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Cultural Studies on the Montreal Market Muskmelon*

Prof. Wm. Stuart, Burlington, Vt.

THE commercial culture of the Montreal melon is confined almost wholly to a small group of growers near Montreal, Canada. While a large proportion of these melons are marketed in Boston, New York, Philadelphia and other large eastern United States cities at extremely remunerative prices, practically no effort is being made by United States gardeners to meet this demand. Notwithstanding the fact that the Montreal growers have for the past few years received from ten to eighteen dollars a dozen wholesale for their melons, they have not as yet succeeded in supplying the demand. The writer was informed five years ago by one of the best growers that he had a ten year contract with a leading New York City hotel, which agreed to take every first class melon he raised. This particular case is cited in order to disclose the keen demand which exists among high-class hotels and restaurants for this variety of melon during the season in which it is on the market.

The high prices which these melons command and their restricted production notwithstanding the high prices, are doubtless due to the fact that greater skill is demanded and closer attention to detail is necessary to success than when other varieties are grown. Furthermore, glass sash and frames are needed. Then, again, the Montreal grower confidently believes that this particular sort of melon can be successfully grown only on certain types of soil on the island of Montreal. This belief seems to have this much basis in fact, that while occasionally grown elsewhere high flavored melons have not commonly been produced save by Montreal growers; indeed, flavor has usually been lacking.

The crop is a remunerative one, when conditions favor. From \$1,500 to \$2,500 per acre are not unusual returns. Fair estimates of an average crop at \$250 per acre, with operating expenses, including interest on investment and depreciation, of \$890. One grower informed the writer that his average sales from seven to eight acres was in the vicinity of \$16,000.

CULTURAL METHODS

Briefly stated the cultural methods employed by the Montreal growers are essentially as follows: The seed is sown in

seedbeds or pots, in the greenhouse or hotbed, any time from the latter part of February to the first of April. When the seedlings of the earlier sowings are large enough they are potted up into three or four inch pots, and, in the case of extremely early plantings, are again shifted into fives' and sixes'. Whenever these plants are in danger of suffering for lack of root space and plant food and the weather is favorable they are planted out in the sash-covered frames under which they are expected to remain until they are almost fully grown. The writer was informed by one of the largest and most successful growers that he planted seed for his first crop in the latter part of February or first of March.

The hotbeds in which these early plants are started must of necessity be well constructed, and in addition must be so located as to be well exposed to the sun's rays and at the same time protected from cold winds. This grower in addition to having well constructed hotbeds, covers his frames with two sets of sash, mats, and board shutters. With such protection, if sufficient horse man-

ure has been used in the hotbed to generate a steady and fairly strong bottom heat and the exposed portions of the frame are banked with the same material, plants may be grown almost as well as in a more expensive structure supplied with fire heat. In fact, most of the growers seem to be strongly prejudiced against the use of plants started in an artificially heated greenhouse structure, claiming that plants so started never give as satisfactory results as do those which have been grown in the hotbed. To the writer this prejudice seems to be ill founded. At least, no good reason suggests itself why greenhouse grown plants, if properly handled, should not make satisfactory growth when transplanted into the soil of the frames in which they are to be grown.

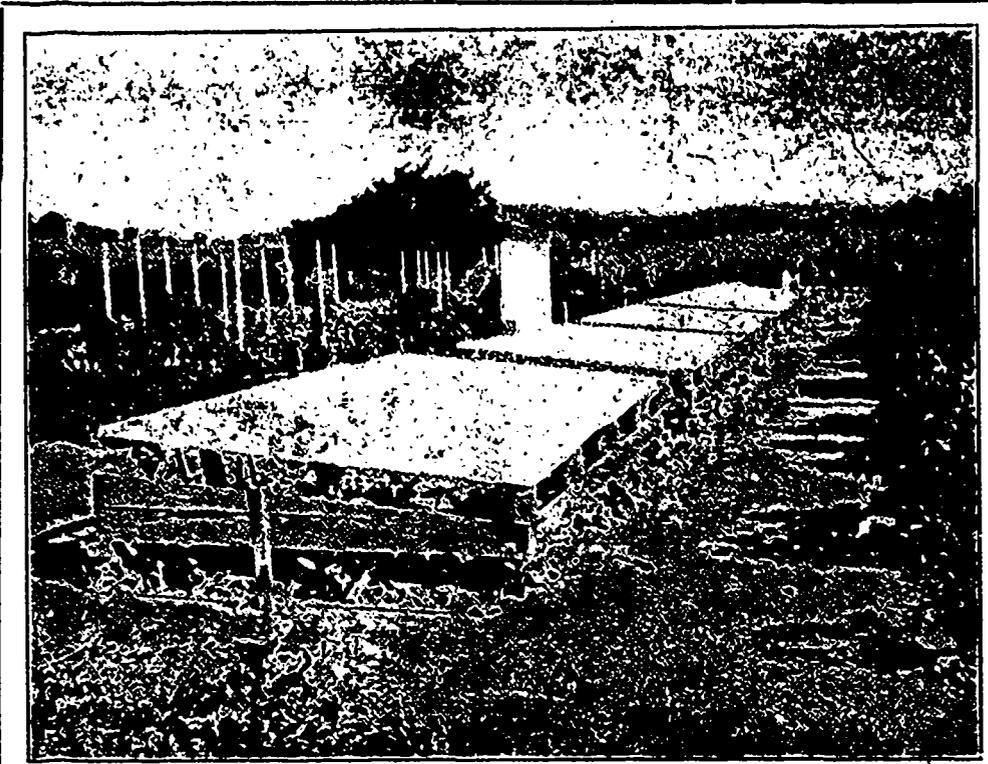
The frames into which the melons are transplanted are movable ones, usually in sections of approximately twelve feet in length by six feet in width. For the early crops they are made strong and tight with the rails for each sash to slide upon.

The soil over which these sections are



A Manure Trench as Prepared for the Growth of Montreal Muskmelons

*Extract from Bulletin No. 169, of the Vermont Agricultural Experiment Station, Burlington, Vt.



A Line of Frames Showing Method of Cultivation

set is ridged up in beds of from twelve to sixteen feet in width, having a centre elevation of possibly one foot. Along the centres of these ridges, where the sectional frames are to be placed, a trench is dug about two feet in width and from fifteen to eighteen inches or more in depth, depending on the earliness of the season. This trench is filled almost level with the surface with well-fermenting manure, and a portion of the surface excavated soil thrown back over the manure, slightly more being drawn in where the plants are to be set. The frames are then set in place and covered with sash, which in turn are further reinforced with mats and wooden shutters, or hay or straw with or without the shutters. A space of from four to six feet is allowed between the ends of each sectional frame.

When the soil over the manure is well warmed up everything is in readiness to plant. The warmest portion of some favorable day is selected for the purpose and great care is exercised in transferring the plants from the hotbeds to their permanent quarters in order to guard against the possibility of their receiving a setback by sudden changes of temperature or soil conditions. Unlike the transferring of most plants to their permanent place of growth, the coddling process does not cease with this type of melon. In fact it is simply spread over a greater area and in a measure the plants require even greater attention than before, for as the sun gets stronger, greater attention must be paid to watering, syringing and venti-

lation. Success at this stage in keeping the plant in a healthy, actively growing condition and free from insects is very largely dependent upon proper syringing and airing. On bright sunny days frequent syringing of the soil under the sash enables the grower to maintain a somewhat higher temperature without incurring the risk of an invasion of red spider or thrips.

As the fruit attains some size, and especially as it begins to reach full development, it is usually kept from contact with the soil by placing it on a shingle, piece of board, or flat stone. Uniform shape, color, netting, and ripening is secured by turning the fruit every few days. Much loss from cracking, rot, etc., is thus avoided. Pinching out the central shoot of the plant, while not absolutely essential to success, is usually practised. When the runners or shoots are fairly occupying the enclosed area, the sectional frames are raised a few inches above the bed, thus allowing the shoots access to the surrounding unoccupied land. As the weather grows warmer and the summer advances, more and more air is admitted to the frames until, finally, the sash and then the frames themselves are entirely removed. This does not usually occur until the melons are almost fully grown.

As each fruit sets, the shoot on which it is borne is pinched off one or two joints beyond it. A crop of from fifteen to twenty melons is considered sufficient from each six by twelve feet sectional frame. In this area from three to four hills are planted, depending on whether

a three by six feet or four by six feet sash is used. Usually two plants are set per hill.

SIZE OF MELONS

As in most crops of like nature the melons vary greatly in size. The writer was informed by one commission house that it had purchased a melon weighing forty-four pounds; and he personally saw one weighing twenty-two pounds which had been selected by the grower for seed purposes. The average weight of number one melons ranges from eight to fifteen pounds, with a mean weight of about ten pounds; that is to say, a dozen melons, packed for shipment, will weigh on an average from one hundred and twenty to one hundred and thirty pounds. In exceptional cases some have been shipped weighing two hundred and forty pounds per dozen package. As a rule the larger melons, those weighing twenty pounds and upwards, do not possess the quality of a perfect specimen weighing from eight to fifteen pounds.

Picking Strawberries

Grant S. Peart, Burlington, Ont.

Strawberries keep much longer if picked with their stems left on. The old-fashioned method was to pull the berries, but it has been found that one can pick them as quickly by pinching the stems with the thumb nail. There has been considerable talk about precooking berries before sending them to market. We cannot see that this would pay in the case of our local markets, but doubtless it would be of immense value were we shipping to any great distance.

At what stage of ripening should we pick strawberries? is the next question. We cannot set any hard and fast rule. We believe in allowing the fruit to mature as much as possible. However, we cater more or less to market requirements. Some demand fully matured berries. Toronto will not accept strawberries unless red all over. In the case of Montreal we are required to pick a little on the green side on account of extra distance, and Montrealers are not so particular as to draw the line at partially green berries. At all events the patch should be picked over so often that no fruit becomes soft.

Enemies of the Strawberry

W. A. Dier, Ottawa

One of the enemies to which the strawberry is subject is the white grub. It is the larva of the May beetle. The grub when fully grown is about an inch and a half long and three-eighths of an inch thick, nearly white, with a brown head. They are usually more numerous in old pastures and meadows than elsewhere, because their principal food is the roots of different kinds of grass.

The old sods offer protection against birds which devour them. Therefore it is not safe to plant strawberries in newly plowed sod. It is better to occupy the ground with some crop which requires considerable hoeing and cultivation for at least two years before planting to strawberries. This gives the birds a chance to clear the ground of this pest.

Birds themselves are exceedingly troublesome to the small grower during the fruiting season, and they seem to be decidedly partial to the finest specimens. On the first sign of ripen-

ing, I place pieces of newspaper under the clusters to protect them from the bugs in the ground and inverted strawberry boxes on top to protect them from the birds. In this way only could I save my best berries. It means work, but one always feels well repaid for the extra labor which this protection involves.

The small grower can usually supply water during dry weather, and it should never be withheld if it is possible to apply it. A good soaking twice a week in the evening is far better than a sprinkling every day.

The Roadside Problem

Prof. E. M. Straight, Maine A. C., formerly of Macdonald College, Que.

A FEW days ago I cut a fairly representative twig from a wild cherry tree in the town of South Portland, Me. It was a roadside specimen, gnarled, broken, and growing in the gutter. The illustration shows that the twig contained six egg masses of the tent caterpillar, two nests of the brown-tail moth, one fire-blight, and one black-knot. Thousands of dollars are being spent year by year in trying to rid the orchards in the vicinity of the dreaded brown-tail moth and other pests. Best results here or elsewhere need never be hoped for so long as the roadsides are allowed to remain the common breeding ground of all enemies of the farm and garden.

The nest to the right appeared like that shown in the second illustration, after being kept in the office for a few days. It will be seen that there are two or three hundred caterpillars crawling on the outside of the nest. Egg-masses of the forest-tent or the American caterpillar contain two or three hundred

eggs. We may only guess at the number of spores produced by that knot and blight. Certainly that twig possesses mighty potentialities inimical to the best interests of the orchardist this coming season.

When attempts are made to clean up the roadsides, it has amused us to note the care taken to save the bush, even if necessary to completely dehorn it. If the axe were laid at the root of the tree it would be the easiest and most satisfactory form of solution.

The caterpillar of the brown-tail moth has, when young, the "spinning down" habit, and is transported by vehicles and pedestrians. New centres of infestation may be set up thus, many miles from the original.

Weeds in the roadside fence corners, borers in the fence poles, and caterpillars on wayside bushes form a combination not short of a menace to the farm community.

When the farmer accepts the roadside problem as his own, and cleans it up he



A Nest of the Tent Caterpillar

will strike a blow at insect pests and fungous diseases which will eventually count for much on the cultivated areas of the farm. Governments and municipalities cannot be expected to do the work. It is the farmer's problem, and not until the farmer accepts the road passing through his farm as a part of his farm will the problem be solved.

When the winter approaches the farmer draws a long breath. He feels that for a few months at least he may relax his efforts. Insect injury is about over for the time, but efforts toward insect control should never cease. When trees are bare and insects dormant much may be done. Mechanical methods of killing insects must not be neglected. It must be evident that a man can do more effectual work on the twig in the illustration mechanically now than by waiting and applying any amount of poisoned sprays later.

An apple-twig borer may be cut out, scales on a tree trunk may be scraped off, and a thousand other little devices attended to, which accomplish the work sought quickly and effectually.

Methods Which Have Won Success

R. S. Dugas, R. S. A., Port Hope, Ont.

Mr. G. H. Martyn and Son, fruit growers, of Fairview Farm, Port Hope, have demonstrated what can be done in the way of successful farming. Twelve years ago, Mr. Martyn bought his present farm, which was then practically abandoned. The buildings were almost a complete wreck. To-day the farm is one of the most complete to be found in Ontario, the buildings have been remodelled, the land is in a high state of cultivation, and eight to nine acres of new orchard have been planted, making a total of thirteen to fourteen acres in all. Mr. Martyn attributes his



Roadside Trees Like These are a Menace to the Fruit Industry

This illustration, secured by Prof. E. M. Straight, of a wild cherry tree shows six egg masses of the tent caterpillar, two nests of the brown tail moth, one fire-blight and one black knot.



Orchard and Apiary of C. H. Martin & Son, Port Hope, Ont. (See accompanying article)

success largely to the fact that he has been specializing; his three special lines being the orchard, the apiary, and early potatoes.

Every spring Mr. Martyn begins the season with thirty to forty colonies of bees. On these he clears one hundred to two hundred dollars annually. There is no disease in his hives, and they require comparatively little work for the returns received.

There are eight to nine acres of orchard coming into bearing. Four acres were planted in the spring of 1912 and there were from two to three acres already planted when the farm was bought. The trees are set thirty feet apart each way. Last year the orchard produced in the neighborhood of three hundred barrels. The varieties planted in the young orchard are Spy, McIntosh, and Snow, Baldwin, Stark, Ben Davis, and Gano. The trees are cared for according to the best orchard practices. Complete spraying methods are practised—the lime-sulphur being made on the farm.

The orchard is carefully pruned, fertilized, and worked. Between the rows Mr. Martyn follows the practice of growing various crops, mainly cultivated crops, such as mangels, corn, and potatoes. These crops in addition to keeping the orchard clean, help to pay for the outlay expended in planting. Three-quarters of an acre is also devoted to strawberries each year. The earlier varieties are grown, and although somewhat low yielders they bring high prices. Last year about two thousand boxes were sold for approximately one hundred and ninety-five dollars.

For seven years potatoes have proved a great source of revenue. Mr. Martyn grows the early varieties chiefly, and never has enough to supply the demand,

receiving high prices for his crop. Consistent spraying is practised with this crop. Last year, although blight was very bad in the district, spraying practically saved Mr. Martyn's entire crop. His success shows the advantage of specialization.

Winter vs. Summer Pruning

By Dr. C. D. Jarvis, Conn. Agr'l College, Formerly of the Guelph Agricultural College

(Continued from May issue)

For assistance in the preparation of this paper, I have appealed to some of the best authorities in this country and in Canada. Personal letters were sent to twenty-four different people, mostly college and experiment station horticulturists. Twenty-two replies were received. While these replies brought out many conflicting statements with regard to the time and method of doing the work, they mostly agree that there is a place for summer pruning in our orchard practice. Extracts from some of these letters may be of interest here:

Professor M. B. Cummings, of the University of Vermont, writes: "In general, I am very much inclined to believe that much of our pruning is best done in the summer time, and if annual attention is given this matter, very little of the severe winter pruning will be required. I think the taking out of the laterals where the crown is too thick and pinching out the terminal buds will tend to hold the tree in check and shape it up better for the permanent stocky branches."

Professor U. P. Hedrick, of the New York Agr. Expt. Station: "We have several dwarf orchards in different parts of this state. We have done some pruning in these orchards every season for the past seven years, the time ranging from the middle of July to the end of

September. As yet, we have found no time in the summer in which trees can be pruned to advantage in this state. If the work is done early in the season the weak, succulent growth which is nearly always winter-killed follows. If the work is done late in the season, the effects of pruning do not differ from those obtained by winter pruning. We have about concluded that summer pruning is wholly unsuccessful for this climate. At least, it is in the average season, under average conditions, and in the hands of the average fruit grower." Prof. Hedrick's opinion seems to be based upon the behavior of dwarf trees only.

Professor C. A. McCue, Delaware State College: "I am a firm believer in this method of handling trees and I believe that in the past we have done altogether too much winter pruning on peach and apple trees. Of course, summer pruning can be overdone, and if care is not used and proper judgment exercised, a tree may be seriously injured by pruning during the summer season."

CONCLUSIONS AND RECOMMENDATIONS

I believe that with young trees we should do very little winter pruning, and that we should direct the growth largely by summer pruning. The work to be most effective should be done a little each year and at just about the time the tree completes its annual growth, which in this section is about the first week in July. If done too early it will defeat its aim and produce a strong growth of shoots. If done too late, it forces out a soft growth which is likely to be winter-killed. The object of the work at first should be to direct the growth and later to induce fruitfulness. Only strong growing trees should be pruned during the growing season, remembering that it is a devitalizing operation and may easily be overdone.

With regard to bearing apple trees the necessity for summer pruning is less pronounced if not entirely eliminated. Since our mature trees tend to overbear there is no necessity for inducing fruitfulness, and winter pruning would therefore be the most logical practice. The problem is an intricate one, and since there is so much difference in the character of soils and the behavior of varieties, it is going to be difficult, if not impossible, to formulate any set of rules that any fruit grower may safely follow. The physiologist in time may be able to reveal the underlying principles in connection with the work of pruning, but the problem always will be a local one, and the details relating to the practical application of the principles must be worked out by each fruit grower.

A Garden of Perennials

George Simpson, Ottawa, Ont.

THE establishment of a perennial and shrubbery border, which will increase in beauty from year to

year, offers no obstacles to the garden-maker if he goes about it systematically and lays the foundation in the way that experience has shown to be necessary to ensure success. Many people who have a natural fondness for flowers—and who has not?—hesitate about making the attempt from an apprehension of failure because of the supposed difficulties of the undertaking—difficulties which will, for the most part, be found to be imaginary. The activities of horticultural societies and the dissemination of information in popular form by such publications as *The Canadian Horticulturist*, have done much to simplify the matter and to encourage garden making in its more permanent and effective forms. The gardener will probably look upon the adornment of his home grounds from the aesthetic point of view, but there is an economic aspect to the question, and garden working is receiving a tremendous stimulus from the realization by communities and municipal authorities that the city beautiful is an asset of great material value, and that it is poor business to encourage or tolerate civic untidiness. Good citizenship and gardening go hand in hand.

The views here shown are taken from the garden of the writer on Clemow Avenue, Ottawa, a neighborhood in which are found many excellent gardens and enthusiastic gardeners. It is rather

tory of the steps which were taken in the making of the garden may interest someone. Before any real gardening work could be done it was necessary to

remove the second growth trees and stumps from the site, a task which called for the assistance of horses and men. Beyond this preliminary help the garden is entirely the product of the owner's individual efforts, and if the work has been his, so has the pleasure.

Before the actual work of preparing the ground was commenced a plan was drawn to scale and every permanent feature of the garden to be was definitely located, having reference to both immediate and future effects. In the main this sketch was followed in laying out the garden but, as the effect of the arrangement became apparent with the growth of the plants, extensions and modifications took place. Preference will usually be given in garden planning to gracefully curving lines but limitations of space in this case restricted the design to the rectangular. Continuity of bloom, harmony of color, gracefulness of form, fragrance and permanency are essential elements in any satisfactory design for the planting of the home grounds, and an effort was made to give due weight to these considerations.

The plan having been worked out, at least tentatively, the actual work of preparing the ground for planting began. Remembering that the borders were to support deep rooting shrubs and hungry perennials, and that liberal treatment is the only guarantee of vigorous growth and generous bloom, the work



Shrubs and Vines at the Front of Mr. Simpson's Residence



The South Border, showing Sweet William, Canterbury Bells and Delphinium



The South Border—Prepared for Fall Bloom

Sweet Williams have been removed and replaced by asters and annual larkspur for fall bloom. Canterbury Bells, phlox and hollyhocks are now showing. Note how the ugly poles on the street tend to counteract the garden effect.

was done with considerable thoroughness. All clay, sand and stones deposited on the surface when the house excavation was made, were removed and replaced by a suitable staple after which the whole was trenched and heavily manured to a depth of three feet, allowance being made for settlement. The actual work of planting was greatly simplified by the plan, a reference to which and the numbered list attached to it, showed exactly where each plant should stand. The principal border which frames the back lawn on three sides, is ten feet wide, and has a length of one hundred and fifty feet. A narrower border surrounds the house, and generous planting of annuals and perennials screen the kitchen garden at the rear of the side lawn.

The background of the main border was formed by setting at suitable distances such hardy shrubs as lilacs of the newer sorts, Rugosea roses, hydrangeas, spiraeas, honeysuckles, Japanese snow balls, mock oranges, and a couple of conifers for winter effect. Experience has shown it possible, in an area of limited extent, to produce a satisfactory effect with scarcely more than a dozen different perennial plants, and those who are garden-wise agree that strong masses of harmonizing color are preferable to a great variety of scattered bloom. In this instance the natural desire of the amateur to exploit the long lists of perennials in the catalogues, has been placed under a severe restraint, and preference has been given to a lim-

ited number of the old favorites, which under suitable conditions, can be relied upon to keep the garden attractive throughout the season.

With the limited resources and space at the command of the average gardener it is scarcely possible to have the perennial borders completely furnished

with bloom at all times, but with the exercise of a little forethought, that condition can be approximated and it is easily possible to have some conspicuous feature in natural and regular sequence from the opening of the lesser bulbous flowers of early spring until the last Michaelmas daisy has succumbed to the chilly blasts of the grey November days.

With the first warm, sunny days of spring the snowdrops, crocus and hepaticas start into bloom. This is the beginning of the pageant of color which sweeps onward in ever changing succession to the end. The borders have been liberally planted with early and May-blooming tulips, daffodils and narcissi, groups of which have been placed in almost every vacant space, and these bulbs make a brilliant display at a season when after the long winter abstinence we are hungry for a flash of color, such as these present. The late tulips with their stately form and fine color, prolong the show well into June, when the same is taken in hand by the German irises, lilacs, peonies, and honeysuckles. Then follow in succession the columbines, Oriental poppies, sweet William, Canterbury bells, delphiniums, Japanese irises, phloxes (a host in themselves), hollyhocks, lilies, and last but not least, the permanent asters, with their soft blues, mauves and pinks.

The vines used for the walls of the house are *Ampelopsis Engelmannii* and *Veitchii*, both of which have given satisfaction, although the latter has not proved quite hardy in some exposures in this locality. *Ampelopsis Engelmannii* is



The East Border of Mr. Simpson's Garden

Tulips, iris, ornamental poppies and peonies being over, this illustration shows the phlox coming into bloom.



A Division Hedge of *Hydrangea Paniculata*, grown by Mr. Simpson

perfectly suited to this climate, clings loosely and colors beautifully in the autumn. The foliage of these climbers serves as a good background for crimson rambler roses, clematis and climbing honeysuckle.

The planting of shrubbery about the foundation modifies the abruptness of the angle between the ground and the wall of the house and also serves as a foil for flowering plants, annuals and perennials, set in front. Asters look especially well in such a situation, and annual larkspurs are desirable, not only because of their intrinsic beauty but also because of their persistence into late fall.

A few shrubs, such as *Berberis*, *Thunbergia*, the spiraeas and conifers,

have been planted in the outskirts of the lawn, and a hedge of *hydrangea Paniculata Grandiflora* marks the boundary between this and the adjoining property.

One of the really good things about gardening is that the gardener is never satisfied with what he has accomplished. For this reason gardening possesses an inexhaustible store of future pleasures, with almost limitless possibilities in the way of achievement as experience begets knowledge and knowledge ambition. The ideas of the gardener develops his vision, expands his taste, improves his methods, and the result is a nearer approach to that standard of excellence towards which every true garden maker is striving.

The June Garden

R. S. Rose, Peterborough, Ont.

ALL seeding now should be done, and the seedlings showing up. This is the time to thin them out to about an inch apart each way. Some may say that an inch is not enough. Of course, in some plants more space is desired. I only know that I for one love to see the earth altogether covered and have always had splendid results.

Keep turning the earth over with a small spade; one such as the children use I find a good tool to have. Weeding will be much easier and your plants much healthier.

INSECT ENEMIES

Prepare some kind of emulsion which can be used on the tender shoots. I generally start spraying with soap chips

dissolved in a gallon of water (one laundry bar cut fine). I do this before any insects appear. It is wiser to do this than to wait until they come; for once the aphids take possession of the young shoots they are hard to dislodge. This insect multiplies extremely rapidly, and prevention is better than cure. If the aphids do come (and they surely will) after using soap chips and water, add a cupful of coal oil to the gallon.

For those who do not know the aphids, I will call him the little green fly that sponces on the stalks and young leaves, especially on rose bushes and sweet peas. There are also numbers of other insects, almost too numerous to mention,

that come with the hot weather. Some of them one can hardly see with the naked eye, but you can tell their presence by the leaves, as white or brown spots will show on the surface of the leaf. Look for your trouble underneath, then spray so that the emulsion will go on the under side of the leaf and on the stalks.

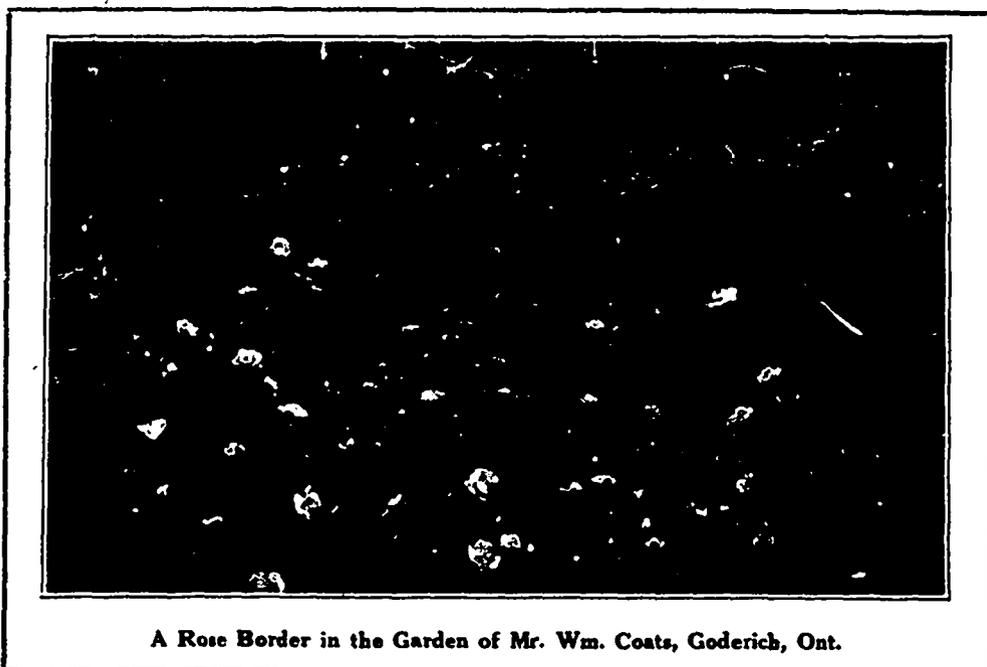
THE CARE OF ROSES

This is the rose season, so give them all the attention possible. I have been frequently asked what to do for them. In the first place see that you have good rich soil and that they get lots of sun. Shelter them from the north winds. Keep the earth loose and give them once a week a mulching of liquid manure. The rose will not bloom so freely if planted with other shrubs, as they are very shy. The rose is a very gross feeder. When the aphids appear on the rose bushes, I always use a much stronger emulsion for them, namely one cake of laundry soap shaved fine into one gallon of water. When dissolved add two gallons of kerosene oil. When spraying, do not let the emulsion go on the buds, as it is apt to hurt them.

Twice a week I give the bushes a thorough washing with the hose held close to the leaves so as to give them the full force of the water. This helps to keep down the pests, and the rose itself likes plenty of water.

The kind that give me the most satisfaction are as follows, grown on their own roots: General Jacqueminot, scarlet crimson; Madame Plantier, white; Mrs. John Laing, pink; Soliel D'Or, yellow; Paul Neyron, dark rose; Prince Camille de Rohen, crimson maroon; Acura de Diesbach, pink; Lady Helen Stewart, crimson scarlet; Harrison's Yellow, golden yellow; Margaret Dickson, white; Persian Yellow, bright yellow; all hybrid perpetual or remontant roses.

Another insect, which appears on the Golden Glow, is a little red fly that attacks the stock in the shady part near the blossom and under the foliage. I have had this insect attack my Golden Glow so severely that I have had to take a soft substance and scrape them off into a pan and burn them in the kitchen range. Powder is no good to destroy the aphid or these red insects, so do not try it. Do not skimp the watering of the garden, but water thoroughly: A light sprinkling, which only covers the surface of the earth and does not soak into the roots of the plants, is worse than no watering at all. I have always found it much better to give the beds a good soaking three times a week in the evening, than a light sprinkling every day. Some might ask, why the evening and not the morning? I prefer the evening for this reason, that the water has a chance to soak in during the night, giving the plants plenty of



A Rose Border in the Garden of Mr. Wm. Coats, Goderich, Ont.

time to drink it. In the morning the sun gets up early, and dries the moisture before the plants have had time to take in all that they require. Then again, you have in the early morning more light to see to do your weeding than you possibly can in the dim light of the evening, especially in the early part of the autumn. Then the earth is softer and more easily worked after a night's watering, than it would be after a hot baking sun.

I cannot say this often enough: Keep the earth loose. Run the trowel through it, around the plants. In other words, keep stirring the earth and you will keep down the weeds, for there is one thing you can depend upon to grow without care if you have good rich garden soil, and that is weeds.

An uncared for garden is an eye-sore to anyone who loves flowers. A little care, every morning and evening, will net you results that will surprise you, so give it to the garden. All flowers like to be loved, petted and cared for.

If you have paths in your garden keep them clean and well swept, as a well kept path shows the garden off to much better advantage. I know that a garden to look well means work, which takes up time and strength. Give it that, give it a little thought, give it a little attention, give it a little care, give it a little love, give it a little of your time, such as an hour each morning before breakfast, and an hour each evening after supper, and the result will not be little but will be large.

Rose Culture

By an Amateur

SO much has been written on this subject that one cannot expect to say anything new; the most one can hope to do is to point out the chief causes of failure on the part of beginners, to accentuate the few essentials to success, and incidentally remove the impression that to succeed with roses requires extraordinary skill and entails a vast amount of labor.

The chief causes of failure are the choice of the wrong sort of plants and improper planting. As long as people will persist in buying roses which are sold at the rate of fifteen or twenty for a dollar, so long will the percentage of failures be high. These plants suffer a three-fold shock, the shock which every growing plant suffers when it is transplanted, the additional shock which it receives in having all the soil washed off

its roots in order to lessen postal charges, and the further shock in being transferred from greenhouse temperature to that of the open ground. Only a small proportion survive this treatment, whereas if only two years old dormant budded plants are used and these properly planted, very few will fail to grow, because they are in the very best possible condition for transplanting.

The proper method of planting is to dig a hole sufficiently large to accommodate the roots, spread out in their natural manner of growth, which is horizontally. In shipping, they are usually compressed until they appear to be in a straight line with the branches, but this is not their natural form. They should be set so that the junction of the bud with the stock is from two to three inches below the level of the ground.

This prevents to a large extent the growth of suckers from the stock. If any such appear they must be at once removed, as they will otherwise very quickly crowd out the valuable rose. Fortunately these suckers are readily recognized by their lighter green color, and by their having seven leaflets on each petiole, whereas the greater part of the valuable roses have only five.

In planting, it is necessary to see that every part of the root comes in contact with the moist earth so that they should be set as firmly as a post. If the earth is very dry some water should be used when the hole is partly filled and allowed to drain off before the filling in is completed. Immediately after planting, the bush should be pruned and about two-thirds of the wood removed, leaving the plants about eight inches high. This is absolutely necessary, because in removing the plant, no matter how carefully it has been done, the most of the small fibrous roots have been broken and no growth will be made until these have formed again, and until then there is nothing to support the growth of the top. The removal of the top forces into growth the strongest buds, which are nearest the base of the plant.

After pruning, rake over the surface



The O. A. C. Rose Garden

A partial view of the Rose Garden at the Guelph Agricultural College, is here shown. Mr. Wm. Hunt, the well-known contributor to *The Canadian Horticulturist*, may be seen in the foreground.

soil to form a dust mulch, which conserves the moisture. Frequent stirring of the soil, especially after rains, will provide all the moisture necessary, except in a particularly dry season. The essentials to success are first a genuine love for the flower itself, and secondly, a suitable location for the rose bed.

Roses require and must have full sunshine for the greater part of the day; if somewhat shaded from the hot afternoon sun the blooms will remain in good condition longer than if fully exposed. If shaded from the morning sun you will have a better opportunity for seeing your roses at their best, which is when covered with dew in the early morning.



Peonies and Trio Germanica in Garden of J. R. Thompson, Hamilton, Ont.

Transplanting Garden Annuals

P. D. Powe, Cainsville, Ont.

June is by far the most important month in the year in the flower garden, for if we are to have success we must give the plants the best of attention. This is the month the plants make their growth and much of the transplanting, thinning and cultivation is done now.

Transplanting and thinning are very important matters that must not be neglected. The boxes which we have started will need our first attention. When the seeds are well up, having made their first or second pair of leaves, they are best transplanted either into their blooming quarters or into another box. Set them in the garden from six inches to two feet apart. A good plan to go by is the height plants will attain when full grown. Divide this by half, and you have the distance apart to place the plants. If it is too early to plant out take another box, fill it with good soil, and place the plants three inches apart each way in it. This gives sufficient space and you get strong plants. Plants that will not succeed when transplanted must be sown thinly out of doors. When they are well up thin them out to the right distance apart. It is cheapest for the city grower to buy plants that he cannot grow in the garden, from some florist. By so doing you get the benefit of the florist's years of training, and up-to-date facilities.

The best time to thin or set out plants is before seven in the morning and after five in the afternoon. If the work is done in the morning cover the plants

with papers so as to protect them from the sun's rays. By neglecting to do this you may lose your whole stock. Water should be given in the evening only, except in the spring when the morning is the best, as the plants will not then receive a chill, which might retard them.

THE CARE OF THE PLANTS

When the plants are well started, the surface of the bed should be frequently worked with a small hoe, cultivator or weeder, not only to keep the beds free from weeds, but also to encourage the plants to grow by keeping the soil loose and friable around them. This cannot be done too often. If done twice a week you will obtain fifty per cent. better plants and bloom.

During dry periods the plants should be given water when the sun is down. This watering should be done well. Let the water soak right into the roots. Surface water does plants more injury than good. After watering stir the soil well to prevent caking or crusting of the soil. In dry weather, when water is scarce, lawn clippings are excellent to cover the surface of the bed with. They preserve the moisture and keep down the weeds, and also enhance the beauty of the bed.

Washing day is a great day with the housewife, and also with the garden if the wash water is only used right. Nothing helps flowers as much as soapy water so long as it does not contain lye or other strong acid to eat them. The soapy water contains a large amount of ammonia, animal fat, and other fertiliz-

ers and also has power to destroy all or most of the insect pests found on the plants and in the soil. Always keep dead leaves and flowers picked off as this not only makes the plants look better but prolongs the season of bloom.

Spraying to Destroy Dandelions

Prof. J. E. Howitt

Probably no weed attracts more attention at this time of the year than the homely dandelion. Everywhere lawns are to be seen yellow with this pest. Later, when the seeds are ripe, they are still more unsightly. Spudding dandelions from the lawn is a laborious and unprofitable task. Some easier and more effective method has long been looked for. During the past three years the Department of Botany has been trying experiments in spraying with a solution of iron sulphate to kill dandelions in the lawn. The results obtained are much more promising than those secured by some experimenters in the United States, and should be of interest to the readers of *The Canadian Horticulturist*.

Only last year's results are cited, but those of the two previous years are very similar, though the data are not so exact. In last year's trials a twenty per cent. solution of iron sulphate was used. This was prepared by dissolving two pounds of iron sulphate in each gallon of water. This solution was applied with a knapsack sprayer in the form of a fine spray just after the first few dandelions in the plots came into flower. Forty-eight hours after the application of the solution, the leaves of the dandelions were found to be blackened and burned. The burned and withered leaves were raked off and the plots left for about two weeks, when the dandelions were seen to be sending up new leaves. Another spraying was then given with the same results. A careful watch was kept on the plots, and it was found necessary to spray them six times during the season in order to prevent the leaves getting a start.

This spring the plots were closely observed and the results of last year's sprayings noted. Each plot contained one hundred and sixty-eight square feet. The dandelions in these sprayed plots and in the unsprayed check plot were counted. In plot number one there were one hundred and thirty dandelions; in plot number two, one hundred and forty-one dandelions; and in plot number three, ninety-one. In the check plot (unsprayed) there were approximately eight thousand four hundred dandelions. These figures show that over ninety-eight per cent. of the dandelions in the plots were destroyed by spraying six times with a twenty per cent. solution of iron sulphate. Some of our correspondents who sprayed their lawns last year with iron

sulphate, also report success. One gentleman writes as follows: "Having followed the instructions given to use sulphate of iron and water (two pounds of iron sulphate to a gallon of water), I am pleased to say that at least seventy-five per cent. of the dandelions have disappeared, and I am now going after the other twenty-five per cent."

In our experiments here no permanent harm was done to the grass. It looked blackened and discolored just after the spraying, but in a few days was as green as ever. This spring the grass is greener and more luxuriant on the sprayed plots than on the unsprayed plot. It is, however, noticeable that the White Dutch Clover has almost entirely disappeared from the sprayed plots. This we hope to replace by reseeding this spring.

GIVE SPRAYING A TRIAL

The results warrant giving spraying with iron sulphate a trial on lawns that are badly infested with dandelions. Prepare a twenty per cent. solution of iron sulphate by dissolving two pounds of iron sulphate in each gallon of water. Apply this solution with a hand sprayer or a watering can with a very fine rose. See that all the dandelions are thoroughly drenched with the solution. Rake off the blackened leaves two or three days after spraying and in dry weather, if possible, thoroughly water the lawn. Spray frequently enough during the season to prevent the dandelion leaves getting a start. Six applications at least will be necessary. Next season, in order to fill up the spaces caused by the destruction of the dandelions, reseed with pure lawn grass seed. Prepare the lawn for reseeding by raking it over with a coarse rake so as to stir the soil. Sow the seed when the ground is moist, rake it in well and roll. There is nothing like a good thick stand of grass to keep out dandelions and other weeds.

Spraying with iron sulphate is not very expensive. The iron sulphate may be obtained retail at from two to three cents a pound, or wholesale at a cent a pound. Forty pounds of iron sulphate, costing wholesale one cent a pound, will make twenty gallons of the solution, which is enough to spray at least one-eighth of an acre, so that if a lawn this size is sprayed six times during the season the cost for material will be only two dollars and forty cents if the iron sulphate is purchased wholesale.

After the cabbage worm enters the cabbage measures, such as the use of pads, or lime, or sand sprinkled with foul-smelling and repelling substances will fail to destroy the larvae. You must then use a carbolic emulsion, made by making a regular kerosene emulsion, and adding one-half pint of crude carbolic acid to each barrel of the material.

The Use of Lime on the Farm

Prof. E. M. Straight

NOT so many years ago lime was very popular with many farmers. Nearly every farm in some sections was limed. In the same sections at present, lime is not used. The popularity of lime did not prove that lime was profitably used in every case; nor the decline in its use that lime is no longer necessary. From the number of questions the writer receives concerning the use of lime it would seem that there is a revival of interest in lime and liming.

Such questions as "Which is the better fertilizer, lime or ashes?" or "What should I apply, lime or stable manure?" would indicate that the problem is not well understood. In some cases the press has been responsible for extending error regarding lime, by making statements such as the following: "Lime is Nature's best and most universal fertilizer."

IS NOT A FERTILIZER

Strictly speaking lime is not a fertilizer at all, and is not applied for such purposes, for lime always exists in soils in sufficient quantities to meet the immediate needs of the crops. Therefore, lime has no right to be compared with fertilizers. The situation has been aptly stated thus: "The use of lime without manure will make the farm and farmer poorer."

This is not intended to discourage the use of lime. Production is often doubled on a given area by its use through chemical, physical and biological action, but not on all soils. We learn, very slowly, that what is good for our neighbor's soil may not be good for our's. Iron is an excellent remedy for some human ills, yet no physician would recommend it for every man who is sick. Why, then, should lime be the panacea for all sick soils?

Lime is used with great benefit for a number of soil conditions, but not as a fertilizer. Many soils are sour. Especially is this true of poorly drained soils. Soils become sour largely from the formation of humic acid, caused by the breaking down of humus in the soil. Peat and muck soils are usually acid, as they are composed almost entirely of plant remains in some stage of decomposition. The character of the vegetation growing on a certain soil is some indication of its degree of acidity. Abundant growth of sorrel is a good indication of a sour soil, while the most of our cultivated crops make sickly growth or refuse to grow at all on such areas.

Applications of fertilizers to such a soil, before it has been sweetened, are of no avail. To sweeten or neutralize the acid present a base is necessary. Lime is one of the cheapest, most available, and best correctors of sour soils known,

and is used for this purpose extensively.

Many of the constituents of plants, supplied in manures, are locked up in soils in the form of insoluble compounds. They constitute plant food, but plants are unable to use them. The function of lime is to unlock this food and make it available for plant growth. If plants take up this food, made available by the lime, it follows that such a soil would become constantly poorer, unless manure were supplied in sufficient quantities to meet the demands of the plant.

Heavy clay soils are improved by lime through the improved physical condition. Lime causes soil particles to flocculate, that is, to adhere to each other in minute bundles. The effect of liming such a soil is to cause it to behave afterwards as a coarse grained soil. It becomes more open, porous, less likely to bake and easy to work.

Lime favors the multiplication and activity of many forms of bacterial life, especially those that live in tubercles on roots of legumes. These bacteria are all important to the growth of the clovers, in that they have power to take up free nitrogen from the air. By favoring the growth of the bacteria through lime, we favor the growth of the clover. This effect has been noticed by many who have applied lime or ashes just before seeding with clover.

WHAT LIME DOES

Lime is applied to correct acidity; to make available plant food already in the soil; to improve physical conditions, and to favor the growth of certain soil bacteria. If soils are already right in these particulars, applications of lime cannot help them.

Lime is purchased for the farm under the names of quicklime, air-slaked lime, hydrated lime, ground limestone, and agricultural lime. All of these forms are of some use agriculturally, but the comparative value of any one form may be little or great.

If a soil is sour, quicklime or hydrated lime is the form that should be used. It being a base, acts quickly on the acid and neutralizes it. Other forms of lime cannot do this, for they are already neutral. The other effects of lime may be secured by lime in any form, if used in sufficient quantities. Quicklime plus air gives air-slaked lime; quicklime plus water gives hydrated lime, while agricultural lime may be almost anything—usually a mixture of air-slaked and water-slaked lime and sometimes a percentage of ashes.

It should be clear that if air-slaked or water-slaked lime is used, much larger quantities should be used than quicklime. It is seldom profitable for farmers to buy either air or water.



Modern Garden Tools Make Thorough Cultivation a Much More Simple Operation than Formerly

If fifty-six pounds of lime becomes water-slaked it will weigh seventy-four pounds, and if air-slaked it will weigh more. That is to say, fifty-six pounds of quicklime for agricultural purposes is worth about seventy-four pounds of water-slaked or hydrated lime; one hundred pounds of ground limestone or one hundred pounds of old air-slaked lime, if applied for other purposes than to neutralize or sweeten sour soils.

If quicklime, usually in lumps, has not been ground fine, it is better to water-slate it before trying to apply it. Enough water should be used to convert it to a dry powder and no more, for a sticky water-laden mass cannot be applied. The best time to apply lime is in the fall or early spring, at least some time should

elapse between its application and a heavy application of fertilizer.

It is impossible to say how much lime should be applied to a certain area, for much depends upon the condition in which it is found. Market gardeners are very large users of lime, and for a reason. Where lime is used every five or six years, one or two tons per acre should be sufficient on most soils. This practice is to be recommended over very heavy applications once in a lifetime.

The points to be recommended are: Many soils need lime; lime is not a fertilizer; when lime is needed it is used with much profit; fertilizers cannot improve sour soils if said fertilizers are neutral or acid.

sprinkle a quantity of air-slaked lime over them.

Land which has been heavily manured the previous year is preferable for the potato crop. Commercial fertilizers have given excellent returns with the potato, but whether or not they can be used to advantage without the addition of some manure, depends on the texture and on the amount of humus contained in the soil. If your land has been previously well manured, so that it is light and friable, fertilizers alone will be best to use. The following is a good formula for potatoes: Two hundred and fifty pounds of nitrate of soda, three hundred and fifty pounds acid phosphate, and two hundred pounds of muriate of potash per acre.

The soil should be well prepared. Have the land in thorough shape before planting. By constant discing and harrowing you pulverize the soil, thus increasing the amount of surface at the disposal of the roots. This means more food for them and hence a larger crop.

In planting, the furrows are best opened with a double mould-board plow and the seed dropped about fourteen inches apart in the furrow. They may be covered with the same implement to a depth of four or five inches, levelling off afterwards with a smoothing harrow. If the ground should harden before the sprouts show, run a weeder over it to break the crust.

As soon as the plants are a few inches high start cultivation, cultivating deep and wide at first, taking care subsequently not to injure the roots.

thod is to use formalin instead of the sublimate, one ounce of formalin to two gallons of water. This treatment of the seed, together with a judicious rotation of crops, is sufficient permanently to control this disease.

In cutting the seed, cut them to one or two eyes, leaving a large piece of tuber for the young sprouts to gain nourishment from until they are able to obtain some from the soil. If cut some time before planting,

Growing Potatoes for Profitable Results

M. B. Davis, B.S.A., Manager Sannyside Farm, Ltd., Ridgetown, N.S.

Good seed is the first essential in growing a profitable crop of potatoes. The seed for next season should be carefully selected from your own field if you have a good clean crop. Select the smoothest and most uniform tubers from heaviest yielding and healthiest plants in the field. These tubers will give you larger yields than those procured from the store at random. It pays to pay attention to this part of the potato business. In case, however, you have not been able to obtain seed which you know to be free from the potato scab, it is advisable to use preventive measures from the start. The scab is a disease infecting the tubers of the potato plant,

and a single scabby seed potato or even one which is clean but which has been in contact with a scabby one, may ruin a whole crop. The disease may perpetuate itself by remaining in the soil or it may be carried to new ground on a potato bearing the spores of the disease. It is not practical to sterilize or disinfect the soil, but it is practical and possible to do so with the tuber, and if the clean or disinfected seed is planted on new ground the disease may be controlled. To disinfect the seed, immerse them in mercuric bichloride (corrosive sublimate) for two or more hours, using one ounce of mercuric bichloride to eight gallons of water. Another effective me-

The Canadian Horticulturist
COMBINED WITH
THE CANADIAN HORTICULTURIST
AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO

The Only Magazines in Their Field in the
Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC
FRUIT GROWERS' ASSOCIATIONS
AND OF THE ONTARIO BEEKEEPERS ASSOCIATION

H. BRONSON COWAN, Managing Director

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The following is a sworn statement of the net
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We guarantee that every advertiser in this issue
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columns, and because to protect our readers we
turn away all unscrupulous advertisers. Should
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Rogues shall not ply their trade at the expense
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EDITORIAL

A SPARTAN EFFORT

The elimination of the middleman, by
selling direct from orchard to consumer,
has been the dream of the fruit growers of
Ontario for some years. Outside of a few
growers securing private customers, not
much has been done towards making the
dream come true. Last fall and winter,
however, as previously noted in these col-
umns, an attempt was made to sell direct
to the general public of Toronto by an
Elgin county man—Mr. J. A. Webster, of
Sparta. In the progress of his efforts and
results there are some lessons worth not-
ing.

With exceptional valor, like the Spar-
tans of ancient Greece, this modern Spar-
tan had the courage of his conviction that
the people of Toronto would consume large
quantities of fruit if they could buy it at a
reasonable price, and "direct from orchard
to consumer." With this in mind and with
more money for himself, as the producer,
in view, he secured storage space in the
basement of the St. Lawrence market, and
commenced to sell wholesale and retail—
and then the trouble commenced. Various
situations and differences arose between
Mr. Webster and the city officials, some of
which resulted in law suits. The city did
not permit the selling by retail in the stor-
age rooms, nor selling anywhere in the
market in quantities of less than one
bushel; it doubled Mr. Webster's rent, and
moved him from one place to another.

Mr. Webster's experiences in the St.
Lawrence market serves to show that the
Toronto City Council, which is influenced
in this matter probably by the Retail Mer-
chants' Association and by the wholesalers
and commission men, does not intend to
encourage the fruit growers to sell direct
to the people. It is altogether unreason-
able, for instance, for Toronto to charge
seventy dollars a month rent for storage
and selling space to only one grower who
wants to sell a few apples. What a trem-
endous revenue the city would acquire
should a few hundred growers undertake
the same scheme!

One local result of Mr. Webster's efforts
has been the opening of the market to
farmers and hucksters for the selling of
fruit in small packages. Although many
farmers did sell apples in the past in small
quantities, they constantly were in fear of
being fined for so doing. Some of them
were fined at times as a warning to them-
selves and others. Of course, the consum-
ers did not do this nor want this regula-
tion to stand. But there were others with
sufficient reasons and influence to demand
it. Since Mr. Webster's testing of the by-
law, one can go there on market days and
find everybody buying and selling in any
quantities desired. This may all yet be
put back into the old order by subsequent
city by-laws, should the council forget its
duty to the consuming public, and give
way to the pressure of selfish interests,
which will be sure to be applied once more
as soon as the present interest of the con-
sumers subsides.

The case of Mr. Webster brought out in-
cidentally another factor in fruit market-
ing that at first thought is rather com-
plicated. A certain large hotel in Toronto
had been buying Oakville apples at two
dollars a box through a well known com-
mission firm. Mr. Webster offered his

apples to the hotel at one dollar and a half
a box—the same price that he quoted on
the market to the general public—and got
an order. Later, when soliciting for a re-
peat order from the same hotel, he was re-
fused and told that the commission man
was then supplying the Oakville apples at
one dollar and thirty-five cents a box.
This was a deliberate under-cut on the part
of the commission man. Who lost the dif-
ference between the one dollar and thirty-
five cents and two dollars? Did Mr. Web-
ster injure the Oakville fruit grower?
Would any one or more growers with fruit
for sale in Toronto, were they to endeavor
to sell it at a reasonable price direct to
the consumer, be injuring the fruit indus-
try of the province? Would a distributing
centre in Toronto, as proposed by the
Niagara Peninsula Fruit Growers' Asso-
ciation, hurt all other growers in the Ni-
agara district who are compelled by circum-
stances to ship to commission men? If
this would happen, what is the use of all
the talk about eliminating the middleman?
In our opinion, no grower or body of
growers would be injured in the long run.
The uncertainty of the methods practiced
by some, not all, of the commission men,
and the fact that the growers would be
selling, like Mr. Webster, direct to the
people at prices more near what produc-
tion warrants, would soon counterbalance
any apparent temporary injustice.

While the Sparta grower probably has
not been over successful this year, on ac-
count of high rents, strenuous opposition,
cost of law suits and other discouraging
factors, his propaganda is worthy of fur-
ther efforts on the part of himself and
other growers. The expenses of the
scheme are too great for one man alone.
Schemes of this kind could be handled
much more economically and more profit-
ably by our fruit growers' associations.
Should it be found that they are not wanted
in the St. Lawrence market, they should,
and could, establish a fruit market of
their own.

ROADSIDE PESTS

The article in this issue of The Cana-
dian Horticulturist, by Professor F. M
Straight, serves to show the extent to
which the wild fruits may become a source
of infection in our commercial orchards.
Anyone who has carefully examined a wild
apple tree could not but be impressed by
the diversity of pests that it harbors. The
trunk not infrequently is perforated with
borers, the bark covered with scale, the
branches and leaves draped with webs, and
the fruit a veritable happy hunting ground
for codling worm.

The destruction of these breeding
grounds of orchard pests is a phase of or-
charding that has not received the atten-
tion that it merits. There are two main
reasons why these outside sources of in-
fection have been somewhat neglected.
First, the extent to which they menace
the orchard has not been fully realized;
second, their destruction has often been
matter outside the orchardists' control. In
respect to the former, fruit growers are
more and more coming to realize the ex-
tent of such infection and the need for
immediate action. In the latter case we
meet with a difficulty not easily removed.

No matter how much he may wish to
destroy wild trees on the property of a care-
less neighbor. Perhaps this neighbor has
a small orchard that is never sprayed and
is really growing under wild conditions.
Here is where the law must step in, as it

does in some districts, and protect the progressive fruit grower.

In several provinces of Canada the provincial governments have enacted laws that more or less cover the difficulty. British Columbia has a law that makes spraying compulsory. The Nova Scotia Government is helping the fruit growers fight the brown tail moth. Inspectors are sent out to destroy the nests and bounties are offered for the same purpose. In Ontario the municipalities may appoint local fruit inspectors, and provision has been made for the appointment of provincial inspectors as well.

The fruit growers of Canada require a system of inspection that will be thorough. They believe that a well organized corps of inspectors is needed and that their appointment should rest with the provincial governments. By avoiding the appointment of local men in a district a more impartial inspection is secured. Moreover, fruit growers believe that the inspectors should have authority to compel the destruction of wild fruit trees and similar nuisances where these are a source of infection. In addition, a law making spraying compulsory in the leading fruit districts is required.

These provisions would fill a long felt want. The Ontario Fruit Growers' Association has placed itself on record as favoring thorough provincial inspection of orchards. The destruction of roadside pests should not be overlooked.

Reports received by The Canadian Horticulturist show that Mother's Day was more generally observed this year than ever before. In many towns and cities, difficulty seems to have been experienced by the public in obtaining flowers, the florists in many instances having been sold out by noon. It is evident that the day is making a well-deserved place for itself in the national observances of the country. As there is always likely to be a shortage in the supply of cut flowers at a time when there is such an unusual demand the use of pot flowers on Mother's Day should be encouraged. This is quite in harmony with the general idea of the day which for a long period in the Mother Land was observed by the giving of any form of present.

A glance at the reports published on this page of the work being done by various horticultural societies in Ontario will serve to show that greater interest is being taken this year in the work of a number of the prominent societies than ever before. The St. Catharines society has long been noted as one of the best managed and most successful in the province. It is encouraging, therefore, to see that the St. Thomas society is beginning to challenge its pre-eminence, and that it has already passed it in point of membership. The indications are that the membership this year of the horticultural societies of Ontario as a whole will be considerably the largest on record. Their value to Ontario will be increased in proportion.

Every year reports are received of fruit growers who have been swindled by enterprising agents of practically unknown nursery concerns. In the Niagara District, where these games have been worked time and again, one would expect that the growers by now would be wise enough, before ordering nursery stock, to investigate thoroughly, where necessary, the standing of the firms with which they proposed to

do business. The fact that a large number of growers in the Niagara District have recently been caught napping by a United States concern indicates that we still have many growers who are not as careful on these points as they should be.

PUBLISHER'S DESK

Our frontispiece illustration this month shows a package of British Columbia strawberries ready for market. Last month our cover illustration showed May blossoms in a Nova Scotia orchard. The Canadian Horticulturist circulates freely in both districts. Could anything better illustrate its national character?

Last month we announced that at the solicitation of The Ontario Beekeepers' Association, we had undertaken to publish a second edition of The Canadian Horticulturist which would be known as The Canadian Horticulturist and Beekeeper and which would contain some five pages of matter of special interest to beekeepers. The first issue appears to have been received with general satisfaction by the beekeepers. This month's issue of The Beekeeper will be even better. During May we purchased The Canadian Bee Journal, published at Brantford, Ontario, which for over twenty-one years has been the recognized exponent in Canada of the beekeeping interests. The circulation of The Canadian Bee Journal has been merged in that of The Beekeeper. It is our intention that The Beekeeper shall continue to fill the place in the beekeeping interests of Canada that has always been held by The Canadian Bee Journal. As the subscription price of The Canadian Horticulturist and Beekeeper is \$1.00 a year readers of The Canadian Horticulturist who desire to have their subscriptions changed so that they may receive instead The Canadian Horticulturist and Beekeeper will be expected to remit the difference in the price of the two publications. Sample copies of The Beekeeper will be sent free on request to those applying for them.

This month's issue of The Canadian Horticulturist is being mailed to the largest number of paid subscribers we have ever had. We are also printing the largest number of copies that have ever been run off the press for any one issue. Last year the average paid circulation of The Canadian Horticulturist for the year was eleven thousand and fifty-seven. The June issue a year ago had ten thousand nine hundred and forty-six paid subscribers. This year the paid circulation of The Canadian Horticulturist with its second edition, The Canadian Horticulturist and Beekeeper, is twelve thousand six hundred and eighty-four. The number of copies of the two editions that have been printed is fifteen thousand one hundred. As new subscriptions are coming to hand rapidly from all parts of Canada for both editions we expect to soon be able to announce the establishment of still higher records. We know that the readers of The Canadian Horticulturist like to hear of the progress we are making and it therefore gives us pleasure to be able to report such facts.

Never before has The Canadian Horticulturist given its advertisers such good service as at present. This is due in part to the natural but decided increase that

has taken place in the circulation of The Canadian Horticulturist, in part to the extra increase in circulation that has been brought about by the launching of its second edition known as The Beekeeper and in part to the improvement that has been effected during the past couple of years in the editorial standard of the articles published. For these reasons, as well as for the fact that these improvements have materially increased the cost of publication, it has been decided to advance the advertising rates of The Canadian Horticulturist, including The Beekeeper, on and after August 1st next, to ten cents a line, or one dollar forty cents an inch. This is a flat rate, and will apply to all contracts. Advertisers who desire to do so may contract for space for one year only in advance from the thirty-first of July next at our present low rate of only nine cents a line, or one dollar twenty-five cents an inch. Those advertisers who take advantage of this offer will be assured of receiving great value in the service we will give them, as they will reap the full benefit of the rapid increase that is taking place in the circulation of The Canadian Horticulturist with its second edition The Beekeeper.

Lack of space prevents our outlining in this issue the special articles that will be a feature of the July number of The Canadian Horticulturist. Our readers are assured, however, that they will be unusually interesting. The illustrations also will be high-class.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

St. Thomas

The St. Thomas Horticultural Society does not believe in "letting the grass grow under its feet." Last year it had a membership of some three hundred. This year it is aiming at one thousand. Already over seven hundred have been obtained.

This spring it has carried on a whirlwind campaign in the interests of home gardening and city beautifying. The prizes offered are generous and cover fourteen classes, such as home vegetable and flower gardens, lawns, school gardens, and factory premises. Dr. F. E. Bennett, the president, is inspiring everybody with his enthusiasm. It is expected the final membership will well exceed the thousand aimed at, which will make the society considerably the largest in the province.

Ottawa Flower Guild

The work of the Ottawa Children's Flower Guild is coming in for much favorable comment. Besides having their minds instilled with the beauties of nature and the need of pleasant home surroundings, the children are impressed with the value of good citizenship and of taking a pride in their country. For this purpose, the children are taken to visit the Houses of Parliament, the conservatories, the parks, and the Museum. Such a society is worthy of all encouragement.

Mr. R. B. Whyte, the president, is as
(Continued on page 166)

Cooperation in Nova Scotia on a Large Scale

The cooperative handling of the fruit crop is probably further developed in the province of Nova Scotia than in any other province in Canada.

Probably two-thirds of this year's crop will be handled through the local associations and their central organization. The cooperative movement has been making wonderful strides in the fruit growing section of Nova Scotia during the past few years. The fruit growers of the Annapolis Valley can produce prime fruit and believe that they should receive their fair share of the price. The result has been the development of the cooperative movement.

Until a few years ago the entire export crop was handled by European commission houses, who had local agents throughout the Valley. The commission charges incidental to this system are exceedingly large; the total charges for freight, commission, insurance, etc., amounting to as high as one dollar and fifty cents to one dollar sixty cents a barrel. In some cases when the shippers received their sales account they found that their fruit had sold for less than the commission men's charges and were called upon to make up the difference.

The fruit growers naturally chafed under these conditions, and as early as 1902 an attempt was made to form some kind of a cooperative society. The first successful attempt, however, did not materialize until five years later. The growers in the neighborhood of Berwick organized under the name of the Berwick Fruit Company, with an authorized capital of ten thousand.

The company built a large warehouse, to which the fruit of the different members was brought and packed by experts. This assured a uniform pack and naturally a higher price was obtained. The first year the company handled nearly two thousand barrels of apples. The next year this number was doubled and the third year it was trebled—ample evidence of the success of the movement.

MOVEMENT SPREADS

As a result of the success that attended the formation of this first company, other companies were formed until now the number is about thirty. The members agree to pool their apples and receive the average price according to grade and variety. Thus the better a member's fruit is, the larger will be the proportion of No. 1 pack and the better will be the price. The Provincial Government passed an act especially designed for the formation of such societies.

The growers realized, however, that they were not getting the maximum results that the cooperative system could offer. If the various separate companies were centralized they could do still better. Delegates from the different companies got together and decided to give the centralization idea a year's trial. This was in 1911.

The different companies did not bind themselves by any set rules. The central organization would make sales for the different companies and also buy supplies for them. Messrs. S. C. Parker, John Donaldson, and J. N. Chute were chosen from among the delegates to act as an executive. S. B. Chute, one of the well-known fruit growers of the Annapolis Valley, was employed as general manager.

A small percentage was charged on all apples shipped through the central organization. Each of the companies that entered the organization, over twenty in

number, paid a fee of five dollars. Nor did the payment of this fee compel the companies to sell their fruit through the central. They could still act as free agents.

That year the Central sold over one hundred thousand barrels for the companies. An agent was sent through the west, and over ten thousand barrels of Gravensteins were sold. This was really the advent of Nova Scotia fruit on the western market. Last year eighty-five thousand barrels went to the same market.

In 1911, Nova Scotia produced the largest crop of apples in its history. The steamship lines were unable to handle the unusually large export traffic. Right here is where the association proved its worth. Additional steamers were chartered and the congestion was relieved.

ON A PERMANENT BASIS

The success attending this trial of a Central Association was so pronounced that steps were at once taken to make it permanent. Last year the company was incorporated with an authorized capital of fifty thousand dollars, nearly all of which is subscribed. At the time of organization twenty-two companies became affiliated in the Central Association, which was termed The United Fruit Companies of Nova Scotia, Limited. Each company subscribed twenty per cent. of its capital stock. Since then, several more companies have come in, making the number about thirty.

All companies agree to give the Central complete control of their fruit. Returns are pooled, the same as was formerly done in the small companies. The Central now controls over thirty warehouses, with a storage capacity of over four hundred thousand barrels.

The company does not confine its attention merely to the shipping of apples. Large supplies of fertilizer, barrels, pulp heads, nails, etc., are bought and distributed among the 1,500 members. This cooperative buying was conducted by many of the small companies, but the Central now buys for all and so gets rockbottom prices. On account of the large amount of business handled, insurance is procured at most favorable rates. Several evaporators have been erected for the utilization of the culls.

NEW MARKETS DEVELOPED

The association is developing broader markets. A European agent has been appointed and the merits of Nova Scotia fruit are being made known to the European consumer. The South African market is being developed also. The association is kept in touch with the market conditions throughout the world, and complete statistics are always kept on hand.

The purpose of the association is not confined alone to the immediate requirements of the apple industry. It is aiming high. The operating of refrigerator cars, the manufacturer of barrels and boxes, and the purchasing of all the commodities required by the members are among the developments that it has in view.

A land and apple show will be conducted in the new auditorium of the Winnipeg Industrial Bureau October 10th to 18th. The show will be an all Canadian one. In addition to liberal cash prizes, diplomas will be awarded for the finest general display of grains and fruits exhibited by provincial governments, fruit growers' associations, and other organizations.

Better Service Needed

That the establishing of icing plants and a more regular freight service are the two outstanding needs of fruit shippers, was the opinion expressed by Manager Robert Thompson in presenting his annual report at the annual meeting of the St. Catharines Cold Storage and Forwarding Company. Mr. Thompson emphasized the fact that the company had suffered a serious handicap owing to irregular service and slow delivery of cars at destination points. In reference to the icing of cars, Mr. Thompson said that more extensive icing facilities were needed. If the railway would establish an icing plant the company would guarantee to take a supply.

Mr. Baxter, district agent of the G.T.R., stated that the G.T.R. was considering the feasibility of operating an icehouse in the district. The car service Mr. Baxter pointed out, had been bad all over the country in 1912, and the congestion in the larger centres had been unusual. This year the G.T.R. expected to have their main line through all the important points in the west.

Mr. Dawson, a Toronto commission agent, remarked that the unusually large number of delays last year was due to the extensive alterations being made on the main line outside of the city. The greater proportion of delays was between Bathurst Street, in Toronto, and the Market. He was of the opinion that the Canadian roads would have to run their trains on faster schedules as some of the United States lines were now doing.

Marking Imported Fruit

Hon. Martin Burrell, Dominion Minister of Agriculture, has given notice of an amendment to the Inspection of Sales Act of 1906 to provide that the Governor-in-Council may prescribe the kinds of imported fruit, the packages containing which must be branded or marked, the marks to be used thereon and the manner and places in and at which such fruit is to be inspected and such packages branded and marked.

All packages of fruit not branded or marked in accordance with such regulations are to be forfeited. Persons violating any regulation will be liable to a fine of not more than fifty dollars and costs.

St. Catharines Cold Storage Co.

At the recent annual meeting of the St. Catharines Cold Storage and Forwarding Co., Limited, the leading commercial fruit growers' organization in Ontario, the financial condition of the company was shown to be excellent. Assets exceeded liabilities by \$7,642. After allowing a refund of \$2,903 in supplies, profit and loss showed a balance of \$1,424. The statement of fruit sold totalled to \$66,645. Supplies bought amounted to \$60,645. Compared with the year of 1905, when fruit sold was \$716 and supplies \$9,849, the success of the company may be realized.

The members were urged by Mr. Robert Thompson, the manager, to stand by the company. They could not expect to buy supplies from other sources early in the year and then expect to be helped out by the company in time of shortage. Loyalty must be the watchword and would assure continued growth.

The Board of Directors was elected as follows: G. A. Robertson, A. Onslow, R. Thompson, G. X. Walker, J. H. Broadrick. Advisory Board: C. Scord, W. H. Scord, A. Gregory, J. E. Parnell, J. A. Pay.

Failure of National Land, Fruit and Packing Co.

As previously announced in these columns, the National Land, Fruit and Packing Company, Limited, Toronto, recently went into liquidation. This company was formed for the purpose of operating a large number of orchards that it leased and bought throughout Ontario. Business was done on a large scale. Until a month ago it was thought there were some chances for the reorganizing of the company, but it is now evident that this could not be accomplished.

On April 21 the Court ordered that all scattered assets be sold. These included forty power sprayers, several car loads of fertilizers, spraying material, orchard supplies, and packing outfits. E. R. C. Clarkson, as liquidator, appointed R. A. Carey, of Hamilton, to auction these properties off in the towns in which they were located.

The published report of Mr. Clarkson looks rather encouraging, but when it is considered that the one hundred and thirty-five thousand dollars owing by the Agency Land and Security Co. is practically valueless, the creditors will receive a rather small part of their claims. Wages, salary and preferred claims will take nearly all the surplus.

Where did the money go? Two hundred thousand dollars went into improvement of Ontario orchards. The fact that the company was operated in two of the worst apple seasons in many years is accountable in part for the failure of Mr. Evans, the promoter's big concern. Also, Mr. Evans, who had little experience in apple growing and marketing, undertook the commercial management of the company. The huge evaporator, too, at Mimico, is

poorly situated. Fruit in the neighborhood is carted into town at good prices and the evaporator stock must be freighted from outside points. All the real estate is mortgaged to the limit.

The scattered assets auctioned by Mr. Carey will no more than cover liquidating and legal expenses. We append a condensed statement of the assets and liabilities:

LIABILITIES

Direct (accounts over \$1,000)—	
Simons Fruit Co., Toronto, Ont.	\$15,000 00
Grasselli Chemical Co., Limited, Toronto, Ont.	7,436 23
Trenton Cooperate Mills, Trenton, Ont.	5,268 40
H. H. Angus, Toronto, Ont.	4,900 00
J. E. Anderson, Concession, Ont.	3,150 77
J. W. Emmerson, Attercliffe Stn., Ont.	2,740 65
Baker Advertising Co., Toronto, Ont.	2,599 48
F. W. Brown, Winona, Ont.	1,871 90
O. W. Mueller, Waterloo, Ont.	1,133 75
Canadian Fire Engine Co., Toronto, Ont.	1,013 89
Other accounts total	19,489 49
Reserve for contingencies	5,000 00
	<hr/>
Preferred claims	\$69,610 96
	4,532 74
Unsettled—	
Claims for orchard rents, 1911	\$12,713 00
Claims for orchard rents, 1912	68,288 53
Lessors' claims for tilling	1,015 00
Lessors' claims for board	506 94
Lessors' claims for teaming	497 89
Wages	7,504 36
	<hr/>
	\$90,525 19
Real Estate—	
In Township of Etobicoke	\$6,500 00
Subject to 1st mortgage to J. A. Manning, Toronto	4,000 00
	<hr/>
	\$2,500 00
In Township of Etobicoke	\$6,400 00
Subject to 1st mortgage to W. E. McKissock	4,700 00
	<hr/>
	1,700 00

Douglas Gardens

Oakville, Ontario

Bedding Plants

CHINA ASTERS: Queen of Market, White; Queen of Market, Pink; Lavender Gem; Royal Purple; Late Upright, White; Orego, Pink. Grown in pots in fine form. Price: 10 for 25 cts.; 100 for \$1.25; if not less than 25 of one sort, carriage prepaid.

ANTIRRHINUM (Snapdragon) and Scabiosa. Prices: 10 cts. each; 10 for 60 cts.

SALVIA (Bonfire), each 10 cts.; 10 for 75 cts.

GERANIUMS. from 10 to 12 cts. each.

DAHLIAS: Choice sorts and fine plants. Each, 15 cts.; 10 for \$1.25.

GLADIOLI: Light colored, unnamed, 25 for 75 cts. Red and Scarlet, unnamed, 25 for 60 cts.

☞ Above prices include carriage prepaid.

JOHN CAVERS

Surplus Stock

We offer subject to sale the following stock, which we guarantee to be true to name, No. 1. stock in every respect, 5-7 ft. high. Price F.O.B. Pointe Claire, \$27 per 100.

- 200 Alexander
- 200 Baldwin
- 200 Baxter
- 500 Ben Davis
- 500 Duchess
- 500 Fameuse
- 600 Starke
- 600 Spy
- 500 Wealthy
- 200 Yellow Transparent

Also complete list of Ornamental Shrubs and Trees of all kinds.

The CANADIAN NURSERY CO., Ltd.
10 PHILLIPS PLACE - MONTREAL, P. Q.

Greenhouse Glass

We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
Baby Lane	Market St.	Market St.	Power St.

Pilkington Bros., Limited
Works at St. Helena, Eng.

The Call of the North

DO you know of the many advantages that New Ontario, with its millions of fertile acres, offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

H. A. MACDONELL

Director of Colonization
Parliament Bldgs., TORONTO, Ont.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

Land and buildings valued by Harton
Walker at \$79,300 66,400 00
\$70,600 00
Plant, as valued by H. H. Angus 31,750 00
\$102,350 00

Subject to Mechanics' Liens—
Ontario Wind Engine &
Pump Co. \$810 00
Heather & Sons 152 00
Mortgage dated December 7th,
1911, in favor of Union Life
Insurance Co., 7% interest. 66,000 00
\$65,962 00
\$36,368 60

Lots aggregating 145 acres and distributed through the Townships of Grantham, Sydenham and Esqueving \$18,500 00
Subject to mortgages \$19,290 12
Subject to mortgage dated November 1st, 1912, to Imperial Trust Co. for \$75,000 on which advanced \$21,000 00
Equity carried to Assets \$15,368 60

Leases—
608 Orchard Leases, covering approximately 3,250 acres, containing 115,476 trees, valued on company's books at \$864,000.00, being the amount of Capital Stock issued therefor.
Realizable value of leases is entirely problematical

ASSETS
As per Inventory
Merchandise \$19,228 95
Supplies 7,250 05
\$26,479 00

Real Estate and Plant—as per Schedule—
Equity 15,368 60

Leases—
Stock issued therefor, \$864,000. Value problematical.
District Supplies—as per Schedule
In hands of Agents 8,456 25
National Fertilizers—as per Schedule.
Upaid 5,680 10
Outstanding accounts \$2,116 37
Imperial Loan Co. 4,400 00
National Credit Clearing Co. ... 4,170 53
G. Millichamp 3,000 00

A. H. Patterson 20 00
15,706 60
Debiture of Agency Land & Security
Co 135,602 72
Cash—in Bank, December 31st, 1912 1,076 52
Total \$200,389 20

Bulletins and Circulars

The seventh annual report of the Horticultural Societies of Ontario for the year 1912 and the eighth annual report of the Ontario Vegetable Growers' Association for the same year have been received by The Canadian Horticulturist. Both these publications are published by the Ontario Department of Agriculture, and give a good resume of the work carried on by these organizations during the past year.

Other publications received from the same Department include, Bulletin 211, on Fruits Recommended for Planting in Various Parts of Ontario; Bulletin, 210, Strawberry Culture and the Red Raspberry, by F. M. Clement, B.S.A.; Bulletin 212, An Orchard Survey of Dundas, Stormont and Glengarry Counties, by F. S. Reeves, B.S.A. This last should be of special interest to persons interested in horticulture in those counties.

The Horticulturist is also in receipt of the following bulletins and circulars: Circular No. 9 of the Utah Agricultural College, Pruning the Apple Orchard. This is an attractive bulletin and deals with pruning in all its phases. Bulletin 248, of the Ohio Agricultural Experiment Station, Spraying Machinery Accessories, treats the subject thoroughly. Bulletin No. 169 of the Vermont Agricultural Experiment Station, Cultural Studies on Montreal Market Muskmelon (an extract from this bulletin is published elsewhere in this issue). Bulletin No. 6, Ontario Department of

A Season Saved Is One Year Gained

We still have a stock of most lines of fruits which we offer at attractive prices.

These trees have been dug and carefully heeled in readiness for immediate lifting and speedy packing.

Do not leave the orchard land empty. This summer's growth will bring the orchard one year nearer harvest, and double the value of the land.

THE AUBURN NURSERIES, Ltd.

Head Office: 95 King St. E., TORONTO

Nurseries: QUEENSTON, SIMCOE, OAKVILLE

To Our Advertisers

On and after August 1st, 1913, the rate of advertising in The Canadian Horticulturist will be advanced to \$1.40 per inch flat.

Special Offer

New or renewal contracts calling for a specified amount of space to be used within one year ending July 31st, 1914, will be accepted up to August 1st, at our present rate of \$1.25 per inch flat.

Special September Number

Our great Exhibition and Fall Packing Number is now being prepared. Special value will be offered you in its many special features. Reserve Space Now rate \$37.50 per page before August 1st, and proportionate. After August 1st, \$42.00 per page.



Buy Consolidated Greenhouse Glass

Don't place your order for green-house glass until you have had us quote you prices.

We stand behind every sheet of Consolidated green-house glass to be of better quality, more even cut, and minus the imperfections common to European green-house glass. You can rely upon it absolutely, and what is of equal importance to you, we make prompt shipments for import.

We guarantee to deliver all orders one month from the date of receipt, but the average order is delivered in from two to three weeks.

Consolidated Green-house Glass is shipped in boxes containing 100 feet in standard Green-house sizes.

As we said before, don't order Green-house Glass until you get quotations from us. Write for prices now. Tell us your needs, and we will answer at once with a quotation.

You can rely upon us for prompt service and absolute satisfaction in every detail of the transaction.

The Consolidated Plate Glass Co.
Of Canada, Limited

Phone Col. 8000
Private Branch Exchange
connecting all Departments

241 Spadina Ave.
TORONTO



LET A DAVEY TREE EXPERT EXAMINE YOUR TREES NOW

Weak crotches in trees are the ones that split apart in the storms. Dead limbs are the ones that fall—a menace to life and property. Trees with cavities are the ones that the winds blow over. A fallen tree cannot be replaced in your lifetime.

THE LOSS OF TREES IS THE PRICE OF NEGLIGENCE

You may think that your trees are sound—but do not trust to guesswork—learn the truth through a Davey Tree Expert without cost or obligation. If your trees need no treatment you want to know it—if they do need treatment you ought to know it. Let a Davey Tree Expert examine your trees now.

WRITE FOR BOOKLET

Accredited Representatives available Everywhere. Men without credentials are impostors.

The Canadian Davey Tree Expert Co.
707 New Birks Bldg., Montreal, Canada

Education, Agricultural Education. Special Bulletin 59, Michigan Agricultural College Experiment Station, Small Fruit Culture. Circular 467-2-13, Maine Agricultural Experiment Station, The Potato Flea Beetle. Bulletin No. 166, Vermont Agricultural Experiment Station, Commercial Fertilizers, a splendid bulletin. Bulletin 162 of the same station, Plant Diseases and Potato Spraying Experiments in 1911. Extension Bulletin No. 35, Extension Division University Farm, St. Paul, Minn., on Potato Diseases. Circular No. 8, Utah Agricultural College Experiment Station, Varieties of Fruit Recommended for Planting in Utah.

Bulletin No. 213, Bee Diseases in Ontario, by Morley Pettit, Provincial Apiarist, (uelph, Ont., deals in a thorough and interesting manner with bee diseases. It should be in the hands of every beekeeper. It can be obtained free on application to the Ontario Department of Agriculture, Toronto.

Express Rates Reduced

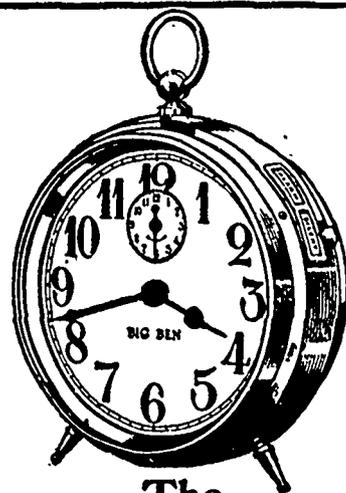
An order has been issued by the Dominion Board of Railway Commissioners, reducing express rates between points west of Sudbury, Ont., in accordance with an analysis of the cost of transport. It is said the reduction in rates will mean to the Dominion Express Company 35.36 per cent. of its net revenues.

The order of the Board (No. 104) dated May 8th, says:

“It is ordered:—

“(1) That the express companies under the jurisdiction of the Board be, and they are hereby required to submit new standard tariffs, of maximum mileage rates to be charged for express freight classified as merchandise between points west of and including Sudbury, Ontario, making a reduction of approximately twenty (20) per cent. from the maximum mileage rates in excess of fifty cents per hundred pounds now being charged; the said reduced maximum rates to carry with them the appropriate tolls of the ‘graduate’ tables, scales ‘K’ and ‘N’ and the special tariff for single shipments of 500 pounds or over.

“(2) That the said maximum rates, so reduced for the mileage group from nine hundred to one thousand miles, do not exceed four dollars (\$4) a hundred pounds in the sections between Sudbury, Ont., Sault Ste. Marie, Ont., and Crow’s Nest, Canmore, and Thornton, Alberta, and four dollars and seventy-five cents (\$4.75) a hundred pounds in the section west thereof in place of five dollars and six dollars respectively, as now charged.”



The Biggest Thing in the Clock Business

Big Ben is the biggest thing today in the alarm clock business.

He is only two years and a half old, but he’s already getting more work from the Dominion than any clock alive.

In two years and a half time, 6,000 Canadian dealers have adopted him. Nearly half of the families in Canada leave it to him to call them up in the morning; nearly half the families in Canada use him all day long to tell the right time by. He is really two good clocks in one—a crackerjack of a time-keeper and a crackerjack of an alarm.

Big Ben stands seven inches tall. He is triple nickel-plated and wears an inner vest of steel that insures him for life. His big, bold figures and hands are easy to read in the dim morning light. His large, comfortable keys almost wind themselves. He rings five minutes steadily or ten intermittently. If he is oiled every other year, there is no telling how long he will last.

Big Ben’s price is \$3.00 anywhere in Canada. If you cannot find him at your dealer’s, a money order sent to *Wentz, La Salle, Illinois*, will bring him to you, carefully packed and duty charges paid.

BIG BEN

GARDEN LIBRARY FREE
Full details given on Outside Back Cover

BRIGHTEN UP

your home with the wonderful White Flame Burner. Makes your old lamps and lanterns give a brilliant soft white light better than electricity or gas. Saves eyesight and makes reading or sewing a pleasure. No mess to break. Reliable and economical. Satisfaction guaranteed. Delights every user. Complete Sample Mailed to any address for 25 cts. or 3 for \$1.00. Money back if not satisfactory. Mail orders promptly filled.



BRIGHT LIGHT CO., Merrickville, Ont.



Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine

Send for
Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS
88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



The Prairie Market for Fruit

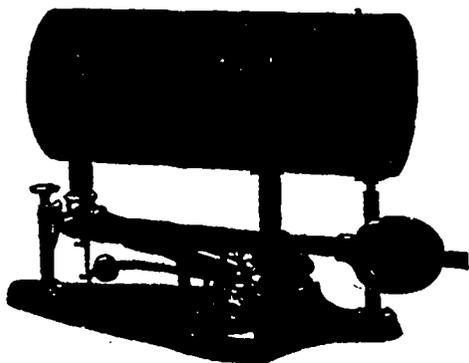
Fruit growers in Ontario, British Columbia and Nova Scotia are all alike interested in the capacity of the market in Western Canada for apples, and from time to time estimates of varying degrees of accuracy have been made of the total quantity received annually by the provinces of Manitoba, Saskatchewan and Alberta. Last summer the Dominion fruit inspectors assigned to these three provinces were instructed to take notes as to the quantity of apples shipped into their several districts, and make a report to this office at the end of the season. These reports have been compiled with the following results: The total quantity of apples marketed in these provinces for the season of 1912 was approximately 495,000 barrels, of which Ontario supplied 238,000, British Columbia 75,000, Nova Scotia 18,000 and the United States 164,000.

In addition to the prairie provinces there is a large and growing market in New Ontario which will afford an outlet for increasing quantities of Ontario apples. If we consider the present population of Fort William, Port Arthur, Sault Ste. Marie, North Bay, Sudbury, the Cobalt district, and similar sections, we shall find that 60,000 barrels is a conservative estimate for the quantity of apples marketed in this section during the past season. The proportion of the above total supplied by the United States would probably not exceed ten per cent.

Montreal

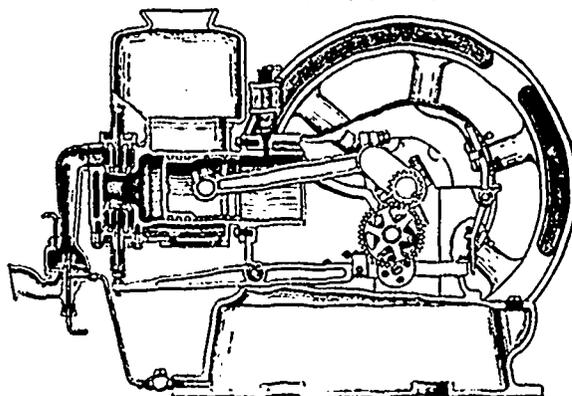
E. H. Wartman, D. F. I.

It has been my privilege for many years to inspect apples from various packages, harvested from one to twelve months, and to note their condition. During early May, while examining Golden Russets, Spy, Ben Davis, Gano and other varieties I found all the way from ten per cent. to fifty per cent. in number one barrels of these varieties in a rotten condition. I asked myself the question, Should these apples be so wasteful at this date, and what could be the cause? Upon taking up specimens after specimens of these varieties I could see, without the aid of a glass, that every rotten specimen had had an injury of some kind when placed in the barrel or box. These injuries caused probably all the trouble. They were due either to a puncture caused by handling, to a diseased spot or to an insect mark. These specimens were put in, some seen and others not seen, and I have put it to the credit of a little oversight or carelessness on the part of the manipulator.



CANADIAN REPRESENTATIVES:—George W. Cole, Woodstock, Ont.; Robert S. Bickle, Winnipeg, Man.; H. E. Kirkham, Montreal, Que.; Robert Hamilton, Vancouver, B. C.

11 to 20 H.P. Stationary or Portable



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It has fewer parts than any other high-class Engine on the market, yet no other Engine is so reliable and efficient under the various conditions met with in actual work.

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The Cylinder, Cylinder Head and Water Jacket are cast solid—no gaskets or packed joints to give trouble.

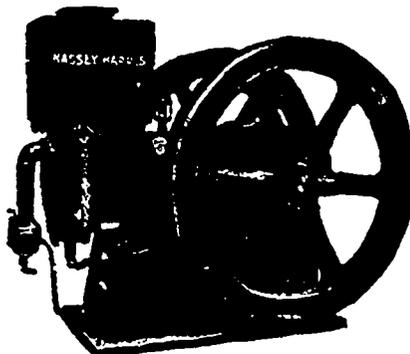
The Water Jacket extends around the Cylinder Head and Valves, and the Valves are extra large—no danger of overheating.

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100 Plants 50c. - 1000 Plants \$4.50

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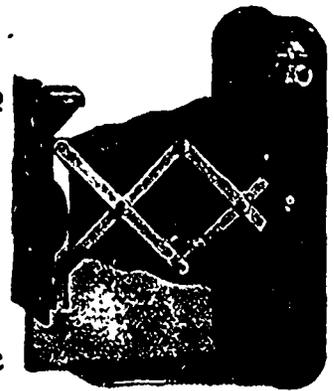
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Also other sizes up to 10 inches.

Send us a list of the lengths you need and we will give you a special low price on the lot, cut and threaded, ready to put together. We also have enormous quantities of Wire Fencing, Belting, Pulleys, Cable Rails, New Roofing, Saws, Vices, Forges, Etc., at 25 per cent to 75 per cent less than regular value.

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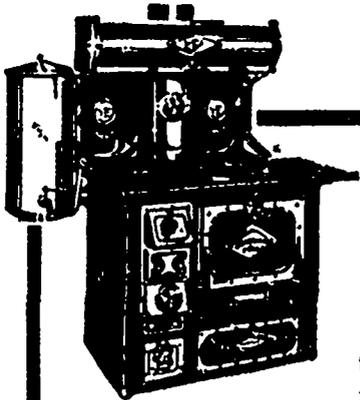
E. GRAINGER & CO.
1360 Yonge St. - Toronto

Fruit Prospects in Ontario

The report of the Ontario Bureau of Industries on fruit prospects in the province is as follows:

In the first week of May orchards gave promise of an immense yield. The trees were covered with fruit buds—many in full bloom—and small fruits were also blossoming profusely. Between May 7 and 11, however, a series of severe night frosts occurred, the effects of which are variously described. A careful sifting of the reports shows that early strawberries were badly nipped, but that the later varieties escaped. Some bush fruits, such as currants, were also caught in some of the more advanced sections. In the fruit lands along the lake shores—more especially in the Niagara District—fruit trees sustained comparatively little harm from the frosts, but some of the orchards farther inland were injured to some extent.

If the orchard trees, apples have suffered the least and plums and cherries the most, but in no case as seriously as was at first expected. To sum up, the injury from the severe frosts of May has turned out to be much less general than was feared at the time of the frosts, and a good yield of all classes of fruit may still be had should favorable conditions prevail.



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At the Factory Price

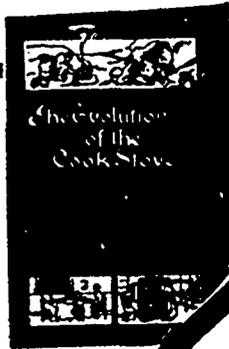
Buying at the factory will land this range at your station freight prepaid for \$20.00 less than the next best stove on the market. You pocket the dealer's profit—about 30 per cent.—get a beautiful steel and malleable iron range built to last a lifetime. And what's more you save money every month on your fuel bill.

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is the result of years of fence building. It is built to last—to retain its beauty and grace for years to come and should not be confused with the cheap, shoddy fencing offered by catalog houses. Peerless fence is built of strong, stiff wire which will not sag and the heavy galvanizing plus the heavy zinc enamel is the best possible assurance against rust.

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Try This Over on Your Piano or Organ

SOLO or DUET

Some-bo-dy lov'd me long a-go, Some-bo-dy cared for me.
Some-bo-dy lov'd me long a-go, Some-bo-dy died for me.

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LIFE SONG SERIES—ALL CANADIAN

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Simple, sacred solos with Quartette, Chorus and Pleasing Piano Arrangements

I know He knows when I am sad and
I know He knows though I may fall to
I know He knows that I am weak and
I know He knows when I have tried and

These songs composed by a Canadian, Mr. Gordon V. Thompson, of Toronto, are printed on splendid paper, regular sheet music size and just like the sheet music for which you pay 60c.

Thousands of these popular sacred songs have been sold throughout Canada. A friend who has had several years experience as choir soloist says of these:

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Sent postpaid to every reader of The Canadian Horticulturist who will spend a few minutes answering the questions asked on the Coupon on this page.

We ask for your cooperation in this matter in order that we may make The Canadian Horticulturist of greater service to you. The information you furnish will be treated as confidential.

Statistics compiled from the answers of every Canadian Horticulturist reader would be of great value to you and to us.

Our advertising patrons often seek information regarding the class of readers subscribing for The Canadian Horticulturist, in order that they may make their advertising more suitable for our readers. By answering these questions you will help us to supply these statistics.

The aim of The Canadian Horticulturist is to be of greater use to our readers, to help them to get the most for their money.

We do this through our Absolute Guarantee that every advertiser is reliable.

Some of these questions may seem personal, but they are asked in good faith. Your replies will be strictly confidential and will not be used in any way to embarrass you. Your name will not be mentioned.

A FEW MINUTES' WORK GETS YOU A SONG FREE. THERE ARE NO CHANCES TO TAKE.

Send in the Coupon by first mail, and your choice of song will be mailed to you promptly absolutely free in return for your kindness in getting us the information asked for.

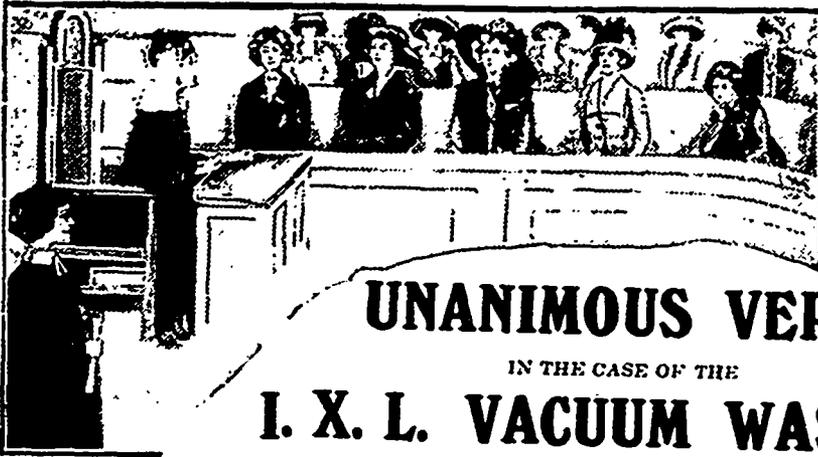
There are no exceptions and no rules to comply with. All you are asked to do to get one of these beautiful, inspiring sacred songs, is to answer the questions as fairly as you can and send the coupon to The Canadian Horticulturist.

Send the Coupon to-night. Answers must be received by June 25th.

COUPON

Clip Out—Fill In—and Mail To-day

- How many persons on an average read your copy of The Canadian Horticulturist?
- Do the women read The Canadian Horticulturist?
- What other weekly or monthly publications do you read? (Important)
- What is the value of the property you occupy?
- Do you own or rent your place?
- What is your occupation?
- How many acres have you?
- Are you a fruit grower?
- How many trees have you? Apples? Plums? Pears? Peach? Cherry?
- How many acres in small fruits?
- What is your annual income from all sources?
- What implements do you use in your orchard?
- Do you use a hand or power sprayer?
- What make?
- What spray mixtures do you use?
- From whom do you buy them?
- Do you use explosives for planting trees, or ditching or stumping?
- Do you box fruit for export?
- From whom do you buy nursery stock?
- From whom do you buy apple barrels and fruit baskets?
- From whom do you buy fruit ladders?
- From whom do you buy fruit wraps?
- Do you use fertilizers?
- What kinds?
- From whom do you buy them?
- Do you keep bees?
- How many hives?
- Have you a honey extractor?
- Where do you buy bee supplies?
- Where do you sell your honey?
- Have you a gasoline engine? What horse power?
- Have you wire fencing? What make?
- Have you a wind mill?
- How many horses have you?
- How many rooms are in your house?
- How do you heat your home? Make of stove, furnace, etc.
- How is your home lighted?
- Do you cook with coal, gas, wood, oil or acetylene?
- Do you use a vacuum cleaner?
- What make of washing machine do you use?
- What brand of laundry or toilet soap do you use?
- What make of piano or organ have you?
- What make of talking machine have you?
- What baking powder do you use?
- What flour do you use?
- What breakfast food do you use? Rolled Oats?
- If cereals, what kinds?
- Do you raise poultry?
- What make of incubator have you?
- What roofing material do you use?
- Have you an automobile? What make?
- Have you a greenhouse or conservatory? What make?
- Do you buy flower and vegetable seeds? From whom?
- Do you buy articles advertised in The Canadian Horticulturist?..... Why?.....
- Are you interested in flower and vegetable growing?
- Do you grow potatoes on a commercial scale?



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IN THE CASE OF THE

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BEFORE THE COURT OF PUBLIC OPINION

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The I.X.L. Vacuum Washer which formed part of the prize which I won at the Seventh International Dry Farming Congress at Lethbridge, I find to be a real labor saver. I have done four washings with it, and it is an unqualified success, cutting the time of washing one half with less labor.

Mrs. B. McAllister.

Wapella, Sask.

I enclose a coupon for an I.X.L. Vacuum Washer and \$1.50. Will you send one to the name and address enclosed. I got one for myself a little while ago and I never used such a handy good little washer in my life. I have recommended it to about a dozen people in Wapella. Yours truly,

Mrs. R. H. Hutchinson.

Thousands of women who are using them have rendered an unqualified verdict in favor of the I.X.L. VACUUM WASHER, and these women have used every make of Washing Machine, and are fully qualified to judge merit.

THE COUPON below gives you an opportunity to test it in your own home and

SAVES YOU \$2.00

If you do, YOU WILL concur in the verdict, as it WILL demonstrate to YOU that it will wash anything and everything, from a horse-blanket and overalls to the finest and most delicate laces without injury, as THERE IS NO FRICTION.

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It is the most popular Washer on the American Continent. Its popularity is the reward of merit.

USE THIS COUPON

Send for one to-day and "Blue Monday" will be robbed of its terrors for ever. You will never regret it. You will be delighted.

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Present or mail this Coupon and \$1.50 to Dominion Utilities Mfg. Co., Ltd., 427 1/2 Main Street, Winnipeg, Man., and you will receive one I.X.L. VACUUM WASHER.

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High heat in quality—least in price. Highly polished and nickel plated.

AGENTS WANTED.

Write for catalogue and terms.

MacLaren & Co.

Sturtevant, Ont.

Ottawa Flower Guild

(Continued from page 157)

sisted by a competent committee, including the president of the horticultural society, Mayor J. A. Ellis, by Mr. W. T. Macoun, of the Experimental Farm, by Mr. Alex. McNeill, of the Fruit Division, as well as by a number of ladies keenly interested in horticultural and educational work among the children of Ottawa.

Fruit Crop Prospects

In Eastern Canada the weather during March, April, and the first part of May has been all that could be desired, except that the majority of correspondents qualify their optimistic reports with the condition that frost may intervene. The weather reports for the last two months from British Columbia are by no means so favorable. The winter frosts were much heavier than usual, sufficiently so to slightly injure the tenderest trees and varieties. Light frosts have injured apricots, praches and cherries. In one or two districts plums are reported affected by the frosts of April 29. In the Maritime Provinces trees have wintered well. More rain has fallen this spring than usual. The season is fully two weeks in advance of the average.

Upon the whole the weather conditions for fruit generally have been good, but it must not be forgotten that complications may arise any time between now and harvesting. This is particularly true for instance, with reference to the cherry crop, which promised last year to be very large, but was seriously injured by excessive precipitation, especially in Eastern Ontario, between the growing and harvesting months.

APPLES

The reports of our correspondents upon the apple crop are most optimistic. In British Columbia and Ontario the bloom is sufficiently advanced to show that it is especially heavy this year. Quebec and the Maritime Provinces report that there is an excellent showing for bloom, and trees are particularly healthy.

PEARS

The pear growing sections of Ontario and British Columbia report the conditions very favorable as indicated by the bloom. The trees are particularly healthy and no winter killing is reported. In the Maritime Provinces only a medium crop of pears is expected. The Kootenay District anticipates a heavy crop.

PLUMS

Plums have suffered much injury from the late spring frosts. The plum, however, is very prolific in bloom, and it is not at all improbable that a sufficient number of buds will be left to make a medium if not a large crop in the plum districts of Ontario. In British Columbia the crop will be heavy, though some deductions will probably have to be made on account of recent frosts.

PEACHES

In Southern Ontario it looks as if the crop would be the largest on record. The recent frosts appear not to have done any serious injury, and fall and winter conditions were particularly good. In British Columbia some slight damage to the early blooming peaches is reported, but the probability sufficient bloom has been left to make a full crop—Dominion Fruit Crop Report.