one in Ontario. Nevertheless, the net results of height above the sea level

Ranks High

The last issue of THE CANADIAN HORTICULTURIST is most creditable to the publishers. It takes rank high up among the outdoor magazines.—*The Busy Man's Magazine.*

are just as definite and just as effective as in mountainous districts such as British Columbia. The traveller in British Columbia can stand at the foot of a slope and pick tender flowers, but raising his eyes but a few hundred feet, he can see the whole mountain top covered with snow and, perhaps, even with glaciers that never disappear. The result is brought about solely by the differences in the height between the base of the mountain and its top.

The slopes in Ontario are so gradual that we are not aware of the heights we reach. I would, therefore, play the schoolmaster to the extent of noting that Lake Huron is 575 feet above the sea level, Lake Erie 565, and Lake Ontario 262 feet. Compared with this we have: Chatham, 589 feet, London 805, Brantford 705, Stratford 1,189, Durham 1,687, Walkerton 931, Mount Forest 1,348, Orangeville 1,557, Lindsay 854, Peterboro 649, Ottawa 215, Montreal 47.

FOUR FRUIT DISTRICTS

The accompanying map of Ontario divides the province into four divisions for apple culture. District No. 1 grows

all the tender fruits, such as peaches, apricots, dwarf pears of all varieties, tender and all varieties of apples, plums, pears, cherries, etc. This region is specially adapted to early fruits and vegetables, being from ten days to two weeks ahead of the districts surrounding the large markets.

District No. 2 grows excellent winter apples of all varieties to perfection. It is characterized by a large number of comparatively small orchards containing numerous varieties of fruit. Many portions are excellently adapted for plum and pear culture.

District No. 3 is specially adapted for winter apples. There are many large orchards especially on the shore of Lake Ontario. The farmers here are making a specialty of orcharding. A district on the Nottawasaga Bay should be classed with District 3, having large orchards of comparatively few varieties of winter fruit.

In district No. 4 the ordinary winter varieties are not hardy. This district, however, grows Fameuse, McIntosh Red, Wealthy and Wolf River to perfection. The first two are dessert apples that, if properly packed, should command the very highest prices as dessert apples. The midland counties of western Ontario, on account of their altitude, must be classed with district No. 4. In this district the ordinary winter varieties grown in the adjacent counties are not hardy.

The height of land embracing the counties of Dufferin, Wellington, Perth, and Waterloo, renders the winter climate frequently so severe as to make it impossible to grow the tenderer varieties of apple trees. We are, therefore, obliged to put these counties in the same apple district as the northern portion of the province, which I have designated as district No. 4, and which includes the valley of the Ottawa and St. Lawrence Valley, roughly as far as Kingston. For the purpose of the apple industry I need only consider the more favored portions of this district No. 4, where they grow the Fameuse and McIntosh Red, the Wolf River, Duchess and Wealthy. Such varieties as the Spy, Baldwin, Cranberry Pippin, King, etc., are altogether too tender for this.

*An address delivered before the recent convention of the Ontario Fruit Growers' Association.

area, so that this district is not considered in the production of what we call winter varieties.

The counties bordering on the north shore of Lake Ontario, together with a small portion of the county of Grey, bordering on Georgian Bay, and one of two townships in the county of Dufferin, designated district No. 3, have that happy medium climate that renders them peculiarly well-fitted for the winter varieties. The temperature is not so severe as to cause serious loss from winter killing, and the summer temperatures not so high as to prematurely ripen these varieties.

The counties bordering on Lake Huron and the second tier of counties north of Lake Erie, named district no. 2, are also admirably suited in climate and soil for the production of winter varieties, but

orchards in this district. Some of the finest of the apples, if not the very finest exhibited at the recent Ontario Horticultural Exhibition in Toronto, came from this district. Such a condition of affairs calls for some explanation. If the fruit can be grown to perfection, and if orcharding is profitable, why is it that we find this waste of fruit and want of confidence in the apple industry?

CLIMATE NOT FAVORABLE

The explanation is partly a question of climatology and partly an economic question. As a matter of climate, this district No. 1 has a mean annual temperature many degrees higher than districts 3 and 4. The Fameuse apple will be in full bloom in Chatham early in May; the same variety will not be in bloom in Lindsay for two weeks later.

into consumption. That is to say, apple operators will not store these varieties, or if owing to very favorable conditions of temperature, they do attempt to store them, the consequence is a very serious loss when they come to be repacked during the winter months. The growers, then, of winter stock in this district are forced to sell so as to go on the market at least before Christmas, and they have not the alternative of accepting this market or the later winter market.

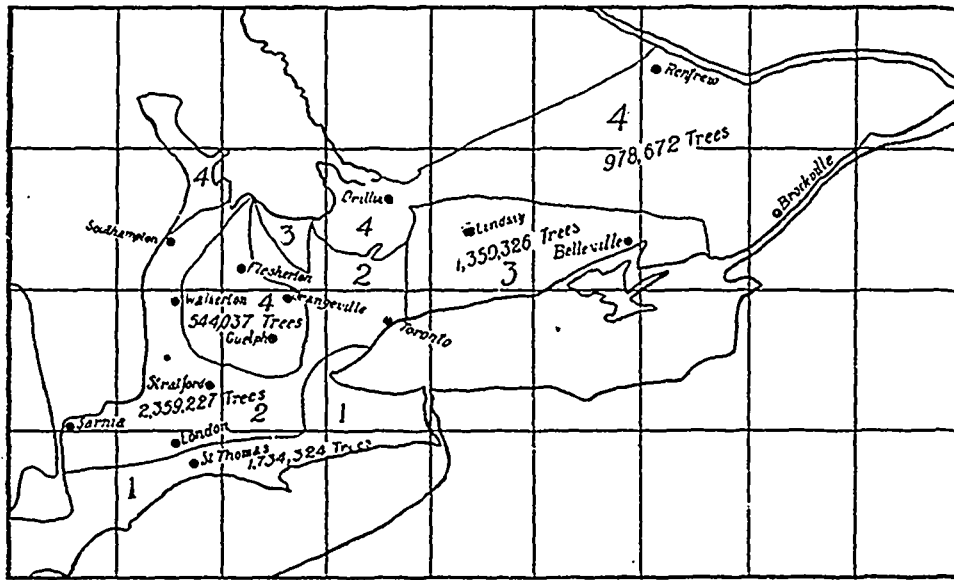
CHEAP APPLES

It might be noted just here that in the apple industry it is always likely that the cheapest apples will be those that must go into consumption during the months of October, November and December. During these months there will always be the fag ends of the high priced early apples as well as the odds and ends of the late winter varieties that for one reason or another have to be forced upon the market. These two sources of supply, together with the large volume of apples that ripen normally at this period, will always make a surplus at least of No. 2 grade at this time. Herein lies the reason for the low prices and for the want of market for the apples grown in district No. 1.

Somewhat different conditions prevail in the district which I have designated No. 2, including the second tier of counties on Lake Erie and the counties bordering on Lake Huron. This district, of course, fades imperceptibly into district No. 1 upon the south, but upon the whole is admirably fitted for growing the winter varieties. In common with district No. 3 it has that happy medium of climate not so severe as to induce winter killing and not so high in temperature as to prematurely ripen the apples. The standard winter varieties are matured normally, so as to meet the temperature approaching the freezing point that prevails in these districts after the first of November. These apples go as it were into a natural cold storage and, if harvested with care and placed at once where they will be protected from the occasional warm days, will be in the best condition to be repacked and shipped for the winter market.

FUTURE FOR EARLY APPLES

What, then, should be the aim of the orchardist in the counties north of Lake Erie, district No. 1? One thing is certain, they can never compete under natural conditions with other portions of Ontario in the production of winter apples. It is very true that in this respect they have conditions not dissimilar to the orchardists in New York state, and they may make orcharding as successful in New York state by adopting the same devices as have been adopted there, namely, an extensive system of cold storage. If, at some point, or



Map of Ontario showing Four Divisions for Apple Culture

the orchards of these districts were planted under different conditions that have induced me to place them in a separate class.

We come now to the counties bordering directly on Lake Erie, which I have grouped under district No. 1. This may be called the tender fruit belt of Ontario, where peaches, cherries, tomatoes and all tender fruits are grown with the greatest success. The apple also grows here to perfection. Nevertheless, it is a matter of notoriety that, though the earliest orchards of Canada were planted in this district, and though it made its reputation as an apple growing district long years before the other portions of the province were settled, of late years the industry has fallen into disrepute. Splendid old orchards in perfect health and vigor and bearing a full crop have been chopped down to make way for ordinary grain crops, and even in years of comparative scarcity, as last year and this, thousands of barrels of apples have been allowed to go to waste in

The fruit grower in Chatham does not fear serious frost until the first of November, probably until November 10 or 15. The fruit grower north of Lake Ontario is very anxious, indeed, if he has any apples exposed the last week of October. It will thus be seen that the apples north of Lake Ontario begin to grow nearly two weeks later than in the southern parts of Ontario. It will also be noted that in district No. 3 they do not have nearly so high a temperature during the summer months and consequently are nearly a month later in reaching the same degree of maturity as the varieties in district No. 1. In consequence of this, all the common winter varieties, such as the Baldwin, Spy, Russet and King are ripe in district No. 1 early in October, and in the natural order of things are subjected to the warm, genial weather that prevails in this district during the latter part of October. At the end of three weeks of this warm weather the apples are in a condition of maturity when they must go at once

several points, in this district, cold storage facilities are provided whereby the apples may be packed when they are matured (the last of September or the first of October), and placed in cold storage chambers, where they will be quickly reduced to a temperature near the freezing point, they may, with confidence, then be repacked for the winter trade. Dismissing, however, the question of cold storage, the orchardists here should recognize the defects of their apples and market them early in the season, indeed, though they have not clearly recognized the defects of their apples as keepers; all the apples that have been used have been sold for immediate consumption.

THE IRRESPONSIBLE BUYER

As has already been pointed out, the market is not always a reliable or steady one, and consequently the more reputable dealers have avoided this district in their operations. It has been the prey too frequently of the irresponsible buyer who has come in with his glib tongue and a light purse, and promised prices that induced the apple grower to part with his fruit. The apples were packed and shipped, and if the price realized was a good one, or if the apple operator was so fixed that he could not get out of the district readily, he paid the farmer a part, or the whole, of what was promised. If, on the other hand, the markets were poor, if he made a clean breast of the matter and explained that the markets had gone wrong and he could not pay the promised price, the farmer very quickly realized that he had no recourse.

This, however, is not a necessary condition of affairs. It simply indicates bad business methods, and the remedy here is quite aside from any question of climate, soil, varieties or markets. The question is simply one of organization among the apple growers themselves. This has been demonstrated by the success of one or two cooperative organizations which have been working in this district. I need only to refer you to the success with which the Chatham Fruit Growers' Association is working. Another cooperative organization is work-

ing most successfully in Simcoe. Both of these organizations have this year sold all the apples their patrons had at prices much higher than the average prices paid for winter apples in the counties north of Lake Ontario. What has been done at Chatham and Simcoe can be done in Essex and Elgin and other counties constituting this district.

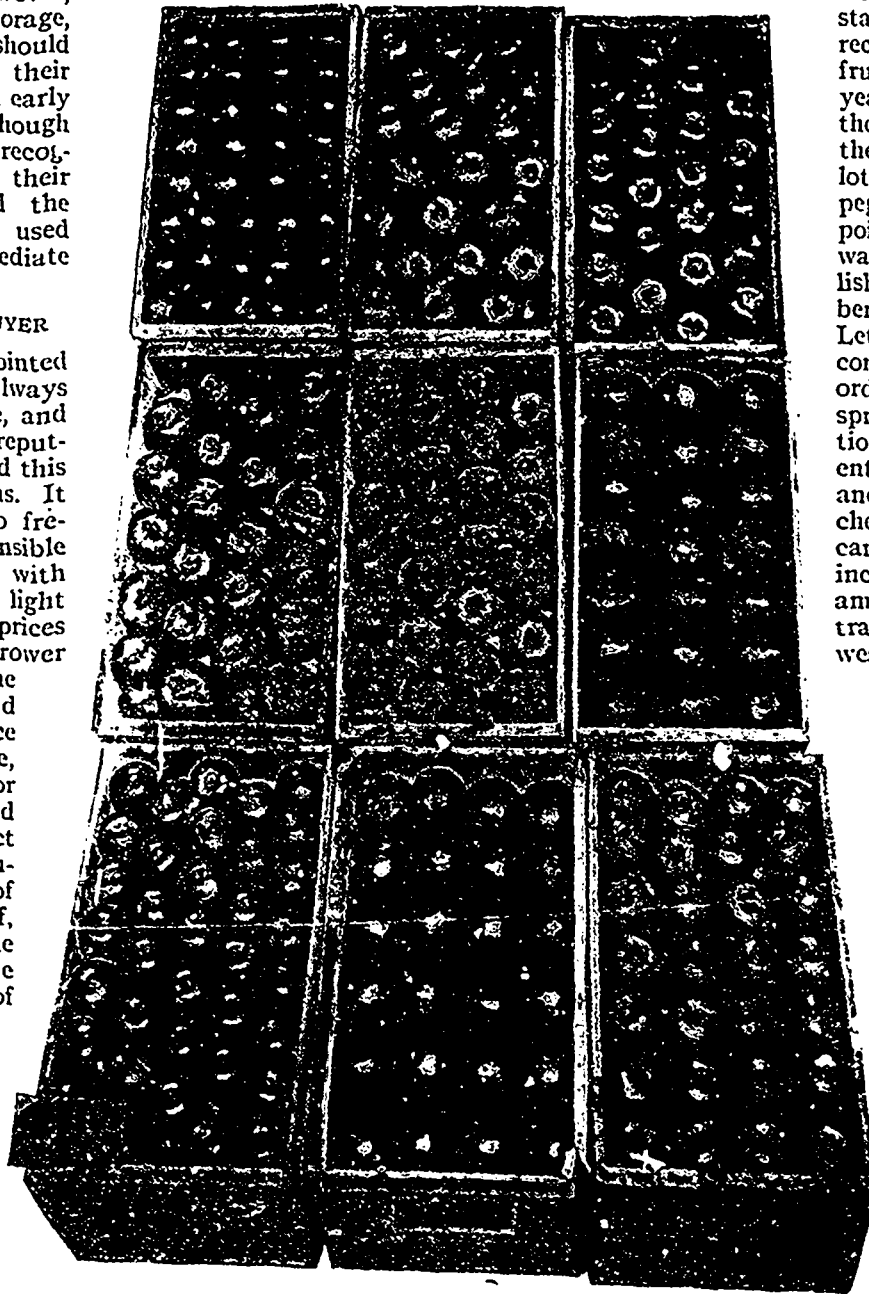
is not likely to lessen for many years, but the market for apples cannot be measured by this standard, large as it will be. The great cost of distributing the apples limits the consumption very largely to the cities and towns capable of taking at least carload lots. During the last few years there have been established along the railway lines of the western provinces, hundreds of stations, none of which, until recently, were able to take the fruit in carload lots. Last year and this some dozens of these places have come into the market accepting carload lots. A few years ago Winnipeg was the only distributing point. Now large distributing warehouses have been established at Regina, Prince Albert, Moose Jaw, Calgary, Lethbridge and Edmonton. In consequence of this an extraordinary demand for fruit has sprung up, quite out of proportion to the number of people entering the country last year and this. The comparative cheapness with which the fruit can now be distributed has increased the consumption among the people. The extraordinary prosperity of the west has made it possible for

almost everyone to enjoy fruit, which necessarily is high priced even yet compared with the price which is received by the grower. We can look forward, then, confidently to a market there that will readily absorb a very large proportion of all the fruit that Ontario can grow. It is very true that the Ontario grower in the near future will have to meet the competition from the province of British Columbia. This, however, he need not fear. The growers of each province, when all the elements of success are taken into consideration, are upon a comparatively equal footing, and even if this were not the case, the market

will likely increase much faster than the production of fruit in both provinces.

(To be concluded in next issue)

With the advent of the San Jose Scale into this district, driving the careless unthrifty grower to the wall, and the opening of the great Northwest so rapidly, to say nothing of New Ontario, the prospects were never brighter for success in fruit culture.



Ontario-Grown Apples Shown at Recent Ontario Horticultural Exhibition

THE WESTERN MARKET

Just here may be a convenient place to discuss the question of markets for early apples. The two most important markets for early apples are the western provinces and Great Britain. The markets of the western provinces are opening so rapidly that few who have not paid special attention to this matter will realize and appreciate the extraordinary growth of late years. The influx

Top-Working Unprofitable Fruit Trees

TOP-WORKING orchard trees is the grafting over of old trees or of worthless varieties after they are established in the orchard. It is an important operation in the secondary care of fruit orchards and may be practised on trees of all ages, provided they are strong and healthy.

Varieties that have been planted and found not suited to local and climatic conditions or to the demands of the market may be worked over with some variety of desired merit. Top-working may be useful also for grafting varieties into the tops of self-sterile trees to ensure cross pollination. It may be employed to reform the tops of trees that have been found not true to name. It is the best means for saving time in testing new varieties by top-working them into bearing trees. It is a means of overcoming weak, straggling, and other bad habits in certain varieties. It is also an important factor in reducing the danger of sun-scald by grafting a susceptible sort on a variety that has proved more resistant to the disease. It may be used in some cases to modify insect injuries.

Top-working may, therefore, be used by the fruit grower with advantage in many ways. Chief among the many and the one of most importance in most orchards is the changing of poor varieties for ones of value.

In the case of the peach, top-working is best done by bud-grafting. Budding is a part of the general process of grafting, but differs from grafting proper in that the scion used consists of a single bud instead of a twig comprising one or more buds. The bud may be successfully set in old wood, but to secure more certain results it is necessary to bud on wood of one season's growth. To get this new wood, the main branches should be cut back when the tree is dormant to within one and a half feet of the trunk. The following season a new growth will spring from the stubs, and this may be utilized for the desired purpose. If the growth has been superfluous, only a portion of the new shoots need be budded. It is advisable, however, to bud more than eventually will be required, so as to ensure a sufficient number of perfect unions. All unions in excess of the desired number which is usually four or five, may be removed when growth starts the following spring.

Apple trees are usually top-worked by means of the cleft graft. As a rule, it is better to top-work each year only a portion of the top of old trees so as not to be too severe. Cut the branches of an inch or an inch and a half in diameter off squarely, making a clean cut with no ragged edges.

Split these in the centre and insert the scions, usually two, one on either side, so that the cambium or green layer just beneath the bark comes in contact with the cambium of the stock. Coat the wounds with grafting wax or wax bandages so as to exclude the air and the spores of disease and to allow of rapid healing. Cleft grafting is not difficult in the hands of a person of ordinary care and intelligence.

Fighting Plum Curculio

Among the insects which attack the plum orchard the curculio is the most destructive. Many methods of combatting this insect have been tried, but few of them can be claimed to be effective.

Regarding successful treatment, Mr. F. G. Stewart, of Homer, wrote THE HORTICULTURIST as follows: "Last season I used altogether arsenate of lead for plums, and I do not find more than two plums cut by the curculio on a tree. It is more expensive than Paris green. The latter costs about four cents a barrel, while it takes three pounds of the lead at 17 cts. a pound, or 51 cts. worth for a barrel. But what would that matter on 50 trees, when it saves the crop so well. Three baskets of good plums will more than pay the difference. Another point in favor of the lead arsenate is that it does not wash off as readily as does Paris green."

The Gravenstein

Ralph S. Eaton, Kentville, Nova Scotia

A better apple might have been made than the Gravenstein, but few Nova Scotians will admit that a better one exists, either as a dessert apple or for cooking. Like much highly bred stock, however, the tree and fruit has some weak or tender points. The tree has been more susceptible to so-called "collar rot" than any other variety, and some growers are hesitating to include it in their new plantings. The fruit is susceptible also to black spot, and, as it is a large and early maturing variety, its rapid expansion of pulp and skin causes cracks where the roots of the spot have their hold.

Previous to five years ago, the Gravenstein brought more money to Nova Scotia growers than any other variety. Since then the Baldwin and perhaps Ribston have led. But it is too fine an apple to give up growing, and there is hardly sufficient reason for doing so. The "collar rot" was due probably to some special climatic conditions of the winter of 1900, which may not recur for many years. There is ample proof that with thorough spraying the fruit can be grown beautifully clean. The tree re-

quires very little pruning and is a beautiful, symmetrical grower. Though the first home of the Gravenstein was in



Typical Gravenstein Tree, Pruned

Germany, Nova Scotians feel that they can surpass the German product.

An Effective Windbreak

This windbreak is on the farm of Mr. T. A. Scott, of Meyersburg, Ont., who writes to THE CANADIAN HORTICULTURIST as follows: "It has paid its cost over and over again and I would not be without it. It saves 25 to 50 per cent. of my apples each year. It is about 25 feet distant from the nearest row of trees, so it does not shade them. In most orchards the air circulates too freely, more especially in a winter like 1904, when many farmers lost a great number of both young and full grown trees by frost. Mine came through safe with the exception of one or two at the end of



A Shelter Belt of Spruce Trees

the break. I would not think of planting an orchard without a break on the west and north side, if not already protected by a hill, and if I had an orchard already grown I would lose no time in planting a break. Spruce makes the best.

The Strawberry and Its Culture*

Wm. F. W. Fisher, Burlington, Ontario.

THE strawberry is more cosmopolitan in its adaptation to soil, climate and conditions, as well as palates, than any other fruit. It grows and flourishes in the sunny south. It is found smiling its welcome in the early spring on the prairies of the far north, and at all points between it grows or may be grown.

It was feared by many that the importation of strawberries from the United States would result in weakening the appetite of consumers and lowering the price of the home-grown article. The history of demand and average prices for the past 10 years shows a contrary effect. With the increase of importations and the trebling of the acreage in home-grown berries, the demand and price have kept full pace.

CULTIVATION

The old saying that in order to properly train a child one should have begun with its grandmother, applies with full force to the cultivation of the strawberry. If land has been liberally fertilized and tilled in such a manner as to keep down all weeds for two or three seasons previously to its being planted, half the battle has been fought and won. With ordinary intelligence applied to later operations, success is insured.

While the strawberry will succeed on a variety of soils, the ideal one is a rich, sandy loam with a quicksand sub-soil, not too near the surface. Having selected such a soil, it should be well fertilized and fall plowed. In spring, cultivation should begin early in order to retain moisture and, in cases where the soil is heavy, to keep it from becoming hard. When ready to plant in spring plow deeply, harrow and then roll firmly.

PLANTING

The distance between the rows and between the plants in the row depend somewhat on personal opinion and largely on the habits of the variety. I prefer a distance of three feet between the rows and from 15 to 24 inches between the plants in the row.

Probably the most common method of planting is for one man to carry a spade in one hand and a basket of plants in the other, while another man or boy puts the plants in the holes made by the spade and each presses a foot through the earth at the roots of the plants as they pass on. In this manner an active man and a boy can plant about one-half an acre a day.

As soon as the planting is over, the soil should be well cultivated and hoed to retain moisture and to prevent the

air from getting at any roots that have not been entirely covered. Cultivation should be continued at intervals of about once a week for the first two months. Early runners should be turned into the rows as they form the strongest plants. The rows should not be allowed to become matted by plants that set late. Some of our most successful growers allow each parent plant to set but two young plants on either side. This system, called the "hedge row," is not generally practised, nor is it conceded to be always practicable.

When the frosts of December come, the rows should be mulched in such a

ovens (which are still designated express cars), or when the trains run into market three or four hours late, the result is quite different to that obtained when the crates are properly handled, deposited in a well-ventilated car and delivered at their destination on scheduled time.

The distribution of the crop is one of the most important factors, and we think the ordinary grower would do well if he would confine shipments on commission to the larger centres, and allow buyers at local points to supply smaller markets. If all the mouths in the Dominion are given access to a full allow-



Plan to have a Field of Strawberries like this Next Year

way as to protect the plants from the severity of the winter. The following spring, cultivation is again necessary, especially if the plantation is to be maintained for a second year's picking.

PICKING AND SELLING

To get the berries picked carefully, regularly and promptly, is the knotty part of the problem. Provision should be made a season in advance for a supply of pickers. These require considerable tact in managing. Picking is done by piecework at the usual rate of one cent a box. In addition, a premium of some kind might be given those pickers who, by skill and neatness, bring in their berries in the most attractive and saleable condition.

Marketing is the next feature in order. The success or failure of all our efforts up to this stage depends, to a greater or less degree, on the services rendered by the transportation companies, rather than on the prices charged. When the crates are thrown three or four feet by a stupid, careless expressman, and landed in one of the old-fashioned, stuffy

of strawberries, we need not fear a glut in future markets.

I have outlined a system involving a large amount of labor, care and expense. What result should the average grower expect from such a system, fairly carried out? Place the average crop at 7,500 quarts an acre, the average price at six cents at railway station, making thus the sum of \$450 as the gross receipts for an acre. From this, deduct the following charges: Plants required, \$25; cultivation, \$25; fertilizers, \$35; rent, \$5; picking, \$75; packages, \$75; and packing and delivery, \$25. This makes a total of \$275 and leaves a net profit of \$175, a sum which every good cultivator may expect to exceed and which, also, compares favorably with other branches of fruit growing.

I do general pruning early in the spring and then go over the trees again after the leaves come out to remove diseased limbs, which could not be noticed before the buds open.—Harry Dempsey, Rednersville.

*A portion of a paper read before the recent convention of the Ontario Fruit Growers' Association.

Interest the Children in Horticulture

THE feeling is unanimous that children interested in horticulture play an important part in both home and civic improvement. The work of horticultural societies in various towns and cities in Ontario has demonstrated the value of getting the children enthusiastic. Societies that have undertaken this work are so pleased with the results that they pronounce it a line of work well worth continuing. This was evidenced at the recent convention of the Ontario Horticultural Exhibition held in Toronto, Nov. 9, when an interesting discussion on the subject took place.

The discussion was led by Mr. J. Thos. Murphy, secretary of the Simcoe Horticultural Society, Simcoe, Ont., who said in part: "The main thought that we have in interesting school children in horticulture is to improve the appearance of our town by beautifying it with lawns and gardens. The course we pursue is to buy quantities of seeds and give them to the school teachers of the public school, who re-distribute them to the pupils. We buy the best seeds that can be procured from the best growers. The first year we spent only \$5 for seeds, but that was sufficient to enable us to hold a little exhibition in a building near the schoolhouse. In the afternoon the flowers were placed and judged while the children were in school. By the time school was out, the exhibition was ready for inspection by the children. In the evening, the band furnished music and the public turned out to see the show.

"Last year, 1905, the amount paid for seeds was increased as we were encouraged to continue the work. The children took an interest in it. Many little tots became as anxious about their productions as old growers that exhibit at the fairs of the horticultural society. We gave about \$10 worth of seeds. The previous year's program for judging and amusement was followed except that a plate was placed at the door for contributions from the public. From this latter source, \$15.75 was realized. After paying the expenses of the fair, which amounted to only \$5.75, we got back the \$10 that originally was paid for the seeds. In white asters, there were 21 entries in the junior division; in blue or purple, 23; and in mixed colors, 20. In the class for nasturtiums there were 21 entries. The total entries in all the classes by school children amounted to nearly 500. The display was a creditable one.

"This year we suffered from drought for six weeks or more. The exhibition was not as good as the one last year, but there were quite a large number of entries. They totalled about 400. The

children are interested more than ever. We again realized \$15 at the door by contributions.

"Interesting children in horticulture in our town is creating a wholesome rivalry among them; it is stimulating a desire to produce plants and flowers a little better than their neighbors. We find also that the gardens in town are improving in appearance, particularly the lawns and grounds in front of the dwellings. During the past two years the appearance of the town in general has been improved."

THE WORK IN OTTAWA

In a brief talk on the character of the work in Ottawa, Mr. R. B. Whyte said: "There is no doubt about the value of the work. It has a marked influence on the appearance of a town or city. To get results in civic and home improvement, we must first reach the individual. We cannot do better than to begin with the young child. If you can get a boy or girl really interested in growing flowers, you are doing him or her a great benefit. There is nothing that tends more to keep a boy or girl out of mischief, out of bad habits and bad company, than the care of a garden of his own and one in which an interest is taken. With that object in view, I began four years ago, through our horticultural society, to distribute seed to a limited number of school children. In a large city, like Ottawa, it is practically impossible financially to give seeds to all the children in the schools. Besides, there are many children who have not the facilities with which to care for and grow them.

"The first year I started with aster seeds. My method was to give three packages of aster seeds, white, pink and mixed, to 10 children in each class of 14 schools in the city. The teacher had the privilege of choosing those who were to get the seeds. To each teacher I gave an order on a seedsman that I had selected to supply the seeds. I gave them, also, 10 orders to be given to the children most likely to carry out the purpose of the distribution. With each order I gave three entry tickets, numbered, with instructions that they should be attached to the exhibit. The teachers supplied me with a record of the names of those who got tickets and what they were for.

"For the purpose of instructing the children in the best way to grow the flowers, I printed a little bulletin and I made it as simple as possible. My intention, also, was to visit all the children during the summer and see how they were getting on, and to help them with what advice I could. I managed to visit a number of them.

In spite of the instructions given, many of them covered the seeds too deeply. When exhibition time came, only 40% of the children who received seeds were able to make entries. The quality of the flowers shown was excellent. In every respect, they were equal to and, in many cases, superior to those grown by our regular exhibitors.

"The second year sweet peas were distributed instead of asters, as they are easier to grow. The change was gratifying. While only the same percentage of children exhibited, the show was a pretty one. The results of that year's work showed that there were many children disappointed because, having no gardens, they were not in a position to grow flowers.

"The next year a division was made. Ten children got poppy seeds (seeds that I grew myself) and a like number were given geranium plants. The plants were distributed in four-inch pots, most of them in bloom and of the same variety. Prizes were offered for these at the September show. About the same proportion of children succeeded with the geraniums as with the seeds.

"During the fourth year, 1906, Phlox Drummondii and begonias were grown. The seed was divided in two divisions. The proportion of children who were successful remained about the same as in past years.

"One of the difficulties that face a city organization of this kind in encouraging school work, is the fact that the holidays interfere. A large percentage of the children who attend school leave the city for six or eight weeks in the summer time. It is difficult to get more than 30% or 40% to complete the experiment. Our success, however, has been gratifying both to Mavor Ellis and myself, who have carried it on for the past two years at our expense. Fine plants were shown at the exhibition. The flowers have been equal to those shown by more experienced exhibitors.

"Every year I issued a bulletin. It is no use giving seeds without instructions. Verbal instructions practically are of no use. A printed bulletin is necessary. It should tell how to sow the seeds and grow the plants, how to prepare them for exhibition and other information necessary to the child's success.

"A valuable feature of our work has been the giving of a number of gladiolus bulbs in addition to the money prizes, which never were very large. The highest money prize was \$1.50, and the lowest 25 cents. Each exhibitor that won a first prize this year got 60 bulbs; each second, 50; each third, 40; and so on, down.

"Two years ago, I gave bulbs for the first time. I offered prizes for flowers

grown from those bulbs the following year. The scheme was a success. The particular value of it is that it keeps up the continuity of interest. The same child is had for at least two years. Naturally, it is the older children in the school who get the seeds. Usually when they have advanced to a higher class we lose them; but, if you give them prizes in bulbs, you can hold them for two years or more. The children are pleased with the bulbs. There is no expense attached to the giving of them, as I grow them myself."

RESULTS IN BRANTFORD

The nature of the work in Brantford was outlined by Mr. J. Walter Brooks, secretary of the Brantford Horticultural Society, as follows: "Our society was organized in 1868. Under the old plan of carrying out the show for flowers, fruits and vegetables, the society was a failure. In 1903 we failed. In 1904 we held no show. We got

gave them to the children to grow for competition. The prizes were given in plants, not in money.

"The past spring (1906) we distrib-

Sept. 14. We had 493 entries and gave as prizes 127 plants, including araucaria, palms, rubber plants, ferns and 600 hyacinths. We gave a bulb to each



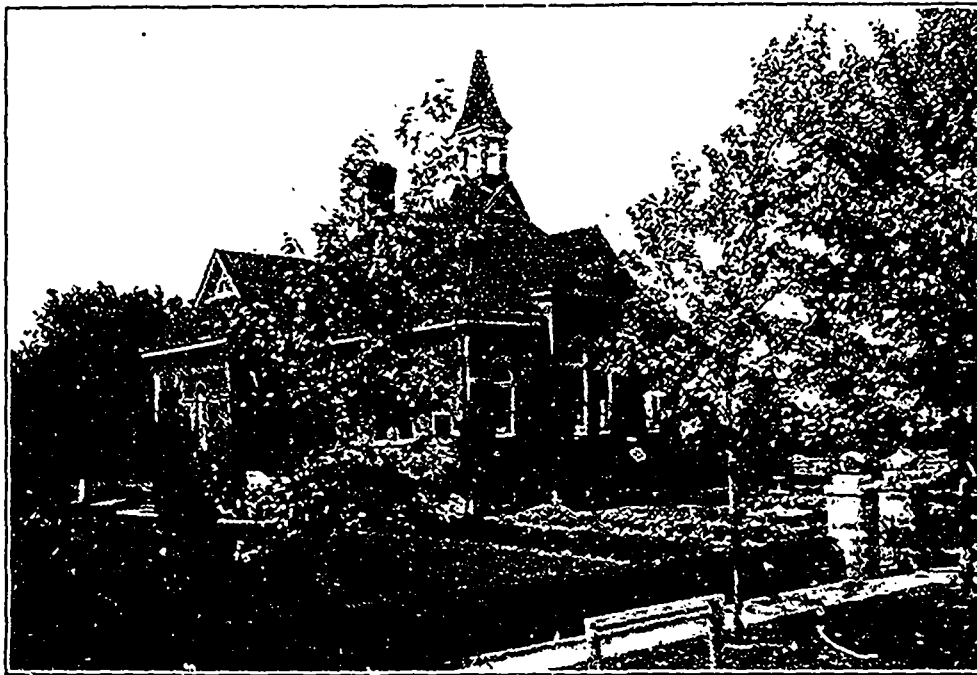
School Gardens Incite in Children a Love for Plants and Flowers

uted 3,277 packages of flower seed to 1,500 children of the public and separate

pupil that made an entry, so that all got something. There were about 1,500 people at the show, all enthusiastic.

"The seed was purchased wholesale and we put them up in packages ourselves. The cost amounted to a trifle over one-half a cent a package, including the printing. On the envelopes were printed instructions respecting the sowing and care of the seeds.

"We succeeded in getting the city authorities to plant bulbs in the city parks. The city council has been asked to fix up and plant a piece of land belonging to Greenwood Cemetery with shrubs and trees for nature study, and to have them labelled with both common and botanical names. The city cannot do this at present. Special legislation is necessary. We are going to try again, and probably something will be done. The city made some improvements, but not all that we desired."



A Model Schoolhouse and Grounds

The Rittenhouse school at Jordan Harbor, Ont., is a model for others to follow. The grounds are beautifully planned and planted. Adjoining the grounds shown in the cut is a large plot used as a garden, in which the children are required to grow vegetables and flowers. The location of this school is adjacent to the new experimental fruit and vegetable station in the Niagara district.

through the year as well as we could and managed to save a little money with which to start the following spring. The next year we bought seeds and

schools. Each child received five packages of different seeds. We gave asters, scabiosa, zinnia, verbena, and nasturtium. Our exhibition was held on

Catalpa Trees for Posts

Is the catalpa a serviceable tree for fence posts? Can it be grown in Ontario with success? How is it propagated?—R. C., St. David's, Ont.

The catalpa makes a durable post. The best species for the purpose, and the only one that is really hardy in Ontario, is *Catalpa speciosa*. The trees are propagated by seeds, either at home or in the commercial nursery. Buying seedlings from nurserymen is the most satisfactory plan.

Fertilizing House Plants

LACK of sufficient fertility in the soil is the cause of many house plants dying. In most cases the potting soil was not well prepared. With a soil of proper composition and judiciously watered afterwards, most growers claim that very little, if any, fertilizer is required. In fact, it is claimed by many that plants are lost because too much plant food was given. Until the last few years liquid manure was the chief fertilizer used, and perhaps fewer plants were damaged as long as that was the case.

The introduction of concentrated horticultural manures and plant foods which are more easily applied and less objectionable as far as appearance and odor are concerned, has resulted in many discarding the liquid manure. Among the valuable fertilizers commonly used are Arnott's Concentrated Horticultural Manures, Steele-Briggs' Plant Food and Rennie's Plant Food.

In discussing this subject with THE HORTICULTURIST, Mr. E. F. Collins, of Toronto, said: "These concentrated plant foods are much more easily applied, are cleaner to handle, and contain

more of the fertilizing elements required by the plant than does the liquid manure frequently used. I have used Arnott's Horticultural Manure, and know that it is good for strong plants. There is, however, no use in applying such foods to sickly plants. Most amateurs make this mistake. They imagine that if a plant is weak it needs more fertilizer. Instead, the plant needs nursing. It does not need fertilizer any more than a sick man needs a beefsteak. It would do the plant more good to repot it, to wash and cut the ends off the roots and then to reset in clean, sweet soil. It should be kept pretty dry for a month or six weeks, and after that it should have regained its former thriftiness.

"In adding fertilizer it should be given in small doses. I prefer a small application twice a week to a larger one only once a week. For palms, ferns and healthy, well-rooted plants, half a teaspoonful in a 12 quart can of water once a week gives good results. Each plant should get a thorough watering, care being taken that none goes on the foliage."

Magnolias in Queen Victoria Park

Roderick Cameron, Niagara Falls, Ontario

THE Star-flowered Magnolia, *Magnolia stellata*, should be planted more extensively in this and similar localities. It is an early bloomer. The flowers are pure white and semi-double, numerous and fragrant. The plants often begin to bloom when but two feet high, and they never grow beyond the size of a medium-sized shrub, very bushy and short jointed, a feature much desired in all shrubs. I am satisfied that this variety is the hardiest of the number grown here, but it should be planted where the morning sun would not strike it. It flowers during the first week in May, and is, therefore, subject to late frosts. The sun being kept from it early in the morning will save the flowers from injury, if they are not frozen too hard.

It is said that magnolias are hard to transplant successfully, particularly if of medium to large size. I have found no trouble with them if they are well trimmed back and planted in deep, damp soil. I have one transplanted after flowering for eight years. Some of the leading branches died back beyond where they were cut, but the plants bloomed the same season freely. It is *Magnolia Soulangiana*, one of the hardiest and best, and it blooms soon after the aforementioned. The flowers are white with some purple on the outside of the petals. It grows to a large shrub

or small tree in size, and is a prolific bloomer during the first of June.

Magnolia Lennei comes into bloom next in succession. It is more shrubby, with large flowers, reddish-purple out-



Star-flowered Magnolia

side, and more showy than the preceding varieties. Perhaps it is not quite so hardy.

Immediately after this one, the Umbrella Tree, *Magnolia tripetala*, comes into bloom. It grows here to a height of 35 feet, making a magnificent tree, with leaves about 18 inches to two feet long. This species produces flowers about 10 inches across, pure white, with

a pleasant odor at a distance, but rather heavy close by. It blooms from the middle to the end of June. The cone-like fruit produced by this variety is very beautiful towards fall, being of a bright pinkish-red color, and about five inches long by three in diameter.

Following the Umbrella Tree in bloom comes the sweetest of them all, the Sweet Swamp White Bay, *Magnolia glauca*, by some called the Beaver Tree. This is a very attractive shrub or small tree, evergreen in the south, but deciduous here. The flowers are milk white, globose, very fragrant and pleasant, about three inches across. They are not produced all at once like the foregoing, this one blooming during the first two weeks in July. The leaves are light green above and purplish-white on the under side—wherefore its name, *glauca*.

There are several other varieties of magnolia grown in Victoria Park, but these are the best and hardiest blooming in succession as named. The magnolia and tulip trees should not be planted in the fall; better plant when the ground works well in the spring. They do best on deep, damp, peaty soil; but will succeed well on a sandy loam. All the magnolias are magnificent plants, producing showy blooms in abundance. But, independent of the blooms, they should be grown if for nothing else than their foliage.

The Mortality of Trees

There are trees living to-day that are believed to be hundreds, and, perhaps, thousands of years old, and they show no signs of decay. From the theoretical view-point, there is no reason why the life of trees should cease; they should taste of immortality, as each successive year sees the renewal of organs whereby life is maintained and also the multiplication of roots and leaf shoots to furnish nourishment. Practically, however, death is as sure to the tree as it is to the animal kingdom. According to its own internal organism, a tree could go on living forever; but there are external conditions that bring life to a close.

A tree is dependent for its food supply mainly on the soil in which it stands. If this soil is sterile, the tree will starve to death. The ravages of insects also bring it to an untimely end; caterpillars destroy its leaves, beetles penetrate and kill the wood. Fungus diseases comprise other mortal factors. The air is laden with germs which enter into the tree in every exposed crevice, and perform their deadly work. The elixir of life for the tree is in the destruction of insects, the annihilation of disease and the maintenance of fertility in the soil. With these conditions, trees might live almost forever.

The Embellishment of Home Grounds

C. Ernest Woolverton, Landscape Designer, Grimsby, Ontario

TO those who have grounds of their own, the subject of their improvement for the most beautiful effect should be one of the greatest interest.



Mr. C. Ernest Woolverton

The true artistic features of the rooms of a house are not brought out until they are properly furnished. So also the lawn must be furnished in order to bring it into true relationship to the house.

Few people seem to appreciate the true beauty that lies within an open green sward, but if they were to go to the best art museums in the world and study the finest landscape pictures that the most celebrated artists can produce, they would find that the very heart of the landscape picture lies within this tender green space. This, therefore, places the lawn next in importance to the house, as the home should nestle down in the heart of the picture.

It is, then, around and about the house that the true value of the open lawn is apparent. It lends dignity and at the same time gives the house its true setting. Shrubs and flower-beds scattered about would be sure to mar the artistic effect which the open lawn gives and should, therefore, be confined to the boundaries, grouped in the corners or in turns of roadways. By so doing, the framework of the picture is constructed.

No hard and fast rules can be given for the planting of trees and shrubs. Every place requires a different treatment and this treatment must be governed by its condition and location. For instance, a small park in a city square would be best suited by an architectural design, because its surroundings are of a formal nature; whereas, a gentleman's country home would, in most instances, call for a natural design to harmonize with its surroundings. Where the natural style is followed, however, the following principles should be observed: The lawn should be kept open; walks and roads, where possible, should be laid out in curved lines; trees and shrubs should be grouped and not placed in straight rows; the buildings should be united to the grounds by the use of shrubbery planted at the base. Climbers also aid wonderfully in bringing into closest harmony the house with the grounds.

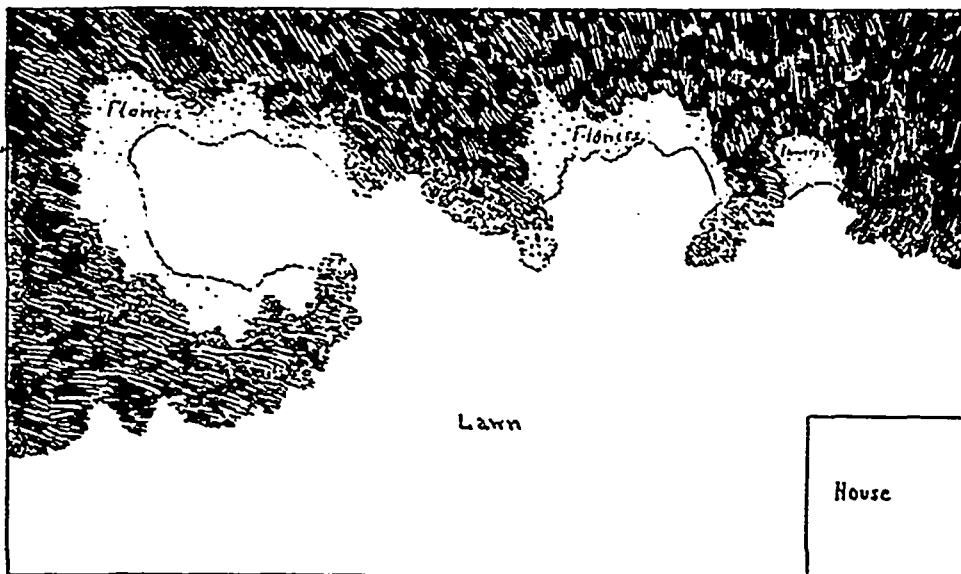
Very picturesque effects can be produced, even on small grounds, by strictly following out the landscape idea. The illustration shows a section of a small lawn, about 100 feet deep, which has been laid out in the natural style. The trees and shrubs are so arranged as to form points and bays of green. In the depth of the bays and in front of the shrubbery are planted hardy flowers. No better place can be found than that to plant hardy perennial flowers, as the dark background of foliage sets them off to a wonderful advantage.

This section of the lawn was planted so as to give the most beautiful effect as seen from the house. Here you look right into the recesses of the bays, which give the lawn the appearance of having much greater depth than it really has. This effect can be heightened by planting blue flowers in the innermost depths of the bays, as blue always lends distance to a scene.

When planting the border do not

would have never-ending attractions. By a good selection of shrubs and flowers, bloom could be had the entire season. As one moves about the place, he is continually greeted by new surprises, because the scene is continually changing. In fact, the same objects viewed from different positions appear altogether changed because new settings are given them.

How much more beautiful and homelike is a lawn laid out in this simple and natural way than one geometrically divided into so many parts, all brilliant and aglow with showy beds of geraniums and gaudy colouses and acalyphus, showing perhaps the day of the week or some other extraordinary and unnatural figure! Pattern bedding does not belong to the architectural ideal, nor, indeed, does it belong to any system of landscape gardening. The architectural style suits many places that the natural would not, but, until pattern bedding with all its oddities and monstrosities is completely



‡ An open Lawn with Trees and Shrubs Grouped on Border is Effective.

make the mistake of planting one little flower by itself, to be neglected and unnoticed, but plant in bold masses. The effect is much more striking and beautiful. Be careful, also, about the colors. Some colors are always at war with one another, and unless they are blended off they will continue to quarrel all summer. Yellow and red, for instance, would never look well together; they should at least have an intermediate color such as bronze, but it is best to keep them well apart. Use plenty of white, as it is the great harmonizer.

A lawn planted as the illustration suggests, and, of course, with the same idea continued on the rest of the grounds,

forsaken, landscape gardening cannot be spoken of as a fine art.

Amaryllis bulbs that have been semi-dormant will soon show signs of growth. When this occurs pot them at once in fairly rich, loamy soil.

If new chrysanthemum plants are required, do not pinch off the young growth. When three or four inches in length, cut them off below a leaf joint and insert the cuttings in sharp sand. Keep them in a shady spot where the temperature is about 60 degrees. When rooted pot them singly into small pots. Re-pot when necessary.

Timely Topics for the Amateur Gardener

JANUARY is the half way point between last year's garden and the garden that is to be. You can have a better garden than ever next summer by planning now. In devising improvements, if you have a lawn, or intend to make one, bear in mind that it is equally as important to the general appearance of the home as flower beds and borders, or the trees and shrubs. Some people think it is of even more importance, and like to have their places entirely green without any color to relieve them. Others give their undivided attention to the flower-borders. A few think trees and shrubs are all that is wanted.

Draw a diagram of the home grounds to scale. Don't say "It's too much trouble." It's not, if you approach the work in the right spirit. When you draw the plan, have in mind the effect that the proposed planting will produce in after years.

The home grounds should be modelled after Nature. Freedom from formality is best, but not a copy of Nature in her wildest moods. A lawn dotted with plants and trees in a haphazard, inartistic manner is not desirable, nor is it well to plan a set design drawn according to Euclid, nor are forest conditions what we want, or a tangled wild wood—we should plan a scheme resembling natural conditions, sensibly arranged.

Plan to place the trees and shrubs mostly in groups, seldom alone. Maintain an open expanse of green, and an open outlook. The junctions of the roads and walks should be planted with

shrubs. When the driveways curve, make the curve appear necessary by judicious planting. Arrange the plan so as to beautify waste places. Don't forget the value of planting trees, not only for ornamentation, but also for comfort and protection.

PLANNING THE KITCHEN GARDEN

Every home should have a kitchen garden. You get better things than money can buy—fresher vegetables, better varieties. At home, one can select the varieties that stand for quality, not those that are grown for their ability to keep or to ship long distances.

Measure accurately the length and breadth of the plot of ground that you intend to devote to the growing of vegetables. Make a diagram of it. Then decide which way the rows should run. Some plants, like corn, potatoes and cucurbits require more space than others. On the diagram, draw a line for every single row that is to be planted and name each crop. In parenthesis, immediately below the name of crop that it is to follow, place the name of each succession crop. A diagram of this kind planned now will be of much value when planting time comes.

THE GROWING OF HOUSE BULBS

If you took the advice given in our lawn and garden notes for September and October, you will now have a stock of bulbs in pots for bloom during the winter months. The bulbs will flower profusely if given half a chance. Failures are due to improper care and to inexperience on the part of the grower.

The most common fault is in the matter of irregularity in temperature and in watering. Bulbs will not do well in a temperature that is too warm in the day time and too cold at night. The temperature should be more uniform. The soil in the pots should not be allowed to become too dry. Water as often as necessary to keep moist.

THE WINDOW GARDEN

Window plants are susceptible to cold drafts of zero weather. On cold nights place sheets of newspaper or similar material between the plants and the window.

Keep as moist a temperature as possible around the plants. Spray or syringe the foliage on fine, sunny days. When possible ventilate the room on warm days. This may be done by lowering the top sash of the window and thereby avoiding the entrance of direct drafts on the plants.

FLOWERS FOR EASTER

With the exercise of a little care and intelligence, the amateur may force flowers for Easter with success. Among the plants that are useful to grow for this purpose are hortensia, the greenhouse spiræa and the freesia. Do not forget that the spiræa must be kept constantly moist. Buy the roots at once, and pot them. In the course of five weeks they may be brought into the warmth. The hydrangea needs similar treatment. Both of these plants require from 10 to 12 weeks to come into flower from the time they start to grow.

The Cultivation of Hardy Flowering Shrubs

John Walsh, Montreal, Quebec

THE cultivation of hardy, flowering shrubs is worth the serious thought of those interested in that line of horticulture. This branch of floriculture has advanced in equal proportions with any other. The change that has taken place within the last 30 years is immense. At that time the number of varieties was very limited, but now many enterprising nurserymen have added considerably to the list of hardy shrubs, until there is an almost unlimited list at our disposal.

Before considering the use of deciduous shrubs for planting, let me urge on all planters, and on every gardener, the necessity of securing stock from some reliable nurseryman who has the reputation of furnishing good, clean, healthy stock, true to name. Otherwise all the work will go for naught. I have seen many failures in this line through pur-

chasing from unreliable firms who send out stock regardless of its fitness to stand the freezing and thawing they are subjected to in this ever changing climate. The nurseryman will be in strong evidence this spring, because the winter has been so changeable and so mild. Hardy stuff is bound to suffer from so many extreme changes. In my garden I had to gather snow to cover the roots that were exposed to the severe frost—a thing I never had to do before during my long experience in this country.

In starting shrubs I would urge on planters the necessity of beginning in the right way. The ground should be prepared thoroughly. Don't dig a hole half big enough and cram the roots into it. Dig out all the old soil to the depth of at least 16 inches, leaving a little to spare, rather than make a hole

too small. Instead of using the old sour soil, it is better to pay a carter a fair price for good rotten turf that has been stacked up for at least one year. With the addition of a little manure, success is assured.

It may be necessary in some locations to use drainage. In the case of a low, wet place a layer of broken bricks or slate should be put in the bottom. This will prevent the roots from entering the cold, wet soil.

There are several methods of planting, either singly or in groups. The most popular way lately has been in zig-zag borders. When this method is adopted a nice effect is produced. It is especially suitable for covering a fence or other unsightly objects. In this system the shrubs can be graded according to the height they grow. The following is a list of the newest and best

varieties according to their season of blooming: *Amygdalus*, Flowering Almond—*alba* and *rosea* are both beautiful shrubs, the first to bloom. *Spiraea chamædrifolia*, beautiful panicles of pure white flowers. It comes in one week earlier than *Van Houttii*, and is just as pretty. *Spiraea arguta multiflora*, with a wealth of pure white flowers, giving the plant the aspect, in

and *coronarius*. The Golden Syringa, too, makes a compact bush, with its yellow foliage in early spring.

Lonicera Morrowi is one of the newest bush honeysuckles of merit. It is of spreading habit, and covered with dark purple berries. *Lonicera Alberta* is one that cannot be too strongly recommended. It has spreading habit, is suitable for covering banks, and is

of the best of them are: *Count de Rerchone*, rose color; *Japonica*, a very late one; *Villosa*, rosy pink; *President Loubet*, one of the best and darkest; *Pasteur*, another dark red one; *Affines*, one of the earliest to bloom, at least two weeks ahead of the others, pure white flowers; *Mme. Lemoinc*, double white, fine for forcing; *Mme Casimer Perier* is also a fine one.

All authorities agree that the proper time to prune shrubs is just after flowering time. With young shrubs very little of this work is needed, at least for some time. The straggling shoots should be cut back to give the bush a proper shape. If the other details are attended to carefully, nature will do the rest.

Bloom in January

The extremely mild winter of last year was productive of abnormal developments in the Niagara peninsula. On January 21 in Queen Victoria Park, at Niagara Falls, Ont., frogs were croaking in the ponds, toads were hopping about catching mosquitoes, butterflies, bees and wasps were flying about, pansies were in full bloom, while evergreen shrubs dared to burst forth into blossom.

A photograph of a handsome bunch of flowers of Black Hellebore, or Christmas Rose, *Helleborus niger*, was sent to THE CANADIAN HORTICULTURIST by Mr. Roderick Cameron. The flowers, two to two and a half inches in diameter, were



A Fine Specimen of *Hydrangea paniculata grandiflora*

Taken when in bloom last September on the grounds of Dr. A. Hartness, Lancaster, Ont.

the distance, of being covered with snow. *Spiraea Van Houttii*, too well known to need any description. *Spiraea Thunbergii*, a very useful plant, noted for its dwarf habit; suits well with its companion, *Anthony Waterer*, and *Bumalda*.

In *Philadelphus syringas* there is another study. *Syringa avalanche*, branches five to six feet high, bending to the ground with their load of sweet-scented flowers. *Bouquet Blanc*—Very floriferous, with long branches of double or semi-double flowers of medium size, making a compact bouquet; one of the newest *syringas*. *Fantaise*—Another new variety, with pure white flowers, rosy centre, very fragrant. *Globe de Neige*—A plant of bushy habit, enormous flowers of the purest white, branches arched and bent by the weight of the flowers. *Perle Blanc*—A bushy shrub with an abundance of large flowers, measuring two to two and one-half inches in diameter, of free flowering habit. *Syringa rosea*—A compact bush, flowers three inches in diameter; a double variety. There are also the older varieties, such as *grandiflora*

a free bloomer, with flowers a light purple.

Rhus cotinus rubra, Smoke Tree—an improvement on the old well-known variety. *Viburnum tomentosum*, and much superior to the older varieties of *Snow Balls*. *Weigela*, *Eva Ritka*, is another candidate for honors in this class. It is a dwarf grower, holds the bloom late in the season.

To enumerate all the varieties in each class would fill a volume. I have simply given a list of the latest and best varieties of the different species. However, there are one or two older ones that have stood the test, namely, *Hydrangea paniculata grandiflora*, one of the best late flowering shrubs in cultivation. *Viburnum opulus* and *V. plicatum*, although not perfectly hardy, are excellent specimens for forcing.

A most interesting class of plants is the French lilacs. Some years ago my employer purchased a dozen of the latest varieties then known, and planted them at his farm. Last June I was out to see them, and they are simply grand. They were nearly all in bloom and were a sight worth seeing. A few



A Christmas Rose

pure white but soon turned pink and then green. The stems were short. The leaves were evergreen and resembled the leaves of the peony.

No flower surpasses *Centaurea imperialis*. Each plant produces flowers on long wiry stems. They are exceedingly graceful for cutting as well as for corsage wearing. They grow like weeds and are superior to carnations.

Practical Plant Breeding*

H. H. Groff, Simcoe, Ontario

THERE are two classes of plant breeders, both of which are doing good work of more or less value from the scientific and economic viewpoint, in the interest of advanced knowledge and our advancing civilization. The first is the breeder who works for the purpose of proving his theories, and who by a limited number of recorded crosses is able to place the simple analysis of his investigations in presentable form for educative purposes. The second, or the breeder for practical results, cannot do this without placing limitations upon his activity, which means his experience and success, as it is only the man who makes many crosses who may hope to approach even the border of a field of limitless possibilities in results.

By practical plant breeding I mean the application of that knowledge of the science which will enable the worker to secure the highest ratio of economic value in the results. In my work on the Canna, which embraced all available species and early European hybrids, as well as the latest and best productions obtainable, I proved yearly the correctness and value of my contention, for seven years of select breeding gradually eliminated types of no commercial value, until in the last season not only were discards practically nil, but the value and quality of the selected seedlings were equal to those of the best novelties of European introduction.

The great value of the system advocated by me is the fact that the success of breeding depends much upon the removal of every influence adverse to increased multiplication of advanced types. This will be appreciated by those workers on bulky plants and trees of slow maturing habit, requiring a large acreage for development, and the fact that I am speaking from an experience with nearly a million new hybrid gladioli, a plant that requires comparatively little space, although needing from three to five years to mature from seed. Fifteen years of unbroken work on this now my sole specialty has also proven the value of my views in practice. In the progression of my system the first five years only is known to commerce, having been discarded by me 10 years ago; the second series of five years is little known commercially, and received the Pan-American Exposition Gold Medal and St. Louis World's Fair Grand Prize; while the third series of five years is all in my personal possession, and unknown outside my trial grounds.

*Extracts from : paper submitted to the Plant Breeding Conference, held in London, England, last summer.

It is imperative that the breeder should specialize, that he should use every obtainable wild species of his specialty, and in using each for the purpose dictated by his judgment and experience, thus control and render amenable to his direction the vital forces and chemical constituents of this foundation stock. By using all obtainable species he multiplies the possibilities for practical results and increased diversity in the material to be evolved from the product of future years, and yearly discarding species and early hybrids as they are superseded in the course of his operations.

Wild species are only of value so far as they may supply some desirable quality for incorporation in a domestic type containing other good qualities such as size, vigor, vitality and adaptability. Illustrating from my specialty, the blotch of the small purpureo-auratus can be placed upon a six foot domestic type, free from the objectionable cowed habit of this species, the throat mottling of the weak growing *Saundersii* can be transmitted to a race of strength and vigor, with the added influence of its wide, open flowers, and so on indefinitely.

That the foregoing can be done is good reason for not developing race hybrids, with the consequent loss of the

most important quality of general adaptability to changed conditions. The natural development of wild species is usually accomplished by restricted conditions of habitat, an influence of ages impossible of neutralization by a few seasons' crossing. So highly do I appreciate this feature of adaptability that in bringing my productions to maturity I grow on four kinds of soil—sandy, sandy loam, clay loam, and humus or vegetable deposit—and before use in breeding they are proven in this quality in order that it may be also transmitted in crossing. Breeding from wild species is, therefore, of little practical value, as the farther our removal from their many objectionable features the better, and when by proper selection their best qualities can be controlled and applied according to our knowledge and discretion.

My advice to plant breeders is to multiply types by many thousands, using special proven selections as sires, on the lines of practice by successful animal breeders. Select and develop domestic races and sections of such high quality, vitality and general adaptability, that their progeny will not only be of higher quality than the parents, but that this quality will be produced in quantity in the highest possible ratio. This is practical plant breeding.

The Amateur's Greenhouse

SOME readers of THE CANADIAN HORTICULTURIST may have some chrysanthemum plants that they desire to keep over. While professional florists would not find it profitable to keep over old plants, amateurs may do so, as they do not make as close an estimate of the cost incurred through time and labor. Cut down the old stem to within an inch or two of the soil. After doing this keep the plants in a temperature of about 45 or 50 degrees. A comparatively cool temperature is necessary to prevent a too rapid growth of the young shoots that appear on the surface of the soil.

Water the plants often enough to keep the soil only fairly moist. Give air on warm days. When growth has reached about three inches pinch off the tips of the shoots. Repeat the pinching every three or four weeks until May. Then place the plants out of doors on fine days in a sheltered spot, to harden off the growth. Divide or pot the whole plant into a pot one or two sizes larger, or it can be set in the open ground to grow during the summer. Continue to pinch off the tip growth every few weeks

until July. Then the plants may be allowed to grow at will.

Cyclamen bulbs that are showing flowering buds will require plenty of water at the roots. Light applications of liquid manure will increase the density of color and the size of the flowers.

Cuttings of lobelia, double alyssum, cupheas, and similar plants desired for hanging baskets and vases should be taken now. This will give them a chance to make nice plants by the time they are required in spring.

Why not grow some perennials and house plants from seed? As soon as possible sow seeds of verbena, pansy, lobelia, petunia, snap-dragon, daisy, forget-me-nots and impatiens. The plants will be of good size by planting-out time in May. Sow seeds of tuberous begonia now, if you want large flowering plants by June. Among the house plants that may be grown from seed sown in January or February are Jerusalem cherry, heliotrope, *Primula obconica*, and various vines such as asparagus ferns and the foliage asparagus (*A. Sprengeri*), smilax and *Coclea scandens*.

Forcing Vegetables for Market

J. L. Hilborn, Leamington, Ontario

A BRIEF description of our forcing houses may be of interest, as they are constructed differently to any I have seen. The main building is 42 x 100 feet, and has cement walls about two feet high. The boiler room, 16 x 20 feet, is made of the same material.

The roof consists of three even spans, resting upon valleys that are of sufficient height to allow one to walk erect in the paths which are about 15 inches below the top of the beds. There is an additional row of rafters on either side, extending from the outside wall upwards at half pitch to the first valley.

At intervals of 8 or 10 feet on both of these lean-to spans, we have well-constructed doors. These consist of a strong frame, made of three specially cut sash-bars, which are bolted to an angle-iron at both ends and properly braced. The outer sash-bars are grooved at the outside bottom corners, so as to fit tightly upon the rafters beneath. When these doors are closed the roof is as warm as if it were solid. The door frames are designed to carry two rows of 16 x 16-inch heavy glass.

Doors of this kind are very useful in a vegetable forcing house. They not only make easy the operations of taking in soil and fertilizers and of removing plants, but they also are valuable for ventilating later in the season, when ordinary ventilators do not furnish sufficient ventilation for best results.

All rafters in the house are made of cypress. They were well painted before erection. The foot of each is separated from the valley timber by a strip of galvanized iron. This prevents the woods coming together and causing decay at this the most perishable part of a greenhouse.

CROPS GROWN

We undertook to grow lettuce through last winter, and to bring along sufficient cucumber and tomato plants to plant the house in early spring. As we were late in getting started, and as we did not have a sufficient number of lettuce plants to properly fill the house until late in the season, we did not realize much profit on the crop. One must thoroughly understand the business and have favorable conditions to realize profit from growing lettuce in mid-winter.

It was impossible to keep any part of the house warm enough to properly bring along the tomato and cucumber plants in midwinter. Fairly good plants were secured but, when ready for benching, it was too late.

For the spring crop, less than one-third of the house was planted with tomatoes; the balance with cucumbers.

We began to bench the cucumbers early in April and concluded the work as soon as time and material permitted.

TRAINING THE VINES

For a number of years, we trained our cucumber vines to a trellis made of binder twine and supported by stakes. While good results were obtained, yet it was not satisfactory. The trellis had to be constructed each season and much tying of the vines was necessary.

This season, we constructed a trellis that has proved more satisfactory. It is made of wire. From The Page Wire and Fence Co., of Walkerville, Ont., we ordered a quantity of light gauge wire for the horizontal runs and a sufficient number of coiled bobbins to weave these into an eight-inch mesh. This made an excellent trellis. At the end of the season we loosened the supports, rolled up

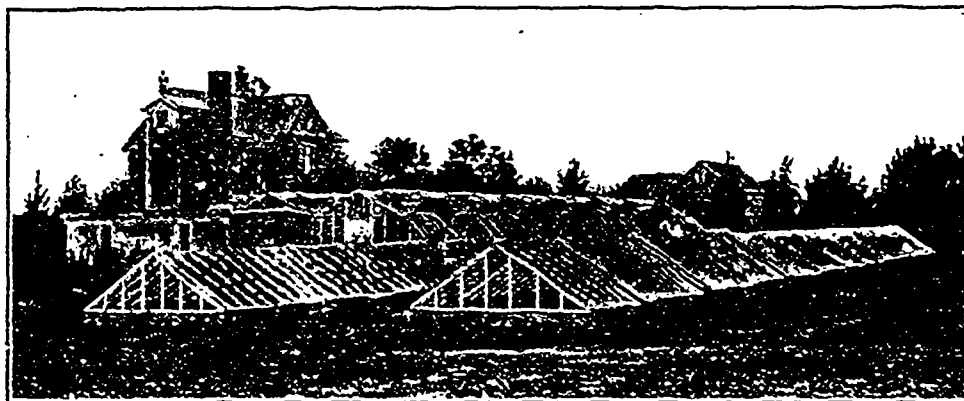
were blooming well and setting fruit. Most of them had been grown in four-inch pots and were considerably pot-bound. This is an advantage, as it tends to hasten fruitfulness.

The plants were set 13 x 17 inches apart and tied to a string or stake. They were trained to single stems.

When the plants had reached a height of about four feet and contained four or five clusters of fruit, they were pinched back. Side branches were clipped off. The leaves also were clipped back to admit more light and a better circulation of air among the plants.

The plants blossomed profusely; almost every blossom set and developed nice, smooth fruit. The majority were of marketable size and sold readily. Had the crop been earlier, probably better prices would have been realized.

The beds for both cucumbers and to-



The Forcing Houses of Mr. J. L. Hilborn, Leamington, Ontario

the wire and stored it for future use. It can be put up quickly when wanted again.

TOMATOES

About the middle of April, the tomato plants were ready to bench. At that time we had large stocky plants, that

matatoes were fertilized with well-rotted manure and bone meal. About the time the harvesting of the fruits began, both crops were mulched with manure. The varieties of tomatoes that have done best are, in order named: Best of All, Frogmore and Lorillard.

Sweet Potato Culture

P. G. Keyes, Ottawa

I HAD long held the opinion that Ottawa was within the sweet potato belt; so, last spring, wishing to put my theory to the test, I consulted numerous catalogs with a view to obtaining the necessary plants. I was unable to find what I wanted offered in any Canadian catalog then in my possession, so was compelled to go to the United States for stock. It seems to me a want of enterprise on the part of our seedsmen that they do not catalog these plants. I placed a small order with a well-known

Boston firm and received the plants about May 20. As last spring was unusually cold and backward in this locality, I put the plants in pots and kept them under glass until all danger of frost had passed, removing them to the garden during the first week in June. Not a plant failed to grow. By the middle of July they had taken entire possession of the ground.

Owing to the drought that prevailed in this part of Canada during the past summer I was obliged to water the plants

occasionally to keep them from wilting. About October 1, the vines were killed by frost. Being somewhat curious to know the result of my experiment, I at once proceeded to dig the potatoes. I found them growing in a vertical cluster attached to the base of each plant. Some of the largest were 15 inches in length and two inches in diameter. The product of one hill numbered 35. So

well pleased am I with the result, that I shall try to grow at least 100 plants next year.

From my knowledge of the climatic conditions which prevail in Western Ontario, I feel satisfied that all the sweet potatoes required by Canadians might be grown in that part of our fair domain. They seem to thrive best in a warm soil, which should be deeply cultivated and

well enriched. The vines resemble the morning glory or the English ivy, and, like these, will form roots at the axils of the leaves should they come in contact with the soil.

The Colorado potato beetle has no use for the foliage of the sweet potato plant. The absence of all insect pests in connection with its culture is of itself a source of great satisfaction.

The Culture of Cauliflower*

A. Knight, Cataragui, Ontario

AFTER 40 years' experience in growing and handling the cauliflower, I find that it requires the closest attention from the planting of the seed until the crop is sold, to secure a good profit. With a good crop there is a good profit; a poor crop gives a large deficit.

There is a greater demand for choice cauliflowerers to-day than for any other vegetable. It now requires thousands of heads to meet the demand where a few years ago hundreds would do.

THE SOIL

If properly prepared, any good soil will grow a fair crop. The land best adapted to growing a successful crop is a deep, rich loam that is thoroughly drained (underdrained if possible), so that it may be easily kept loose and mellow to retain moisture in a dry season.

The land should be made as rich as possible by repeated applications of well-rotted stable manure. Mix each application with surface soil to a depth of not more than four or five inches, so as to form a rich humus that will retain moisture even in the driest season. The fall is the proper time to prepare the soil.

GROWING THE PLANTS

One cannot be too careful in selecting the seed. The best is always the cheapest. If your seed merchant gives you good seed, stick to him. I have procured my seed from the same house for years and have always received it good and true to name. My favorite varieties are: Snowball, Erfurt and Rennie's Drouth Resister, for both early and late crop. I grow a few Autumn Giant, but find it not so sure a header, although it produces some extra fine ones.

For early crop, sow the seed early in March in a well-prepared hot bed and sow thinly. Thickly-grown plants are more liable to "damp off." To prevent this, the bed should have plenty of light and air, and not be watered too often. As soon as the plants are large

*The essay on growing cauliflowers that won first prize in the competition conducted by the Ontario Vegetable Growers' Association.

enough to handle, they should be potted in fair-sized pots or transplanted into a new bed, which should be prepared several days before needed. Great care is required in setting out the young plants to prevent any serious check to their growth. A stunted plant is liable to head up prematurely and is worthless. By potting the plants, we get a much earlier crop and surer heads, and that means dollars. The plants can be set in the field quite early, as they will stand considerable frost.

The seed for the late crop should not be sown before the middle of May, and should be sown thinly in the very best soil to get good stocky plants. These do not require transplanting before setting in the field. Late plants require watching to prevent the cabbage fly from checking their growth. Tobacco dust or hellebore, dusted on lightly while the plants are damp, is the best preventative against them. Do not set plants too small. If kept growing rapidly, as they should be, they will be ready for the field in five weeks.

Transplanting should be done on a damp, cloudy day. I find it a good plan to take up the plants the day previous to setting in the field, leaving plenty of soil on the roots, and to place them in a damp cellar. New rootlets will start. It is a great help as it prevents wilting. They are more easily handled and the growth is checked very little.

CULTIVATION IN FIELD

Before setting plants in the field, the soil should be made loose and mellow by repeated cultivation, but not worked when too wet. For the early crop, I set the plants in rows three feet apart and 20 inches between the plants in the row. For late crop, rows the same and 30 inches between plants. Before planting, give the field a good dressing of wood ashes, so that it will be well mixed in soil by frequent hoeings and cultivation, which must be kept up until the crop is grown. Weeds should be kept down after plants are too large for cultivation, by hand pulling or hoeing, as the crop needs all the moisture the soil will give it.

The green worm must be kept off. Paris green or hellebore is a sure preventive. I prefer using the latter, as many customers object to the use of Paris green. If necessary, go over the field several times. Begin in time. They are sure to ruin the crop if not effectually dealt with.

As soon as heads begin to form, great care is required in tying up, to protect them from the sun, wind and dust. Perfect heads are what we should aim to get. From them we derive the profit. The tying should be so done that it will be easy to see when the head is ready to cut. Good judgment is required. It is better to cut a little early than too late. Young, tender heads are more saleable. More are consumed if taken to market young than later. If danger from frost threatens, the leaves should be tied more closely. This will protect the heads from a certain amount of frost, say seven degrees.

When the growing season is over, all plants that show signs of heading should be pulled and placed in the root house. Removing all leaves that are not required to protect the head. Leaving the roots and soil that lift with the plant. Stand them as closely as possible and bank up the outer side. You will thus have nice, small heads for a long time after the outside heads are done.

MARKETING

When marketing, the heads must be handled with care so as to reach the consumer in a perfect condition. I use a crate holding three tiers, 12 in each. The crate is partly open, so that the buyer can examine the contents. For shipping, use large barrels. Wrap the heads with paper and pack firmly so that they cannot move.

Nothing will run away with money like an uncared for greenhouse.

During the past there has been too much jealousy among the vegetable growers. There is much to be learned by reading, and also a great deal to be gained by the growers relating to each other their experiences with the various crops.—H. E. Reid, Toronto.

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OUR QUESTION AND ANSWER DEPARTMENT

Readers of *The Horticulturist* are invited to submit Questions on any phase of Horticultural work

Self-sterility of Fruits

What is meant by self-sterility of varieties?—R. G. W., Nelson, B.C.

Certain varieties of fruits, when planted alone, fail to fertilize their own blossoms and are said to be self-sterile. They are barren to their own pollen, although that pollen may fertilize the flowers of other varieties. Self-sterility is said to be due to the pollen of such varieties being impotent or uncongenial when it falls upon the pistils of their own flowers. This condition is a varietal peculiarity and may be affected also by climatic and local conditions.

Subsoiling for Strawberries

Should a sandy loam with clay subsoil be plowed with a subsoil plow for strawberries?—G. H. de B., Toronto.

Where sub-soiling can be done, it is advisable to loosen a clay subsoil for strawberries and other fruits, but in a small garden it is not imperative. The operation improves the drainage and gives the roots a deeper and freer area from which to draw moisture and plant food.

London Purple

Compare London purple with Paris green as an insecticide.—E. F., Oakville, Ont.

The composition of London purple varies considerably and, as a consequence, it does not give as uniform results as Paris green. It is cheaper than Paris green and is more soluble in water. London purple contains some free arsenic and, when used, must be mixed with lime.

Mulching Trees

Does mulching retard the blooming period of trees, as peaches or plums?—C. S., Berlin, Ont.

No, mulching does not retard the blooming period. Buds can swell and grow while the roots remain frozen and dormant. The bursting vegetation of spring time is more or less independent of root action. It is supported by a store of nutriment within the twig.

The Care of Manure

Kindly state how to prepare manure for fruit growing purposes. Is it necessary to give the same treatment to manure hauled from the city as to that produced in the home stable?—G. H. de B., Toronto.

For fruit growing, it is best to apply barnyard manure in a rotted or partially rotted state. Covered sheds are used for temporarily storing manures,

where they can have water added if too dry or if likely to "fire-fang"; or absorbents, such as straw or gypsum, may be used if they are too watery. Manure hauled from the city will give best results if thrown in the shed and mixed with the home-produced material. Manure for tree fruits may be applied in a greener state than that intended for the growing of small fruits.

Moving Large Shade Trees

I have some fairly large shade trees that I desire to transplant. What is the best time to do it and how?—P. T., St. Stephens, N.B.

The best time to move large trees is in winter. In late fall or the early part of an open winter, a trench should be dug around and at a reasonable distance from the trunk, depending upon the size of the tree. This will leave the roots in a ball of earth which, when frozen, may be moved with the tree; thereby permitting the operation to be performed without disturbing the roots.

Making Plans for Lawns

I desire to prepare a plan for improving the grounds about my home. Please outline some of the principles to be followed.—L. B., Georgetown, P.E.I.

It is best to have the lawn open and wide and to group the trees and shrubs on the borders. Zigzag borders are the most effective. Plant irregularly and allow the grass to run into the openings between and apparently behind the clumps. This makes the lawn appear as though it extended much farther than it really does. By preserving open outlooks at a few places in the border, we may appropriate to ourselves distant views. Other pointers on this subject are embodied in an interesting article on page 9.

Watering House Plants

When watering house plants, is it well to apply sufficient water to run out at the bottom of the pot? Does not plant food leach out when that is done?—W. A. F., Ottawa, Ont.

It is not advisable to apply sufficient water to run through the bottom of the pot in appreciable quantities. It is necessary to gauge the amount, so that when it first appears to trickle through, it will then stop. It should be noted, also, that soil in a pot acts as a filter. The first water that percolates through it comes out somewhat pure. Should a constant stream run through, however, considerable plant food would be lost.

Vitality of Seeds

How long will seeds retain their vitality?—A. B., St. Johns, Que.

The period of vitality varies with the kind of seed. Seeds of the willow lose their vitality in two weeks after maturity; on the other hand, seeds of the cucumber may retain their vitality for ten years. It is said that oily seeds will retain their vitality longer than others. This is true with regard to the seeds of mustard, which may retain their vitality as long as 30 years, but is not true of large seeds like the walnut, butternut and similar types. To a certain extent, the vitality of seeds depends upon surrounding conditions.

Books on Hedges

Please tell me the titles of some books on the growing and care of hedges for ornamental purposes?—V. F., Kentville, N.S.

An excellent treatise on the subject is entitled "Hedges, Windbreaks, Shelters and Live Fences," by E. P. Powell. It will be furnished by *THE CANADIAN HORTICULTURIST* on receipt of price, which is 50 cents.

Optimum Temperature

What is meant by an optimum temperature for the germination of seeds?—R. McL., Owen Sound, Ont.

An optimum temperature for the germination of seeds is that temperature at which the greatest number of a given quantity of seeds will germinate most rapidly. It is the condition of temperature that produces the best results.

Sweet Potatoes

Can sweet potatoes be grown successfully outdoors in this locality. Kindly state how to go about it. Can they be sprouted in the house like Irish potatoes.—G. H. de B., Toronto.

Sweet potatoes cannot be grown in Canada with commercial satisfaction, except perhaps in the Essex peninsula of Ontario. In an amateur way, excellent specimens have been grown by Mr. Walter Ross, of Picton, Ont., by Mr. P. G. Keyes, of Ottawa, and others. It is not customary to sprout them in the house. Tubers are bedded in an outdoor hotbed early in spring. In a few weeks the latent buds will sprout, and by the time all danger from frost has passed, a dense growth of "slips" will cover the bed. These are removed from the tubers and set by hand in the field or garden in rows three or four feet apart—the plants generally fifteen inches apart in the rows. Read the article on page 13 of this issue.

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A MUCH NEEDED MOVE

The success of the proposal of Hon. Sydney Fisher, Dominion Minister of Agriculture, to set aside \$100,000 to encourage the erection and operation of cold storage warehouses for the protection of perishable products, including fruit, will depend upon the manner in which the money is distributed. Properly managed this appropriation should accomplish a vast amount of good for the fruit industry of the Dominion. The feeling among growers that cooperation presents a solution of the many serious defects under which they have labored has been growing during the past few years. The financial assistance now suggested by Hon. Mr. Fisher may prove the only incentive that has been lacking to lead to a great expansion of this movement.

What is wanted, so far as the fruit growers are concerned, is not so much assistance for the erection of plants with mechanical cold storage, as it is assistance that will enable them to erect simple but commodious buildings such as those being used by the Walkerton, Thornbury, Oakville and one or two other cooperative fruit growers' associations of Ontario. In most of these warehouses there are no facilities for cold storage, even with ice. They would be improved however, were ice cold storage added.

The cost of installing mechanical refrigeration is so great and the period during which it would be required by the great majority of our fruit growers—excepting only those in such sections

as the Niagara district, and the southern portions of British Columbia, where the tender fruits are handled extensively—is so limited that attempts to encourage such refrigeration would be likely to prove more disastrous than beneficial.

It has been suggested that the assistance to be granted by the Dominion Government should be extended over a period of four years. The object to this extension of the time of payment is to insure the operation of the buildings, once they have been erected. We do not consider this drawing out of the period of payment would be advisable. The proportion to be paid by the Dominion Government is so small, that were it to give only one-tenth, as is now proposed, on the completion of the buildings, it would not be sufficient to lead the average "farmer-fruit grower"—and it is this class that is likely to receive the greatest benefit from this movement—to put up the remaining nine-tenths, that it would be required even with the assurance that a portion of that amount would be rebated within the next two years. Once a building has been completed, the mere fact that it has been erected, should be all the guarantee that the Government will require that the building will be used later. If the Government, therefore, will agree to give 25% of the cost of the building upon its completion in a manner satisfactory to the department, and say, 5% at the end of the first year, its offer, in all probability, will be accepted by a considerable number of associations and individuals throughout the country.

If it is the Government's intention to grant this money to encourage the erection of ordinary warehouses, suitable for the storing of winter apples, whether or not they have ice storage, and if the period of payment is not extended unduly, we believe that the proposal of Hon. Mr. Fisher will prove one of the greatest boons the fruit industry has ever received, and that the results will be a lasting memorial to his work.

BEAUTIFYING SCHOOL GROUNDS

While travelling throughout the Niagara district last summer, we had occasion to observe the various degrees of ornamentation to be seen around and about schoolhouses in villages and country districts. Far too many of them show little or no attempt to beautify the school surroundings, and thus they present deplorable pictures of barren aims and crude ideals. On the other hand, there are many school grounds that are beautifully laid out and planted with taste and care.

The Rittenhouse school, with the surrounding grounds, Jordan Harbor, Ontario, as illustrated in this issue, is one of the finest, if not the one par excellence, in Canada. It is a model for others to copy. But as it is privately endowed, and not at the mercy of a limited allowance, it is not surprising to see it in the lead. There are many schools, however, with only ordinary resources that have been made beautiful. The school grounds at Grimsby, Ontario, though comparatively new, are being improved each year by means of tastefully planted trees, clumps of shrubbery and beds of flowers. Many schools in other parts of the province, less favored than the one at Grimsby, are also improving the appearance of their surroundings. Last summer we visited the school at Vineland, Ontario, and enjoyed the privilege of a little talk on nature study with the children. The school is well equipped with material for practical instruction in nature study. Mr. J. E. Painter, the teacher, is to be congratulated on his efforts in this direction, and particularly for his many original schemes and ideas for making the children interested in the work. The school grounds are nicely planned. Trees and shrubs and flower beds, some formal and some natural, present a very pleasing effect. As yet, there is no land for school gardens. To offset this, Mr. Painter requires his pupils to set apart a small plot for the purpose at their homes, and, at regular intervals, to report progress. Were teachers, similarly situated in other districts, to adopt this

scheme, it would not be possible to accuse them of lacking a desire to bring the child in closer touch with nature.

SCIENCE IN FRUIT GROWING

Many fruit growers object to the use of the word "science" when applied to fruit growing, or, in fact, to any phase of agricultural work. When the word "science" is brought into conversation on fruit matters, nine men out of ten will resent its use, because they imagine that science is beyond the scope of commonplace things. When a man talks of science in fruit growing he is considered unpractical—a dreamer of things in the clouds, away above earthly possibilities and ordinary practices. This idea of the meaning and value of the word "science" is far from the correct one. Science is nothing more than knowledge, and knowledge systematically arranged.

When the knowledge gained by practical experience in fruit growing is arranged into a system, it becomes a science. Fruit growers should not, therefore, be too hasty in criticizing the value of science in fruit growing. 'Tis true that the scientific man often formulates theories and advances ideas that are, at first thought, somewhat far-fetched and impracticable—some of them may be far from correct. Nevertheless, such theories and such ideas, although apparently of no immediate value, go to show that these men of science are striving for more knowledge, which may be systematically arranged for the benefit and use of those who devote their attention to the practical side of the business. The practical man is the most important factor in our fruit industry, but he should bear in mind that the scientific man also has his place—a place more important than many fruit growers will admit.

The suggestions of the deputation of vegetable growers, appointed by the Ontario Vegetable Growers' Association to visit Guelph and confer with the executive of the Ontario Agricultural and Experimental Union, were practically ignored by the director of cooperative experiments in horticulture. In an address on the subject, Professor Hutt said that such work could not be attempted inside of three or four years, as he considered it necessary for the Union to have a basis upon which to select and disseminate varieties, and to outline experimental work of other kinds. This conception of what is necessary is rather far-fetched. It does not carry weight with the vegetable growers, who point out that the Horticultural Department at Guelph has been testing varieties of vegetables that were discarded by them years ago after practical tests. A basis for experimental work in vegetables can be furnished by hundreds of practical vegetable growers throughout the province, men who have spent a lifetime in experimenting in a practical way with all the leading varieties offered for sale by seedsmen. Such growers could furnish information now without it being necessary for trials to be made at Guelph. Cooperative experiments in vegetables should be made a feature of the Experimental Union work for this year. There is no excuse for waiting three or four years.

The new tariff does not materially affect the fruit situation. The duties, with one or two exceptions, are practically the same as before. Pears, instead of an *ad valorem* duty of 20 per cent., are now covered by a specific duty of half cent.; plums, formerly under an *ad valorem* duty of 25 per cent., are now changed to 30 cents a bushel. The placing of oranges and lemons on the free list will create a greater demand for foreign fruits, and possibly some decrease in the desire for home-grown fruits. This feature of the new tariff, together with the utter disregard of the Tariff Commission for the request of fruit growers for more protection,

lead us to the conclusion, predicted in the columns of THE CANADIAN HORTICULTURIST last spring, that when fruit growers themselves fail to agree, the tariff remains the same.

The request of the Ontario Vegetable Growers' Association to have the government grant to the association of \$600 increased to \$1,000, is a reasonable one. This association receives a smaller grant than any other association of the kind in the province. It has almost double the membership of any other association. Its membership, also, is more representative than that of other organizations. Branches of the association are to be found from Ottawa and Kingston in the east, to Sarnia and Tecumseh in the west. The vegetable industry is much more important than that represented by the Ontario Beekeepers' Association. The Beekeepers' Association receives a grant of \$1,000 a year, and it has a very small membership. Although not much more than an infant, the Ontario Vegetable Growers' Association already has done much to awaken a greater interest in advanced methods of culture in the production of vegetables. Its future success will depend largely upon the assistance the association receives from the Ontario Government. The sum asked for is a reasonable one and the granting of anything smaller would not be in accord with the dignity of the Ontario Department of Agriculture, which has accomplished much valuable educational work through organizations of this kind.

Fruit growers in all parts of Canada will watch with interest the progress of the large commercial fruit company that has been organized in Nova Scotia by Mr. Ralph S. Eaton, who is president and manager, and others. The Hillcrest Orchards, Limited, has been organized in the right way. Being under corporate management, with Mr. Eaton at its head, it promises success. Mr. Eaton is a man who is familiar with the technical as well as the practical phases of fruit growing. He is, also, a business man of more than ordinary capabilities. Under Mr. Eaton's direction, the Hillcrest Orchards, Limited, is likely to be a paying investment. Failures of previous attempts to form companies of this kind have been due largely to lack of experience on the part of the men in charge.

The secretaries of all horticultural societies will confer a great favor on our circulation department if they will kindly send in their subscription lists for 1907 at the earliest possible time after their annual meetings. This will enable us to have all names correctly entered on our mailing lists for the coming year, and insure all the society members receiving every issue of THE CANADIAN HORTICULTURIST throughout the year. It often happens that when names are received one or two months after the annual meetings, that back copies of THE HORTICULTURIST have been exhausted, and subscribers are unable to receive the full year's issue.

Those of our readers who desire a bound volume of The Horticulturist for 1906, can obtain same at our office. Owing to the size of the magazine having been enlarged for 1906, the charges for binding will be a little higher than formerly. Volumes for last year will be bound for \$1.25. No better horticultural work of reference could be desired than a bound volume of The Horticulturist. It is up-to-date, newsy and makes a very valuable book when bound for the year. Send in your back copies for binding.

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"We are pleased to notice that THE CANADIAN HORTICULTURIST is growing with each issue."—A. G. Hull & Son, St. Catharines, Ont.

Ontario Agricultural and Exper'l Union

AT the recent meeting of the Ont. Agric. and Exp. Union, held in Guelph, a number of subjects of interest to fruit and vegetable growers were discussed. The question of introducing vegetable tests in connection with the work of the Union was the subject of a brief talk by Prof. H. L. Hutt. In the course of his remarks, he intimated that the Union was willing to undertake work of that nature, but that the time was not yet ripe. He said that he required 3 or 4 years to carry on work with vegetables at Guelph before it would be wise to disseminate material for cooperative work over the province. A committee was appointed to confer with a delegation of vegetable growers from the Ont. Veg. Grs. Assn. The result was not encouraging to the growers.



Mr. J. Lockie Wilson

Recently appointed, Superintendent of Agricultural and Horticultural Societies for Ontario to fill the position made vacant by the resignation of H. B. Cowan, editor of this paper

A report of cooperative experiments on small fruits was presented by Professor Hutt. He outlined the progress of the work from its beginning to the present day. Particulars were given regarding the cultural directions sent out when the plants and the varieties disseminated were mentioned.

"Our Commercial Fruit Interests," was the subject of a valuable address by A. McNeill, Chief, Fruit Division, Ottawa. He outlined the various fruit-growing areas of the province and mentioned the classes of fruits adapted for each. The tender fruits are confined to the western end of Lake Ontario. The particular industry of that district is the growing of vegetables and fruits for the early markets. It has at least 2 weeks the advantage of any other section of the province in the point of time. The capacity for production is unlimited. Local markets are sometimes over-supplied. Distant markets cannot get the material they require. Ottawa will take 2 or 3 carloads of strawberries a day. There is a splendid opportunity to open up a good trade in other parts of this province and in other provinces. The counties along the north shore of Lake Ontario produce some of the finest winter fruit that is grown in the world. The cost of storage is so small comparatively that there is little fear of gluts in the markets for that class of fruit. Owing to altitude, there are sections in the province, apparently in the midst of a fruit-growing area, that cannot grow fruits to perfection. On the whole, the future for apples in Ont. is bright.

A practical paper on the results of cooperative experiments with fertilizers, was read by Prof. R. Harcourt. He pointed out the value of fertilizers, and the limits of their effectiveness. A report on farm forestry for 1906 was read by E. J. Zavitz. He emphasized the importance of planting with trees, especially white pine, waste farm lands, steep, gravelly hillsides and other areas not adapted to the growing of farm crops. While it is not generally considered remunerative work, there is no investment that will yield such large returns as will the wood lot if properly managed.

In connection with the subject of our fruit interests, Robt. Thompson, of St. Catharines, spoke on the possibilities of developing the markets of the west. Two years ago, Prof. Reynolds sent 2 experimental carloads of fruit from Ont. to the west. That was the beginning of a wonderful progress. This year, no less than 64 carloads were sent from St. Catharines. While Ont. growers must compete with B.C. in that market, they have the advantage in quality. The dealers of the west prefer Ont. grown fruit. Mr. Thompson intimated that it will be 20 years at least before Ont. is able to provide a sufficient supply of fruit for the west. A. E. Sherrington, of Walkerton, also took part in the discussion. He dwelt more particularly on the question of cooperation among fruit growers. He mentioned many interesting features of the cooperative movement.

Judging Exhibition Apples

Editor, THE CANADIAN HORTICULTURIST.—At the late fruit exhibition in Massey Hall, Toronto, there was a very large amount of discussion with reference to the merits of certain apples shown as plate specimens. Among the exhibits could be found some clean, smooth, bright apples, almost perfect in every way but only of normal size or perhaps slightly below. In competition with these, there were frequently some extraordinarily large apples, but somewhat rough and lacking in color. Although the question of quality, as judged by the palate, could not in all cases be determined at that time, it is to be presumed, as the result of almost universal experience, that the smaller apples would have the finer flavor. The question involved was to which should the prize go in case of competition between two such lots of apples. In some cases, it was asserted that the higher prize went to the large apples rather than to the smaller ones.

The point I wish to raise is this: Is there any agreement among fruit men generally as to the value of size in plate specimens? Until we have some such agreement and until this agreement is expressed in the prize list, there will be an unnecessary friction between exhibitors and an unmerited criticism of the judges.

In order to start a discussion on this subject, I state my personal view of this case with the hope that it may draw out the opinions of others. I should be strongly in favor of following the custom in vogue in England of regarding any size above normal as a grave defect in a dessert apple, and that, even for cooking purposes, there should be only a moderate value attached to size compared with the other qualities of regularity, smoothness and high flavor. I should, therefore be in favor of adding a note in the prize list to the effect that judges be instructed by the Directors to regard abnormal size as a serious defect in the dessert class.—A. McNeill, Chief, Fruit Division, Ottawa.

Before Buying Books, write for our extensive book catalog, which we will gladly send free to all interested in horticultural works. It contains 16 pages and should be in the home of every fruit grower, gardener, and amateur florist. It is a good reference book. Send for it now.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

The Ottawa Garden Competitions*

S. Short, Ottawa

THE effect of the garden competitions in the city of Ottawa has been beneficial, both from an educational and an ornamental standpoint. The city has improved in appearance. These competitions were inaugurated by Lady Minto in 1902. The objects that Lady Minto had in view were the encouragement of neatness and order in the keeping of grass plots and flower beds in the private homes of the citizens, especially where fronting the street; the encouragement of flower growing, and their tasteful arrangement in beds or borders; and to awaken increased interest in horticulture in general, so that the gardens and lawns entered in the competition might be object lessons to the rest of the city. It was hoped also that the presence of a well-cultivated and pretty garden in every part of the city would shame the owners of neglected gardens into improving them. A general and uniform neatness would be the result.

JUDGES AND JUDGING

Three gentlemen prominent in horticulture and amateur gardening were appointed by Lady Minto to act as judges for the 3 years, 1902-03-04. These were Mr. R. B. Whyte, Ottawa's leading amateur gardener, chairman; Mr. W. T. Macoun, Horticulturist, C.E.F., Ottawa; and Mayor J. A. Ellis of Ottawa. The gardens were visited four times during the season, about the last week in June, July, Aug., and Sept. Points were given monthly for neatness and order, floral display and general effect.

COMPETITORS

The competitors were divided the first year into 2 classes, those employing professional gardeners or outside help during the season, and those who did the work themselves or with the assistance of members of their immediate household only. Amateurs were allowed to employ outside help before and on May 24, but not after. The city was divided into 2 districts. Prizes were awarded to the three best gardens in each district. The remaining competitors received no rewards. The prizes consisted of gold, silver, and bronze medals, suitably engraved. The 2nd year, 1903, the percentage plan was introduced. In the professional class three valuable medals were presented. In the amateur class, all competitors scoring over 75% received \$15 cash, and those scoring under 75% and over 60%, \$10 in cash. In 1904, the gardens were judged together, no distinction being made between professional and amateur. As some competitors did not care to receive cash prizes, Lady Minto substituted medals and certificates of merit, signed personally by Her Excellency.

A COMPETITOR'S EXPERIENCE

During the first 2 years of the competition, I personally was not successful in winning a high prize, but I gained experience. Each month, immediately after the judges' rounds, I visited the first 3 gardens on the list. There I took notes of value for use in my own garden.

When the competition opened in 1904, I catered to the judges' taste in regard to grouping and blending of flower colors. My reward was one of the first prizes. Beside the honor of winning the first prize, many other advantages were mine. The garden always was scrupulously neat. We had more bloom of better quality than ever before. Flowers from my garden won more prizes at the Hort. Soc'y's shows than in former years. I had gained a broader knowledge of and a keener enthusiasm for horticulture.

A JUDGE'S EXPERIENCE

With the termination of Lady Minto's stay in Canada ended the garden competition under her name and direction. After the lapse of a year, the scheme was revived by Lady Grey. The judges appointed by Her Excellency are Mr. W. T. Macoun, chairman; Mr. H. N. Bate,

chairman of the Ottawa Improvement Commission; and myself, Pres. Hort'l Soc. Mr. Bate acted as referee or consulting member, and did not visit the gardens with the other judges. In addition to giving 20 points each for cleanness and order, floral display and general effect, the judges this year have given 20 points for labor and enthusiasm. This would give new beginners a chance to compete with experienced gardeners.

On the whole, the different competitors kept up their enthusiasm during the summer, some of them remarking to the judges that they were determined to win a high prize, evidently being quite satisfied with their work. It would have been better for them had they visited some of the leading gardens in their neighborhoods and made observations for improving their own places. I am afraid they will be disappointed when the scores are announced.

One garden that scored well is situated in one of the poorer districts of the city, renting for probably \$6 or \$7 a month. All the houses on that side of the street are alike. About the middle of the block is situated the house and garden entered into the competition. The house is the home of an English family; the mother and children—chiefly girls—are all lovers of flowers. Their efforts in flower growing were very successful and somewhat pathetic. The garden consisted of a little plot about 5 ft. wide and 10 ft. long in front of the house and a little alleyway leading to the back yard. The

An Old Man's Good Work

I have obtained 15 subscribers for THE CANADIAN HORTICULTURIST. Had I received the agency sooner I flatter myself that I could have more than doubled the number, for this is a wholly rural section. The farmers here take other farm papers that are hard to oust. Yet I have done it a little.

To get the 15 subscribers I had to walk an average of 2½ miles per subscriber. I am an old man, 86 years old. In doing this I have done what I desire. I have introduced in my locality the best horticultural paper in Canada.—S. P. Morse, Lowville, Ont.

flowers were grown in flower-pots, home-made hanging baskets and old iron vessels, painted green. Fuchsias, geraniums, calceolarias and other house plants formed the collection used to ornament the little verandah. During the long, dry summer these plants were beautifully fresh, always in bloom and exceedingly attractive, so much so that they drew the attention of the passer-by from the broken gate and unpainted fence which we were told the landlord promised to repair in the fall. In the alleyway, spiraeas and ferns flourished, and in every available corner of the back yard the different annuals bloomed to perfection, showing daily attention. The little yard was divided up, each little girl having a portion. Keen rivalry seemed to exist and when the judges praised an individual bloom its owner showed intense satisfaction. This garden and the happiness that the family derived from it are object lessons to their neighborhood.

The best garden this year is owned by a middle-aged civil servant who looks after it himself. The garden is evidently his hobby. It is the back-half of a city lot that runs through from one street to another. The garden scoring 2nd place was one of the largest entered. A professional gardener was employed. The third garden is owned by an amateur and is situated on the side of a steep hill.

The judges were instructed to consider the circumstances of each competitor and the size

of each garden. In judging a small garden we expected a higher degree of excellence than from a larger. In gardens with wealthy surroundings we expected choicer varieties of flowers than in those of humbler circumstances.

EFFECT OF COMPETITION

The inauguration of the competitions by Lady Minto awakened a new era of horticultural enthusiasm in Ottawa. A short time afterwards, the Ottawa Improvement Commission was appointed by the Dominion Govt. and given an annual appropriation of \$60,000 to be spent in improving the driveways and beautifying unsightly spots about the city. Membership in the Ottawa Hort'l Soc. rapidly increased. This year the membership is the largest of any society in the province. Larger entries and better quality of exhibits were a feature of the society's shows. Flowers seeds and printed instructions on how to grow them were distributed to the school children of Ottawa by R. B. Whyte and other patriotic citizens, who donated also prizes in the autumn for flowers grown from the seeds distributed. School trustees sodded and ornamented grounds around schools that before were ugly and bare.

A love for flowers has been developed among the citizens in general. Florists' establishments have doubled in number during the last four years. Market gardeners, who formerly grew only small fruits and vegetables, are now growing large quantities of flowers, chiefly sweet peas and asters, to sell at the market at a greater profit than the vegetables. On the whole, the competition has worked wonders in Ottawa. The scheme commends itself to the benevolence and public spirit of the citizens of any city or town, no matter what the size. Philanthropy can find no better channel.

Horticulture in Schools

Rev. P. C. L. Harris, Guelph, Ont.

Five years ago, the Guelph Horticultural Society began its work among the school children. The first year's distribution was geranium plants. About 300 of these were given out. The exhibition in the early fall was very fine, but in the distribution several varieties were used, and this resulted in a lack of uniformity. Some plants were free bloomers; others were slow, etc. The second year, and in 1905, we distributed the seed of Semple's Branching aster. The first time about 500 packets were distributed, while in 1905, about 926 packets were given to the boys and girls of the public and separate schools. The exhibition in 1905 was not proportionately as good as that of the year before, which was exceedingly fine. Last year geraniums were again distributed, all of one variety, and about 500 pots in all.

It is very difficult to estimate the results of the work; that can be better done after further trial. There are, however, some evidences of good accomplished. The prizes given for these competitions have been mostly bulbs, and many of the children are beginning to take a good deal of interest in the growing of bulbs of different varieties and are succeeding well.

Such competitions will inspire a love for the beautiful in plant life, both for the house and garden. The full results will be seen after many days. It pays.

Have you a friend who you think would like to take THE CANADIAN HORTICULTURIST? Send us his name and we will gladly send him a specimen copy. "The More the Merrier!"

I renew with pleasure my subscription to THE CANADIAN HORTICULTURIST, which I have taken for the past 20 years. Throughout these years I have learned many useful things from its pages, and expect to learn more as the magazine grows in size and importance.—Walter N. Turnbull, Galt, Ont.

*A paper read before the convention of the Ontario Horticultural Association recently held in Toronto

Suggestions for Work at New Exper't Station

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

THE establishment of a new experimental farm in the Niagara district was mentioned first in connection with plant-breeding.

It was thought that the Ont. Govt. should undertake this work. In order to draw out discussion of this question through the press and at fruit growers' meetings this winter, the following is submitted. Others will no doubt discuss the experimental and research work to be undertaken. Plant-breeding in Ont. must have 4 objects in view:

1. The improvement of our present commercial varieties with respect to their shipping qualities and the production of new varieties of superior excellence in this regard. This is the crying need of the Ont. fruit industry to-day. Our fruit is handicapped in the distant markets in which we are compelled to sell because it does not carry well and consequently arrives at the door of that consumer in poor condition. Shipping quality is lacking in all early and mid-season peaches; also in many otherwise excellent plums, and in most grapes. Earlier peaches as good as Crawford and as firm as Elberta; plums like Reine Claude but of different season, and compact bunching, mildew-proof grapes, as firm as Lindley, are within the range of possibility, and would reward all effort and outlay in producing them. Many other lines of improvement might be mentioned that will occur to fruit growers.

2. The production of good varieties of sufficient hardiness to withstand the vigorous climate that prevails over the greater portion of this province. Many who are not fortunate enough (horticulturally) to live in the region adapted to tender fruits desire to grow their own plums, grapes, cherries, etc., and it will be seen at once that their interests are to a certain extent opposed to those of growers in the more favored sections. While the needs of the Niag. dist. growers should occupy a large share of the attention of the plant-breeder, plans for the future should be broad and comprehensive, and everything possible should be done on the new farm for both interests.

The extent to which hardiness can be bred into a plant is a matter of conjecture and remains to be determined. In the light of recent knowledge it would seem that this work can be carried on to a greater or less extent in the Niag. dist. It is conceded that selection within the limits of the species can result in no change in hardiness; the only alternative is cross-breeding or hybridizing. At So Dakota this crossing is done in the greenhouse, because the tender species which they desire to use will not stand their winter unprotected, and because the high winds which prevail make outdoor crossing difficult and arduous. It would seem that the crossing could as advantageously be done out of doors within the habitat of the less hardy species, and the new station is favorably situated for much work in this direction. The actual testing of the promising seedlings produced would, in any event, require to be general throughout northern sections.

3. The production of new varieties of excellent merit without regard to their shipping quality or hardiness. Large quantities of this class of fruit are already consumed in the fresh state in the Niag. and Essex peninsulas, and sold in the markets adjacent to them. Additional large quantities are made use of by the canning factories, and these 2 interests are practically identical in the quality of fruit used. Extension of season in either direction, so as to give a better succession of high-class fruits throughout the year, is much to be desired. Cold storage facilities aid in lengthening the canning season only in 1 direction, and good early varieties of peaches, pears and plums would be most welcome to the canner and to the home consumer.

4. The improvement of fruits native to but uncultivated in the more northern sections. Our

native cherries have never been improved, and the hardiness and productiveness of these and of other fruits, such as blueberries, offers an interesting field to the plant-breeder. This work must be forwarded in the section to which the fruits which it is desired to improve are native, but it should be done under the direction of the head of the plant breeding department.

There are many other problems arising out of the foregoing, such as the production of disease-resistant varieties, and of more suitable stocks for grafting and budding, which require solution. In addition to these the problems of the vegetable grower and florist demand attention. The breadth of the work and the importance of the interests concerned merit generous treatment at the hands of the government. The director of the new station should be thoroughly capable of directing the experimental and plant-breeding work, and should be allowed a free hand in doing so.

No work in hybridizing can be undertaken at the new farm until trees and plants reach bearing age. In the case of the tree fruits this means several years' time lost unless work can be begun in other places. This brings to mind the experiment stations and their stock of varieties already in bearing. It is quite possible that excellent use could be made of some of these.

The Dept. of Hort. at the O.A.C. has made a beginning in plant-breeding and has several promising seedlings under test. Extended work with fruits, flowers and vegetables is being planned for the future. The dept. would be pleased to obtain results of accurate observations on disease resistance. It is desired to find out if there is variation in this respect *within the variety*. If such is the case, selection alone would probably bring about the desired end. If such is not the case, the crossing of varieties, which is a much more uncertain process, would have to be resorted to. Information concerning specific examples of resistance to mildew, scab, rot or blight in varieties subject to these diseases would be gladly received.

Letters from Hort'l Societies

The St. Thomas Hort'l Soc. was organized in Jan., 1906, and we enrolled over 80 members. Our first work was to start a lawn and garden competition. We have been trying to get the city council to beautify certain plots and to acquire property for park purposes in the city. In conjunction with the schools of the city, a flower show was held on Sept. 22. No prizes were offered, but through the school children a large exhibit was secured. THE CANADIAN HORTICULTURIST was given to each member and bulbs were distributed in Oct. We expect to distribute seeds next spring to the school children and to our members. A committee of 2 of our members contributed seasonable articles to our daily papers, for the information of members. On Dec. 6, a public lecture was given by P. M. Thompson, M.A., Science Master of the Coll. Inst. on "Plant Societies." There was a good attendance. We expect a strong society next year.—S. Silcox, Pres.

THE KINCARDINE SOCIETY

The Kincardine Hort'l Soc.'s work the past year has exceeded the work of any year of the former 7. Its progress is steadily onward. Every encouragement is given to plant for recreation and profit. Nearly every garden and home is embellished with plants of rare beauty and merit.

We have encouraged the culture of fruits, and always place a fair proportion of fruit trees bushes and vines on our premium list, as well as plants and bulbs. We aim to give every member many times more value than is got from the membership fee of \$1, as you will see by the following list of trees and plants presented to

the members: Fruit trees, 192; Elms, 108; perennial phlox, 15; callas, 24; dahlias, 40; gladioli, 150; tulips, 805; hyacinths, 240; azaleas, 39; geraniums, 180; roses, 98; and shrubs, 35.

Our membership the past year was about 135. We hope to have it over 150 the coming year.

Our annual show was held on Aug. 30, and was well patronized by young and old. From the schools were about 250 pupils, and there was a steady stream of visitors, many wishing that the exhibition would be open the following day. The flower show was free to all and a handsome display. Many of the plants would be no discredit to professionals. A very instructive lecture was given by Prof. H. L. Hutt, with which many of our local fruit growers and gardeners were highly pleased.

With carefulness and economy, the willing efforts of our directors, the earnest zeal of our secretary, the kindly recognition of our town council, and the solid and financial aid of our provincial government, a society has been built, whose refining influence is seen and recognized by town and country. This year we will give as a premium to every member (in addition to the flowers or fruits), the best, neatest and cleanest horticultural magazine in Canada—THE CANADIAN HORTICULTURIST.—Wm. Welsh.

Kind Words

Many encouraging letters are being received from our subscribers concerning the improvements that have been made in THE CANADIAN HORTICULTURIST within the last year. A few of those just received are here given. Naturally, it is encouraging to us to receive such letters. Here they are:

"Our society is well pleased with THE HORTICULTURIST, and our members wish it every success."—Robert Davis, Secy. Hespeler Horticultural Society, Hespeler, Ont.

"I am delighted with the appearance of THE HORTICULTURIST. It is one of the best monthlies I know of on orcharding and the cultivation of fruit. Not only that, but the information it gives on the marketing of apples is worth everything to the fruit grower. I have given a few copies of it to parties I thought ought to have it."—John Spencer, Henrysburg, Que.

"Here is one dollar as a renewal for your magazine for two years. We are pleased with the improvements and congratulate you upon the able manner in which you advocate the interests of the horticulturists. With best wishes for your success."—R. Jack & Sons, Chateauguay Basin, Que.

Of Interest to Fruit Growers

Every one who grows fruit, either on a large or small scale, will be interested in the advertisement of *The Fruit-Grower*, St. Joseph, Missouri, which appears in our columns. This publication is issued monthly, is handsomely illustrated, and comprises from 32 to 80 pages each month, and all phases of fruit growing are covered. The first four issues of 1907 will be handsome special numbers, the January issue devoted mainly to reports of meetings of horticultural societies, February to spraying, March to gardening and April will be the small fruits number. Every reader of this paper who is interested in fruit culture should take advantage of the liberal offer of the publishers to send *The Fruit-Grower* for three months on trial, absolutely free. Read the advertisement and send your name and address at once, mentioning this paper.

On page 300, Dec. issue of THE CANADIAN HORTICULTURIST, the orchid cuts should have been transposed.

Books For All. We have listed in our book catalog all the popular modern horticultural works, at the most reasonable prices. Send for a catalog. It's free!

The Dominion Government's Cold Storage Proposition

THIS proposal of the Hon. Sydney Fisher, Minister of Agriculture at Ottawa, to assist in the establishment of cold storage warehouses for plants and other tender products, will be welcomed by the fruit growers of Canada. While it may not be acceptable in all details, it is a big step in the direction of what is needed. One or two private schemes have been presented to the government with requests for assistance but they were thought to tend towards a monopoly of the business. The proposition of the minister is framed with a view towards elimination of a danger of this kind. The main features of the proposal, as outlined by Mr. Fisher in the House, are as follows:

Contracts with individuals or companies who may wish to establish cold storage warehouses, shall be entered into only for such places as, in the opinion of the minister, may fairly justify the investment or the establishment of such an enterprise. The scale of the investment also shall be such as is justified in the opinion of the minister, that is to say, in some places, a cold storage warehouse which would cost \$30,000 may be justified, where one of \$100,000 would not. The contract would also indicate the conditions on which the aid would be granted. The 1st condition would be a control of the rates by the government, which are to be charged for the accommodation of the public. The 2nd condition would be that the temperature be maintained at a degree necessary for the proper preservation of the articles intended to be placed in the chamber.

The assistance is proposed to be given in this form: That on the completion of a building approved by the minister, a bonus of 10% on the investment shall immediately be paid, and that in succeeding years after a short term, which has not yet been definitely determined, an additional 20% of the whole investment shall be paid. The minister is inclined to propose payments after the initial 10% as follows: At the end of the 1st year's operation, 5%, and at the end of each successive year, a similar amount, until a total of 30% of the whole cost has been paid. The minister stated that it was not the intention to grant a bonus to any cold storage plant now in operation. It is proposed to provide for official inspection and supervision and the keeping of the buildings.

There are some features of the proposal that are debatable. In the House, some members criticized the proposition. It was pointed out that it would be better to allow the individual to erect cold storage buildings where, in his judgment, it was required, and not to leave the choice of location to the minister. It was suggested, also, that the total amount of the bonus be paid on completion of the building, and not extended over a period of years. E. D. Smith, of Wentworth Co., Ont., was of the opinion that the bonus should be given in one lump sum. Various letters have been received by THE CANADIAN HORTICULTURIST from fruit growers and dealers regarding this question. Some of them are herewith published.

This one was received from R. J. Graham, of Belleville, Ont.: "We have mechanical cold storage that will hold 20,000 bbls. It cost about \$30,000, including site and railway siding, fitted with Linde British machinery. We have, also, ice cold storage which we built prior to the mechanical storage. For some things, ice is quite good enough and is very much cheaper than mechanical, but for carrying apples late in the season it is a total failure, for the ice gradually melts and as the season advances the temperature gradually rises in an ice storage unless fitted with mechanical devices and ice salted. For apples that are coming in store in Nov. and going out before middle of March, ordinary fruit houses such as they have in this locality is quite good enough. I understand that the object of the proposed assistance to cold storage

construction is to have facilities for taking care of fruit early in the season when weather is unfavorable and this can only be done through mechanical storage. It has been demonstrated that such storages will pay when used exclusively for apples. There are perhaps 30 such storages in New York state located where the apples can be placed in storage the day they are gathered, which is of vital importance where the fruit is intended to be carried any considerable length of time.

"Unquestionably millions of dollars' worth of apples have been destroyed, wasted and lost to the country by not having such facilities available where the apples are grown. With the present improper railway equipment and difficulty in securing cars, large losses are made which cannot be avoided. If the assistance proposed will result in the establishment of a number of mechanical cold storages in the sections where apples are grown it will be certainly beneficial to the country and especially to the owners of the fruit. The only thing about this proposal that seems unfair is establishment of storages in the vicinity of those already built. It would seem to me that if these storages are assisted by the government, then those already established should be compensated in the same proportion where they do similar service in the apple growing districts."

The opinion of F. S. Wallbridge, of Belleville, is as follows: "In most of the apple growing sections, cold storage warehouses for apples are not an absolute necessity. If the assistance proposed were given to frost-proof storage buildings for storage purposes, and let the cooperative assns. put in any apparatus they may see fit, either mechanical refrigeration or ice storage, or even ventilation, I think it would be best. In most of the apple sections, there are not a great many summer apples grown and a very small compartment of the building would answer for cooling any early varieties that the assns. might have. In my opinion it certainly would be more helpful to the apple growers to get assistance in building frost-proof storage buildings than being assisted in putting up cold storage plants which they only require to a very limited extent, as the late fall and winter apples do not require any other storage than the frost-proof storage, and those apples are grown to a much larger extent than the earlier varieties. The trouble that most of our assns. find is in getting a reasonable priced storage to hold their winter varieties until prices are sufficiently high in European markets to warrant sale of them. At the present time such a small price is being offered in the European markets for such varieties as Ben Davis that those apples naturally have to be held until there is a market for them in the latter part of the winter or the early spring. I trust that the Hon. Mr. Fisher means to extend the assistance to assns. that intend putting up frost-proof storages."

J. D. Biggar, Grimsby: "I am of the opinion that the government would be justified in assisting in the erection of cold storage warehouses where they would be of sufficient benefit to the community. I also appreciate the benefit derived from its action in assisting in improving cold storage transportation facilities."

Elmer Lick, Oshawa: "I can see decided advantages in the scheme. The apple grower needs to have his fruit cooled before shipment during Aug. and generally most of Sept. I have never yet known fall apples which were packed at a temperature around 60 or below, to land in the British market in bad shape, that is if they were shipped at once after packing. Our softer winter apples, as well as the fall varieties, need cooling before packing, or immediately afterwards. If the present proposals provide, in some of the best apple sections, a means of doing this at reasonable cost, either by ice or mechanical means, a very good purpose will be served.

"Usually there is little trouble in keeping our later winter varieties through medium of air ventilation. The fact must be remembered, however, that the sooner an apple is cooled to freezing point the longer it will keep. That is a very important advantage of ice or mechanical cold storage. The only question in connection with this matter that bothers me is: Where will the business come from to make it pay? Apples will furnish business for 3 to 5 months. Will there be other business enough to keep down expenses to a reasonable basis? This is a very inviting field for theory, and one rather difficult to practically say how it will work out."

Daniel Johnson, Forest: "Mr. Fisher's cold storage proposals, appear to be a step in the right direction. Ont. fruit growers and farmers have long felt the want of something in that line. It is to be hoped that the government will next season see its way clear to go much further in assisting them. It would perhaps have been better if the government had undertaken the establishment of these warehouses on its own account, and to regulate the rates in the interests of the country."

The Seedless Apple

Frances Wayland Glen, Brooklyn, N.Y.

The report of the committee of the Ont. F.G.A. Convention, held in Toronto, referring to the Spencer Seedless Apple, gave me much pleasure. It is time that quack horticulturists, like quack politicians, were sent to the rear to remain. The great progress made in horticulture during the past 6 years has been from growing varieties, not species. The seedless orange, probably, is a cross of two species, and what we call the navel is a deformity. It is the only seedless fruit that is of any value.

God has set a limit to the propagation of deformed fruits or animals. This fact clearly indicates that the wise horticulturist will follow God's plan and not Mr. Spencer's. It is unjust to those who have rendered such beneficent services to humanity in the crossing of varieties to have some quack notion like the seedless apple overshadow the results of their patient labor. Permit me to return thanks to Professor Craig of Cornell University for his letter in the Nov. issue of THE CANADIAN HORTICULTURIST.

Dairying and Fruit Growing

A large number of the dairy farmers in the vicinity of Colborne and Belleville, Ont., are going in for fruit growing on an extensive scale, and appear to find it a profitable side-line in connection with their dairy operations. While driving through this section recently a representative of THE CANADIAN HORTICULTURIST was surprised to find how extensively the farmers of that section have set out orchards during the past couple of years. It seems that recently large profits have been made on apples in that section, with the result that there has been a regular boom, the reaction of which will be felt by some farmers who, it was noticed, have set out their orchards in very unfavorable locations.

"This is the greatest apple section in the province," said Reeve Alyea, of Colborne, to our representative. "In Colborne alone," he continued, "we have 16 apple-packing warehouses, the smallest of which holds about 7,000 bbls., and the largest 20,000. A new cement warehouse is being built which, when completed, will hold 30,000 bbls. Our farmers let their hogs run in the orchards, where they eat wind falls and wormy apples. In this way, too, the orchard is manured."

"Over 1,000 acres were planted with apples this year. Some dairy farmers and others in the vicinity of Colborne have sold the apples in their orchards this year for from \$450 to a high as \$1,200, the buyer to do the picking and packing, and the grower the hauling."

Nova Scotia Fruit Growers' Convention

THE 43rd annual meeting of the N.S. Fruit Grs. Assn. was held at Wolfville on Dec. 12, 13 and 14. There was a good attendance. While the meeting cannot be regarded as one of the most important in the history of the Assn., it was quite a successful one. Owing to the good work done at the Dominion Conference of Fruit Growers at Ottawa last March, several questions which usually occupy considerable time, such as the grading, packing and marketing of fruit, did not receive the usual attention.

The address of the president, Mr. John Donaldson, was full of practical information. In it he said that there was an abundant show of blossoms in the orchards last spring, but cool, wet weather prevented good pollination. A favorable summer was followed by an ideal autumn, but a gale in October blew off a large amount of fruit. The crop was below medium, but the apples were comparatively free of spot with the exception of Gravensteins, which were badly affected, there being only a small proportion of No. 1's. The advantage of having this refuse fruit utilized by the canning and evaporating factories, which used a large amount this year, was referred to by the president among other things.

An interesting address on "Orchard Management," by W. T. Macoun, C.E., Ottawa, followed the president's address. A report of it will appear in our next issue.

The afternoon of the 2nd day was all devoted to spraying, it being felt that this was the most important subject that could be discussed in view of the fact that the Gravensteins had been almost ruined by spot this year. Prof. F. C. Sears, Horticulturist, Agric'l College, Truro, had charge of this subject, and subdivided it into nozzles, pumps, hose, fungicides, lime, insecticides, preparation of the mixture and application of same, so that the whole subject was thoroughly covered. The plan adopted was to have several fruit growers speak on each branch of the subject. The Vermorel nozzle, or a modification of it, was considered the best. It was shown that it was very important to change the disc in the nozzle frequently, as the aperture soon widened by friction, and a coarser spray was the result. The general opinion was that 3 nozzles were as many as could be economically used on each line of hose even on a power pump, while 2 or even 1 was sufficient on a hand pump. No one pump was considered the best. It was generally thought that $\frac{1}{2}$ -inch hose was better than $\frac{3}{4}$ -inch, being considerably lighter and just as effective. The complaint was made that hose did not last long enough. A special 5-ply hose was referred to by Mr. Black, Wolfville, as being the most durable, and while a little more expensive, it was much more satisfactory than the hose usually bought. The variability of lime was referred to, and it was shown that it was important to use good lime. As a rule 4 lbs. to the bbl. was sufficient, though more could be used if necessary.

Some arsenate of lead had been used in N.S. this year. There was a discussion on the relative merits of it and Paris green as insecticides. Some had found it difficult to mix, while others were favorably impressed with it owing to its adhesiveness, and the good results obtained. As a poison had to be used with each application of Bordeaux mixture, it was thought that the adhesiveness of the arsenate of lead did not offset the danger from using a poison of its color in consideration of the general carelessness of fruit growers in leaving poisons about.

Dr. Jas. Fletcher, Entomologist and Botanist, Dom. Exp. Farms, who was on the program to speak on "Insects and Insecticides," was called on when the discussion had reached the point of the proper time for spraying, a fruit grower claiming that he had very satisfactory results from only spraying once, and that when the trees were in full bloom. Dr. Fletcher

took a very decided stand on this subject, showing that insects, especially honey bees, which visited the flowers, were killed by the poison; that in Ont. it was considered so important not to spray at that time, that a law was in force which prohibited fruit growers from doing so. Not only were bees killed by the poison, but the crop was lessened by the Paris green injuring the pistil of the flowers, thus preventing fruit from setting. He recommended 4 sprayings with Bordeaux mixture, 2 before the flowers opened, and 2 after. All insects could not be controlled by 1 spraying, as they were active at different seasons of the year. The one spraying would control the black spot. Thoroughness in spraying was of the utmost importance. It is an expensive operation and, if not properly done, money was thrown away. Speaking of the San Jose scale, he congratulated the fruit growers on not having it. In procuring nursery stock, he advised getting trees from Ont. rather than the U.S., if good trees could not be obtained in N.S., as the Ont. nurseries had their stock thoroughly inspected and fumigated according to law. "Practically all the insects affecting trees in N.S.," said Dr. Fletcher, "can be controlled by spraying."

In concluding, he stated that at many of the meetings he had the pleasure of attending during the last 2 years, many of the important subjects which had come up for discussion at the present meeting, as for instance, "collar rot," had been keenly discussed. He urged the members to keep accurate notes as to all the conditions of soil, weather, location and particularly to methods of cultivation in orchards where trees died from this mysterious injury, so that actual data taken at the time might be available for comparison and discussion at the next meeting, thereby arriving at something definite.

Considerable discussion took place on the No. 2 apple, as defined in the amended Fruit Marks Act. Mr. G. H. Vroom, Dom. Fruit Insp., explained the view taken by the inspectors in regard to this grade. The point not clearly understood by the fruit growers was as to what was meant by "material waste." From Mr. Vroom's statement, it is understood that 80% of a No. 2 grade, providing they are of medium size, may be spotted, providing the spots are not large enough or numerous enough to cause "material waste." A fruit grower should be able to form a fair opinion of what would cause material waste. A question was asked as to whether any apples of a "fancy" grade had been exported from N.S. this year. The statement was made that 800 bbls. had been exported, it being understood that the man who exported them was S. B. Chute, Berwick, N.S. A large proportion of this fancy grade went to South Africa.

The fruit growers of N.S. are very anxious to have a fruit exp. sta. in the Annapolis valley. The matter was discussed at some length, as it has been for many years, and a resolution urging the establishing of such a station will be sent to the Dominion and Provincial governments and to the members of parliament.

A move was made at this meeting to make some town the headquarters of the Assn., where it would meet every year, but this proposition was voted down. It was thought that more good could be done by moving around. It is probable that the meeting next year will be at Berwick.

The exhibition of fruit, though not large, was of good quality. It was judged by Prof. F. C. Sears and Mr. W. T. Macoun.

The officers elected for next year are: Pres., John Donaldson, Wolfville; vice-p., G. C. Miller, Middleton; sec., S. C. Parker, Berwick—the same officers as last year. Mr. Donaldson was highly complimented for the manner in which he filled the office during the past year.

A popular meeting was held on the evening of Dec. 13, when addresses were given by

Lieutenant-Governor Fraser, Judge Longley-Dr. Fletcher, Prof. Cumming, and Mr. Campbell, the local member. The addresses were more than of usual interest, and delighted the large audience assembled.—W. T. M.

Ontario's Sick Little Ones

The 31st year of the Hospital for Sick Children in Ont. work has just closed. It is something to be proud of, and the results, both in its in and outdoor department, compare most favorably with that of any of the large hospitals on either this or the other side of the Atlantic Ocean.

The hospital is not a local institution, but provincial. The sick child from any place in Ont. who can't afford to pay, has the same privileges as the child living in Toronto, and is treated free.

The hospital had last year in its beds and cots 858 patients, 331 being from 231 places outside of Toronto. The cost is 1.37 cts per patient a day, and there were 138 sick little ones a day in the hospital. Since its foundation the hospital has treated 12,120 children. About 8,500 of these were unable to pay, and were treated free.

Next year the hospital will supply prepared food for infant feeding at cost. This will enable mothers at a trifling cost to feed babies properly, and so decrease the great mortality amongst children. Babies under 2 years are now received, so that mal-nutrition cases and those of the digestive organs will be treated.

The Lakeside Home for Little Children, Toronto Island, is the summer home of the mother hospital. It is open from May till Oct. every year, and during this period nearly 300 children are benefited by their residence, Ontario's breezes (the Home receives them from all sides) do much for the little ones who are able to be moved from the main building in the city. About 80 children sleep every night in the open on the balconies of the Home.

A dollar sent to the Hospital for Sick Children is \$1 sent on an errand of mercy and nobility—for sweet mercy is nobility's true badge. Please send contributions to J. Ross Robertson, chairman, or to Douglas Davidson, sec.-treas. of the Hospital for Sick Children, Colborne Street, Toronto.

Encourage the Apple

The farmer in the east is naturally looking with some envy upon the bumper grain crops which the farmer in the west gets by merely tickling the soil. He hears of men going out upon the prairie, taking up land, running up a shack, putting in a crop, and then banking good hard money at the end of the year. But if he would look up at his apple trees instead of far away at distant fields, he might be better employed.

The patient, old, gnarled apple tree is bearing gold for him every golden autumn, and yet he lets a great share of it waste upon the ground, or, worse still, deteriorate by improper handling. If he would turn his golden apple into gold in dollars he would forget to envy the western novice with his golden grain. —*Montreal Star*.

In this issue, W. H. Brand, of Jordan Station, Ont., draws attention to 3 articles for which he is Canadian agent. He was at the Ont. Hort. Exh. with a "Wallace" sprayer that appeared to be as near perfection as one could desire. "Target Brand" scale destroyer is becoming well established in Ont. Before long, our fruit growers will find it hard to do without it. Kewanee Air Pressure Water Works Systems enable every rural resident to have a full water-works service and fire protection the same as in the city, with a valuable feature in addition, viz., either hard or soft water can be used. See Mr. Brand's advt. on another page.

The annual meeting of the N.B. Fruit Grs. Assn. will be held at Fredericton on Feb. 14.

Prince Edward Island F. G. A. Meeting

THE 11th annual meeting of the P.E.I. Fruit Grs. Assn. was held in Charlottetown, Dec. 10 and 11. It was profitable and successful.

The treasurer's report showed the assn. to be on a satisfactory footing, a balance of some \$80 being on the right side of the ledger.

After other routine business, Pres. Burke appointed Messrs. Tanton and Moore judges of the fruit. The fruit show was smaller than usual but a most creditable one for this off-year.

The regular program was taken up minus the addresses of Dr. Fletcher, W. T. Macoun, and others, who were unable to attend. It comprised the president's address—an utterance which reviewed the situation completely, and pointed the way to ultimate success. Later, some of its features will be published. Suffice it to say now, that Dr. Burke thinks the industry far enough advanced to firmly point out some things necessary to make it thrive and prosper. Encouragement was the word of the past, instruction the need of the present, cooperation the desideratum of the future. The president's address was unanimously and cordially accepted.

Mr. Registrar White then read a valuable paper on "Experience in Island Horticulture," in which he criticized somewhat facetiously the methods of some of our planters, and declared that it is not sprays that is so generally needed, but fertilizers. A lively discussion followed, participated in by Prof. Ross, Fred. Boyver, John Newson, John Robertson and J. A. Moore. It was largely confined to varieties, and the audience enjoyed it immensely.

Another session of the assn. was engaged in receiving reports, reading correspondence and the discussion of practical topics. The report of the committee on prize lists was adopted. The transportation committee announced some substantial improvements in freight rates on

fruit through the medium of the railway commission, and asked that express companies be also subject to this commission. The committee on cooperation also reported favoring the establishment of a packing, jamming, evaporating and cidering establishment at Charlottetown; and a resolution, spoken to by John Robertson, Inkerman, and Hon. F. L. Haszard, asking the Federal authorities to take this matter up as they did dairying here, was unanimously carried.

The delegates to the Dominion Conference at Ottawa, in March last, presented their report, through the president. The proceedings of this important meeting are already printed and distributed to fruit-men.

On the question of instruction, President Burke announced that he had recently seen Commissioner Ruddick, and that he had become fully convinced of the desirability of having good instructors visit orchards everywhere, and intended doing this service to P.E.I. horticulture. A resolution approving the plan of personal visitation was adopted.

C. R. Dickie, Muddy Creek, made a valuable address on "Cranberry Culture," giving his experience in growing, packing and marketing this luscious berry. He said that off half an acre he gathered 37 bbls. of fruit this year, and the crop was not extraordinary. Last year cranberries fetched \$36 a bbl. in Montreal.

A paper on "Strawberries" which, when published will give individual growers the best information, was read by A. E. Dewar, one of the largest planters in the province. Asked by the chair as to the suitability of Island soil and conditions to the production of this favorite fruit, he said "I am satisfied that we can grow the best strawberries here that America can produce." Mr. Robertson and Mr. Dickie added further information on the subject.

The election of officers was then taken up, the president asking to be relieved after long service. John Robertson thought it was impossible to permit him to retire yet; there was nobody who had done so much for the industry and no one else could do so much. He moved, seconded by A. W. Sterns, that the Rev. Dr. Burke be re-elected, and the motion was carried by a standing vote. The president thanked the Association for its confidence, but he said that next year they must surely find another occupant for the presidential chair. The elections resulted as follows: Patron, His Honor, Lt.-Gov. MacKinnon; pres, Rev. Dr. Burke, Alberton, v-pres, D. J. Stewart, Aitken's Ferry; directors, A. J. McFadyen, C. W. Black, C. R. Dickie (Prince), John Johnstone, John Newson, George Auld (Queens), F. G. Boyver, John Robertson, J. A. Dewar (Kings). Auditors, Franklin Boyver, A. W. Sterns. The same committees as last year were then struck by the chair. At a subsequent meeting of the board the old sec-treas., A. E. Dewar, was re-elected.

A Talk About Apples

In Ont. there are about 225,000 bbls. of apples in storage, according to P. J. Carey, Dom. Fruit Inspr., who recently was interviewed by THE CANADIAN HORTICULTURIST. He estimates the quantities in the various localities as follows: Georgian Bay, 15,000; Hamilton, 10,000; Oakville, 2,000; Toronto, 15,000; Whitby, 3,000; Oshawa, 15,000; Bowmanville, 4,000; Newcastle, 10,000; Cobourg, 8,000; Grafton, 10,000; Colborne, 65,000; Brighton, 35,000; Trenton, 15,000; Belleville, 15,000, and Frankfort, 7,000.

In respect to the quality of apples in storage, Mr. Carey said that he believes the Georgian Bay dist leads, there being at least 75% free from defects. In the other districts there is not much choice. On the whole, the fruit cannot be considered of good quality. There is between 50 and 60% No. 1. Many of the apples are

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wormy and affected with "ink spot." Never before has "ink spot" or sooty fungus been so bad in this province. Last season seems to have been favorable for its development. The worst feature of the disease is that it will develop in cold storage, a condition that usually checks other diseases.

One feature in apples that will grade No. 2 is worth noting. Mr. Carey said that many No. 2's will give good satisfaction, because in certain sections considerable quantities of apples have been deformed simply on account of insects eating a portion of the surface of the apple around the calyx end. When such apples are cut, they will be found to be sound on the inside.

Last year's crop has been an object lesson for the man who will not spray. Diseases and worms developed more than usual. In many sections of the country, the value of spraying has been demonstrated. Orchards situated side by side, sprayed and unsprayed, have yielded clean fruit in quantities proportionate to the attention that was given to combatting insects and fungous diseases.

SOME PROSECUTIONS

A great improvement has been noticed in the pack by the fruit inspectors, reports Mr. Carey. It is regrettable to learn, however, that there are still dealers and packers who do not conform to the requirements of the law. A number of prosecutions have been made. All of them pleaded guilty and paid their fines. Among them are, in Brighton, W. R. Simpson, F. F. Snelgrove, R. D. Snelgrove, W. J. Snelgrove, O. W. Chatterson and W. Chatterson; in Picton, J. G. Jarvis, in Trenton, W. P. Bouter and F. F. Snelgrove; and in Colborne, J. and R. Coyle. Most of these were first offences; the latter firm however, has been prosecuted 10 or 11 times. Besides the foregoing, complaints have been laid against about 30 others in various parts of the province. Some of these are now being prosecuted, and others will be at an early date.

British Columbia Letter

C. P. Metcalfe, Hammond

The climatic conditions for Dec. are much the same as Nov. Severe winds and rainstorms have thrashed the fruit trees and canes about, breaking off many raspberry and blackberry canes over their supports. In places where summer pruning is not practised, it is advisable to cut the canes back in the fall to 6 or 8 in. of the height you desire to have them the following spring. This strengthens the canes and renders them less liable to break. It is better to leave this 6 or 8 in. on and to recut them again in the spring as they frequently winter-kill at the tips.

Fall planting of fruit trees and canes is considered safe if the soil is dry and well under-drained, but it is better to give them some kind of a mulch and ensure protection for the roots. Strawberries and plants of like nature, that are essentially surface rooted, are better planted in the spring, as they are liable to heave out of the ground when it freezes with the excessive moisture we have.

B.C. has again won the gold medal against all exhibitors at the exhibition of Colonial fruits, at London, Eng., held under the auspices of the Royal Hort'l Society, in addition to several other medals won by exhibitors.

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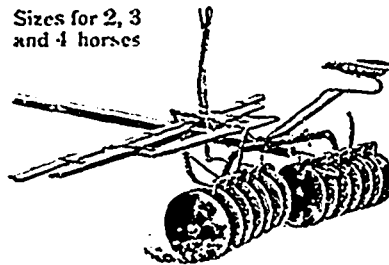
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POULTRY DEPT.
Conducted by
S. Short, Ottawa

The question is frequently asked, "Is there money to be made raising fowls as a sole means of making a living?" To this my answer is, I have known several try it, some intelligent men, and they have, after two or three years, branched out into some other business as a main issue, and continued to keep fowl as a minor branch. There are in this province men who make money with poultry, but they are fanciers and exhibitors—men who are experts in judging specimens of the different breeds which they buy, sometimes at a very cheap figure, from someone who does not know an exhibition fowl. They then exhibit and sell the birds again at a high price. I am doubtful though, if these men make much more than from \$300 to \$600 a year. Very few of them do that. Again there are fanciers who attend the leading shows, and buy the prize-winners in the breeds that they handle, frequently paying from \$50 to \$75 a bird.

They often advertise extensively the fact that they have these birds in their breeding pens and have eggs to sell from \$3 to \$5 a setting. Money is made in that way, but only as an addition to an income earned mainly from some other source.

I do not know one person who has made a living raising poultry and eggs for the everyday market. While I make this statement, I do not say that it cannot be done. The market of today is totally different to that of 2 years ago. Then, in the cheapest season, June, fresh eggs, choice, could be purchased for 15 cts., this year the same article sold for 22 cts., and in some cases 25 cts. a dozen. In Dec., also, fresh eggs were 9 to 10 cts. a doz. more than they were two years previous. The main increase is noticeable in dressed fowl. This increase in selling price is somewhat offset by the cost of feeding material, but not altogether. It may be, that

now better prices prevail for poultry products, money could be made in this way, but I would advise that poultry raising should be engaged in, in conjunction with some other industry, say, market gardening, fruit raising, bee keeping, or dairying. With either of the first 3 industries, most of the work is in the summer time, when the fowls need or can get along with the least attention, leaving the winter months free to look after the fowl when eggs are the highest price.

With proper arrangements the fowls can use for runs during several months of the summer the orchards and berry patches and will destroy injurious insects and caterpillars. In this way, one has 2 chances of getting a living. Should the crops fail, the fowl would perhaps come to the rescue, and vice versa. In any event, to any one who has an inclination for work of this kind there are few occupations so healthful or interesting as poultry keeping.

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President

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evidenced by the many letters to that effect that are received at our office. A recent communication from Jas. C. Ford, Mgr., Oakville Basket Co., Oakville, Ont., stated: "Since placing our advt. in THE CANADIAN HORTICULTURIST, we have had many orders that otherwise would not have been received. We consider your columns the best advertising medium we have ever used. Through

THE HORTICULTURIST we received recently an order from N.S. and another from Calgary. May THE HORTICULTURIST have success." The Oakville Basket Co. manufacture a full line of packages for handling fruit and vegetables. The experience of last season's basket famine in some districts indicates the advisability of placing orders in advance.

Notes from the West

Mr. Philp, Dominion Fruit Inspector in Manitoba, reports that the stock of winter apples held by merchants in the outlying towns and cities in Manitoba are very low. This is another indication that the market for apples in the west

is increasing much more rapidly than even the dealers anticipated. Mr. Philp also says that the merchants generally speak very highly of this year's grading and packing. While not yet perfect, the improvement has been so great that the merchants are fairly well satisfied.

The inspector for Sask. and Alta. also reports a shortage in winter stock. To make matters worse, much of the fruit was received too late and shows signs of having been touched by frost. Excellent warehouses are being constructed at Regina, Moosejaw, Lethbridge, Edmonton and Calgary. No doubt shippers in the future will make allowance for the closing in of the season somewhat earlier in the west and will not suffer this unfortunate loss by frost.

Why Has It Not Been Done?

Toronto Weekly Globe.

The College of Agriculture of Cornell University has established a short winter course in horticulture, with especial reference to orchard management. The idea of the college authorities is to interest middle aged farmers and women, as well as young men, in taking up this course. The attention of our readers was called to this effort some weeks since. Owing to the possibilities of the fruit industry in Ontario and the annually increasing importance of apple growing, such a short course as this ought to be arranged and conducted each winter at the Ont. Agric'l College.

What the farmers and fruit growers of Ont. need is instruction and inspiration in developing this important phase of agriculture. If 25 or more young men, middle-aged men and women would spend a few weeks at the college studying this subject, and the college authorities would exert themselves to make the course a success by advertising for students and planning an attractive and helpful curriculum, the results would be far-reaching, and a material aid in advancing the industry of fruit growing.

Books for Fruit Growers

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Items of Interest

In the report of the election of officers for the Ont. Hort' Assn. that was published in the Dec. issue, a number of names of directors were omitted. They are as follows: Jas. Guilfoyle, Collingwood; Robt. W. Woodroffe, Woodstock; A. Alexander, Hamilton; and J. T. Rose, Brantford.

The Bowmanville Hort' Soc. is working hard to exceed this year the last year's membership of 93. During 1906, a number of interesting lectures were given by prominent speakers. Some of these lectures were of such interest to school children that the school authorities allowed the children out early in order to attend the lectures.

The exhibition of colonial fruit at the Royal Horticultural Society's Hall, in London, Eng., during the first week in Dec., attracted considerable attention. A huge display of apples from B.C., which was awarded the society's gold medal, obtained favorable notice in the press, as did a smaller N.S. exhibit, which got the Knightian silver gilt medal. Silver medals were bestowed on individual growers.

The Ottawa branch of the Ont. Veg. Grs. Assn. met on Dec 1, and elected the following officers for the ensuing year. Pres., Duncan Smith, Ottawa, vice-pres., P. Parsson, Cumming's Bridge; sec., T. Mockett, Billings' Bridge, and director on provincial board, F. W. Williams.

While in London the other day, the writer was particularly interested in the many improvements made by the Spramotor Company in the interests of the fruit growers. The products of the company are now used in nearly all countries, shipments destined for England, Russia, Cuba, New Zealand and far-away India were ready and in progress. Their trade now warrants their catalogue being printed in French, Spanish and German, besides our own tongue. Orders from 10 states and provinces coming in one mail were shown the writer. Their American business at Buffalo now equals the Canadian, although only quarter the age. They deserve credit for their enterprise.

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