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Small Fruits in the Orchard

T. G. Bunting, B.S.A., Experimental Farm, Ottawa

THE growing of small fruits in the orchard is a question much discussed by fruit growers who desire to get a return from their land occupied by an orchard, before that orchard will return a dividend to them. In the case of a peach orchard it is at least the third year, in most cases the fourth year, and in some the fifth year, before a return is given above the outlay for that year. In the apple orchard it is proportionately longer. The age at which any fruit tree comes into profitable bearing depends first on the years it requires to bring it into bearing, which varies considerably among the different classes of fruit, and also among the varieties, and second on the care and treatment which has been given to the trees. We find that a period of from three to eight, and in some cases more years, may elapse before we can expect to get a profit from the orchard. It, therefore, becomes desirable to many fruit growers to endeavor to get a return from this land set to orchard during the interval required by the orchard to come into profitable bearing. This return may be secured by planting small fruits or some other crop between the tree rows.

Let me here say that it is the practice among some of the best orchardists of this country, but more particularly of the country to the south of us, to leave the land planted to fruit trees entirely devoted to the trees so planted. The reasons for this are these: that when the orchard is not inter-planted with small fruits or other crops the orchard may be given the very best care and treatment, which usually is not, and cannot readily be given in an orchard inter-planted. The orchard, by the better care and treatment thus given, can be brought into bearing earlier, and will be a more profitable orchard in every way. Thus the greater returns from the orchard in the end will, in most cases, more than offset the returns that might have been obtained by the intercropping. No matter what is planted as an intercrop, it will take from the land much of its fertility and will not leave it in as good a condition as it might otherwise be in. On the other hand, some men will give better care to an orchard so inter-planted, as the second crop will require the attention that might not otherwise be given if

there was not some revenue coming in from the land.

DO NOT CROWD THE TREES

In interplanting an orchard great care should be taken not to crowd the grow-



Blossoms off, Calyxes Open, Ready to Spray

When spraying to prevent the ravages of the codling moth, the object should be to deposit poison inside the calyx, which, as the apple grows, closes and forms the "blossom" of the mature apple. This poison catches the codling worm as it starts to eat its way into the apple. It is important to make the spray application at the stage of the blossom as here shown, otherwise the application will be useless in combating the codling moth.

ing trees. It should be remembered that the trees at the close of the season will be much larger than they were at the beginning, and what may seem sufficient room for them early in the spring, before growth begins, may leave them later in the summer badly crowded and interfering with the other crop. The first year at least four feet on all sides of the trees should be left clear and where small fruits are planted a greater distance should be left; for strawberries five feet, raspberries and bush fruits, six to eight feet or more.

Of the small fruits which are very often planted in the orchard, the strawberry is one of the best to plant, because

they seldom occupy the land for more than three years and usually for only two years; and after that, unless the trees are slow growing or very far apart it is well to leave the land to the trees. In planting strawberries, if the tree rows are from eighteen to twenty feet apart, three rows of strawberries can be planted between the tree rows, leaving the rows of strawberries four feet apart and five to six feet from the tree row. Some growers will crowd in four rows when the trees are the above distance apart, and then very often the trees will suffer, especially the second year, from giving the berries the proper cultivation and in harvesting the crop, so that the fourth row would be much better if left out. If the strawberry plantation is left for a second crop in the third year, it will require quite a lot of cultivation late in the season of the second year, and during this time there should be very little cultivation given close to the trees as it may cause the trees to continue to grow late in the season.

OTHER SMALL FRUITS

Where currants or gooseberries are grown, two rows are sufficient to plant between the tree rows, when the tree rows are from eighteen to twenty feet apart, as these bush fruits will occupy the land for a considerable time, and do not give much return before the third season. Thus, if a third or fourth row is planted, by the time they are in bearing, the trees will be encroaching on them, and both will suffer. Some bushes can be planted in the tree rows but here as elsewhere the trees should be the first consideration.

Where raspberries or blackberries are grown, only one row can be recommended to be planted where the trees are the former distance, eighteen to twenty feet apart. Many growers will plant more, and crowd the trees, when interplanting, but if they will consider what the orchard and bush fruits will be like in a few years in the future they would allow plenty of room for their trees, as they are to be the main crop and give the chief reward for the money and effort expended.

Another thing too often neglected is the removal of the bush fruits as soon as the space is required by the trees. It is a mistake to leave the bush fruits in the



An Out-of-Date Method of Pruning, Well Demonstrated

Nowadays progressive orchardists aim to have their trees low-headed, in which case much labor is saved in pruning, spraying and in harvesting the fruit, and there is not the same loss from wind-falls as with the old time high-headed, high-trimmed trees. Except for the method of pruning being followed this young orchard shows that it is receiving good care.

orchard after the trees require the land. I have seen orchards where the limbs have been meeting in the centre and underneath the branches in the shade were to be found raspberries growing for the purpose of producing a crop, and a revenue. The raspberries prevented an economical and proper management of the orchard, consequently the orchard suffered, and besides the raspberries could not possibly be returning much of a crop from the manner and circumstances in which they were growing.

In the orchard that is intercropped there is a double demand on the fertility of the soil. Provision must be made for this in the way of fertilizers, of which barnyard manure is the most satisfactory. Cover crops can not be readily resorted to where small fruits are grown; consequently it is more difficult, and in fact almost impossible, to keep the land in the best physical condition. After the small fruits have been removed from the orchard, it is very desirable to grow, as soon as possible, some cover crop, clovers and vetches being among the best, in order that it may be incorporated in the soil. Of course if the land has been well fertilized with barnyard manure, it may not need the cover crop.

CULTIVATION

Early and frequent cultivation is necessary, chiefly to conserve the soil moisture. If frequent cultivation is not given early in the season and there should be a scarcity of rainfall, as there usually is at the time when it is most needed, the small fruits will suffer considerably at fruiting time and the trees cannot be expected to do their best. Cultivation

should never lose sight of the fact that his orchard is the chief consideration and that the small fruit is only of secondary importance.

Spring Cultivation

Grant S. Peart, Burlington, Ont.

The scientist tells us that plant food the soil must be in solution before it can be utilized by the plant. It is necessary, therefore, that the soils of our orchards shall be kept in a moist condition during the growing season if we expect to get sufficient wood growth and good-sized fruit. In many parts of Ontario the growers have to contend with a month or more of drought during the growing season, and at this time they cannot afford to let the fruit and trees stop growing. The value of conservation of moisture, to offset the dry weather, thus becomes important. The fact that thorough cultivation tends to conserve soil moisture constitutes one of the first principles in horticultural work. Many of our Ontario growers do cultivate their orchards, but some commence this operation too late in the season to produce any beneficial effects. It is not uncommon to observe orchards with heavy clay soils being worked during July, for the first time that season. These orchards are generally dried out before they are plowed, so that the ground turns up very lumpy and rough. When in this condition it is with great difficulty that the lumps can be reduced sufficiently to obtain the desired mellow mulch.

A light dressing of nitrate in the spring has been found of assistance to fruit trees at the time of setting the fruit.



A Well Kept old Orchard That was Neglected When Young

Notice that several of the trees have been allowed to develop from sprouts or suckers and that no care has been taken whatever to direct the growth or shape.



A Lesson in Pruning.—An Old Apple Tree That Still Has Too Much Wood

Care of the Peach Orchard*

F. M. Clement, Dutton, Ont.

THREE things I would insist on from the first are the following: That the tree has life. Its growth and development then depends on the attention and care you give it. Second, be sure that food is taken in a soluble form, which means that the grower must prepare the food for the tree; and lastly, remember that the cheapest way of supplying fertilizer is by careful cultivation.

The meaning of the word manure is the same as to manoeuvre or to work by hand. The Greeks realized that if they cultivated the land very carefully the crop was increased. In other words, careful cultivation makes available the plant food or makes it soluble so that it can be used by the tree. The importance of thorough cultivation during the early spring weeks cannot be too strongly emphasized; at this time the tree is carrying its load of fruit, producing new wood and forming in embryo the tiny fruit and leaf buds for the next season's crop. That is the critical time in the life of the tree. A single cultivation in June is worth two or three in July.

CHECKING GROWTH

It is just as important to check growth in early August as it is to produce it in May and June. Many trees throughout Ontario were severely injured last winter because of late cultivation or stirring the soil when digging the potatoes or roots from between the rows. This started new growth, which was not sufficiently hardy to stand the winter. A young orchard at Sparta was severely injured last winter because of this. The grower is one of the best, if not the best, in the county, but because he cul-

tivated a little too late about one-sixth of his trees were injured or killed, and I understand that Mr. Johnson, of Forest, had a large number of trees injured because of cultivating or stirring the soil a little late in the season. If the trees are not too heavily laden, sow cover crop in early July. This will tend to check the growth and to ripen the wood and buds.

FERTILIZING

Our best men also differ in their methods of fertilizing their orchards. Here again we have the two extremes of little or no fertilizer, to a large amount of fertilizer applied each year. One prominent grower whom I know does not use any farmyard manure. He depends on thorough cultivation. He claims that humus or a good cover crop such as

clover plowed under and carefully cultivated will give all that the trees on a loam or sand loam require, and his results seem to bear out his theory, as he has produced good crops for six or seven years without using farmyard manure or commercial fertilizer. Another grower whom I know, uses a limited amount of farmyard manure each year, and in the early summer applies along with it about seventy-five pounds of potash and two hundred pounds of bonemeal per acre. He also is getting excellent results, and I understand that he has not missed a crop in the last four or five years.

What appears to me to be the ideal method is to cultivate thoroughly up to the first or middle of July and then sow a crop of clover, vetch or rye or a mixture of them to be plowed under early in the following spring or when the rye is about eighteen inches high. Commercial fertilizer of bonemeal and potash, about two to one, applied at the rate of about two hundred and fifty pounds to the acre, along with this should return to the soil all and more than the crops are removing from year to year.

THINNING

As yet very few growers have the courage to thin the fruit. They cannot bear to see large quantities of fruit pulled off and thrown on to the ground and consequently as yet few of the growers are thinning systematically. A large number practice it a little, but it cannot be said that it is a regular feature of orchard practice. To my mind it is just as important as cultivation and manuring because we lose the value of our early labor by not continuing the good work a little farther and removing some of the fruit that is tending to break down the tree.

In a thinning experiment conducted in the orchard of Mr. Haynes, of St. Cath-



The Same Tree After Pruning Had Been Completed

(Both Photos by F. Brooks, Barric, Ont.)

*Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.



An Up-to-Date Power Sprayer Well Adapted for Use in Old Orchards

lines, last summer the trees thinned from three to five inches produced five hundred and fifty pounds of fruit, while those that were unthinned produced five hundred and fifty-five pounds, but in the latter case there were six thousand peaches and in the former only a little over three thousand; or in other words, the peaches from the trees that had been thinned were almost twice the size of the others. From the trees that were thinned from five to seven inches, we obtained four hundred and forty-six pounds of fruit, but they were all exceptionally large and of excellent quality.

No safe distance to thin can be recommended, but in no case should two peaches be allowed to touch each other unless they are on opposite sides of a fairly large twig. They color and mature much better if they do not touch each other. When thinning fruit a man must use his own judgment. If he is in doubt whether the fruit should be taken off or not, he should take it off, because in nearly every case when the trees appear with only half a crop in the early season, later, when the fruit is large and more developed, the trees have all that they can bear.

What Tests of Commercial Fertilizers Have Shown

Professor R. Harcourt, O.A.C., Guelph, Ont.

(Continued from March issue)

It may be stated in a general way, that nitrogen forces leaf and stem growth and tends to delay the ripening process. Phosphoric acid aids in the formation and transportation within the plant of the protein and hastens maturity, while potash appears to be essential to the formation and transportation of starches, sugars, and so forth. With many of the crops of the market gardener, especially those sold in the immature state, quality is dependent upon, or measured by, both appearance and palatability: Palatability is determined by the succulence and sweetness of the vegetable, or by its freedom from bitterness, stringiness and other undesirable characteristics which frequently exist. These can be largely eliminated by providing an abundance of food for a continuous and rapid development of the plant. Any delay in the growth of a radish or of lettuce is largely responsible for the sharp taste and pungent flavor

of the former, and the bitterness and toughened fibre of the latter. For crops of this nature a generous supply of potash and phosphoric acid is essential, but nitrogen is the constituent which should predominate.

WHEN TO USE NITROGEN

When plants must be allowed to mature, as with the tomato, corn, potato, sugar beets, and so forth, a soluble form of nitrogen, as nitrate of soda, may be used early in the season to insure a good start, but it should be withheld during the latter stages of growth in order that the mineral constituents may have a chance to bring on maturity.

Big fleshy leaved plants, such as cabbage, cauliflower, and tobacco, require large quantities of potash. This is also true of such crops as potatoes, mangels, parsnips, and so forth, which store starch or some other form of carbohydrate in the tubers or roots of the plants.

Just as plants differ in their food re-

quirements they also differ in their ability to gather their food. This appears to be due, not only to the time of the year they make most of their growth, the length of the growing period and the depth and range of the roots; but, also, to differences in the ability of various plants to attack certain soil constituents. Consequently, a man must study his soil and crops to become familiar with the peculiarities of each and seek to provide in the form of commercial fertilizers that which the particular plant he is dealing with stands in most need. It is because this has not been done that so many people have failed to obtain results from the application of fertilizers.

EXPERIMENT FIRST

To become familiar with the needs of the soil, the requirements of the crops, and, at the same time, learn something about the influence of the various constituents of plant food on the crops he wishes to grow, it is advisable for the beginner to do some experimenting before he invests heavily in expensive fertilizers. Such an experiment may be made on the vegetables with comparatively small plots, say one-twentieth of an acre, or even smaller, but, where space will allow of it, larger plots are better. The arrangement may be as follows:

Plot I.
Check.

Plot II.
Nitrate of soda.....at rate of 200 lbs. per acre
Superphosphateat rate of 500 lbs. per acre
Muriate of potashat rate of 200 lbs. per acre

Plot III.
Nitrate of sodaat rate of 200 lbs. per acre
Superphosphateat rate of 500 lbs. per acre

Plot IV.
Nitrate of sodaat rate of 200 lbs. per acre
Muriate of potashat rate of 200 lbs. per acre

Plot V.
Superphosphateat rate of 500 lbs. per acre
Muriate of potashat rate of 200 lbs. per acre

Such an experiment shows the effect of the addition of the three main fertilizing constituents, nitrogen, phosphoric acid, and potash, against no fertilizer on the check plot, and as on each of the succeeding plots one of the constituents is omitted, a chance to note the effect each ingredient has on the crop. Naturally, the experiment must be placed on soil that is uniform and all the plots must receive the same cultivation. The experiment may be made even more simple by applying the mixture suggested for Plot II. above to one plot and nothing on another. However, such an experiment gives no idea as to whether the soil is deficient in any one constituent. This experiment is one that is always to be used where the complete mixed fertilizers are used, for it is the only way that one can demonstrate whether the fertilizer is really doing any good.

With reference to the use of fertilizers with fruit crops, we in this country have very little absolute data to quote from.

German investigations show that vegetables make better use of the constituents of farmyard manure than fruit crops. Experiments carried out at the Diemitz Experiment Station, and at Strassfurt in Germany, seem to clearly indicate that in the case of fruits, and especially with apples, fertilizers containing nitrogen, potash and phosphoric acid can be used with profit, and that potash affects the results more than any other one constituent. On the other hand, stone fruits were more influenced by phosphoric acid and nitrogen.

Recently considerable prominence has been given to the fact that apples may be successfully grown without the use of any manure. Some form of cover crop is essential to the proper cultivation of orchards, and obviously it is to the advantage of the owner to grow a crop that will gather nitrogen from the practically limitless supply in the atmosphere. It is possible that under many soil conditions enough of this expensive element may be gathered in this way. And, further, as the roots of the apple tree extend deeply and over a wide area and the tree has nearly the full season to mature its fruit, it may be able to gather all the food required. However, soil conditions vary so widely that it is impossible to draw definite conclusions from one experiment. Many fruit growers will bear out the statement that manures have increased their crop. Last year we placed a number of fertilizer experiments on apple and peach orchards, which we hope to continue for some years in order that we may procure reliable results.

In 1908 the writer visited a German Provincial Fruit Experiment Station at Diemitz, near Halle, Germany, where an apple orchard had been under experiment for sixteen years. The orchard received a small amount of stable manure and good cultivation. The illustrations in the March number, pages 59 and 60, indicate fairly well the marked effect of the fertilizers.

Many of the small fruits respond readily to an increased supply of plant food applied in the form of fertilizers and they are comparatively easily experimented with.

In closing let me urge those who are inclined to use fertilizers to experiment in a small way before applying these materials freely. Further, do not expect them to take the place of cultivation; nothing can do that, for it is only when the good cultivation is given that the soil is in a condition to allow the plant to make the best use of the plant food available.

The ideal location for geraniums is a light sunny house with a temperature of forty-five to fifty degrees at night.

Spring Planting

Wm. Hunt, O.A.C., Guelph, Ont.

The months of April and May and the early part of June are busy times in the flower garden. The pruning, trimming, and the clearing up of all garden rubbish should be all finished and the ground dug and prepared for planting operations by the middle of April, if at all possible.

The earlier rose bushes, shrubs, and trees are planted now the better. Most of the hardier kinds are best planted as early in April as possible. Where the plants have been lifted earlier, and heeled in temporarily, it is not too late to plant them during May. Always try and plant just before a showery time if possible. Never plant trees in heavy soil when the ground is very muddy and sticky. It is better to wait a day or two for the soil to dry a little. In sandy or very light, well drained loamy soil, this matter is not of so much importance.

PREPARATIONS FOR PLANTING

Dig the ground well first. If barnyard manure is dug in now it should be well rotted. A spading or digging fork is the best implement for digging the ground whether in the spring or fall. The ground is easier worked and pulverized than with a spade, unless the ground is of a very sandy nature. If manure is dug into the ground now, dig it in so that it does not come into direct contact with the roots of the tree or plant. After digging, the surface of the ground should be roughly graded so as to get it of the proper contour or shape, whether quite level or rounding on the surface. Raking the surface very fine is not necessary or desirable when planting trees, shrubs, or bushes.

When the ground is properly prepar-

ed put a stake where each plant is to be set. In placing the stakes make sure that you are giving each plant the amount of room it will require when it reaches maturity. Try and picture to yourself what the plant or plants will look like when they have reached maturity, then set the stakes accordingly. For roses and shrubs, the extreme height the plant will grow to is a fairly good guide for the distance apart they are to be set. Take, for instance, the average height of a well cared for rose bush as being from two to three feet: About three feet is the proper distance apart to set these. Climbing roses will grow sometimes fifteen or twenty feet in length from the roots. Ten to fifteen feet apart is a very good distance for these, as they can be pruned in oftentimes to suit the space they are to occupy. Give the bush type of rose an open, sunny position. In planting climbing roses, do not plant them close to a building or fence, especially on the south side. This is the position often selected for climbing roses and tender climbers generally, but it is a huge mistake. One has only to stop and think of the conditions that exist during the winter and early spring on a building or fence facing directly south. In the day time, on sunny days, the thermometer will register away up into the eighties on the wall of a building. At night possibly the temperature will fall to ten or twelve degrees above zero, thus roasting the plant in the day time and freezing it at night. The conditions mentioned are the most trying out of door conditions it is possible to give plants. There is also another objection to a direct southerly



Early Tulip Bed in Major Hill Park, Ottawa



Tulips with a Background of Ferns

These tulips, in the garden of Mr. F. B. Whitton, of Hamilton, were imported from Holland. With their background of ferns they present a most pleasing appearance. They are planted with a northern exposure.

aspect for climbing roses. The intense heat in summer not only bleaches and spoils the roses quickly, but the concentrated heat induces the attacks of all kinds of insect pests that are so common to climbing roses and many other climbers in summer. An east or north-east aspect, or even a direct northerly aspect is better than a direct south aspect for climbing roses. Avoid planting too close up to a fence or building in any case. The growth of the plant should be at least a few inches from the building or fence to allow of a free circulation of air, and to permit of spraying being done, so that all parts of the foliage can be reached whether sprayed with insecticides or with water.

It is best to plant what are to be the permanent occupants of the ground first. Then fill in the spaces with more temporary or inexpensive plants that can be cut or rooted out afterward, as the more permanent plants fill in the spaces. This is a far better plan than planting too thickly at first with expensive plants, that have to be thinned out when they are just beginning to improve and beautify their surroundings.

HOW TO PLANT

See that the roots of the plant are in the proper condition for planting. Any broken or badly bruised roots should be cut off at the point of injury. Any unduly long thick roots, or the tap root, should be shortened a little, probably one-third of their length. All the small fibry roots possible should be left on the plant untouched. These last-named are the life-giving roots of the plant. Unless the top growth is very dense or overgrown, it will be best taken off after the bush is planted.

Dig the hole the plant is to be set in deep and large enough to give the roots plenty of space. Loosen the soil well below where the roots are to go before planting. Set the bush in position, mak-

ing sure that it is upright and set in the proper depth. As a rule the plant should be set an inch or two deeper than when growing in the nursery grounds. The surface mark of the soil can usually be seen on most plants. Avoid planting too deeply. The roots, however, must be deep enough to ensure the stability of the plant.

When the plant is set properly in place commence filling in with the finest soil procurable around the roots of the plant. I have found a sprinkling of fine sand splendid material for inducing root action. There is no better material than sand or sandy soil for inducing root action in any plant or bulb. Never put fertilizers of any kind in direct contact with the roots of newly set plants. Fill in the soil after starting evenly and pack it firmly so as to leave no air spaces around the roots. The soil should be tramped or pounded very firmly for rose bushes. About an inch of loose soil should be left on the surface to retain and conserve the moisture. When filling in the soil the bush can be pulled up slightly if found to be set too deep.

Unless the weather is very dry in spring, dormant bushes seldom require water at the roots. Care should be taken not to give newly set trees too much water at the roots. A sodden condition of the soil is often very detrimental to newly planted bushes and trees.

TOP PRUNING

After the bush or shrub is set the top should be pruned. In the case of rose bushes fully one-third of the length of the top growth should be removed. Oftentimes nearly two-thirds of the length of each large cane or shoot would be better taken off. It is a mistake to leave too much of the top growth on with the idea of getting a big rose bush quickly. Too often it means a dead rose bush quickly, or at least a very weak sickly looking specimen for some time. About

six or eight inches of the base of the last season's growth in length is usually ample young growth to leave on a newly planted rose bush. All the very small weakly shoots should be removed to their base.

The young canes of climbing roses should not be so severely pruned. These can, however, be pruned back fully one-half of their length. The very small weakly shoots should also be removed.

In pruning the tops of newly set bushes or shrubs it should be remembered that the roots of the plants have already probably undergone severe pruning, and it is absolutely necessary for the wellbeing of the bush that a corresponding quantity of the top must be removed to balance and equalize somewhat the conditions. Better an excess of roots in proportion to the top than an excess of top growth out of all proportion to the root system. An excess of roots will produce plenty of good healthy top growth in quick order, but an excess of top growth means a weak, sickly, or perhaps a dead specimen before the season is over.

ROSE VARIETIES

The following are twelve good hardy hybrid perpetual roses: Frau Karl Druschki, white; Clio, white-tinged pink; General Jacqueminot, scarlet crimson; Prince Camille de Rohan, crimson maroon; Jubilee, very dark crimson; Dupuy Jamain, bright cerise red; Jules Margottin, cherry red; Magna Charta, rose red; Ulrich Brunner, cherry red; Anna de Deisbach, silver pink; Mrs. John Laing, bright pink; John Hopper, pink; reverse of petals silvery.

Four good moss roses (bush) are: Blanche Moreau, white; Comtesse de Murianais, white; Crested Moss, rosy pink; Lancii, rosy crimson.

Four nice climbing roses are: Dorothy Perkins, silvery pink; Crimson Rambler, reddish crimson; Lady Gay, pink; Queen Alexandra, pink.

Some good Rugosa or Japanese roses include: Blanche Double de Coubert, double white; Conrad F. Meyer, pink; Sir Thos. Lipton, white; Rubra, deep rose red.

The Rugosa roses make a good lawn hedge, or are suitable for planting in shrubberies.

Polyanth and small flowering roses include: Clotilde Soupert, white shaded pink; Baby Rambler, reddish crimson; Yellow Soupert, yellow; Hermosa, a Bourbon rose, very hardy and free flowering.

The main rules to observe in planting all kinds of bushes or trees are very much the same. One very important point is to never allow the roots of any plant to lie exposed to the sun and any longer than is absolutely necessary.

Canadian Gardens—An Amateur's Garden Worth While

R. S. Rose, Peterborough, Ont.

ARTICLE No. 4.

FLOWER growing is not so difficult as some people seem to think though to have flowers grow and give forth their best bloom, you must watch over them, work hard amongst them, nurse, and last but not least, love them. If you do these you will be amply rewarded by an abundance of bloom during the months from May to the end of November.

In our garden we try to have constant bloom so that when one variety dies

One.—Lilacs, common.

Two.—Shubbery, consisting of Persian lilacs, purple and white; Tartarian honeysuckle, white and pink; Indian currant, spiræ van Houttei; syringa, mock orange, weigelia rosea, snowball and meadow sweet. This shrubbery is about thirty feet long by three and a half feet wide. We do not attempt to grow any annuals around the shrubs as we want them to have lots of room to spread themselves. They bloom from early spring to midsummer.

Three, is our long perennial flower bed. It is about one hundred and fifty feet long by four and a half feet wide. At the back it is lined with phlox, including such kinds as Bacchante, Bridesmaid, Henry Munger, Jules Cambon, Selvia, Von Hochberg, Couquelicot, Richard Wallace, Mercier, Paul Kruger, Pantheon, Elizabeth Campbell, Edmund Rosland, Mr. Jenkins, and others. In all there are thirty-six different varieties blooming in a mass of different colors, from the middle of June until frost.

With these are the Scarlet Likners, perennial sunflower (Golden Wave), Valeriana, or the hardy garden heliotrope, soronicum, (this should have a place in all gardens), and three varieties of Delphinium. The last bloom before the phlox and continue to bloom with them.

In front of these we sow our annuals, namely, Coreopsis, Calendula, annual snap dragon, Centaurea or Bachelor's Button, Gypsophila, Love in a Mist, Marvel of Peru (four o'clocks), annual wall flowers, mallows, white and pink; if we have a bare spot, we transplant from our perennial seed bed, where we always have some plants coming on. We act on the principle that there is always room for one more. We keep our beds as full as possible,

so that the earth is not seen, as we find that this retains the moisture best. In this bed I should say that we can always find room for zinnias, stocks, scabiosa, gaillardia and sweet sultan. All the annuals are mixed colors. The whole length of the bed is bordered with sweet alyssum (little gem). When this bed is at its best it fairly dazzles the eye in coloring, being so brilliant, and our great aim is to have its colors blend, so that one will not kill the other.



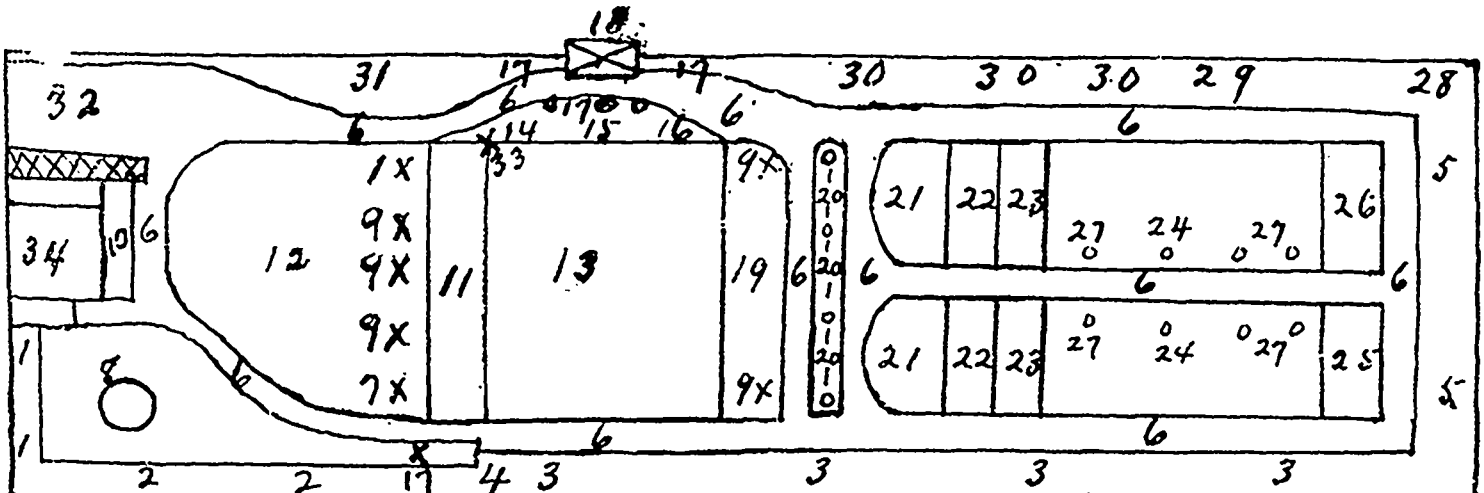
The Backyard before the Garden was Started down another is ready to take its place. In this we have succeeded beyond our expectation. As, however, our garden has only been in existence for six years, it is only now commencing to show what it really can do. It is a city lot, forty-five by two hundred and twenty-five feet, and is laid out according to the following plan:



The Long Bed Showing Some of the Phlox

Four is a clump of Assyrian poppy, a perennial. This poppy is very large and extremely hardy. In color it is a deep blood red. The root was sent us by a friend straight from Assyria about eight years ago.

Number five, is a high bank with stone facing in front. This bank is lined with



The Plan of Mr. Rose's Garden, for a Description of which Read the Article on This Page.

mixed hollyhocks, golden glow and golden treasure. In front of these are Canterbury bells, mixed colors, then coreopsis lanceolate, Snow in Summer, Dianthus Plumaris, annual larkspur, sweet rocket, pentstemon, platycodon pyrethum, veronica, Iceland poppies in clumps here and there in both beds, and any annual or perennial we may have to fill in. The whole bed is bordered with mixed dwarf nasturtiums. This bed is forty-five feet long by six feet wide.

Six.—Paths.

Seven.—Large Giant Syringa.

Eight.—Rockery.

Nine.—Paeonies.

Ten.—Geranium bed, bordered by forget-me-nots, shasta and the blue daisy (agatheia.)

Eleven.—Lily bed, bordered by narcissus Poeticus, back of these are day lilies, both white and blue; orange, tiger and sweet scented yellow lilies, Spanish, German, Japan and English iris, and the common blue flag. The whole bed is simply carpeted with violets, white, wine, and deep blue English, the common yellow and the deep blue double Russian, not to forget the California violet, of which there are a few clumps. This bed throws out a most delightful perfume in the early spring. The bed is situated at the foot of a raised lawn.

Twelve.—Clothes lawn raised so as to form protection to the lily bed.

Thirteen.—Sunken lawn.

Fourteen.—Wild flower garden, and the leavings of all seeds that are left over.

Fifteen.—Well shaded by trees that the sun filters through, makes a splendid pansy bed. It is just one mat of pansies, as all kinds from the Giant to the Viola or tufted pansy, bloom here. The coloring is simply gorgeous, ranging from white to a deep purple. In fact it has all colors that pansies are noted for. Both sides of the bed are bordered by a deep band of lilies of the valley, and at the back by narcissus.

Sixteen.—Perennial seed bed.

Seventeen.—Rowan and elm trees.

Eighteen.—Well with pump. Beds fourteen, fifteen and sixteen are all bordered at the back by columbines of different varieties.

Nineteen.—Rose bed. We have a variety of roses, most of them being the hardy hybrid perpetuals, such as Anna De Diesback, Baron de Bonstettin, Frou Karl Druschki, General Jacqueminot, Mrs. John Lang, Paul Neyron, Prince Camille de Rohan, Margaret Dickson, Soliel D'or, Harrison's Yellow, Madam Plantier, and others which bloom from June till late in the fall. We have had bloom in November. Through the bed are large clumps of English and Russian Violets, alternating with clumps of pansies. This bed is thirty by ten feet.

Twenty.—Back of our rose bed runs our sweet pea trellis, thirty feet long, and eight feet in height, made of wire mesh. Sweet peas are sown on both sides and bordered by dwarf nasturtiums or any good plant that would shade the stocks from the sun, and also keep in the moisture, which we find necessary. We have had them grow so tall that we have had to use a step ladder to cut the top blossoms. Keep them cleaned, do not let them go to seed, and you will have a much finer bloom.

Twenty-one.—On each side of the path behind the sweet pea hedge, we have what we call our pick and come again beds. There are asters, of which we have eight or nine varieties. The best ones we find are Queen of the Market, Giant branching, Hohenzollern, Day-break Comet, Truffaut's Paeony, and any annuals we care about, including always a wide band of that dear old flower, mignonette. This is edged by a row of balsams, four feet deep. These make a good hedge to tell where our vegetables commence.

Twenty-two.—Rhubarb.

Twenty-three.—Tomatoes.

Twenty-four.—All kinds of sma" vegetables. We do not attempt potatoes.

Twenty-five.—Herbs. In this bed we grow such as are required for the house, namely, lavender, lemon thyme, thyme, broadleaf sage, winter and summer savory, sweet marjoram, horehound and tansy. The top of the bed is bordered by parsley and the side next to bed three is bordered by chives which run down by the vegetable beds.

Twenty-six.—We use this space for our hot and cold frames and when they are removed the space is used for a relay of small vegetables.

Twenty-seven.—Are red currants, alternating with gooseberry bushes. Between these bushes we have a band a foot wide for the common field poppies, mixed with Shirley poppy.

Twenty-eight.—Dump of grass clippings and garden refuse. This is hidden from view by large Russian sunflowers.

Twenty-nine.—Black currants, eight varieties. Scarlet runners are trained over the fence behind the bushes.

Thirty.—Blush roses and Penzance briars (sweet briar). In front of these are Sweet William in all colors and great variety.

Thirty-one.—This bed we are only starting. It is well shaded by elm trees, so we are putting in flowers that love the shade, such as foxglove, monkshood, columbines, and others that we may think of later and which we are growing in our seed bed.

Thirty-two.—Driveway. The fence back of thirty-one and thirty-two is covered with the common morning glory.

Thirty-three. At the point of bed four-

teen we have a large bush of bleeding heart.

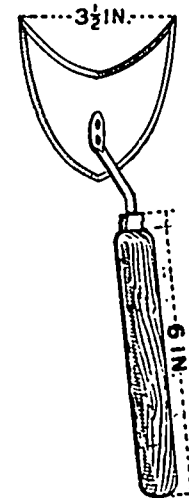
Thirty-four.—Extension kitchen of house covered with Virginia creeper.

We do not grow any flowers in the front, only climbing vines to cover the veranda, as the Crimson Rambler, and Dorothy Perkins climbing rose, and Woodbine honeysuckle. We prefer to have our garden at the back, where we can work amongst them without being in full view of the street. Our sunken lawn is well shaded by trees and makes a cool and comfortable lounging place on a hot summer's afternoon.

Useful Garden Implement

W. J. Justice, Barrie, Ont.

An implement that I have found very useful in my garden is the little weeder here illustrated. It was made as follows:—



The blade was cut with a cold chisel from a cast away hoe blade, and the cutting face filed to an edge. The stem was rivetted on by a blacksmith. It could be put on by any one having a breast drill.

This tool is exceedingly handy for close work about plants of any kind as it can be used in either hand. With a little practice one could be used in each hand. It is especially good for weeding beans and Dutch set onions.

Sweet Pea Culture

W. T. Macoun, C.E.F., Ottawa

An easily worked clay loam is the best kind of soil for sweet peas. It is usually a moist cool soil and fairly rich in potash and phosphoric acid. With the addition of well-rotted barnyard manure thoroughly incorporated with it, it should be sufficiently rich to grow very good sweet peas. Sweet peas are liable to run too much to vine if planted in clay loam and heavily manured, hence, as stated before, only moderate fertilizing is necessary or desirable.

I have had good results in growing sweet peas in light sandy loam soil with a moderate dressing of manure, but if the season were a hot dry one the results would not be so good. If there is no soil available except a sandy loam the surface should be kept heavily mulched for eighteen inches on each side of the row with the lawn clippings during the summer or better still with short manure, on top of which may be put the lawn clippings for cleanliness.

Gardening Suggestions for April

J. McPherson Ross, Toronto, Ont.

We are generally impatient to get to work in the garden after the long winter, and it is a pleasure to feel once more balmy breezes and to see the tender April skies. This may be termed the preparatory month, when we must put into effect the experience gained last year and picture to our mind's eye beautiful new combinations to be tried from study and past observation. For the sake of continuity, we will divide the operations under three heads, namely, the fruit, vegetable and flower garden.

Then the art of grafting furnishes opportunity also to the grower with limited space to have many desirable fruits for consumption by securing two or more varieties from one tree.

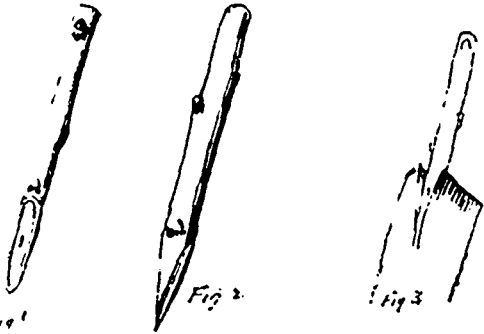
After care of the graft consists in rubbing off any sprouts that usually shoot from the branch below the graft, as if allowed to grow they would rob the graft of sap. Any system or form of grafting may be tried which convenience may suggest. This applies equally to all fruits. Commence first with plums or cherries, early in April, and finish up with apples and pears. These I have often grafted when the tree was almost in leaf, during the latter part of May. Garden books of all kinds give full directions in regard to grafting. I only draw attention to it here that I may urge fruit growers not to let the month go by without attending to it.

Last year's growth in the small fruits,

such as currants, gooseberries, blackberries and raspberries, should be shortened, and old barren wood cut out. Dead shoots or canes in raspberries should be removed. Carry away all litter and rubbish, preparatory to wheeling in good rotted manure to be forked among the bushes. You cannot overdo fertilizing currants and gooseberries as they are gross feeders and to produce fine fruit should be well fed.

HAVE A HOT BED

The first thing to do in the vegetable garden is to make a hot bed which can be placed in the yard or other place convenient for observation. An illustration of a simple hot bed is given elsewhere in this issue, and how to make one was described in the March number. A hot bed in a small garden allows you to grow a variety of plants, such as tomatoes, early cabbage and other vegetables, as well as annuals for the flower beds.



CIONS and How to Graft Them

Presuming that all pruning was carried out in the orchard during March, we have still left to do such work as grafting, which is best done in April. Many gardens having young fruit trees of undesirable sorts, are easily transformed into the better kind by the simple operation of grafting. People who desire to have gardens or to do some simple operations, are sometimes frightened by extreme scientific directions from undertaking them. Let me urge them, if they are novices, to make the effort. It simply consists in getting a cion or shoot of last year's growth cut off any time before second growth starts, and attaching it in a suitable place on the tree it is wished to alter. This cutting, preferably from three to four inches in length, can be made either by a sloping cut, figure one, or made wedge shape, as figure two. Figure one cion is used as a slip or tongue graft. As a slip graft it is simply put into the end of a branch that has been cut off. The bark is split, as in figure three. The cion is pushed down the bark and tied firmly with waxed cloth or matting and covered with any medium that will prevent exposure to the air, such as clay or wax.

The wedge-shaped cion is pushed into stock cut off and split, care being taken to see that the back edges of the cion and stock meet evenly on one side. I have given these simple directions, because I think fruit growers should not tolerate a poor fruit variety any longer than the season it bears and proves worthless.



The Garden of a Working Man where Flowers Reign Supreme

The chief flowers grown in this garden, owned by John Henderson, of Hamilton, Ont., were Potunias, Phlox, Drummond and Marigolds, with a few perennials and shrubs. At the back is a bed of cannas. —Photo by T. J. Davenport.

Those who like mushrooms, and most people do, should get a brick of spawn, break it into pieces, and make holes with a stick in the outside of hot bed, and insert a piece of the spawn in the holes. You will be rewarded later with a crop. The ventilation of the bed must be watched in bright, sunny weather. Give it air by opening the sashes, closing them when cool, and watch out for sudden dips of the weather. During any such cold spell, cover the glass with loose manure, straw or matting.

Dahlia and gladiolus tubers can be started in the hot bed, thus advancing their flowering season, and as spring advances, and use for the hot bed is over, plant some melon plants in it, or cucumbers. When danger of frost is past, store your sashes in a safe place for another season. The old manure of the hot bed comes in fine in the fall for fertilizing perennial beds or bulb borders.

In warm or dry locations, sow lettuce, radish and cabbage plants, and as warm weather advances put in peas and various other vegetables. Fork up the soil around rhubarb, and in your asparagus bed whiten the soil with salt and fork in the mulch or manure which should be given to this valuable succulent. Though in average seasons I prefer May for sowing the ordinary crop of vegetable seeds, still there are sometimes favorable days in April in which to prepare the garden. Never work your soil if at all wet as it is only time lost. It is far better to wait if necessary until June in cold seasons.

The average width between rows is about twenty inches, and the usual depth of soil to cover is twice the depth of the diameter of the seed. Coarse seeds as beans and corn can be covered from two to three inches and others from one-half inch to an inch. One rule to observe when sowing seeds is to firm the soil after covering. There is an old saying that the foot is the best gardener. This can be understood when you think that the pressure of the foot brings the seed directly into contact with the soil, excluding the air, and absorbing the immediate moisture.

As soon as you have sown the seeds, the weeds appear also. Weeds are a necessary aid to the cultivation of the other crop, as their eradication stirs the soil. This lets in the air and saves the soil moisture, or in other words it waters the ground with the hoe.

Be careful when too thick to thin out beets, onions, carrots and parsnips, and when breaks appear to replant with other plants. Every well appointed garden should have an asparagus bed, beside rhubarb and parsley.

GROW SOME ASPARAGUS

Asparagus is so easily cultivated and so highly prized it is a very profitable plant for growers. For a small family



The Garden of Mr. Ralph C. Wade, Toronto, Ont.

Read description on this page.

a bed thirty by five feet would give plenty of stalks. Some persons go to great trouble to prepare one. If such a bed is to be permanent the result justifies their care. Select a well drained situation. Dig out the soil to a depth of at least twenty inches. Into this trench fill in six inches of rich manure, offal, bones and other rank fertilizer or litter which, if it does not decay immediately serves for drainage, and cover over with good soil, rotten sod, and so forth. When it is ready, procure two hundred plants of Conover's Colossal or Giant variety. This is sufficient to plant a bed of this size, make three rows, eighteen inches apart, with the plants six inches apart. Dig out each row by the garden line a foot deep. Against the bank place your plant, spreading out the roots evenly, having the pips or crowns three inches below the soil; fill in the soil to a level, and tread down firmly. Rake the soil smoothly and place a mulch of two inch manure.

Cuttings of currants, grape vines, and so forth, can be made in the early part of April. They should be planted in good soil to the tip of the bud. A vegetable garden should be planted and managed to have a succession of various plants, so that when one crop is used up, as early peas and beans, you can remove them and plant cabbage or celery. Above all provide plenty of manure. Don't be afraid of having too much. Work it in deeply, and you will have sure results.

PREPARE FOR FLOWERS

Flower beds should be raked up clean, also clean all rubbish off the premises. Divide your phloxes and replant into new soil. Delphiniums, rudbeckias, iris and other quick spreading plants divide and replant. Plant in large groups. Study out combinations for color effects now so as to have them this summer.

April gives you a chance to revise your border with either shrubs or perennials, and to plant out special effects. Now is the time to pay attention to your lawn by fertilizing, sowing fresh seed on bare spots and giving a liberal top dressing of good garden soil. April showers will do the rest after a good rolling to smoothen upheavals. Do not roll when wet as this packs the soil too closely.

If you have not one, make a rose bed. Follow any form you may wish but the simplest is a well shaped oval rounded well up in the centre. Get your roses and plant early. Late planting is not as successful unless you cut plants hard back. Roses should have young roots, well established, before hot weather sets in. Of course, if plants are in pots you can plant them out any time in summer.

A Backyard Garden

The garden of Mr. Ralph C. Wade, Toronto, illustrated herewith, demonstrates what can be done in the line of beautifying an ordinary backyard. Mr. Wade may be seen in the illustration. The arch under which he is standing is covered with two crimson rambles, on either side of which are two grape vines, one a fine Roger and the other a Niagara; then a Syringa.

The order of planting next the board fence on the west side, which Mr. Wade has found most satisfactory, is to put dahlias and prince's feather, of the tall variety, next to the fence, then tall pale and dark blue delphiniums, foxgloves and Canterbury bells, then rows of asters, both late and early varieties. Next comes a row of Golden Wave Calliopsis and dark blue larkspur mixed. These bloom early as they are planted with the other hardy annuals in the fall when the border is prepared for winter. They

serve to hide the asters from view until they are ready to bloom, when the calliopsis can be removed.

The borders are about thirty inches wide and have a board inserted at the edge. A row of parsley is sown about the end of March close to the board edge

and makes a most beautiful border of green all summer, being both useful and ornamental. The border on the east has roses, paeonies and hydrangeas of the shorter varieties. The verandah which faces the south is covered with clematis, Dorothy Perkins rose and Prairie Belle.

Flowers and Vegetables Together

A. J. Elliott, Aylmer Ont.

It appears to have been the determination of man since all time that flowers and vegetables should be kept strictly separate, as though the one would in some way counteract the usefulness of the other. How often do we see in horticultural papers illustrations of hedges, arches, perystyles and so forth, showing where Mr. So-and-So's vegetable garden begins. No one expects to see the plebeian potato, carrot, and so forth, in the magnificent grounds that are open to the public in Canada, the United States, England, and the continent of Europe, and while they are grand and aristocratic as regards lay-out, taste, and expense, still I have thought, while looking at them, that our own Ontario flowers, individually, are fuller of sunshine than most of them. But we are apt to be prejudiced. These grand resorts, so ably described by Miss Blacklock and Mr. Collins in THE CANADIAN

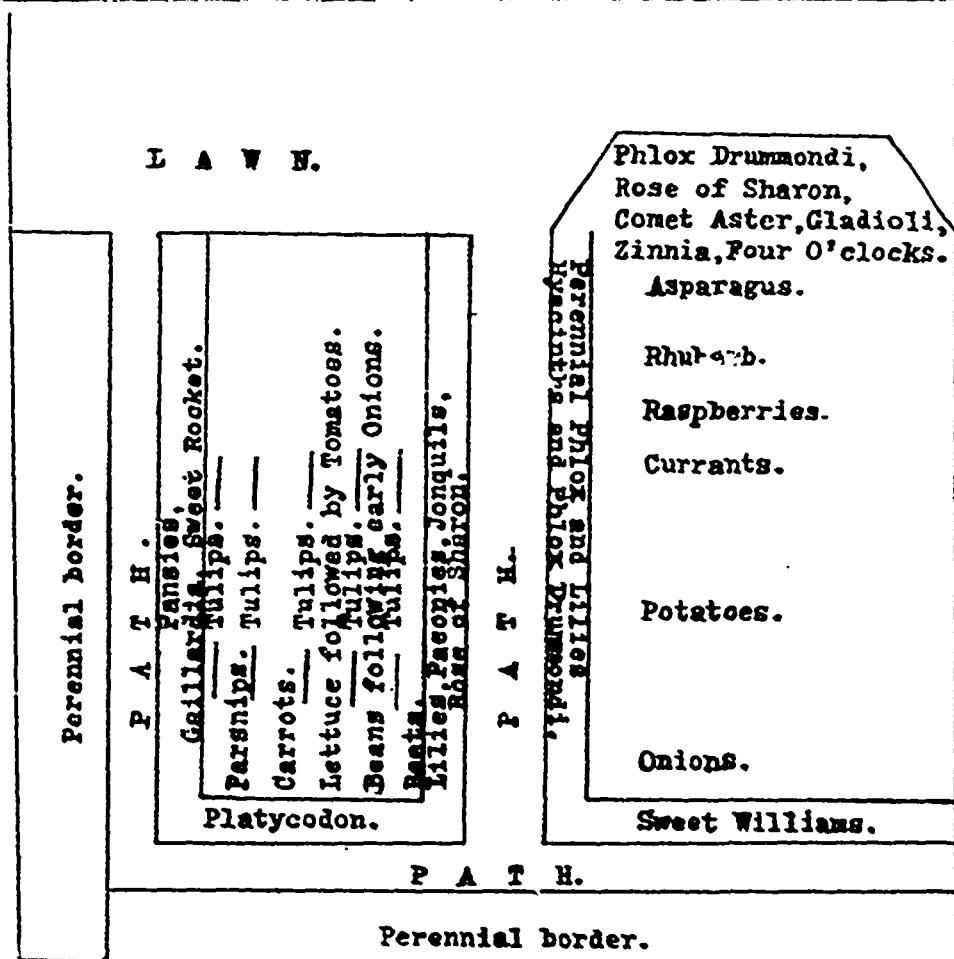
HORTICULTURIST in past numbers have a two-fold effect. Either they spur one on to greater exertion, and consequently success, or else they depress with the thought that it is impossible for a novice to succeed.

Most of us have more moderate lands, and we have to cut our coat according to the cloth. Owing to a row of maples annexing all the sunlight in my front, I had to figure out how this old idea of man could be repudiated and leave something acceptable in its place. A certain system was evolved, and so far my friends and I seem to be satisfied with the result.

I believe it is the right plan for the smaller gardens, and I was pleasantly surprised to see, when in England, the idea was quite common. It is surprising what can be made to grow on a small piece of land adopting the system here shown. This is purely as can be

seen, a mixed garden. Everything that we like in the vegetable line is raised, except melons. It will be perceived that there are flower borders around all but the south side, and that the jumbled condition of the two centre ones and the left-hand plot is due to the fact that there is a double crop there all the time. Suffice it to say that the tulips, jonquils, hyacinths, and so forth are through and out of the way before the other things come on. Try this idea and mark the surprise of your friends who in early spring visit you and find the bulbs out, when they come later will find the same land carrying splendid crops of vegetables. Do not forget, however, that there must be rotation of all.

The wedge-shaped bed driven into the lawn was very pretty this year. About ten feet back is an asparagus bed, which is allowed to run up after we are tired of it. Then follow, according to size, four o'clocks, zinnias, gladioli, branching asters, phlox Drummondii, and rose of Sharon, the shortest. When all were in bloom a glorious bank of flowers was the result. Still, it could be made better by the elimination of the two rows of asters from the fact that all the others were in bloom long before and after the asters blossomed. This year their places will be filled with, say, balsams and stocks. Then, I think, it will be about perfect.



The Plan of Mr. Elliott's Flower and Vegetable Garden.

Plants for Shady Places

Wm. Hunt, O.A.C., Guelph, Ont.

(Concluded from March issue)

The following lists of perennial and annual decorative plants will possibly help to some extent in the matter of the selection of plants that are benefited by being given some degree of protection from the heat of the sun. The following is a list of hardy border plants:

Aegopodium podagraria variegatum (Gout Weed), a running rooted plant with silvery white and green foliage, suitable for planting under trees; *Aconitum* (Monk's Hood or Wolf's Bane); *Acorus* (Sweet Flag); *Ajuga* (Bugle Plant), low growing, mostly creeping plants that like shade and moisture; *Allium Moly*, most of the varieties of decorative *Alliums* like partial shade; *Anthericum Liliago* (St. Bernard's Lily), there are several hardy varieties of the *Anthericums* suitable for planting in borders; *Astilbe Japonica* (*Spiraea Japonica*), in the more southern sections of Ontario the several varieties of the *Astilbes* are very useful for planting in moist, shady positions; *Caltha palustris flore pleno* (Marsh marigold); *Convallaria majalis* (Lily of the Valley); *Camassia esculenta*; *Dahlia*, partial shade during the heat of the day, a short distance from the north side of a building desirable; *Dicentra* (*Delytra* or Bleeding Heart), *D. specta-*



Spirea Japonica—A Shade Loving Plant

bilis; *E. eximia*; *D. formosa* and the wild *D. canadensis* (Squirrel corn) succeed best in a partially shaded place; *Epimedium rubrum* (Barren Wort), several varieties; *Funkia* (Plaintain or Day Lily), numerous varieties; Ferns, all hardy kinds; *Gentiana excisa* (Gentian); *Helleborus Niger* (Christmas Rose); *Hemerocallis* (Day Lily); *Hepatica* (Silver Leaf); *Hibiscus Moschuetos*, large flowering Mallow, there are several desirable varieties of these; *Iris* (Flag). Almost all of the different types of iris succeed best when shaded from very hot sun; *Liliums*, all hardy kinds, especially late flowering kinds, like a little shade; *Linaria dalmatica* and *L. macedonica*; *Lobelia Cardinalis* (Cardinal Flower); *Lysimachia* (Loose-strife), several varieties, especially *Lysimachia mumularia* (Moneywort), being very useful for planting underneath trees; *Lythrum*, Purple Loose-strife; *Mentha* (Mint); *Monarda didyma* (Bergamot or Oswego Tea); *Nepeta* (Cat mint); *Paradisca Liliastrum major* (St. Bruno's Lily); *Podophyllum pelatum* (Duck Foot or May Apple); *Polygonatum multiflorum* (Solomon's Seal); *Primulas*, all of the garden primroses; *Pulmonaria maculate* or *P. officinalis* (Lungwort); *Ranunculus acris flore pleno* (Double Buttercup or Batchelor's Button); *Saxifraga crassifolia*, thrives well planted under trees; *Spirea* (Meadow Sweet), all herbaceous spireas succeed best in partial shade; *Thalictrum* (Meadow Rue), several varieties; *Tiarella* (Foam Flower or False Mitrewort); *Trillium grandiflorum* (Wake Robin); *Trollius* (Globe Flower), several varieties; *Valeriana alba* (Garden Heliotrope); *Vinca minor* (Periwinkle), several varieties; *Viola* (Violet), all of the garden varieties.

ANNUALS BENEFITTED BY SHADE

Convolvulus minor (Dwarf Convolvulus); *Digitalis* (Foxglove); *Lavatera* (Annual Mallow); *Lobelia*, several varieties; *Malope grandiora* (Large flowering Mallow); *Lophospermum scandens*, trailing plant; *Maurandya*, climber; *Mimulus* (Monkey flower); *Nicotiana affinis* and *N. sylvestris*; pansies; *Tropæolum canariense* (Canary climber).

There are very few annuals that re-

quire much shade. Almost all are sun-loving plants of some degree of intensity.

LAWN PLANTS

Almost all greenhouse plants, especially foliage plants, such as palms, alocasia, Norfolk Island pine, bay trees, rubber plants, aspidistra, ferns and similar plants are useful to stand out in sheltered and shady positions on the lawn in summer time. Not only are the plants useful from a decorative point of view

on the lawn, but this treatment is also very beneficial to them.

There are a few flowering plants that are also useful for temporary lawn decoration in summer for shady positions. Fuchsias, pot hydrangeas, *Plumbago capensis*, *Clivias* or *Imantophyllums*, *Agapanthus umbellatum* (African Lily), and Japanese lilies are a few of the plants that are very useful for decorating shady positions temporarily during the summer season.

Fertilizers for the Garden

Frank T. Shutt, M. A., Dominion Chemist, Ottawa

BEFORE making recommendations as to fertilizers that will be found useful for general garden purposes and special crops, there are one or two considerations of a fundamental character that should be discussed. Too much emphasis can scarcely be laid upon the importance of previous preparation of the soil, not only by thorough cultural methods (including drainage, if necessary) but by liberal dressings of good, preferably rotted, manure, well worked into the soil. No subsequent application of fertilizers can take the place of this treatment though such may very materially increase the yield in some cases where the soil is naturally poor and the supply of manure limited. For the larger number of garden crops, and especially vegetables, the soil conditions should be such as to induce rapid and continuous growth.

Quality in vegetables is a most important desideratum: it implies succulency, crispness, absence of woody fibre or stringiness, of pungency and bitterness. Vegetables so characterized are the product of a quick and uninterrupted development and to ensure this growth there must be a warm, moist, mellow, well aerated loam with a large reserve of available plant food. Such a soil can be obtained and maintained only by a constant enrichment with humus-forming material, the very best source of which is manure. The use of fertilizers must be supplemental to and not as a substitute for manure, for fertilizers can do little towards making the soil an agreeable habitat for plants though they may be of the greatest value in performing one important function of the soil, the furnishing of available food for plant growth and reproduction.

NATURE OF FERTILIZERS

Commercial fertilizers are materials that supply nitrogen, phosphoric acid and potash—the three essential elements of fertility—in a more or less readily available form. Their value depends simply and solely on the percentages of these elements they contain and the availability of this plant food. Lack of space will prevent any consideration in

the present article of the nature, composition and origin of the numerous substances used as fertilizers and in the making of commercial fertilizers as found on the market. Many of them are chemical compounds such as nitrate of soda, and sulphate of potash, others are by-products from manufactories of various kinds, such as basic slag. The intelligent gardener would do well to make himself conversant with their nature by consulting some work on the subject, such as "Fertilizers," by Voorhees (Macmillan Co.), or "Manures and Fertilizers," by A. D. Hall (Murray), both excellent books.

PHOSPHORIC ACID AND POTASH

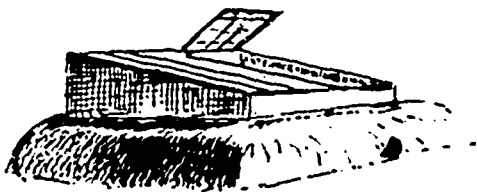
One or two words must be said on the particular function or part played by nitrogen, phosphoric acid and potash, since such will be of assistance in compounding fertilizers for special purposes. While all three are necessary for growth, nitrogen is the dominant element of fertility; its outstanding property is to promote leafy growth. Deficiency in nitrogen results in stunted growth, with yellow and sickly foliage. Excess in the soil of this element will induce a large development of stem and leaf, prolong the vegetative period and retard seed formation. On the other hand excess of available phosphoric acid shortens the growing period and hastens seed formation, and the ripening of the crop. It is particularly valuable in wet seasons and on "late" soils in districts subject to early frosts.

Potash is needed more especially for the changes that take place within the plant and which result in the conversion of the crude food materials absorbed by root and leaf into the substances forming the various vegetable tissues. Its function in aiding starch formation is a valuable one. It is this property that makes potassic fertilizers so useful for the potato crop. Possibly, like nitrogen, excess of potash delays maturity; a deficiency in potash has a marked effect in retarding the plant's normal development. These considerations point to the desirability of a fairly well balanced fertilizer, that is, one containing all three

elements in good proportions, to meet general requirements, and at the same time point the way to compounding special mixtures to suit special cases.

FERTILIZER MIXTURES

Horticulture is a branch of "intensive" farming. This means that in looking to secure a maximum production of crop we use an excess of available plant food. The garden soil is to be regarded as a bank in which we seek to have always to our credit a large amount of available funds. This excess of plant food, however, from the considerations in the pre-



A Simple Form of Hotbed

A description of how to make a hotbed was published in the March issue of *The Canadian Horticulturist*.

ceding paragraph, must be a well balanced one. For garden crops in general, including fruits and vegetables, the following may be used, the application ranging from five hundred pounds to fifteen hundred pounds an acre, according to the condition and character of the soil, and thoroughness with which we intend to cultivate and take care of the crop: Nitrate of soda, 200; superphosphate, 300; bone meal, 200, and sulphate of potash, 200 lbs. Mix well just before using and broadcast on the prepared soil in the spring and thoroughly incorporate with the surface soil. An admixture with, say, an equal weight of dry loam will facilitate an equable distribution of the fertilizer. If the soil is sour, poorly drained and deficient in lime, basic slag (an alkaline phosphatic fertilizer) may be substituted for the superphosphate in this formula. If the soil has been well manured for a number of seasons, the nitrate of soda may be reduced to one hundred pounds.

The purchase of the various fertilizer ingredients and home mixing is generally to be advised, as being cheaper than buying a brand of ready made fertilizer and allowing the gardener to more economically use his plant food by modifying the proportions according to the nature of the soil and of the crop to be fertilized. Thus, sandy soils are naturally poorer in potash than clay soils; soils that have for years been liberally dressed with manure will be richer in nitrogen than loams that have been scantily dressed; vegetables and fruits make a large demand on the potash stores of the soil, while cereal crops are very moderate in their potash requirements. These and many similar considerations allow the intelligent man to alter the proportions somewhat in such a formula as we have

given and permit a considerable saving.

If, however, on the score of convenience it is decided to purchase a ready-mixed fertilizer, one having a guaranteed analysis as follows may be chosen in the place of the foregoing: Nitrogen, three and a half to four and a half; available phosphoric acid, seven to nine, and potash, eight to ten per cent.

(To be continued)

Celery for the Home Garden

George Baldwin, Toronto, Ont.

No home garden, no matter how small, is complete without a trench of celery, though from personal observation in the gardens of people whom I am acquainted with, the proper quality and size of celery is not brought out as it should and can be done.

The elements of success in celery growing are many. First and foremost among them is a love for your work. If you do not like your job, you will never be a real success.

By the time this is in print it will be too late for sowing the seed of early celery, but you can procure all the plants you require from local seedsmen at reasonable rates.

Providing you can make room for a three row trench, I would recommend White Plume, Paris Golden and Rose Ribbed Paris. As soon as seedlings have got three leaves, prick them out into more space, giving them about one inch of room each way, keeping them as close to the glass in the hot bed as possible to prevent them getting too long and spindly. Stir the earth frequently with a small pointed stick and when they are about two inches high transplant again, giving three inches of space. About the second or third week of May they will be ready to plant out in the trench.

Early Vegetables

Miss M. J. Dubeau, Warren, Ontario

Why do not our Canadian gardeners grow more early cucumbers? It seems to me that many more might be grown where the climate is not so severe as it is up here in the Nipissing District. Last year I had my first experience in the use of a hotbed. The seed was not put in until the last week in April nevertheless I succeeded in securing lettuce and radish, besides cucumbers. I secured the first cucumbers on June 23th.

From some that I transplanted to the open ground on July 12th I gathered a cucumber which weighed a pound. I was somewhat astonished when our fruit dealers told me they were still handling imported cucumbers which they were selling at ten cents a pound. I also surprised my neighbors by growing some early ripe tomatoes. These I kept pruned severely. They produced ripe tomatoes on August 1st, which is considered early

up here for very few ripe tomatoes have been grown, and none to my knowledge before September when heavy frosts are usually expected.

Planning the Vegetable Garden

W. J. Kerr, Ottawa, Ont.

At this season of the year, the gardener and those fortunate enough to have a garden, should be planning for the future crop. By the time of the appearance of *The Canadian Horticulturist* for April, many will have hot beds made and seed already sown. The preparation and caring for a hot bed is a very interesting part of gardening but where it is not possible for the amateur to make a bed he may arrange with some professional gardener to start his early vegetables, such as cauliflower, cabbage, tomatoes, peppers, melons, cucumbers, asters, verbenas and others. Then, when they are ready to transplant, the amateur may get his plants in the flats in which they have been started and transplant them into cold frames or hot beds.

It is well to secure the best seed obtainable. Cheap seed is usually dear at any price but it does not necessarily follow that the most expensive is the best. I would recommend that the readers of *The Horticulturist* write the seedsmen advertising in this paper, and get their catalogues, and select the varieties of each class of vegetables most suited to their wants. These seeds should be in their hands before planting time and where possible should be tested for germination and if of low vitality should be discarded and fresh seed procured elsewhere.

It is always well to have the land plowed or spaded in the fall so that such vegetables as peas, carrots, onions, parsnips, lettuce and radishes may be sown as early as the land is in nice workable condition. The soil should be raked down to a fine tilth and the seed sown a depth corresponding with the size of the seed. That is, very small seeds should be sown in very shallow trenches, while larger seeds should be sown deeper. It is always well to sow in long rows if possible to permit of the use of the wheel hoe in cultivating, as it materially lessens the labor of cultivation. Frequent and thorough cultivation is desirable to keep up a steady and rapid growth and prevent weeds from robbing the plants of food and moisture. The frequent stirring of the soil about the plants helps preserve the moisture in the soil for the support of the plants during dry weather.

On the first opening of spring it is well to make a general clean up of all rubbish about the garden. Burn it, as you will thus destroy many injurious insects and fungous pests that have hibernated on it, and which await the warm weather to begin their attacks.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO



The Only Horticultural Magazine in the Dominion

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

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 50 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.
5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
6. Advertising rates One Dollar an Inch. Copy received up to the 15th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of the Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1911	8,002
February, 1911	8,250
March, 1911	8,523
April, 1911	9,469
May, 1911	9,763
June, 1911	10,178
July, 1911	10,062
August, 1911	10,043
September, 1911	9,973
October, 1911	9,991
November, 1911	9,900
December, 1911	10,137
Total	114,489

Average each issue in 1907	6,577
" " " " 1908	8,585
" " " " 1909	8,976
" " " " 1910	9,967
" " " " 1911	9,541

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertiser's reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant, we will expose them through the columns of the paper. Thus we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefit of this Protective Policy is that you include in all your letters to advertisers the words, "I saw your ad. in The Canadian Horticulturist." Complaints should be made to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed

THE CANADIAN HORTICULTURIST, PETERBORO, ONT.

EDITORIAL

A LAND BOOM IN ONTARIO

Ontario is beginning to come into her own. Her possibilities as regards the production of high grade fruit are now being appreciated at something like their real worth. In all the principal fruit growing sections of the province a new enthusiasm is manifest among the growers as regards the possibilities of their districts and a new spirit of optimism is noticeable in the contributions that reach our desk.

Norfolk county was one of the first to awake. The transformation that has been made in portions of that county cannot be appreciated by anything less than a visit to the districts there where thousands upon thousands of dollars are being invested in lands and in the setting out of orchards. Lambton county is now beginning to advertise her possibilities and there are indications that Huron county will soon be heard from in no uncertain tone. A great reformation is taking place also along the north shore of Lake Ontario where are located some of the largest orchards in the province. A considerable number of these orchards range from twenty-five to almost one hundred acres in extent. On the farm of Mr. W. H. Gibson, of Newcastle, Ontario, there are rows of apple trees a mile long, something, it is said, that it would be hard to duplicate elsewhere on the continent. The Georgian Bay district, also, is sharing in the incipient boom.

There is only one surprising feature about the situation: This change should have occurred long ago. Land as good as people would have to pay five hundred and six hundred dollars for elsewhere may be purchased in Ontario for seventy-five to one hundred dollars an acre. The ubiquitous land agent, gaining courage from the evidence of a determination on the part of the provincial government to encourage emigration as well as from the success of the provincial apple show and trial orchards, about which so much has been heard during the last few years, now foresees a chance to buy and sell fruit land at a profit. Therefore, he is making his appearance felt. As the early robin foretells the near approach of summer so the land agents now working in Ontario presage by their operations a wave of interest, during the next few years, in the fruit lands of Ontario such as the province has never known. In this connection the Ontario Fruit Growers' Association and the government itself should prepare to take all possible steps to prevent the investing public, including as far as possible the British public, from being defrauded by wild cat schemes such as have injured many fruit districts. The possibilities of the fruit lands of Ontario are so great their best development should not be allowed to be hampered by frauds of any kind.

THE DOMINION ORGANIZATION

So many matters of importance pressed for attention during the brief three days of the recent Dominion Fruit Conference held in Ottawa a number did not receive the consideration that their importance deserved. This was true of the proposal to form a Dominion Fruit Growers' Association. It was decided to form such an association and preliminary officers were

electd, but pressure of other work did not permit of the details of organization being worked out thoroughly.

Canada is a large country. Its fruit districts are scattered. They extend, at wide intervals, from the Atlantic to the Pacific. This situation creates inherent difficulties that will militate against the work of such an organization. It will never be possible to fully overcome the handicaps imposed by the time required to conduct correspondence and the expense of holding meetings. As time advances, however, methods of reducing these to a minimum will be discovered and the usefulness of the association will increase. In the meantime, the officers of the association can render valuable assistance to the fruit interests by following up as closely as possible the work done at the recent conference in order that the decisions there reached may be carried into effect with the least possible delay and in the manner most likely to give the best results. One of the duties of this organization should be to urge that a date for the holding of the next conference shall be set sufficiently soon to ensure a greater interest being taken in its deliberations, thereby increasing its possibilities for usefulness to the fruit industry.

Members of the Berlin Horticultural Society waited on the city council during March and obtained a grant of one hundred and fifty dollars to assist in the carrying on of the work of the society. A number of other societies in Ontario obtain annual grants from their town and city councils. The Windsor Horticultural Society has done especially good work in this respect. Societies, especially those located in the smaller towns and cities where there are no park commissions or park committees of the municipal councils might well follow the example set by these societies. The average council is willing to make a reasonable grant for horticultural improvements when once assured that the money thus granted will be handled by responsible men capable of spending it to the best advantage. Societies that will prepare a definite plan of work, especially when they gain the support of their local boards of trade, may have every reason to expect, upon laying their plans before their municipal councils, to receive liberal financial assistance.

Horticultural societies that may be looking for opportunities to render public service this year might follow with advantage the plan of picking out certain streets for improvement and then offering prizes to the residents along such streets for the best boulevards, lawns, window-boxes and other horticultural embellishments. By following this plan for a period of a few years a wonderful improvement can be worked in the driveways of any town or small city. Property holders along the streets to be improved can generally be induced, when approached in the right way, to contribute to the funds required for the carrying on of the work. Municipal grants also are sometimes available. These streets soon constitute driveways of which the municipality becomes proud, and as the work increases in public favor its extension to other districts becomes possible. Such activities as these always call for the expenditure of much time and energy on the part of a few public spirited persons who seldom receive the public appreciation that their effort deserve. The love of horticulture, however, is so deep in the hearts of at least a few people

in every community, their services are generally available when opportunity calls.

The owners of town and city gardens that are limited in extent often regret that lack of space prevents them from growing as many fruit trees as they would like. Such people might well try grafting other varieties to those they have in order that they may, as suggested elsewhere in this issue by Mr. J. MacPherson Ross, of Toronto, obtain two and three varieties of fruit from one tree. The work of grafting is interesting, and when done with care returns most satisfactory results.

The suggestion made in this column last November that the Ontario Horticultural Association should offer prizes annually for the best essays on some subject relating to

the growing of flowers, the prize winning essays to be published in the annual report of the Association, was acted upon favorably by the members of the association at their annual convention in Toronto last November. Details of the competition have not yet been arranged. Officers and members of horticultural societies will do well, however, to keep this matter in mind. Final arrangements for the competition should be completed at as early a date as possible to enable competitors to write on the subject during the spring months and thus insure the publication of their essays at a season when the cultural directions they will contain will be of the greatest benefit.

PUBLISHER'S DESK

The front cover of this number of THE CANADIAN HORTICULTURIST shows a view in the garden of one of our Peterboro subscribers, Mr. G. Walter Green. This is one of a number of fine private properties in the city which do much to make "The Electric City" during the summer months one of the most attractive cities in Ontario.

This is our first real garden and spring planting number. We hope that it will prove interesting and helpful to our readers. Have you noticed the high standing of our various contributors. Almost without exception they are people who are well known to the public as authorities on the subjects on which they have written. We feel that the readers of THE CANADIAN HORTICULTURIST are entitled to the best class of reading that we can furnish them, and therefore use the utmost possible discrimination in the selection of the articles that find admission to our columns. Amateurs, however, should never be afraid to let us hear from them. A number of the best articles that have appeared in THE CANADIAN HORTICULTURIST this year have been contributed by amateurs unknown to the great majority of our readers. Often it is the experience of men and women who have done things successfully in a small way that proves the most helpful to others similarly situated. If you have a good idea never hesitate to pass it on to THE CANADIAN HORTICULTURIST.

Our plans for the May issue of THE CANADIAN HORTICULTURIST provide for a number that will be filled with interesting, helpful information. A feature of the number will be a profusely illustrated article, dealing with pruning as it can be performed during the spring. This article will be by Prof. E. M. Straight, of MacDonald College, Quebec. We will have another article by Mr. Gordon Bunting, of the Central Experimental Farm, entitled, "What Cultivation Shall I Give the Orchard." Mr. Bunting's article in this month's issue was furnished at short notice when it was found that Mr. W. T. Macoun would be unable to handle the subject that Mr. Bunting has treated so capably. Features of the floral pages will be a planting table for the months of May and June that is being prepared especially for the readers of THE CANADIAN HORTICULTURIST by Mr. Wm. Hunt, of Guelph. Mr. F. E. Buck, who is in charge of the floral division of the Experimental Farm, Ottawa, and whose articles are becoming well known to our readers, will contribute a special article on perennials. We expect

to publish another interesting description of a Canadian garden as well as several short articles that will be practical and helpful. A feature of the vegetable department will be an article by Prof. Zavitz, of Guelph, which will give the results of experiments in potato growing. These articles will be illustrated. This will ensure the issue presenting a pleasing appearance throughout.

Once again THE CANADIAN HORTICULTURIST has been breaking records. The March number was the largest March issue we have ever published. It was the same size as the Special Spraying Number for February, which was the first issue of that size ever issued. The amount and value of the advertising carried far exceeded any previous issue for March, and was only slightly behind the February issue which holds the record so far. This is only another indication that readers of THE CANADIAN HORTICULTURIST have confidence in its advertisers and are patronizing them liberally as our advertisers are finding it profitable to use THE CANADIAN HORTICULTURIST to let our readers know about their goods.

The Public Library of Toronto is desirous of securing volumes of THE CANADIAN HORTICULTURIST for 1906, 1907 and 1908 to complete their files. Have any of our readers complete files of the paper for one or more of those years that they are willing to part with? If so will they kindly communicate with us or direct with the Public Library, Toronto, which will be glad to purchase either a complete file of copies for these years, or the bound volumes should they be available.

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.

PORT HOPE

The Port Hope Society has appointed a lookout committee to take any steps in the interest of the society looking toward the improvement of the town that may be deemed advisable. The society had a membership last year of 139. Its receipts were \$265.07 and its expenditures, \$232.05.

PERTH

At the January meeting of the Perth Horticultural Society attention was given to the gooseberry and currant. Thos. Cole, an old country gardener, and a member of the society, had present bushes in the rough and gave the members a practical lesson on pruning. In addition to pruning he answered a score of questions agreed in regard to the best methods of cultivation of these small fruits.

At the February meeting, Rev. A. H. Scott presented to the society detailed information upon the work done at the Ritonhouse Public Gardens and the Broadview Boys' Farm. Both the January and February meetings were held when the thermometer was striving to make a record for cold, and yet both engagements had spring in view, and both occasions were a preparation for the growing time that is approaching.

Honest Advertisers

One by one leading papers and magazines everywhere are adopting the policy of excluding all patent medicine, fake or objectionable advertising, and are opening their columns only to those advertisers whom they feel they can thoroughly recommend. Just recently a leading United States publication decided to take this step, even though it meant a loss in direct revenue from advertisers who last year paid them \$40,000 for space in their publication.

Publishers are realizing that if they are to be fair to their readers and reputable advertisers, they have no more right to print lies or objectionable statements in their advertising columns than in their reading columns.

This policy of clean advertising has always been a part of The Canadian Horticulturist. We publish no advertisements we have reason to feel we cannot thoroughly endorse. If we are in doubt about an advertisement, it is left out. Only a short time ago we were offered a good sized advertising contract for a firm, which we believed would do all it promised to do, but as the copy did not "look" just right, it was refused.

It costs money to carry out this policy, but it wins the confidence of our readers, who know they are patronizing reliable firms when they buy from those who advertise in The Canadian Horticulturist. They know that the appearance of an advertisement in The Canadian Horticulturist is equivalent to a personal letter of endorsement of the advertiser from the publisher.

As proof that this policy pays, and that advertisers are finding it profitable to use space in The Canadian Horticulturist, we have only to call attention to the increasing volume of advertising carried, which for both February and March exceeded any previous issue.

Readers of The Canadian Horticulturist can show their further appreciation of the stand we take for clean, truthful advertising by patronizing advertisers who use the columns of The Canadian Horticulturist, and by telling them where they saw the advertisement.

We do not admit to our columns advertisers except such as we believe are thoroughly reliable.

The Third Dominion Fruit Conference

In the report of the Dominion Fruit Conference published in the March issue of *THE CANADIAN HORTICULTURIST* the report, through an error in the making up of the forms, was broken off without explanation in the midst of discussion of the fruit census as given by Mr. W. W. Moore, Chief of the Markets Division, Ottawa.

The total number of fruit trees in 1901 was given as 21,128,197, and for 1911 as 20,812,556. The number of bearing trees in 1901 was 11,926,027, and in 1911, 12,794,357, a decrease of 14 per cent. The number of non-bearing trees reported was more encouraging as they were given as having been 6,202,170 in 1901, and as 8,018,199 in 1911, or an increase of 29 per cent. Nova Scotia and British Columbia showed large increases in the number of both bearing and non-bearing apple trees, while Ontario showed a heavy decrease in the number of bearing apple trees, as did also Quebec and New Brunswick.

Mr. Moore explained that while there had been a great increase in the planting of apple trees in the different provinces there had been a heavy decrease in the old bearing orchards planted many years ago in localities not well adapted to fruit growing. A number of the delegates expressed doubt in regard to the correctness of the figures, and claimed that they did not correspond with what they knew to be the case in portions at least of their respective provinces. Mr. Moore himself did not seem any too sure that it would be safe to rely on the correctness of the figures, but gave them for what they were worth.

Mr. A. W. Peart, of Burlington, who had furnished valuable information in regard

to the acreage and production of fruit in Canada at the last conference, gave some additional information as compiled by him recently from various Government and other sources. He estimated that the fruit interests of Canada represent an investment of \$78,621,900, and that the fruit crop of Canada each year yields the growers a return of 25 per cent., on the average, upon this investment. He placed the apple acreage at 252,657 acres, representing a capital value of \$50,531,400. Further mention of Mr. Peart's figures will be made later.

The balance of the Thursday afternoon session was devoted to a discussion of the recommendation and resolutions that had been forwarded by the various provincial associations, practically all of which were referred to the various committees for consideration. A feature of this session was the presence of His Royal Highness the Duke of Connaught, Governor-General of Canada, who made a brief speech, and who remained to listen to a considerable portion of the discussion. After the conference the Duke was sent some fruit from each of the provinces as contained in the exhibit at the conference.

THE PRIME MINISTER SPOKE

At the Thursday evening session, addresses were given by the Right Hon. R. L. Borden, Premier of Canada, and by Hon. Mr. Burrell. Both speakers assured their hearers that the Dominion Government was anxious to do everything possible to promote the fruit interests of Canada as well as agriculture generally.

A valuable report on the fruit resources of Canada, as well as of the fruit possibilities of the different provinces, was present-

ed by Mr. W. H. Bunting of St. Catharines, who spent several months last year conducting a special inquiry into the fruit growing industry of the Dominion at the request of the Dominion Government. Mr. Bunting gave an outline of the conditions as he found them in each province, and incidentally made numerous helpful suggestions. A much more complete report of his investigations is to be published later in bulletin form by the Government. Further reference to it will be made in *THE CANADIAN HORTICULTURIST*.

The balance of the Friday morning and afternoon sessions was devoted to the consideration and discussion of the various committee reports. These resulted in the passing of the resolutions already outlined and in the formation of the National Fruit Growers' Association. The conference was concluded by the passing of formal votes of thanks to the Government for calling the conference and to the Government officials who had helped to make it a success.

A standing vote of sympathy was extended to Mr. Clifford Jack, of Chateauguay Basin, Que., one of the delegates, who had been summoned home on account of the sudden death of his mother, Mrs. Annie L. Jack. The results of the transactions of the conference on the fruit interests of Canada will make their influence felt for many years to come.

The demand for information about the famous Rittenhouse school and garden, at Jordan Harbor, Ont., has led to the issuing of an extremely handsome booklet describing the work of the garden. It is printed on high-grade paper, profusely illustrated, and gives a most interesting description of the Rittenhouse Public School and Garden.

Cheap Roses

If you want Roses that will do anything at all then don't *experiment* with cheap slips and cuttings bought from so-called Nursery concerns, but buy two year old Canadian grown plants from *reputable* rose growers, who have raised them on their own nurseries and not imported them. Imported gowns may be attractive and alluring, but imported Roses and Shrubs are by no means satisfactory.

The climate of France and Holland is quite different from ours and plants from these countries feel the change sorely. Roses and Shrubs offered at "Bargain Counter" rates have undoubtedly been imported from England, France or the Netherlands, and are expensive even at the lowest prices.

Buy your Roses, Shrubs and trees from reputable nurserymen growing stock in your own latitude

Our selection of Roses, Shrubs, Trees and Plants is complete, and lists and prices will be cheerfully furnished on application.

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SPECIAL GLASS FOR GREENHOUSES



Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN
THICKNESS, AND WELL CUT

We make a specialty of supplying
Glass for vegetable forcing houses

PILKINGTON BROS.
Limited

Toronto, Montreal, Winnipeg, Vancouver

Mention *The Canadian Horticulturist* when writing

Hindrances to Cooperative Fruit Growing*

A. McNeill, Chief, Fruit Division, Ottawa

A FORMIDABLE but insidious hindrance to co-operation in fruit growing is the want of proper legislation to enable farmers to get together easily, safely and effectively as an incorporated body. It so happens that nearly all the improvements which we are trying to impose upon the rural population have been planned and elaborated by city people. Those who have not had, for years at least, any practical association with rural affairs and who know the problems only as they see them from a city office window. The legislation which works most effectively in the financial combinations of commercial life, where capital is the chief feature, is very gravely defective when applied to a rural affair, which is a combination of men and industries, and where capital, though absolutely necessary, is yet incidental. This particular defect in our legislation is fundamental, and we must look for many failures and grave difficulties unless we can secure proper co-operative legislation.

CO-OPERATIVE OR JOINT STOCK

There is a marked difference between legislation quite suitable to our great commercial and financial undertakings where capital dominates, and the legislation referred for rural organization where men and their occupations are the chief factor and where capital is subordinate. The ordinary joint stock company is a mechanism whereby a number of men can unite to act as a unit. Through their officers, they lose

contact from an address on cooperation described at the Dominion Fruit Conference in Ottawa.

their individual identity and speak as a single unit, but in determining what that voice shall be, it is the number of shares that constitutes the voting power, that is, it is the amount of capital invested that gives weight to the members composing the corporation. We may speak of it, then, and in no derogatory sense, as being capitalistic, and almost of necessity autocratic. On the other hand, an apple selling association or a co-operative evaporator, or in fact any other rural organization, requiring incorporation whereby the individuals composing it may speak as a single individual, find that capital is only incidental, the chief thing being the industry. It is the value of the product handled by the association that determines each man's interest in this rural body.

Roughly speaking, the capitalistic organization such as the ordinary joint stock company is a combination of capital simply. A rural organization must, of necessity, be a combination of men. This principle is so well established by the experience of all countries that it is somewhat remarkable that it has not permeated Canadian legislation. Those who have read the history of co-operation will have remarked that, while there are individual societies composed of men of exceptional ability and public spirit that have succeeded with a joint stock organization, yet speaking generally co-operation has been a dismal failure until suitable legislation was provided or at least until antagonistic laws have been repealed. I would scarcely care to be so positive upon this point if I were not sure that I have with me the history, not of one country

Douglas Gardens

Oakville, Ontario

CHINA ASTERS

Are more prominent this year than ever. The harvest of seed last year was excellent; and improvement of the varieties has advanced. We are aiming to have plants ready for shipment about 15-20 May.

QUEEN OF THE MARKET, WHITE AND PINK.

LAVENDER GEM.

ROYAL PURPLE.

VICK'S BRANCHING WHITE.

CREGO, PINK.

All grown from best seed and once transplanted.

Prices: 10 for 15 cts.; 100, 75 cts.; carriage postpaid.

Not less than 25 of one variety at the 100 rate.

GLADIOLI

Groff's Hybrids, 10 for 25 cts.; 25 for 55 cts.

Groff's Hybrids, choice section of light colored sorts 25 for 75 cts.

Groff's Hybrids, choice section of red and scarlet sorts 25 for 60 cts.

Carriage prepaid.

KNIPHOFIA (Torch Lily)

Var. Pfitzeri, a free, continuous bloomer until hard frost comes. It should be planted in spring, taken up in the fall, packed in sand or soil and wintered in a cool cellar. It increases its kind and is a very satisfactory plant. It grows 3-4 feet high, and the spikes of bloom are of a rich orange-scarlet. Is most effective when planted in clumps. Each 15 cts.; 10, \$1.25 Carriage prepaid.

JOHN CAVERS



The trees were the best rooted we ever saw and every one of them grew — Howard G. Fisher.

Auburn Nurseries Pedigreed Peaches

2 Years Old. Grown by G. E. Fisher & Sons
Dulverton Fruit Farms, Queenston, Ont.

These are the kind of trees to buy. No storage stock about these, but the thrifty, healthy, sturdy kind that stand in the nursery row all winter, and are fresh and bright in the spring, and reach you in fit condition to start right into business. Our stock has all wintered splendidly and shows no frost damage. We still have a good stock of Peach, Cherry, Pear and Plum, Yearling Apple and Quince.

AUBURN NURSERIES
QUEENSTON, ONT.

GOOD CROPS

ARE OBTAINED BY USING

THE BEST MANURE

AS SUPPLIED TO
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SURE GROWTH COMPOST

makes poor land fertile, and keeps fertile land most productive. Supplied by

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Have you sent us your order for **FLOWER POTS?** We have a very large stock of all sizes, and can give you **Immediate Shipment.**

STANDARD POTS

Number in Crato	Size	Price including Crate
4,000	1	\$12.40
2,500	2	9.15
1,500	2 1/2	6.40
1,070	3	5.75
780	3 1/2	5.08
500	4 (200,000 in stock)	4.15
360	4 1/2	3.64
330	5	4.53
200	6	4.20



HANGING BASKETS

48	10	4.24
48	12	5.20

3 per cent. discount 30 days.

All our Pots are well burned.

MAKE up your Order and send it to us NOW.

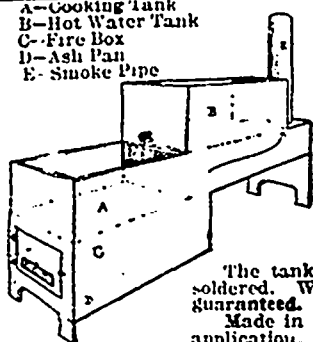
Write for our Catalogue and Price List, which gives prices on all size Pots, Fern and Bulb Pans, Hanging Baskets, Jardiniere Pots, Saucers, etc.

The FOSTER POTTERY CO.

Hamilton, Ontario

CANADA'S LEADING POT MANUFACTURERS

- A—Cooking Tank
- B—Hot Water Tank
- C—Fire Box
- D—Ash Pan
- E—Smoke Pipe



Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed.

Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day

STEEL TROUGH AND MACHINE CO., Ltd., TWEED, Ont.

Imperial Bank

Established OF CANADA 1875
HEAD OFFICE TORONTO

Capital Paid-up. . . 6,000,000.00
Reserve Fund . . . 6,000,000.00
Total Assets . . . 72,000,000.00

D. R. WILKIE, President and General Manager
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Letters of Credit, Drafts and Money Orders Issued available in all parts of the world

Special attention given to collections

Savings Department at all Branches
Interest allowed on deposits at best current rates

Strawberry Plants

That are Great Yielders

Buy your strawberry plants from one that has made a success of growing berries for the market for many years.

I grow the Williams Improved, Parsons Beauty, Splendid and Michel's Early.

Last year the yield from 23.4 acres was 31,500 boxes, and in 1910 the yield from 11.5 acres of Williams Improved was 16,770 boxes.

I have for sale a fine lot of plants of above varieties. Prices: 75 cts. per 100; \$5.00 per 1,000.

W. WALKER

Port Burwell, Ont.
Elgin Co.]

alone, but of twenty countries, and I can support this view, the testimony not of one investigator alone, but of every investigator who has acquired any reputation.

SIR HORACE PLUNKETT'S OPINION

To quote but one—and I could quote a letter Sir Horace Plunkett, writing recently in the New York "Outlook," said: "The object of rural associations is not to declare a dividend, but to improve the conditions of the industry for the members. In the control of the management the principle, 'One Man, One Vote' should be strictly observed, an essential condition of co-operative as distinguished from joint stock organization. The chief advantage of co-operative legislation to the farmer is that it enables him to do his business in a way that suits him instead of adopting a town-made system unsuited to his needs."

In Canada the farmer is not permitted to do business in his own way and upon a plan that would work no hardship to him nor to anyone else; but is obliged to adopt the methods of capitalism that enable those whose interests are not necessarily in the land or in the industry, to control the organization and take what toll they please.

Maritime Possibilities*

W. H. Bunting, St. Catharines, Ont.

An important feature, peculiar to the Nova Scotia fruit belt, is the large number of apple storage warehouses situated at every shipping station throughout the Annapolis Valley. Over eighty of these have been erected with a capacity of from two thousand to ten thousand barrels each. The fruit is usually handled direct into barrels in the orchard and rushed to these warehouses, where it is repacked during the fall and winter seasons and shipped off whenever a favorable opportunity offers.

Owing to comparative nearness to the British markets, the great bulk of the plus fruit is exported. The past season, however, has been a record one, both in volume of the crop and quality of the fruit and has seen the western markets invaded for the first time. Nova Scotia Gravensteins and other varieties found their way not only to Winnipeg and the large prairie towns and cities, but even as far west as Revelstoke and Kamloops in British Columbia.

BETTER TRANSPORTATION NEEDED

On account of the lack of regular and frequent sailings of ocean steamships from Halifax, the transportation question during the early fall months is a serious one, and if possible some remedy should be found. This condition does not apply to the shipping facilities during the winter, when the sailings are regular and frequent. It is during this period that the great bulk of the crop is marketed, and it is therefore desirable that the planting of only the best varieties of winter fruit be encouraged.

While many Nova Scotia growers are specialists and are handling their orchards in a careful, systematic manner, a widespread campaign for the adoption of the best methods of orchard practice would greatly enhance the quality of the product and the profit to be derived therefrom.

PRINCE EDWARD ISLAND

Prince Edward Island comprises district number eight. On this beautiful island there are a few wide-awake fruit-growers.

*This is the balance of Mr. Bunting's report on the fruit possibilities of the Maritime Provinces as continued from the March issue.

Landscape Designing

For Small Properties

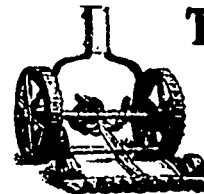
No property is too small to dispense with the services of a competent Landscape Designer in planning for effective plantings of Shrubs, Roses, Perennials, Evergreens, Climbing Vines, etc.



Our Landscape Department is at your disposal. Send a rough sketch of your property and we will advise you how to plan it.

No charge for suggestions. Send for catalogue and circulars.

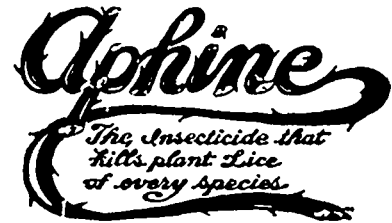
Stone & Wellington--Toronto



THE CLIPPER

There are three things that destroy your lawns, Dandelions, Buck Plantain and Crab Grass. In one season the clipper will drive them all out.

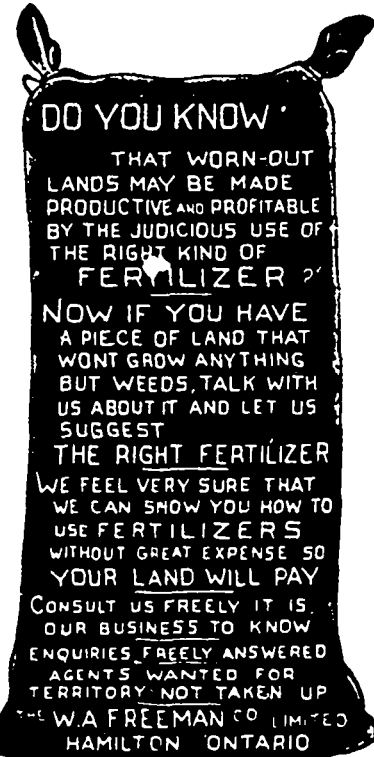
CLIPPER. LAWN MOWER CO., Box No. 8, Dixon, Ill.



The Insecticide that kills plant Lice of every species

\$2.50 per Gallon; \$1.00 per Quart.
Dupuy & Ferguson, Montreal, Can.

Fertilize Your Lands



Good Prices Always

For Your Fruit and Vegetables

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.



We Solicit Your Consignments

Send for Shipping Stamp

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



MAXWELL'S HIGH SPEED CHAMPION

is in a class by itself—the easiest running, the most substantially built, the most efficient washer, ever invented.

Only washer worked with crank handle at side as well as top lever—and the only one where the whole top opens up.

Ask your dealer to show you the "Champion" Washer.

"Favorite" Churn is the world's best churn. Write for catalogue.

DAVID MAXWELL & SONS ST. MARY'S, ONT.



PEERLESS PERFECTION



The first cost should be the last cost.

You should put up a fence that will give you real fence service first, last and all the time. The cheapest is always the most expensive in the long run on account of repairs necessary.

Peerless Saves Expense

because it is the poultry fence that never needs repairs.

Peerless poultry fencing is made of the best steel fence wire—tough, elastic and springy—and will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing positively prevents rust and will not flake, peel or chip off. This feature alone adds many years to the life of a fence.

The joints are securely held with the "Peerless Lock" which will withstand all sudden shocks and strains yet is so constructed that Peerless Poultry Fence can be erected on the most hilly and uneven ground without buckling, snapping or kinking.

The heavy stay wires we use make Peerless Poultry Fencing rigid and upstanding thereby preventing sagging, and needs only about half as many posts as other fences.

We build our poultry fence stronger than seems necessary in order to keep marauding animals out and close enough to keep the smallest fowls in. Many of our customers are using this style as a general purpose fence with entire satisfaction.

Peerless Poultry Fence when once put up is always up and will look better, wear better and serve you better than any other fence built.

Our Catalogs are all Free to You

Write us for literature and address of nearest agent. We also manufacture a complete line of general fencing, farm gates, walk gates and ornamental fencing. Agents almost everywhere. See how—Maxwell Wire Fence Co., Ltd. Winnipeg, Man. Hamilton, Ont.

which Mr. A. E. Dewar, of Charlottetown; Frank Boyer, of Banbury, and John Annoar, of Lower Montague, may be considered types. These men, and a few others who might be mentioned, have orchards of apples and plantations of small fruits of considerable importance. Their success proves conclusively that if the people of this district were thoroughly aroused to the splendid opportunity before them, then the increased planting of fruit would be undertaken with energy and vigor.

Complaints are made by many who have orchards that there is a lack of buyers and means of despatch for the crops already produced. It is claimed that it is useless to spend time and attention on a crop that cannot readily be turned into money. The people as a whole have not as yet become fully impressed with the fact that by a comprehensive scheme of cooperative effort, and by careful attention to the details necessary for the production of fancy fruit, they would find their product in the very greatest demand at profitable prices, and their energies would be taxed to supply it.

Small fruits of all kinds succeed admirably here, particularly strawberries, and their increased cultivation might be safely encouraged. Very active and earnest efforts to improve the situation and to awaken an enthusiasm among the people have been made by Mr. Theodore Ross, Secretary of Agriculture; Mr. A. E. Dewar, President of the Provincial Fruit Growers' Association, and Mr. Clark, Superintendent of the Experimental Farm, and it is to be hoped that their efforts will be crowned with success. A trained specialist who could devote his entire time as a field horticulturist among the people on their farms would be able to do a great deal of useful and profitable work in this province.

A Western Advantage

W. J. L. Hamilton, South Salt Spring, B. C.

I have read much about the relative merits of Ontario and British Columbia as regards fruit growing, but not knowing Ontario, I will keep out of the discussion except to point out one inestimable advantage we possess in British Columbia in having a compulsory spraying law. If only one orchard in a district is unsprayed it acts as a pest preserve, from which, as a centre, all the fruit growers' enemies are disseminated. Moths and beetles have wings, spores of the fungi can be carried long distances by the wind and by the feet of the birds and insects, and this is true also of the scale insects, both San Jose and Oyster-shell. It has been calculated that one San Jose scale is capable of producing at least three million descendants in one season. This alone should suggest the amount of damage done a district by one neglected orchard or even tree.

Take the codling moth: If all spray, the first brood should be reduced by about ninety-five per cent., and two more sprayings should check the next brood, another death blow being given by careful fruit thinning and landing the trees. But one infected and neglected orchard just doubles the cost of fighting this pest, since double the number of sprayings at least will be called for. Not only this, much more arsenic will be applied to the tree, which, many authorities believe, will ultimately injure it. Need I say more to show how manifestly unfair it is to all progressive orchardists for one "back number" to work such widespread injury. Moreover, this negligent orchardist will sell his inferior fruit for what he

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much, and I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right", and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machine for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that's fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 59 cents a week, I'll be paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself pays the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in 6 minutes.

Address me this way—A. O. Bach, Manager 1900 Washer Co., 555 Yonge St., Toronto, Ont.



HOW TO GET BETTER LIGHT From COAL OIL (Kerosene)

Recent tests by Prof. McKergow, McGill University, Montreal, on leading oil-burning lamps show the Aladdin Lamp gives over twice as much light as the kero and other lamps tested, and burns less than one-half as much oil. It is odorless, safe, clean, noiseless. Better light than gas or electric. Fully guaranteed. Get burner to fit your old lamps. Ask for Catalog M, learn how to get

ONE LAMP OR BURNER FREE
AGENTS: Mail order over 1000 on money back guarantee not returned. Burner sold \$1.00 in 15 days. Ask for liberal agency proposition. Sample lamp furnished. **HASTLEY LAMP CO.**, Inc., 1125 Alameda St., Waco, Tex.



Strawberry and Raspberry PLANTS

All the Leading Varieties
HOME GROWN

Send for Catalogue and
Price List

C.P. NEWMAN

BOX 51

Lachine Locks - Quebec



Brooder-Hatcher

Incubators and Brooders

PHILO SYSTEM

If you would like to make some money and have some good sport at the same time, just get one of these "Brooder Hatchers," grow your own eggs and chickens in your own back yard—have them fresh every day. With this system you can keep 50 to 100 chickens in a very small place. The incubator holds 50 eggs, broods one batch below at the same time hatches another batch above, one lamp doing double duty. One gallon of oil runs it for the 21 days. Having secured the entire Canadian Agency, with a car load of machines just arrived, we can fill all orders promptly.

Ask for Free Catalogue

THE COLLINS MFG. CO. - TORONTO

A SMALL CROP IS A WARNING

A small crop is proof that your land is run down—it is a warning to fertilize promptly.

Manure is the ideal fertilizer because it contains the very elements that crops have extracted from the soil. To get 100 per cent value from the manure you spread, you must use a good manure spreader. The pitchfork method is wasteful, entails hard, disagreeable work, and takes too much time.

When buying a spreader, be sure you get one that will last. You can make sure of the quality, efficiency and durability, by investing in one of the

I H C Spreaders Corn King Cloverleaf

These spreaders are used on thousands of farms. Their strength, simplicity, and durability are matters of record. Why not look into the matter?

When investigating, remember that the power transmitting mechanism used on I H C machines is the most durable used on any line of spreaders. This results from the fact that the beater gears are held in a single casting which prevents them from springing out of alignment and cutting the teeth. The teeth are long and chisel-pointed to insure positive pulverizing of all manure. There is no wedging of manure against the beater bars. The teeth do not rim the bars.

The beater is large enough in diameter so that it does not wind. You will find many other striking advantages which will convince you of I H C superiority.

Why not see the I H C local agent at once? I H C spreaders are made in different styles, in many sizes for every need. If you prefer, write nearest branch house for catalogues and full information.

CANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

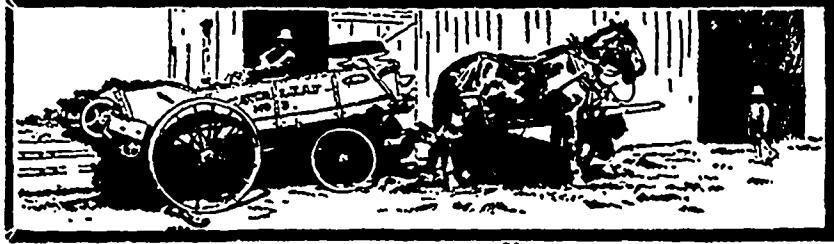
International Harvester Company
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Chicago (Incorporated) USA

I H C

Service Bureau

The Bureau is a clearing house for agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problems to the I H C Service Bureau.



THE STRATFORD EXTENSION LADDER

It is the safest and best on the market. Fitted with automatic hooks that lock at every rung and unlock between the rungs.

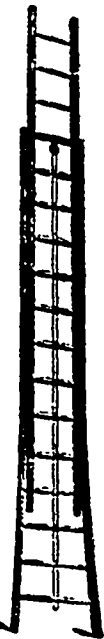
It is
**LIGHT, STRONG
EASILY OPERATED
AND DURABLE**

If Interested write for Catalogue F

THE
Stratford Mfg. Co.
Limited

STRATFORD, CANADA

Makers of Ladders for every conceivable purpose



PRUNING SAW

Patented
Oct. 6th
1905

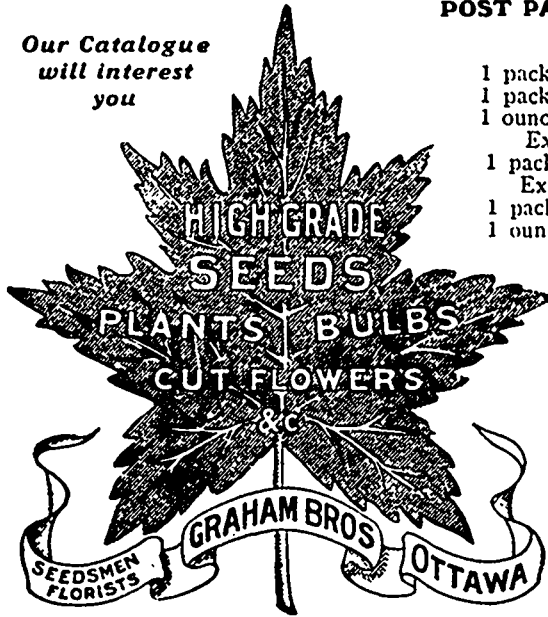
Operates from ground. No breaking of limbs by climbing. No twisting of limbs. No sawing of wood. Can reach topmost branches and shape better than by old methods. Will save its outline. Nothing to get out of order. Will last for years. It outlasts in use. Recommended by all users. If you do not own it, write for all descriptive literature at prices. Satisfaction guaranteed. Address

FRUITGROWERS' SAW CO., Scottsville, N. Y.
Representative for Ontario, Jas. E. Johnson, Simcoe, Ont.

COLLECTIONS OF OUR SPECIALTIES IN FLOWER AND VEGETABLE SEEDS

POST PAID FOR 50 CENTS EACH

Our Catalogue will interest you



- FLOWER SEED SPECIALTIES, 50c**
- 1 packet Aster, Graham's Royal Exhibition.
 - 1 packet Dianthus, choice double mixed.
 - 1 ounce Dwarf Nasturtium, Graham's Royal Exhibition Mixture.
 - 1 packet Tall Nasturtium, Graham's Royal Exhibition Mixture.
 - 1 packet Graham's Royal Exhibition Pansy
 - 1 ounce Graham's Exhibition Sweet Peas.
 - 1 packet Phlox Drummondii Grandiflora, choice mixed.

- VEGETABLE SEED SPECIALTIES, 50c**
- 1 pkt. Hodson Wax Bean.
 - 1 " Lucelles Chard.
 - 1 " Golden Bantam Corn.
 - 1 " Witham Fireball Beet.
 - 1 " High Grade Erfurt Cauliflower.
 - 1 " Copenhagen Market Cabbage
 - 1 " Improved Hanson Lettuce.
 - 1 " New Century White Spine Cucumber.
 - 1 " Fordhook Early Water Melon
 - 1 " Dwarf Perfection Parsley.
 - 1 " Delicious Squash.

can get for it, thereby spoiling the market for all and lowering the high standard of fruit, which it should be the object of each district to maintain.

By all means enforce sanitation in your orchards as you do in your towns, or you will be heavily handicapped by those who do.

Speaking of sprays, with no Bordeaux mixture is a thing of the past, not only being troublesome and costly to make, but russetting the apples, especially if rain follows the spraying. Commercial lime sulphur, one part to forty of water, is as good a fungicide, and does no injury to the fruit, whilst the addition of two pounds lead arsenate to every forty gallons doubles its power as a fungicide besides forming a powerful insecticide. Applied hot, with ten pounds of quicklime to the barrel, it is still further improved.

British Apple Market

The Canadian High Commissioner in Great Britain, discussing British apple markets in the weekly report of the Department of Trade and Commerce, has the following to say:

The reports recently appearing in the newspapers that a million barrels of apples have been received in the United Kingdom this season from Nova Scotia, appear to be substantially correct, and it is estimated that another 300,000 or 400,000 barrels remain to be shipped. The condition of those already received has not been uniformly good, the keeping qualities having been below the average, owing, it is thought, to the fruit having ripened too quickly. The huge quantity, combined with the disappointing quality, has had an adverse effect on prices.

A member of a well-known firm in the trade states that, although the number of barrels received was so great, he had not heard of one which had been branded "falsely marked," but he had had one very bad instance of fraudulent packing and had heard of several others. A new feature will be introduced into the trade very shortly by the arrival of six thousand cases of apples from Cape Colony, but these will not compete with Canadian, but with Australian fruit.

SCIENTIFIC LINES

It is becoming more evident each year that apple growing on scientific lines is making progress in this country, and that the efforts which have been made for a number of years to bring about an improvement in the apple orchards here are meeting with success. The better kinds of apples are being planted, the varieties are being limited, and the numbers are such that the produce can be marketed in commercial quantities; the trees are being sprayed and the orchards cultivated, and the practice of grading and careful packing in boxes is being greatly extended.

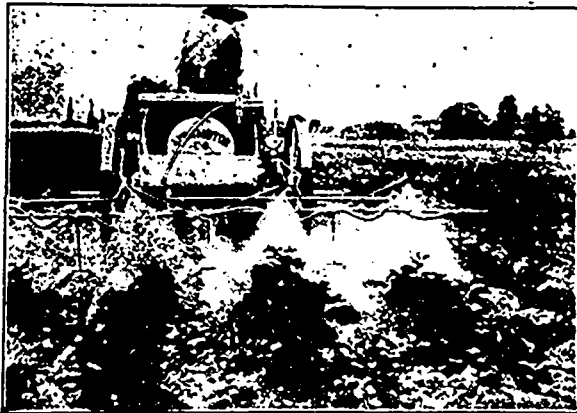
The development has been such and promises so well, that a leading firm with branches at all the principal ports, and hitherto engaged in the import trade, only has been compelled to start a department to deal with English fruit. They express the opinion that it will not compete with the Canadian product, but if the moment comes, as it has every appearance of doing, it is difficult to see why the late native apples will not influence the market, or the earlier Canadian importations, especially if the latter are not of very good quality. As the improvement in the English apple is likely to raise the quality standard of the demand generally, the necessity will be pos-

PROPERLY PROTECTED POTATOES PAY

If you protect your potatoes, you get from 3 to 4 times as many from the same acreage.

The Horse-power SPRAMOTOR sprays an acre of potatoes in 15 minutes and does it thoroughly. It sprays tops and vines from 12 nozzles with a guaranteed pressure of 100 pounds. Nothing escapes the working of the SPRAMOTOR.

Made for 1 horse or two. Has a 12 gallon air tank. Automatic and hand controlled. Agitator clean-out pressure relief into tank and nozzle protector under driver's seat.



Equally efficient for field, vineyard or trees. Nozzles WILL NOT CLOG; nothing to get out of order.

We publish FREE a valuable treatise on crop diseases. Every grower should have a copy. Send for one to-day.

AGENTS WANTED

HEARD SPRAMOTOR CO., 1391 KING STREET LONDON - CANADA

Planet Jr.

This name is a guarantee all over the world of the most modern scientific farm and garden tools manufactured. Every Planet Jr.

cuts your work in half

These tools double your crop yield, pay for themselves in a single season and last a lifetime. Built to do the work, by a practical farmer and manufacturer with over 35 years' experience.

No. 6 Planet Jr Hill and Drill Seeder, Single Wheel Hoe, Cultivator and Plow Combined plants all garden seeds accurately in hills or drills, hoes, cultivates, and plows quickly and thoroughly. Popular with farmers and gardeners everywhere.

Planet Jr Twelve-tooth Harrow, Cultivator, and Pulverizer is invaluable in strawberry and truck patches and the market garden. Its 12 chisel-shaped teeth and pulverizer leave the ground in finest condition without throwing dirt on plants.

FREE! A 64-page illustrated farm and garden book!

It's full of valuable information on all crop growing. Send postal for it today!

S. L. Allen & Co.

Box 1106G Philadelphia Pa.

Write for name of nearest agency



**TIME TO BUY YOUR
Gladioli**

For early bloom plant your Gladioli just as soon as the ground and season are fit.

Have your bulbs ready by ordering now.

TRY THE

Imperial Two Dollar Collection

One Bulb each of Peace, La Luna, Dawn, Blue Jay, Victory, and Faust. Six of the best Gladioli ever introduced—the cream of thousands of varieties of Gladioli. Post paid \$2.00.

The Dollar Collection

Six varieties, covering a range of colors from white and violet to dark, rich red. Post paid \$1.00.

Superb mixed, including the largest number of the most magnificent varieties of any popular mixture of commerce; size 1 1/4 inch. 50 for \$1.10 (mail prepaid).

The Best Dahlias

20 Varieties—\$1.00 (prepaid).

CATALOGUE

H. P. Van Wagner
Stoney Creek, Ont.

You Need This Catalogue.

**The ONTARIO FRUIT SPRAYER
BUILT FOR BUSINESS**

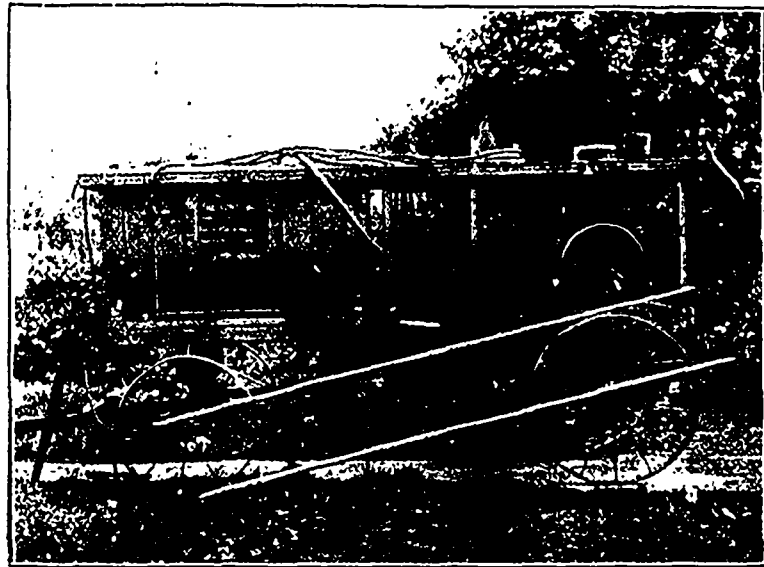


Fig. 73 No. 1 A. 1912 Model

This cut illustrates our **1912 MODEL FRUIT SPRAYER**, a marvel of simplicity, strength and durability, 2 1/2 H. P. engine, water cooled and always ready; can be quickly cut off from pump jack and used for other purposes. This outfit represents all that first-class machinery, material and skill can produce at a moderate price. Write for detailed description and price. We manufacture a full line of Apple Evaporating Machinery.

Installing Power Evaporators a Specialty

FRUIT MACHINERY CO. - Ingersoll, Ont.

Potash for Orchards

Photo taken in Orchard of J. Elliott Smith



The fruit growers of the famous Annapolis Valley realize the importance of Potash in producing large yields of excellent quality.

The system employed by them in maintaining soil fertility is an admirable one and ensures large yields every season. Annual applications of 200 to 400 lbs. Muriate of Potash and 400 to 800 lbs. Bone Meal per acre are given and in a few instances the applications exceed these quantities.

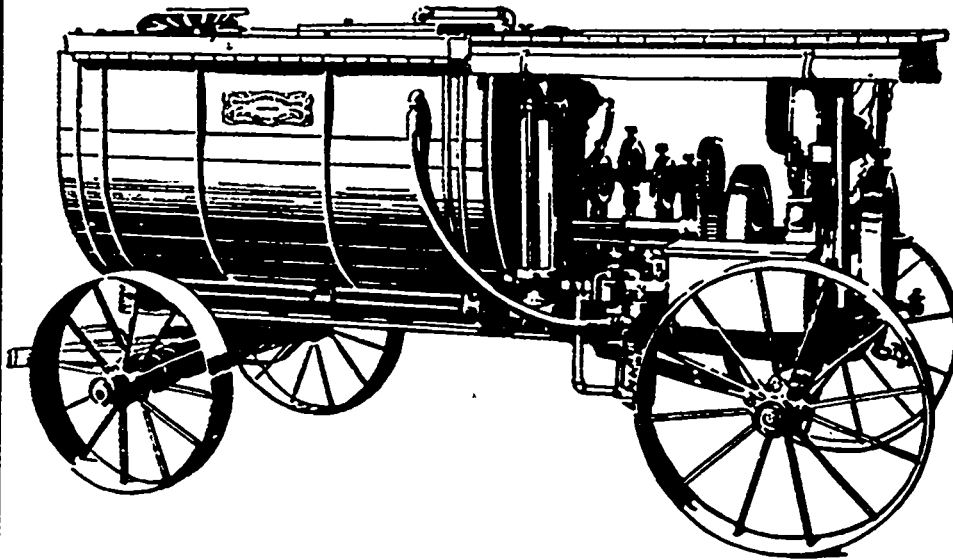
The humus and nitrogen are obtained by growing and plowing down a crop of Red Clover every year. During the early summer, thorough cultivation is given, chiefly with a view to conserving soil moisture.

Write us for FREE copies of our bulletins, including "FERTILIZING ORCHARD AND GARDEN."

THE GERMAN POTASH SYNDICATE

1102-1106 I.O.F. Temple Building, Toronto

Power Sprayers



Giant Power Outfit

GIANT POWER OUTFIT.—This is a three-cylinder pump of great strength, power and capacity. It will spray 9 gallons per minute at 300 lbs. pressure, if desired. It can be operated with either a $2\frac{1}{2}$ or $3\frac{1}{2}$ H.P. Engine.

NIAGARA POWER OUTFIT.—A three-cylinder pump of slightly less capacity, but the same high pressure. Can be operated with a $2\frac{1}{2}$ or $3\frac{1}{2}$ H.P. Engine.

DUPLEX POWER OUTFIT.—A two-cylinder pump, medium priced, but with large capacity and high pressure. Operated with either a $1\frac{1}{2}$ or $2\frac{1}{2}$ H.P. Engine.

All our pumps have porcelain-lined cylinders, so are proof against corrosion. These cylinders are guaranteed for 10 years.

These pumps are very strong, very simple, and built for large capacity and high pressure.

All parts are interchangeable. Repairs cost practically nothing. Every part fits every other, and they can be immediately supplied.

All our power outfits are mounted on steel frames, which can be attached to any wagon.

They are equipped with 150 and 300-gallon tanks with rotary agitator.

Tank Filler, which works by pressure, and will fill the tank in 6 to 8 minutes.

Steel folding tower. By removing one tail nut this tower folds flat on the outfit.

The highest grade of hose. Guaranteed to stand 300 lbs. pressure during the entire season.

Spray Rods—lined with large sized aluminum tubing.

Best approved nozzles and other accessories.

We have hundreds of power outfits working in Ontario, and wherever we have a power outfit, we have a satisfied customer.

We have great confidence in these pumps and want to demonstrate them to you.

We will pay the expenses to our factory of any fruit grower in Ontario who intends to purchase a power outfit, and who will inspect our pumps before he places his order. He will be under no obligation to purchase from us. All we ask is that he purchase a power outfit of some kind.

HAND PUMPS: MACIC No. 9, is the largest hand pump made. One man can easily maintain a pressure of 140 lbs.

LITTLE GIANT No. 70. Most powerful barrel sprayer on the market.

THE PIPPIN No. 50 is a strong barrel pump, made for smaller orchards.

Write for our complete illustrated catalogue.

Be sure and see these pumps before placing your order.

They are made with all troubles left out.

ceived for continued watchfulness and effort on the part of Canadian growers. As further evidence of the headway which is being made, the report may be mentioned that considerable quantities of English apples have been exported to South America.

Niagara District Notes

The Niagara Peninsula Fruit Growers' Association conducted a very successful institute during March. Among the prominent speakers were Secretary C. E. Bassett, of the Michigan State Horticultural Society; Dr. Gussow, of the Experimental Farm, Ottawa, and Prof. J. W. Crow, and Prof. L. Caesar, of the Guelph Agricultural College. Both Mr. Bassett and Dr. Gussow spoke against the practice followed by nurserymen of "heeling in" nursery stock in cellars during the winter months. Dr. Gussow claimed that both little peach and yellows are constitutional diseases that cannot be eradicated by spraying. All that can be done is to destroy affected trees.

Prof. Caesar pointed out that these diseases are not new, although they are not in this district. The yellows were identified near Philadelphia in 1791 while the little peach has been known for some thirty years. It has been known in the Niagara District for about ten years. The cause of these diseases are still unknown. There is no use, he claimed, trying to save affected trees so the sooner they are removed the better. The diseases are spread by budding from diseased trees and by the proximity of diseased and good orchards.

Mr. Robt. Smith, of Michigan, dealt with tomato and melon culture.

Mr. Rollt. Thompson advised our fruit growers to hold on to their fruit lands as there is no danger of their value declining, and money can be made by working them.

A feature of the meetings was a banquet tendered to the Hon. Martin Burrell, Dominion Minister of Agriculture, who formerly owned a fruit farm near St. Catharines.

The Pelham Co-operative Association, composed of farmers and fruit-growers, have completed organization and elected the following officers: President, J. E. Lent; Vice-President, J. Hampton; Secretary, J. Ashberry; Directors—A. Ranta, Ed. Clemens, C. Howo and C. Brown. An experienced person will be engaged as manager and treasurer.

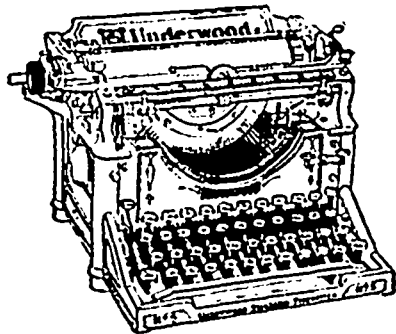
British Columbia

The annual report of Mr. J. C. Metcalfe, the markets commissioner for British Columbia, has been submitted to the Provincial Minister of Agriculture. Mr. Metcalfe warns our growers that if we expect to command the trade of the Prairie Provinces to any great extent we must plant large areas and increase our output as rapidly as possible. One firm of United States shippers sold more fruit in the Prairie markets in 1910 than double the output of British Columbia for 1911.

The planting of peaches is discouraged by Mr. Metcalfe because peaches ripen late with us, and the markets, therefore, are supplied before our peaches are ready. We are advised to grow something with less risk and more certain profit. Our growers are told to fill all orders as agreed upon as regards date of shipping and varieties ordered, and to extend the methods of co-operative packing in every way possible. In his capacity as markets commissioner Mr. Metcalfe has performed work and gathered information of great value for our growers.

NIAGARA BRAND SPRAY CO., Limited
Burlington, Ontario

Some History about Typewriters



Modern and Ancient

CHAPTER 9

A FEW years ago typewriters were used almost entirely for letter writing. It is different to-day. Their field of usefulness has increased many fold.

THE Underwood introduced typewriter book-keeping, and the application of the typewriter to many special recording purposes.

THERE are over a score of special models of the Underwood for special uses.

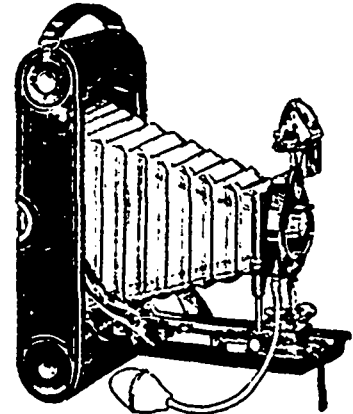
MANY firms use four times as many Underwoods for accounting work as they use for correspondence.

THE modern office uses Underwood systems—billing systems, order systems, bill and charge systems, etc., planned for their particular needs.

THE Underwood Condensed Biller will reduce your billing costs 50 per cent.

United Typewriter Co.
Limited
TORONTO

If it is not an Eastman, it is not a Kodak.



The convenience and simplicity of the

KODAK

as compared with a plate camera would make it worth while even if the pictures were no better—but they are.

Kodaks load and unload in daylight with film cartridges that weigh ounces where glass plates weigh pounds.

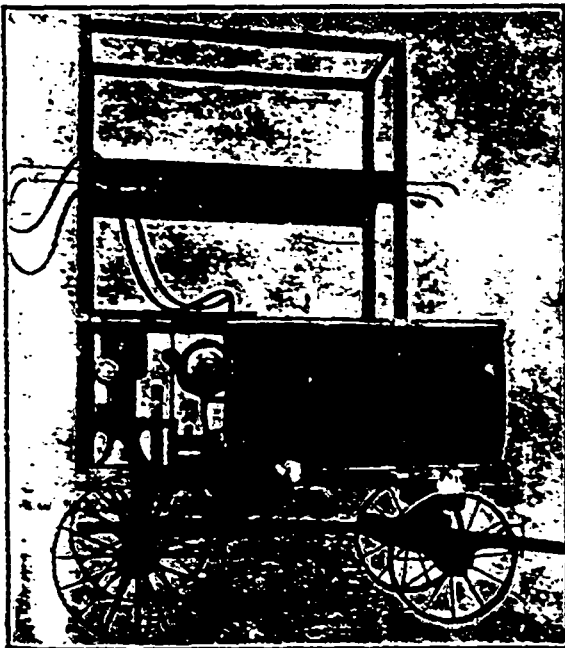
Kodak Films are superior to plates for hand camera work, not merely because they are light and non-breakable, but also because, chemically they are made to exactly meet the harsh lighting conditions which the amateur encounters.

By the Kodak system no darkroom is required for any part of the work, not even for developing as anybody can, without previous experience, develop films perfectly with a Kodak Film Tank, and get better negatives than are possible by the old dark-room method.

The Kodak system gives the amateur the widest possible latitude in the finishing of his pictures: He may use the daylight tank system, the dark room method or mail his films to some professional finisher. It's just as he chooses.

Kodaks \$5.00 and up. Catalogue free at the dealers or by mail.

CANADIAN KODAK CO., LIMITED
TORONTO, CAN.



This Model C. Spramotor was awarded four Gold Medals, two at National Horticultural Congress, one at Dominion Exhibition, St. John, and one at Provincial Exhibition, Halifax, N. S., 1909-1910. "There are reasons."

Gen. E. Fisher, of Burlington, who is using a power Spramotor, writes about the latest Model C:

"Replying to your favor re the behavior of the Gasoline Power Spramotor: This season I may say the machine has worked well all the way through. It has made a record for the Spramotor Co. We have a big lot of trees and these were all sprayed from one side before the buds opened. We found that we can spray about 1,000 bearing apple or 4,000 bearing pears on one side per day in good weather. There has been no delay."

We have been manufacturing Spramotors for 15 years for spraying purposes with "That is the reason." Particulars free.

HEARD SPRAMOTOR CO. - 1390 King Street, LONDON, ONT.

Strawberry Plants FOR SALE

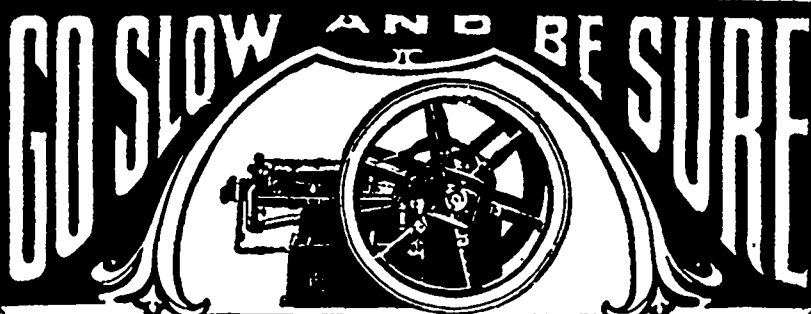
Choice Plants at reasonable prices. We have Early Ozark, Fendall, Barrymore, Silver Coin, Pocomoke, Aroma, etc., of newer varieties.

We also have Dunlop, Williams, Warfield, Brandy Wine, Bederwood, William Belt, Glen Mary, etc., of the old favorites.

Our free list tells all about them.

Order early as plants are scarce.

Ontario Nursery Co.
Wellington, Ont.



It's wise to decide that you need an engine. But don't spoil your good intentions by buying a cheap one. Don't be blinded by a low price or by wild claims. Go slow and be sure. Buy an engine that has proved its worth, from a concern that has proved its integrity. You can't afford to make a mistake—it's much costlier than the price of an engine.

I H C Gasoline Engines

are in use on thousands of farms throughout the country, running the many farm machines, such as the cream separator, churn, feed grinder, pump, fanning mill, thresher, wash ag machine, electric light plant, etc. They guarantee you reliable power for every requirement at a surprisingly small cost.

I H C gasoline engines are marvels of simplicity, strength, economy, reliability, and durability. They run steadily and smoothly, year in and year out. They make and save money every time they are used, and if, by accident, you should need repairs, you can get them promptly with little trouble or delay from the I H C dealer in your locality.

Don't you think it would pay you to investigate an I H C engine before you buy any? They are in use in so many sizes and styles that you

can select just the right size and style for your work: Vertical type—2, 3, 25, and 35-H. P.; horizontal—1 to 50-H. P.; semi-portable—1 to 8-H. P.; portable—1 to 25-H. P.; traction—12 to 45-H. P.; sawing, pumping, spraying, grinding outfits, etc. Built to operate on gas, gasoline, kerosene, distillate, or alcohol—air-cooled or water-cooled. Ask the I H C local dealer for catalogue and all information, or, if you prefer, write nearest branch house.

CANADIAN BRANCHES: International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Weyburn, Winnipeg, Yorkton.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
CHICAGO (Incorporated) USA



I H C Service Bureau

The purpose of this Bureau is to furnish farmers with information on better farming. If you have any worthy question concerning soils, crops, pests, fertilizers, etc., write to the I H C Service Bureau and learn what our experts and others have found out concerning these subjects.

Vegetable Growers are Active

In his annual report as the secretary treasurer of the Ontario Vegetable Growers' Association, Mr. J. Lockie Wilson, of Toronto, stated at the recent convention in Toronto, that the spirit of cooperative effort is spreading rapidly among the members of the different branches of the association. Many hundreds of dollars have been saved through the work of energetic officials in getting in touch with wholesale manufacturers and dealers, thus cutting out the profits which formerly went to middlemen. The Ottawa branch last year purchased three carloads of baskets and boxes, and the St. Thomas' branch, with seventy-four members, secured greatly reduced prices on the following supplies: Two hundred thousand berry crates, boxes and fruit baskets; eight hundred and seventy-five pounds of Paris Green; three thousand pounds ground sulphur; seventy-three barrels lime sulphur solution; one thousand three hundred and fifty pounds blue stone; one thousand eight hundred and fifty pounds arsenate of lead; one car salt, one car land plaster; one car cement; five hundred rods wire fencing; two thousand eight hundred pounds straight wire; two and a quarter tons binder twine; sixteen thousand pounds fertilizer; twenty bushels seed grain; and twenty-eight pounds seeds. Many of the branches had held monthly meetings during the year, some in the gardens of the leading vegetable growers in the district. One society saved two hundred dollars on the purchase of berry boxes and baskets alone. Tenders were called for, and the lowest accepted.

The Ottawa branch received grants of from twenty to fifty dollars from four different municipalities in the immediate vicinity. The directors of this branch put up a splendid exhibit of the products of their gardens at the Central Canada Exhibition, which proved a valuable advertisement for the association in that section. At the close of the exhibition the whole exhibit was donated to the city hospital. This generous action of the officers of the branch was so much appreciated by the citizens that the use of the Assembly Hall in the Carnegie Buildings in Ottawa was given to them free of charge. Mr. Wilson is of the opinion that there is no better method of advertising the association than by having a combined exhibit at the Canadian National, the Central Canada, and the Western Exhibitions.

LACK OF LABOR

One of the chief drawbacks to the progress of the vegetable growers in this province is the lack of efficient labor. From every section comes the cry, "We cannot get a sufficient number of men, not even of an inferior class." The officers of the St. Thomas branch state that in their neighborhood, in the county of Elgin alone, there is a shortage of one thousand laborers, and complaints have been made as to the unproductive class of immigrant labor that is available.

The Brantford branch has more than doubled its membership by offering prizes to the members who secure the largest number of new ones. The Sarnia branch has specialized with early potatoes, and found them exceedingly profitable.

NEW ONTARIO POTATOES

The potatoes grown in New Ontario continue to meet with the highest praise from consumers who have had an opportunity of testing them. With much splendid potato land available in Ontario, Mr. Wilson regretted that tens of thousands of tubers are still being imported into the province from New Brunswick and several of the American states. It is said by those who are

IF YOU

are at all interested in

Home-Mixed Fertilizers

I would like to send you my book on the subject. It contains full information, formulas and lots of information to farmers who want to get the most and the best for their money. The book will be sent free upon request by post card from you.

Dr. WM. S. MYERS, Director of Propaganda
17 MADISON AVENUE, NEW YORK
No Branch Offices

Bruce's Flowering Bulbs

GLADIOLUS

Choice Mixed, 10 for 25c; 25 for 60c; \$2.00 per 100, post paid.
 Croff's Hybrid Seedlings, mixed, 10 for 30c; 25 for 60c; \$2.00 per 100, post paid.
 Bruce's White and Light Shades, 10 for 40c; 25 for 85c; \$3.00 per 100 post paid.
 Childs, Mixed, 10 for 50c; 25 for \$1.00; \$3.75 per 100, post paid.
 Bruce's Superb, mixed, made up by ourselves from all varieties, the best, 10 for 60c; 25 for \$1.25; \$4.50 per 100, post paid.
 Croff's World's Fair Collection. Novelties in all colors, grand, 11c each; 10 for \$1.00; 25 for \$2.25, post paid.
 New Grand Named Varieties, almost any color, 24 sorts, 20c each; 24 for \$3.75 post paid.

DAHLIAS

Splendid named sorts, all colors, Show Cactus and Pompon Varieties, 22c each; \$2.20 per dozen, post paid. Ordinary varieties, mixed, 12c each; \$1.20 per dozen, post paid.

TUBEROSE

The Pearl, double white flowers, each 5c. per dozen, 40c; per 100, \$2.50, post paid.
 Single Orange Scented, beautiful orange-like blossoms, each 5c. dozen 50c, 100, \$3.50 post paid.

LILIES

Auratum, Lancif, Album and Rubrum, Elegans, Pardalinum, Tigrinum, Umbellatum, Tenulfolium and Wallacei, each 20c; per dozen, \$1.80, post paid.

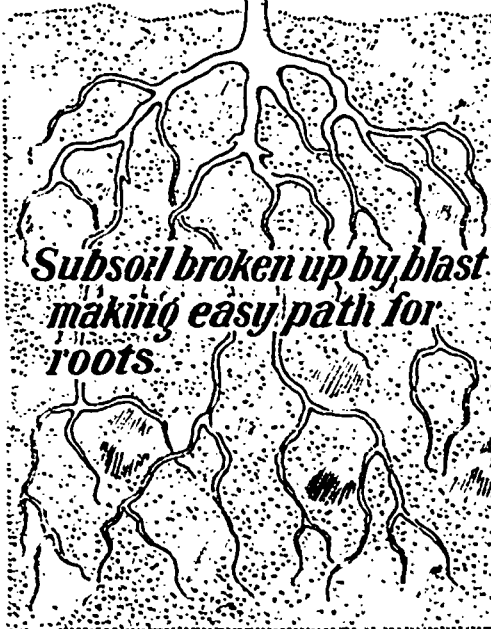
FREE Write for our handsomely illustrated 112 page Catalogue of Vegetable, Farm and Flower Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc., now ready

JOHN A. BRUCE & CO., Ltd. Seed Merchants **Hamilton, Ont.**
 Established 1850



Fruit tree planted in dynamited hole

Fruit tree planted in spade dug hole



Subsoil broken up by blast making easy path for roots

Undisturbed subsoil obstructing spread of roots

A tree planted by means of

Stumping Powders

not only thrives much better than a tree that is planted in another way, but also will produce larger crops. You can plant double the number in the same time for a much less expense.

Write us for Free Pamphlet on the use of

C. X. L. Stumping Powders

Used as well for removing Stumps and Boulders, Digging Wells and Ditches, Breaking Hardpan and Subsoils, Rejuvenating Orchards, etc., etc.

Manufactured by

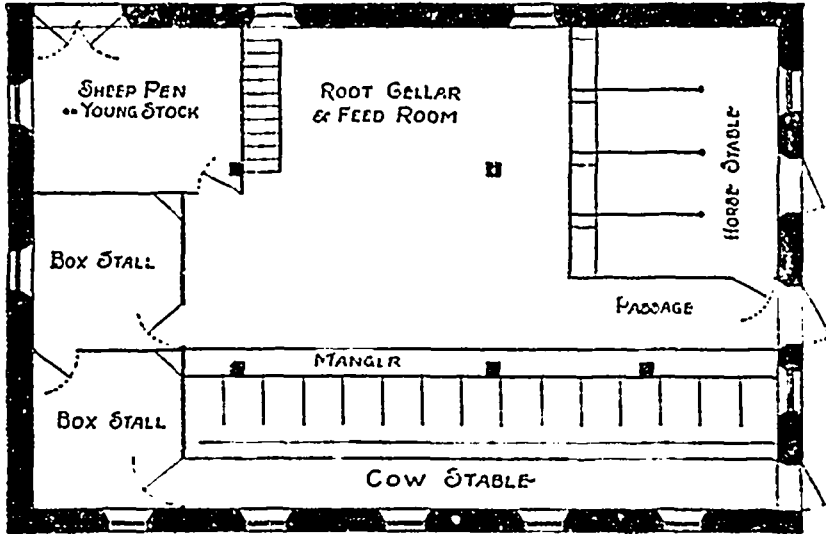
CANADIAN EXPLOSIVES Limited MONTREAL Que.



YOUNG CHERRY TREE SET IN SPADED HOLE



YOUNG CHERRY TREE SET IN DYNAMITED HOLE



One of the modern barn plans prepared by our Builders' Service Dept.

Above is shown one of the modern barn plans prepared by our "Builders' Service Dept." Others are shown in a portfolio that will be mailed to you on receipt of the coupon attached to this ad, properly filled out.

If you will tell us the size of the barn you expect to build, and the number of cattle you want to house, our Board of Advisers, consisting of ten of the best barn builders and contractors in the Dominion, will co-operate with you to plan a building exactly suited to your own particular requirements.

This service is offered to you FREE of charge. It's our

way of showing our appreciation of the generous and hearty support the farmers and builders of Canada have given our products, particularly Preston Safe-Lock Shingles.

Preston Safe-Lock Shingles merit the tremendous demand they enjoy to-day, for they afford *guaranteed protection* against lightning. They keep out the rain, snow, moisture, wind and fire, too. They cost nothing for up-keep, as they never need painting or repairs.

Our latest edition of "Truth About Roofing" booklet tells all about them. We'll send a copy along with the Portfolio of Barn Plans. You want the Portfolio, that's certain, if you intend to build. So send the coupon by first mail. Address it to

E. Dolph Manager

Metal Shingle & Siding Co., Limited

Branch Office and Factory, Montreal, Que. Preston, Ont.

* * * * *
 * Please send me portfolio of Barn Plans showing framework construction *
 * and plans of interior. I intend building a barn _____ ft. by _____ ft. *
 * Do you intend re-roofing or re-siding any building this year? (Yes or *
 * No) _____ *
 * Name _____ *
 * P. O. Address _____ County _____ *
 * _____ CANADIAN HORTICULTURIST *
 * _____ *
 * _____ *
 * * * * *

a position to know whereof they speak that the finest potatoes grown on this continent can be produced on the Ontario Government's practically free grant lands in New Ontario, and as high as two hundred bushels per acre have been grown in the northland and a ready home market is found for this product among the miners in the gold, silver, copper and nickel mines which have made Ontario famous. At the present time the market price of potatoes in the mining district is one dollar a bushel. Thus a farmer in New Ontario can produce, without any scientific knowledge of farming, at the lowest possible calculation, one hundred bushels an acre, giving him for the product of ten acres of land one thousand dollars for this crop alone.

If it is possible for the farmer of New Brunswick to grow potatoes and pay expenses of railway freight over one thousand miles and still make a profit, selling them to the wholesaler in Toronto at seventy cents a bushel, it does not require a very brilliant mind to figure out the profit of a man who gets his land practically free that will give a maximum yield of first class potatoes, absolutely free from rot and fungous diseases—and who has not to fight against the ravages of the Colorado beetle and other pests and diseases which are such a drawback to potato growers in older Ontario.

The executive held eleven meetings during the year, and the directors two. The president and Mr. F. F. Reeves were delegates to Boston and Brockton conventions respectively.

Items of Interest

The Division of Entomology of the Central Experimental Farm, Ottawa, has issued a new bulletin dealing with the Destructive Insect and Pest Act, including recent amendments.

"The Weeds of Ontario" by J. E. Hewitt, lecturer in botany of the Ontario Agricultural College, is the title of bulletin No. 188, issued by the Ontario Department of Agriculture. It is a revision and amplification of several previous bulletins issued by the Department. It contains one hundred and forty-four pages and deals at considerable length with the most common weeds of Ontario, most of which are illustrated.

The annual meeting of the shareholders of The Horticultural Publishing Company, Limited, was held in Toronto February 29th. The report of the auditor showed that the receipts of the company from its two publications, THE CANADIAN HORTICULTURIST and THE CANADIAN FLORIST, during 1911 were the greatest in the history of the company. The surplus of receipts over expenditures, as reported in the auditor's statement, was voted by the directors into a reserve fund. The making of important improvements in THE CANADIAN HORTICULTURIST, as recommended by the managing director, was considered and referred to the board of directors to be dealt with at their discretion. The following directors were elected: Messrs. W. H. Bunting, St. Catharines; J. H. Simmers, John H. Dunlop and P. W. Hollett, Toronto; Harold Jones, Maitland; A. W. Peart, Burlington, and H. B. Cowan, Peterboro. At a subsequent meeting of the board of directors, Mr. W. H. Bunting was re-elected president, Mr. John H. Dunlop, secretary, and Mr. H. B. Cowan, secretary-treasurer and managing director.

Send us the names of a few of your friends who are interested in horticulture. We will like to learn about THE CANADIAN HORTICULTURIST.