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TORONTO

The Canadian Horticulturist

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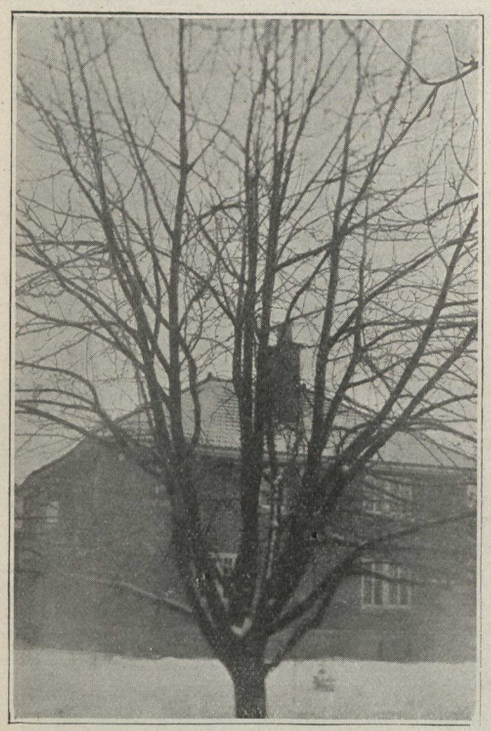
How Shall I Prune?

Prof. E. M. Straight, MacDonald College, Que.

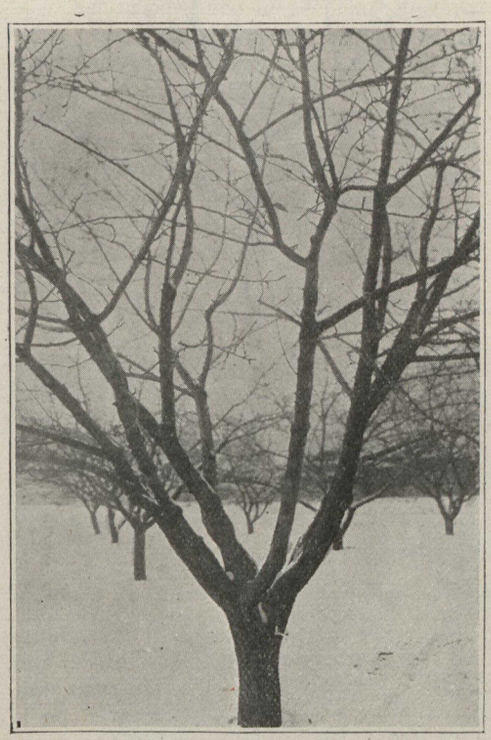
HOW shall I prune? The question has been asked over and over again, and answered as many times; but seldom answered twice in the same way. The great amount of perplexing detail, and the mixing of different pruning systems have led to such a confusion in pruning practice that many growers do not prune. Other would-be experts attack trees as if they thought that some "cussedness" existed somewhere within the tree and that it must be got rid of by means of the saw and the pruning shears, and so they cut and saw. They could do the work with eyes closed, and do it just as well. This reckless pruning and its dismal failure have forced other men to abandon all pruning endeavour and so the trees grow as best they may.



An upright grower. Should have been headed back.

The first important thing for the grower to do is to form an ideal. By that I mean, let him choose that system of pruning which suits him best and stand by it. After having started off in any one direction he cannot afford to change to any other. Two leading systems are recognized, one being the open-headed and the other the centre-shoot system. They both have their advantages and disadvantages. Personally, I prefer the open-headed system; hence this article will treat on that system only. If the grower favors some other method and intends to follow that, he should not read this article, for it will only lead to confusion.

When you receive your trees from the nursery, it is evident that they have much less root than they had when growing there. Every care may have been exercised in the digging, yet the greater part of the roots are left in the ground, and it is better so. While the young tree was in the nursery row a balance existed between the root system and the top of the tree—both increased together; but when the root area was shortened in digging we must shorten the part above ground to maintain the balance. Many growers take off all branches, leaving nothing but a whip. This is not necessary and not wise. Figure number one shows how the root growth is affected by transplanting.

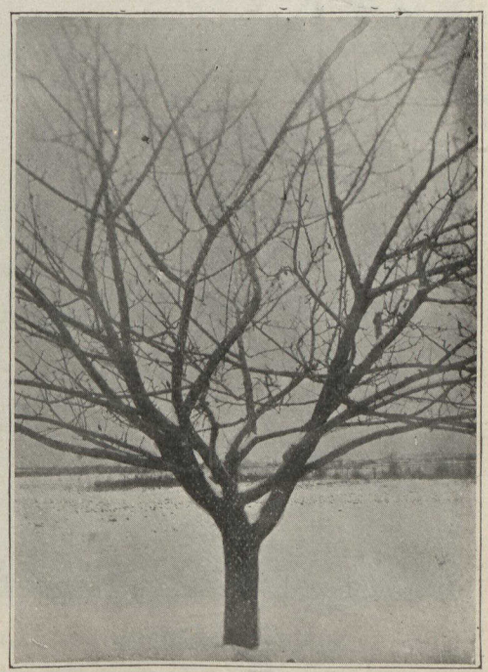


A short trunk and open centre. Pruning to outside laterals would have produced a better shaped head.

If a few desirable branches are left the young tree may be started off in the way it should go, better then than at other times. These branches should not be numerous and should be shortened. It is important to remember that the pruning of the top should be somewhat more severe than has been the pruning of the roots, because the demand for water which is made by the growing parts cannot be so successfully met by a newly transplanted tree as by one thoroughly established. I am not in favor of much root pruning. All mangled roots should be removed and all broken roots cut back into fresh tissue, as new roots arise more readily from clean cut surfaces.

THE HEIGHT OF PRUNE

The locality in which you live will determine to a large extent the height of the first branch from the ground. The tendency among growers is to get the head nearer and nearer the ground; and there are many advantages arising from this system; but we must not fail to count the cost. In Quebec and the Maritime Provinces, where the snowfall is heavy, if the head is very low down you will lose it entirely. I have seen trees two years after planting stripped to a whip as the snow subsided in the spring. I think it is not safe to form a head lower than thirty inches in these provinces.



Not a bad type. It needs some thinning.

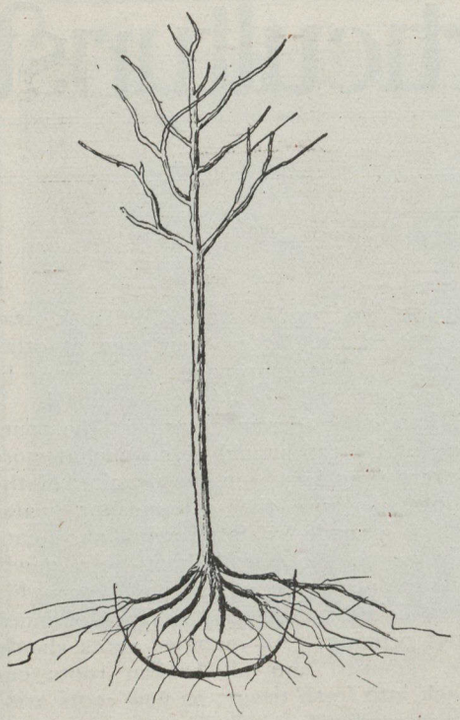


Fig. 1—This Shows How Roots Are Cut at Digging Time

Branches should be arranged about the main stem or axis of the tree, so that eventually they may occupy the whole space and provide for its symmetrical development. If three branches are wanted they should be so arranged that, if looking down from the top, these branches would form three angles very similar to each other. More than that these branches should arise one above the other. Such a tree is not liable to injury from snow or wind; and the union between branch and stem is more stable when arising one above the other, than it would be if all branches arose from the same place. By referring to figure two all this will be clear. By cutting the leader, near the topmost branch, we at once provide for an open centre and start the tree off according to our ideal.

It may be regarded as a rule that when a limb is cut back, unless the cut is made just above a strong lateral, two or more branches will develop into shoots. Two or three of these shoots are allowed to grow on each of the previous year's limbs to form an additional framework for the tree. These shoots should be selected as before, one near the end and the other two farther back, so that the development of crotches will be impossible. These shoots are again shortened as in figure three, and not more than two allowed to develop from each the next year.

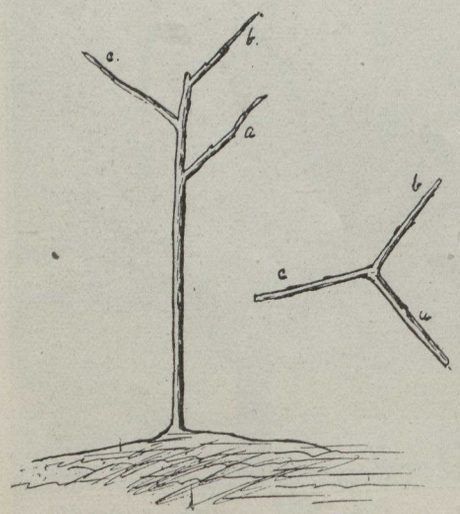


Fig. 2—The Tree at Planting Time

THE FRAMEWORK

The framework of the tree should now be well formed and will require less attention from this time on. Keep in mind your open centre. Take out all branches which would interfere with your plan. Remove all surplus branches and all which rub, cross, or tend to form crotches. The reason for all this is quite evident upon a moment's reflection. The tree is not concerned with the production of fruit, but with the reproduction of the species. It is this towards which plants bend their every endeavor. The size and quality of the fruit are of no moment, but the number of seeds is of great importance from the standpoint of the tree. Bearing this in mind we see why two apples are borne on a branch where there should be one from the grower's viewpoint, and why both are small and unmarketable.

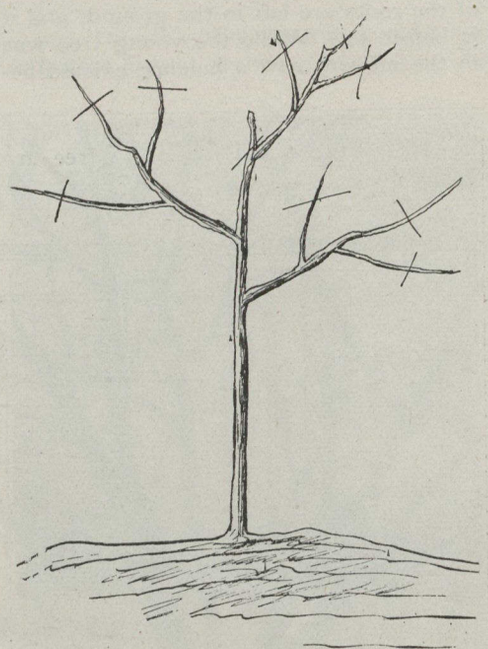


Fig. 3—Plan of Tree After One Year's Growth.

To get first-class fruit it is often necessary to thin, but the process is slow and costly. We are beginning to find that it pays better to thin the tree and the fruit often takes care of itself. When branches rub each other canker like swellings are often produced, and the inner tissue always laid open to the entrance of spores of plant disease.

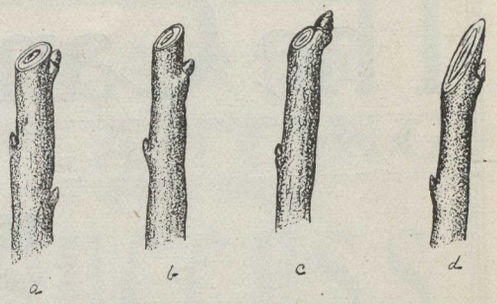
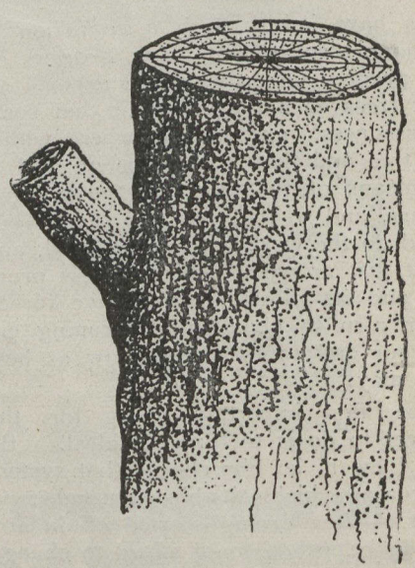


Fig. 4—'A' Shows the Correct Way of Cutting Off a Shoot and 'B,' 'C' and 'D' Wrong Ways.

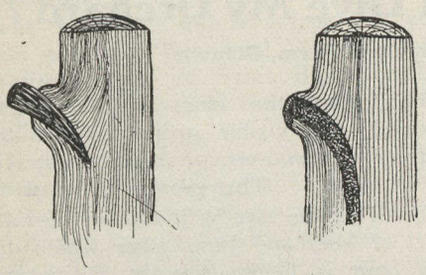
If the pruning involves the removal of annual growth the branches should be cut just above a bud. If this is done the wound heals readily without paint or covering of any kind. If made below a bud the stub dies back to the bud—unsightly to say the least—and provides a means of access for various fungoid pests. Figure four shows how the shoots should be cut.

REMOVING LARGE BRANCHES

If growers have exercised the care outlined, the removal of large branches is seldom necessary. It is not reasonable to expect that this will always be done, so that the removal of large branches is a problem which always confronts the grower. I know of one grower who always cuts these large fellows about one foot from the main stem. He found these convenient in climbing the trees, he said, as it obviated the necessity of a step ladder. These leafless and branchless stumps have no life in themselves. The only chance for this stub to be healed in is from the activities of the trunk and this is so far removed from the end of the stump that the healing is seldom witnessed by the man who made the wound. Neither should the cut be made at right angles to the branch, but should conform to the tree trunk. The wound is thus larger, but all parts are in intimate relation with the trunk which supplies the



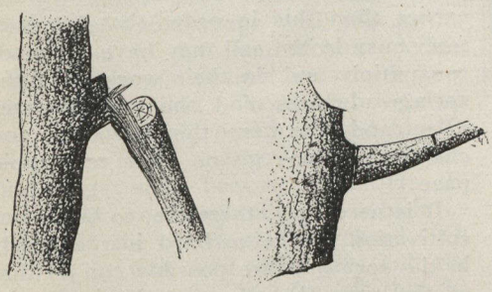
Improper Pruning. A Long Stub



6—The Progress of Decay Due to a Long Stub Being Left.

materials to be used in covering the exposed surface.

The reckless making of wounds does not end in unsightliness. The dead stub carries the decay deeper and deeper into the tissue, until the tree has a decayed heart, which is usually the beginning of

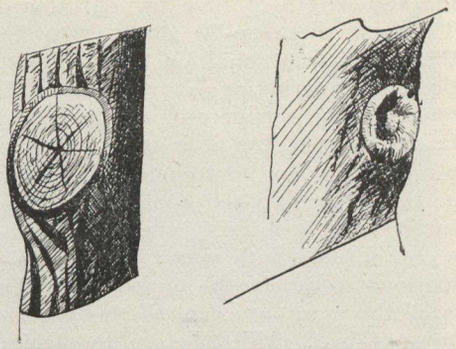


Wrong and Proper Methods of Cutting Off a Large Limb

the end. This is shown in the illustrations as well as the proper method of making a wound and how nature covers it. If the branch is very heavy it may be necessary to cut it some way from the trunk, and after the weight is removed to cut a second time as it should be, as shown in figure five. If this is not done a ragged wound is induced, which carries the split tissue into the tree trunk and healing is very slow. The cut surface, if at all large, should be covered by thick paint or grafting wax. Paint is to be preferred. It sticks well, keeps out the water and prevents the entrance of disease.

TIME TO PRUNE

When to prune is still a debatable question. Some growers hold that late spring pruning tends to increase the fruit supply and that fall or early winter pruning increases the development of wood. I really don't know. Other growers say, "Prune when your knife is sharp." This is better than no pruning, but it lacks system and is seldom satisfactory. For commercial work the pruning must be done at some particular season and carried on in a systematic manner after some



5—A Wound Properly Made. A Properly Made Wound Nearly Healed.

definite plan. I am satisfied that spring pruning is more generally followed than any other. Late winter pruning is satisfactory for some trees, and usually the grower has more time during that season while summer "pinching" or "stopping" has its place.

Refrigeration in Relation to Fruit Growing

Dairy and Cold Storage Commissioner, J. A. Ruddick, Ottawa

THE manner in which packages are stowed in an iced car is of the greatest importance in securing best results. The full benefit of the iced car is lost unless there is provision for a free circulation of air from the ice bunkers and among the packages. Refrigerator cars are very often loaded so that there is little or no circulation of air, and in such a car the temperature will be uneven and much higher than it should be. This is one thing about which a great deal has yet to be learned by the average fruit shipper in this country.

There is rather a common impression that the ice adds moisture to the air in a car, but that is not necessarily so. If there is a good air circulation under and between the packages the air will be drier than it would be if there was no ice in the car. The moisture is carried by the circulation air to the ice bunker and deposited on the cold surface of the ice.

Peaches, plums and other soft fruits are not susceptible of being preserved

*Extract from a paper read at the recent Dominion Fruit Conference in Ottawa.

Apple Trees in Bloom in the Largest Apple Orchard in Ontario. There are Rows of Trees a Mile Long

The apple orchard of W. H. Gibson, of Newcastle, Ont., is here shown in part. The trees are thirty-two feet apart. The apples from these trees graded eighty per cent number one. Mr. Gibson obtains better colored fruit on clay loam by leaving a strip of grass mulch, twelve feet wide under the trees and cultivating the center between the rows.

for any length of time in cold storage. The best that can be done is to keep them in a firm condition for transportation and marketing at reasonable distances. The refrigerator car is good as far as it goes, but it is weak when depended on for prompt cooling. The proportion of ice to the contents of a full car is necessarily very small, and when a car is filled with warm fruit, it takes too long to reduce the temperature. This is all the more noticeable if the car itself has not been chilled before the fruit is loaded.

A temperature of forty degrees may be considered about the minimum possible temperature in a refrigerator car in warm weather, but it seldom goes below forty-four or forty-six unless the heat is out of the fruit before it is loaded. If the fruit is warm when loaded into the car, it will take from two to three days to bring the temperature down and the car will have to be kept well iced in the meantime. All this time the ripening process is proceeding rapidly.

If any plan can be devised whereby the chilling of the fruit can be accomplished in a few hours instead of taking days, the fruit will carry much farther and in better condition. There is this further advantage that fruit which is to be promptly cooled after picking can be safely allowed to remain longer on the tree and thus reach a fuller development of its quality. The day is coming when the matter of quality will be more highly appreciated. Just now a great deal of emphasis is given, and I think justly so, to questions of appearance, packing and packages, but there will be more uniformity in this respect as time goes on and the other matter will come more to the front.

PRE-COOLING

The adoption of pre-cooling on a large scale has been confined almost entirely to the Pacific slope in the United States. The conditions under which this system has been developed, especially in California, find no exact parallel in Canada, yet I am inclined to think that there is a limited scope for the operation of such plants in this country. The Niagara District probably offers the best opportunity for successful operation.

Pre-cooling may be carried out either by placing the fruit in a cold storage warehouse or by having it cooled in the car after it is loaded for shipment. It is the latter method which is attracting most attention as being the more practicable of the two. There is, however, no difference in principle and the system of car-cooling is favored largely because it saves time and the extra handling of the fruit in and out of the warehouse.

The cooling of a car may be completed with a well equipped and properly designed plant in about four or five hours.

(Continued next month)

What Cultivation Shall I Give My Orchard ?

T. G. Bunting Central Experimental Farm, Ottawa

No phase of orchard management is of more importance than orchard cultivation, and yet many growers do not give it the attention that they give to spraying, pruning and handling of the fruit. We cultivate our orchards for three main reasons, under which all the benefits derived from cultivation may be said to come, and these reasons are: First, cultivation aids in bringing the unavailable plant food in the soil into a form available to the plants; second, cultivation conserves the soil moisture; and third, cultivation keeps down the weeds.

It is well to have a thorough understanding as to why we cultivate our orchards, and as the reasons have been enumerated it will be desirable to consider them carefully before making any recommendations. It is generally known that soil suitable for orchard planting contains an abundance of plant food. That is, the chief essential elements, such as nitrogen, phosphoric acid, and potash are in most soils in sufficient quantities to last a long time, provided it all could be made use of by the tree. The greater part of this plant food is in a form that cannot be made use of by the trees until it has been made available by the chemical and bacterial action which is going on in the soil.

IMPORTANT CONDITIONS

These two actions, which should be continually going on, when the ground is not frozen, are largely aided by a suitable temperature, an abundant supply of air and a plentiful supply of water, without an excess of water. Therefore, we must supply as far as possible the conditions suitable for the most rapid reactions in the soil. This is done, firstly, by giving good drainage, which in removing the surplus water from the soil allows the soil to warm up much more quickly than it otherwise would, as water requires more heat to warm it up to a given temperature than does the soil; secondly, by cultivation which loosens up the soil and tends to assist in warming it up as there then being better aeration the air will impart its heat to the soil; and thirdly, the soil being better aerated the bacteria can secure the required amount of air, including nitrogen.

Now as cultivation cannot be given until the soil is dry enough it is necessary that the soil should be sufficiently well drained to permit of the cultivation being given at a time when it is desired that these reactions take place most rapidly in the soil. When is this most necessary? If we consider the needs and habits of the tree it will give us a fair indication. The sap in the trees starts to flow quite early in the spring, even before the frost is out of the ground, and visible growth of the tree begins on an average about May first to fifteenth. The greater part of the growth of the tree is made in the latter part of May and June, after which date the fruit is being brought to maturity and the buds are being fully developed for next year's growth, so this, May and June, would be the period in which the greatest supply of plant food would be necessary.

BEGIN CULTIVATION EARLY

In order to have this large supply of plant food available during May and June we must begin our cultivation much earlier than this in order that the bacteria busy in the soil may have a chance to multiply and do their work. As the spring advances and the soil becomes drier and warmer, the bacterial and chemical actions go on at a very rapid pace.

It is necessary, therefore, to begin our cultivation in the orchard just as early in the spring as we possibly can so that at the time the trees are beginning to make their greatest growth there will be the largest amount of plant food available. This cultivation can begin in many orchards as early as the last part of April and then be followed up at frequent intervals until the end of June or middle of July, by which time the wood growth has been made.

CONSERVE SOIL MOISTURE

The second reason for cultivation is for the conservation of soil moisture. It has been proved that if a soil mulch is maintained over a field there will be a minimum amount of water lost by evaporation from that field as compared to where the field is left uncultivated, and the surface hard and compact. In California, where water is very valuable, it has been found necessary to maintain a soil mulch of from three to six inches during the dry season when irrigation is the rule in order to prevent the loss of the moisture in the soil. Likewise, in the dry-farming areas they depend on this soil mulch for the conservation of the water.

In our orchards of Ontario a soil mulch of from one to two inches will be sufficient to prevent a wasteful loss of the soil moisture, and there is hardly a year passes but that our orchards suffer from a drought. This loss may be very noticeable, as in the dropping of the fruit after a prolonged drought, or it may not be so apparent but felt in a less vigorous growth of our trees and a consequent loss in the amount of the crop in future years.

(Continued next month)

Value of Bees in Wet Weather

The following extracts from an address entitled "Beneficial Results from the Fertilization of Fruit Blossoms by Bees" in the British Bee Journal, will be of interest:

Rain during the blooming season is a frequent cause of unfruitfulness. Continuous rain may wash away the pollen, and it may lose its vitality, but the principal cause of unfruitfulness at such times is due to the fact that insects, and particularly bees, which promote cross-fertilization between varieties are absent.

Unfruitfulness may be due to a scarcity of bees. I could mention several instances where orchards had proved unprofitable until bees were introduced.

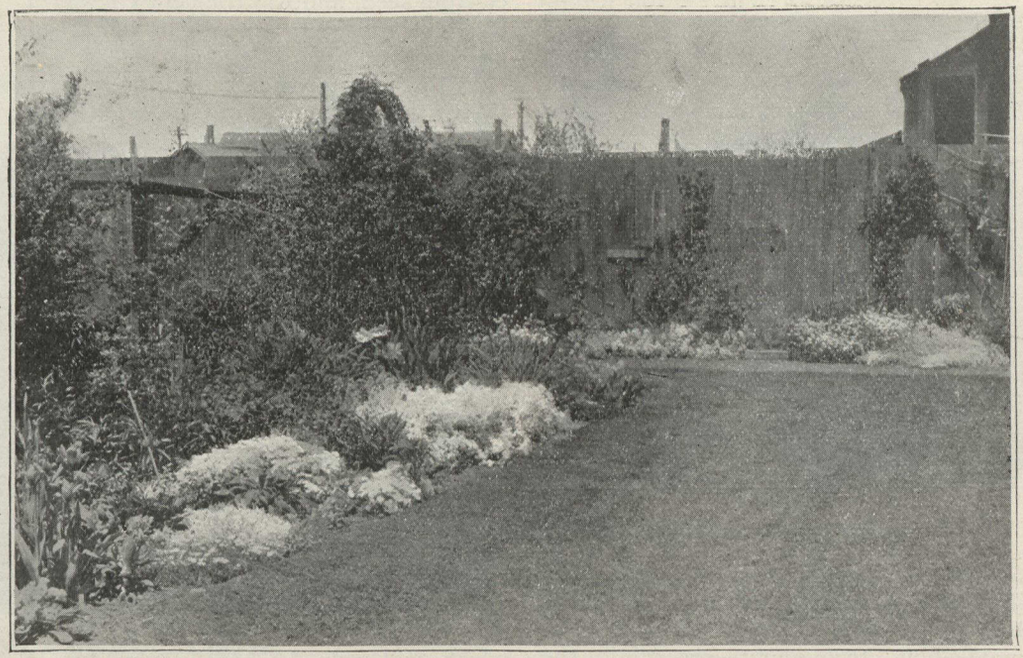
One in particular, a forty acre block of Alexander peach trees, had never borne profitable crops and the owner was about to cut them down. When asked where the nearest bees were kept he said five miles. Those bees were no use to him at all, and I advised him to give the trees another season's trial, and to get some bees at once. He obtained two colonies of bees, which he placed in the centre of his orchard. Of course, by that time more than half the blossom was over, but for all that he got a fair amount of fruit, the trees nearest the hives having the most on them. The next year he bought more bees, with the result that the trees were so laden with fruit that, although they had been thinned, the branches had to be supported by strong wooden props. Needless to say, there were no more complaints, for here was ample proof that all that was required to make the trees fruitful were bees to fertilize the blossoms.

Another fruit grower found that when he brought his hives into the orchard the first year's yield showed a fourfold increase of fruit, independent of the honey crop, showing the importance of having the hives near the trees. Apples this year in his district had been very scarce, excepting his own orchard and those immediately adjoining it.

Cross-fertilization produces very much larger and better flavored fruit than the self-fertilized does. This cross-pollination is almost entirely dependent upon insects, the chief of which are bees. There should be a sufficient number of bees in vicinity, that no matter how unfavorable the weather, the blossoms would be visited often enough to fertilize them perfectly.

BEES PREVENT FROST DAMAGE

If bees are plentiful fertilization takes place as soon as the blossom is ready, and the blossom is the better ready to stand a hard frost. If through lack of bees or bad weather fertilization is deferred, a frost may come in the meantime and result in great loss to the fruit grower.



A Corner Where Spring Flowers Bloom in All Their Sweetness

This glimpse of a corner in Miss Blacklock's garden, Toronto, shows a Polyanthus in bloom. Next to it, at the extreme left, is Snow-in-Summer, then Moss Pink and behind it Phlox Amoena (Lovely Phlox). The large clump to the right of them is the double Arabis (Rock Cress).

A Plea for the Spring Garden

Miss M. Blacklock, Toronto

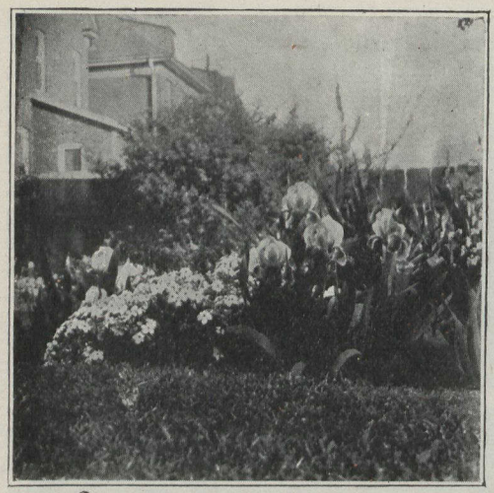
AFTER the snowdrops, squills, hyacinths and other spring flowers of March and April have gladdened our hearts by their sweetness or wealth of bloom, primroses and bunch primroses (Polyanthi), the well beloved of all England's children, begin to add their quota of delight about the end of April. The primrose, which reaches perfection here during May, comes now in nearly all the shades of crimson and yellow that the polyanthus does, but it seems sweeter and more appropriately dressed in its old-fashioned primrose gown.

The polyanthus is most attractive in the rich, velvety crimsons that it delights to don, although it is beautiful in the rich yellows, creams, and many "art" shades of pink also. It is a very showy flower, and one that is perfectly hardy and easily grown, provided it is kept sufficiently well watered and sheltered from the blazing midsummer sun. It is easily raised from seed, and a strain known as Dean's Hybrids is excellent.

One of the daintiest Barrenworts (Epimedium rubrum) joins the happy throng the first week in May. It is difficult to decide which to advise most, its quaint little cream and crimson flowers, springing from the axils of the leaves, or the beautifully tinted leaves themselves. Both are quite unique. Corydalis nobilis (the Noble Fumitory), with its stout flower stalk, closely packed with yellow and black blossoms; C. bulbosa, with smaller flowers of a somewhat dull magenta-crimson; and C. rubrum, also of a magenta tint but decidedly pretty, make their debut with the daffodils and narcissi. Golden Tuft (Alyssum saxatile) is always in time to spread its golden mantle beneath the tulips and to consort with the double Arabis.

The Leopard's Bane (Doronicum) is the first of the daisy-like flowers to bloom. The variety named Harper Crewe (D. plantagineum excelsum) is the finest one and goes on blooming through a great part of the summer. The flowers are a bright yellow and about the size of our wild oxeye daisy. They last well when cut, which is probably why one sees so many little bunches of them at the street flower stalls in London in the spring, and every house that has a foot or two of earth in front of it boasts at least one plant inside the little iron palings. The plants grow quite tall and are very showy.

The low-growing phlox (P. subulata), often called moss pink, gives great masses of color. There are some new varieties, notably the one named Vivid, that are a purer pink than the type, and some very fine white ones. The Lovely Phlox (P. amœna) is a beautiful rose pink, and as it forms cushions, about six inches high, it is even more striking than the moss pink, which is of prostrate growth. They bloom about the same time and are both very desirable. The Dwarf Iris (see illustration number one) is another early flower that deserves special attention. There are a number of varieties differing greatly in size, colour,



A Dwarf Iris and Lovely Phlox No. 1

and in the time of blooming. T. pumilla cærulea, a midget of only four inches high, with small flowers of a delicate mauve-blue throughout—preceding the others by nearly a week. There are yellow, white, and purple varieties, some with blooms as large as those of the German iris, some coming early and some only fading as T. Florentina, the forerunner of the German iris, begins. They delight in a well-drained soil and sunny situation.

The Virginian Blue Bells (Mertensia Virginica), with smooth glaucus leaves and drooping flowers of the softest plumbago blue, deserves a well-honored place in the spring border, and so does the creeping Jacob's Ladder (Polemonum reptans) with soft grey-blue flowers and pretty leaves, nor must we forget the claims of the perennial Candytuft (Tberis sempervireus), which lies like a patch of freshly fallen snow, in its dazzling whiteness; Snow Queen, a new variety, is the finest. A darling amongst the little creeping things is the Snow in Summer (Cerastium tomentosum) with its fine silvery leaves of almost wool-like texture, and comparatively large white flowers, which begin to open in late May and last until mid June.

Few plants are more charming than the Iceland Poppy (P. nudicaule) (see illustration number two). It is not only an early bloomer, but it is one of the few perennials that blossom all summer, provided no seed is allowed to form. Its long stems and airily poised flowers give it great decorative value both indoors and out, for unlike the majority of poppies, it does not drop its petals the day it is gathered. If picked in the bud stage it will often last several days in the house.

The original colors were pure white, pure yellow, and orange-scarlet, but the last few years have seen several intermediate shades added to these, and also colored flowers with delicate white edges (a la Shirley Poppy), which are exquisitely dainty. It, also, can be easily raised from seed, and will frequently flower a little the first year if sown in a hot bed in March or April.

With the flowers described, as well as those that bloom during March and April, one can have something coming on, to cheer and interest one, from March to the end of May, the three spring months. I do not wish you to infer that there will be much bloom in March, for that would be misleading, but even a few snowdrops are worth while after our long, cold winters, and the procession of the flowers is steady, if sometimes slow, in cold seasons. By the end of April you will find yourself going out each morning to see if there is not something more in bloom since the previous day, and you will be anxiously watching each little bud unfold.

From the first week in May things will run races with each other for precedence, and by the twenty-fourth the spring garden will be in the height of its glory, which will only be excelled by June's lavish display. All this time the average gardener is gazing at his empty beds and wondering if he dare have his tender bedding plants put in by the twenty-fourth, while the man who goes in for

Iceland Poppy (Papaver Nudicaule) No. 2

annuals, "first, last and all the time," is nursing his tiny plants that will not reach blooming size until the end of June at the earliest—he and his bedding-out-plant rival having the pleasant thought to cheer them that their gardens will be in their prime when either they themselves or most of their friends will be out of town for their summer holidays.

The Perennial Border

F. E. Buck, Central Experimental Farm, Ottawa.

The following are a few short rules to follow in the making of a perennial border:

Prepare the ground for perennials in the early autumn, or prepare in the spring, and plant annuals in it for that season. The cultivation of these annuals will greatly improve the ground for the perennials. In preparing the bed, work in thoroughly plenty of well-rotted manure.

Underdrain the border if the soil is heavy. If it is very heavy add, in addition to manure, some sand or peat as well.

Order the plants from the nursery company in good time. This will ensure your getting all the plants you order, and it will enable you to plant early and to get the best results.

Order most of the plants in the summer for autumn planting, except a few that are best planted in the spring. These latter you may order during the winter.

Plant as soon as received and don't on any account let the roots dry out. Set the plants a little bit deeper than they were in the nursery, but don't smother them.

If you can raise most of the plants yourself from seed, do so. Sow the seed early in the spring, and the plants will be ready to transplant into the border by the fall.

A FEW DON'TS

Don't try after color effect until you know your flowers well.

Don't forget that quiet harmonies are often better than strong contrasts.

Don't forget to pick off the old flower heads and dead stalks. By so doing you will improve the general appearance of the border and encourage some plants to make a second growth.

Don't forget that a little water applied during the daytime is worse than none at all. If you give any give plenty.

Don't forget to stake and tie up the very tall plants.

Don't forget that in the early stages of a perennial border you can hardly expect to have a good balance of bloom at all seasons, but strive after that if you have a large border.

Don't forget that too much variation, even in a flower border, tends to monotony. Have big clumps of color if possible.

Don't forget that exact grading from the tall plants at the back to the dwarf plants at the front of the border will give a stiff appearance. To avoid this plant an occasional large and striking plant in the foreground.

Don't forget that the drip from large trees is harmful to most plants.

Don't be afraid to throw out plants you do not care for.

A Portion of the Pergola in Mr. MacKendrick's Garden

Canadian Gardens---The MacKendrick Garden

A. K. Goodman, LL. B., Toronto, Ont.

ARTICLE No. 5

A MAN in the creation of a garden unconsciously reveals himself. The garden at 7 Chippewa Ave., Toronto Island, is no exception to this rule, for this is the garden, not of a florist, a botanist or a gardener, but of a man—a big, bold, intellectual, forcible man. A florist would have followed well known rules of gardening, namely, that there should be simplicity, instead of extravagance, masses, instead of scatterings, law instead of lawlessness, in respect to variety and of colour, and of form, and that there should be a focus or point of interest, or constructional centre, a dominant note of form, light or color, with other parts subordinate to this.

Mr. MacKendrick Entertaining Visitors

The President of the Toronto Horticultural Society is here shown describing his methods of rose culture to members of the Society who visited his garden last summer.

The Border

It is said, harmony is better esthetics than contrast, that we should use foliage in masses that the blue of the sky, water, the green of the earth, shrubbery and trees are a delight forever, that bright color has its cheer, and we should plan our garden for it, prizing it as an accent rather than a constancy. But the popular president of the Toronto Horticultural Society cuts out all sentiment, his grounds stand disclosed, nothing is suggested or left to fancy, he simply grows flowers in profusion, beautiful flowers in abundance, with accuracy, and magnificent results. Taking the well-known flowers that we all love, he extravagantly gives them the soil, water, nourishment and conditions they ask for, and compels them to bloom in a riot of beauty never before seen on the Island.

Mr. McKendrick is successful with all the flowers. The tulip, in remarkably rich and glowing colors, large size and massive substance, type of the brilliant splendour of the Orient, from whence it came, the fragrant stocks and wall flowers, the sweet pea, charming in form, beautiful and varied in color, deliciously sweet,—snap dragon and sweet william, roses of many varieties, phloxes, pæonies, dahlias, lilies, irises, gladioli, foxglove, daffodils, narcissi, pinks, asters, and many, many others.

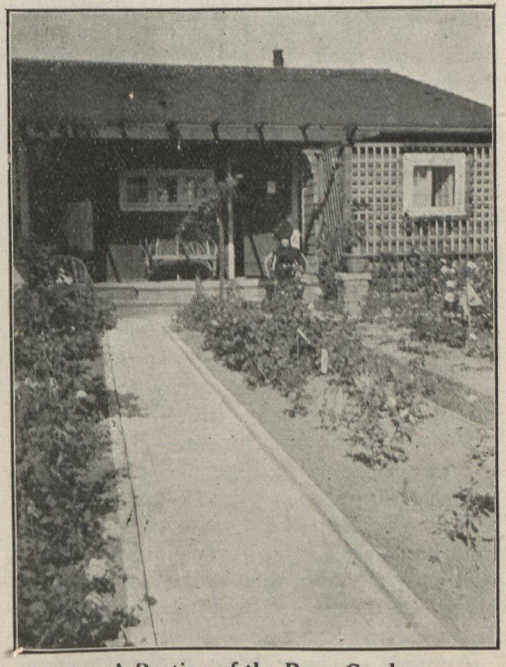
I have seen this garden but once, and have spoken to the man only a few times, yet the one is a reflex of the other. This garden is an educational floral asset of the city, where the man with a small yard can see and study individual flowers, grown in perfection, but it has nothing of Lord Bacon's suggestion of the mystic, or "of avenues, arbors and fountain, and the edge of a wilderness."

The Care of Tulips

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

Where tulips are planted in flower beds or borders where summer decorative plants such as coleus, geraniums, cannas and others, are to be planted, it is advisable to dig up the tulips so as to be able to thoroughly cultivate and manure the ground for the summer plants mentioned. By manuring the ground well at this time the bulbs will not require any manure or fertilizer when planted.

The tulip bulbs can be left in the ground until it is time to set out the



A Portion of the Rose Garden

In the rear is the summer tool house.

summer decorative plants, usually about the first week in June. They should then be lifted carefully with the top growth on, and should be heeled in thickly in a shallow trench and covered with four or five inches of soil. The tops only should be above the ground. Any out of the way corner of the garden will do to heel in the bulbs. It is best to mark the spot with a label or stake.

About the end of July or early in August the bulbs should be again lifted from where they have been heeled in, the tops removed, and the bulbs dried a little in the sun for a day or two. They should then be laid in shallow boxes and put in a rather cool cellar or room until planting time in October. By treating bulbs such as hyacinths, tulips and crocus in this way, a majority of the bulbs can be used for several years successively, where they have to be dug up for summer plants.

Fertilizers For The Garden

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

(Concluded from April Issue)

FERTILIZER formulæ might be multiplied almost indefinitely. Enquiries are almost daily received for mixtures suited for special crops, and fertilizer manufacturers pander to this demand by putting on the market a host of brands labelled for the different crops. It is quite true that there are types or classes of crops and that these differ as regards their food requirements, that each class has its dominant fertilizer. Thus, as already remarked, vegetables and leafy crops generally, clover, peas and other legumes, respond more particularly to potash while the cereals more especially require phosphoric acid with nitrogen. But too much confidence should not be placed in these special trade names, and it will be much more to the point to study the guaranteed analysis of the brands, at the same time keeping in mind the especial functions of the elements, the character of the soil and the predilections of the various classes of crops.

In furnishing—to meet the popular demand—the following formulæ for special crops, the writer does so with no little hesitancy, since they are apt to be accepted as the best mixtures under all conditions, and such, if we have made clear the principles underlying this art of supplying plant food, could not be possible. Fertilizers, like many other things, must be mixed and applied with brains if the best results are to be secured. There is no royal road, nothing that will take the place of knowledge and experience. While, therefore, all these formulæ have been used, and used successfully, no claim is made that they will everywhere and on all soils prove the best that could be devised. They are rather to be considered as suggestive in character.

Perennial Flower Border.—Bone meal, five to ten pounds; superphosphate, four to eight pounds; sulphate of potash, one to two pounds; and nitrate of soda, one to four pounds, per forty square yards. The superphosphate may be replaced by basic slag if the soil is naturally deficient in lime.

Annuals.—These have a short season of growth and therefore require large amounts of plant food. However, if the soil is rich, half of the following minimum amounts will suffice: Superphosphate, ten to twenty pounds; sulphate of potash, one to five pounds; and nitrate of soda, ten to twenty pounds, per forty square yards.

Phlox in Bloom in Mr. MacKendrick's Garden

Roses.—These are usually planted in soil that has been well enriched with manure. In such cases phosphate only will be necessary to induce blooming: Bone meal, ten to twenty pounds; superphosphate or basic slag, ten to twenty pounds, per forty square yards.

Lawns.—The preparation of the ground for lawns is all important; it is better to defer seeding a year than to sow on soil that is in poor mechanical condition and deficient in available plant food. It should be plentifully supplied with humus-forming material. Before seeding, the following mixture may be worked into the surface soil: Ground bone, five to ten pounds; muriate of potash, one to two pounds, per forty square yards. The grass may be top dressed with nitrate of soda at the rate of a half pound for forty square yards two or three times during the season if the growth is poor and yellowish.

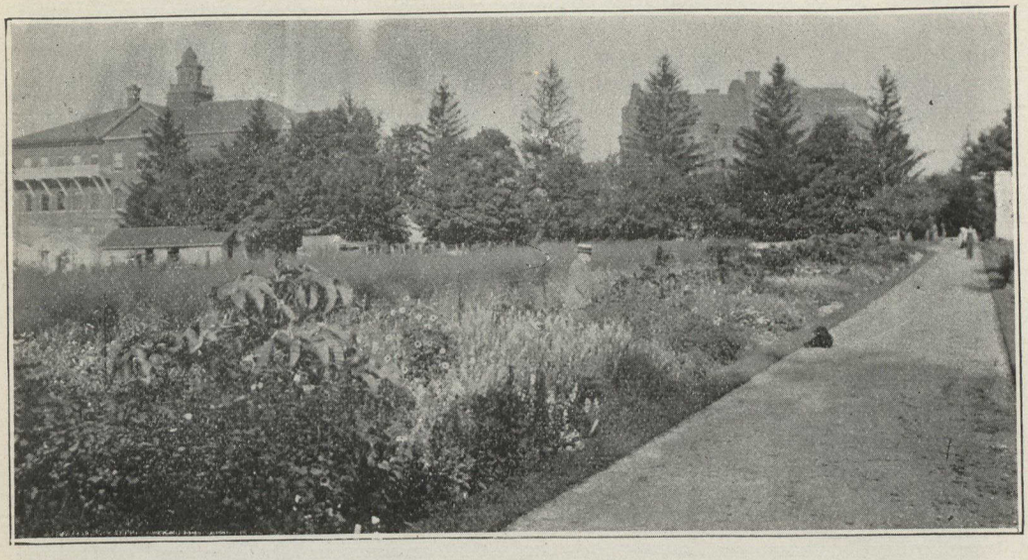
Potting Soil and for Use in Greenhouses.—For potting soil, house plants, and so forth: Bone meal, four pounds; sulphate of potash, one pound. To be thoroughly mixed with five hundred to seven hundred and fifty pounds of the potting soil. If the growth lacks vigor, nitrogen can be applied as nitrate of soda to the pots. This will be most readily done by dissolving three-quarters of an ounce of the nitrate in one gallon of water and applying say two ounces of the solution every fortnight or three weeks, for a six-inch pot. It should be borne in mind that excess of nitrogen will give a leafy development and suppress blooming.

For soil in greenhouses, frames, and so forth, two pounds of the above mixture of bone meal and sulphate of potash can be used for each one hundred square feet thoroughly incorporating the fertilizer with the soil. If available nitrogen is thought desirable, follow with one-half to three-quarters of a pound of nitrate of soda for a hundred square feet.

When the soil has not previously been enriched, it may be found convenient to apply the fertilizer in liquid form. For house plants, garden flowers and vegetables, the following may be used: Nitrate of soda, three parts; sulphate of potash, one part; and superphosphate, three parts. Dissolve the mixture in water at the rate of one ounce in three gallons of water (there will be slight insoluble residue from the superphosphate that may be neglected) and use rather sparingly once every two or three weeks. If the soil is very rich (as from additions of well rotted manure) and the plants run to foliage, omit the nitrate of soda from the above formula.

No attempt has been made in this article to discuss the fertilizing question in all its bearings, but merely to give in as concise a form as possible some of the more important principles upon which a rational use of fertilizers is based, together with certain formulæ which may be found helpful in ordinary garden practice. In the mixtures suggested, only the more commonly used and easily obtained ingredients have been employed, thus simplifying the matter for those who have yet to gain their experience with fertilizers.

In conclusion, it might be stated that not all garden soils stand in need of fertilizers or will repay their use. It is true, however, that wherever the amount of stable manure available is inadequate to supply the full measure of the plant food demanded by this intensive form of agriculture, fertilizers may be employed with very considerable profit, and, further, that by their judicious use the excess of available plant food so desirable in the garden soil may be kept fairly well balanced and therefore the best results in root, stem, leaf and fruit obtained.



The Annual Border at the Ontario Agricultural College

Planting Notes for May and June

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

IF the season is at all a backward one—as it appears likely to be this year—the early part of May will be quite soon enough to do any planting or transplanting that may be required in the perennial border. Better results can be obtained after the plants have started root action than very early before root action has started. Any trimming in, or rearranging of clumps or groups of perennials, and the transplanting of same, should be done before top growth is more than two inches in height. One or two early flowering kinds may be left until later before dividing or transplanting them. The several varieties of the phlox subulata, garden primrose, and cowslips are among those that may be left until they are out of flower before being divided. Even these are sometimes better transplanted very early in spring.

There are a few kinds of perennials that should not be disturbed in spring or early summer. Paeonies, Dicentra (Bleeding Heart), and German Iris should be dug up and divided, if they require it, about the end of September or early in October. Lilies of all kinds should not be disturbed in the spring; early in September is the best time to take up and divide these, but do not disturb them at all as long as they give good flowering results.

If the clumps of spring flowering bulbs, such as narcissus, tulips, and crocus, are getting too crowded, mark the spot with a label where they are growing, and then dig the bulbs up about the end of July, dry them a little, and put them in the cellar until planting time in October. Almost all of the other kinds of perennials, such as campanulas, larkspurs, giallardia, monarda didyma, coreopsis, Dictannus fratinella, woundwort, snow-in-summer, and other similar kinds of plants, can be transplanted if they require it in the spring.

ANNUALS

Nearly all of the early sown annuals can be planted out from flats or cold frames from about the middle to the end of May, acording to prevailing weather conditions. A few of the most tender kinds, such as nasturtiums, zinnias, balsams, and climbing Cobaea scandens and Tropaeolum Canariensis (Canary Creeper), should not be planted out until the ground is warm, and all danger of frosty or chilly nights is past. It is better to wait a week until the weather gets warm and settled, than to put them out to be chilled so as to give them a set back, or perhaps to be frozen and ruined.

The first or second week in June is usually quite early enough to set out very tender plants. Nasturtiums and the climbing plants mentioned should be grown on early in pots, or sown where they are to grow for the season, as they do not transplant readily from flats or cold frames. The distance apart to plant annuals—or to thin out when sown in the border—must be governed by the habit of growth and height of the plant. A good general rule is to plant or thin the taller growing bush kinds from two to three feet apart, the medium height plants ten to twelve inches, and the dwarf varieties two to four inches apart in the rows, and the rows for the dwarfer growing kinds six to eight inches apart. Phlox Drummondii and mignonette may be left rather thick in the rows, about four inches apart.

The following list of annuals include most of the popular and best kinds, with their approximate height in feet and inches. They are also placed on the list in each class in the order of merit they are generally conceded to have as decorative plants for the garden.

CLIMBING ANNUALS

Sweet Pea, four to six feet.

Cobaea scandens, eight to twelve feet.

Climbing Nasturtiums, six to eight feet.

Convolvulus (Morning Glory), six to eight feet.

These are suitable for training on a trellis for a background where required for an annual border, or for covering fences or verandahs.

PERENNIAL CLIMBERS

Good hardy perennial climbers for spring planting are Aristolochia sipho (Dutchman's Pipe), Ampelopsis Veitchii, and Ampelopsis quinquefolia, and clematis in variety. These may be planted as early in the spring as possible.

TALL ANNUALS FOR BACKGROUND OR CENTRE OF LARGE BED

Ricinus (Castor Oil Bean), four to six feet.

Annual Sunflower, three to six feet.

Cosmos, three to four feet.

MEDIUM HEIGHT ANNUALS

Asters (Comet and Late Branching), twelve to eighteen inches.

Nasturtium (Dwarf), eight to twelve inches.

Phlox Drummondii, twelve to eighteen inches.

Ten Week Stocks, twelve to eighteen inches.

Zinnia (Tall), two to three feet.

Balsam, one to two feet.

French Marigold, twelve to eighteen inches.

Salpiglossis, two to three feet.

Schizanthus, twelve to eighteen inches.

Scabiosa, two to three feet.

Silene armeria (Lobels), twelve to fifteen inches.

Coreopsis (Calliopsis), one to two feet.

Calendula, one to two feet.

African Marigold, two to two and a half feet.

Gypsophila elegans, twelve to fifteen inches.

French Marigold, ten to twelve inches.

Eschscholtzia, ten to fourteen inches.

inches (new).

Diascia Barbarae, ten to fourteen inches, (new.)

DWARF ANNUALS

Sweet Alyssum, six to ten inches.

Candytuft, eight to ten inches.

Portulaca, four to six inches.

Dwarf or Liliputian Zinnia, ten to twelve inches.

Dwarf Cicely Phlox, eight to ten inches.

Virginian Stock, ten to twelve inches.

Swan River Daisy, ten to twelve inches.

TENDER GREENHOUSE PLANTS

It is not safe to plant out geraniums until the last week in May or possibly early in June. The more tender plants such as coleus, iresine, salvia, ageratum, canna, alternanthera, Caladium esculentum (Elephant Ears), should not be plant-

ed out in the flower beds until the first or second week in June at the earliest, to be quite safe from a set back.

The following table showing the principal kinds of tender bedding plants, with approximate height of same and distance apart to set the plants, will be a guide in setting them out:

Geraniums—Twelve to fifteen inches high; ten to twelve inches apart.

Coleus—Twelve to eighteen inches high; ten to twelve inches apart.

Iresine (Tall)—Ten to twelve inches high; eight to ten inches apart.

Ageratum—Six to ten inches high; eight to ten inches apart.

Salvia—Fifteen to eighteen inches high; twelve to fourteen inches apart.

Canna—Three to four feet high; fourteen to sixteen inches apart.

Caladium esculentum (Elephant Ear)—Two to three feet high; eighteen to twenty inches apart.

Alternanthera—Six to eight inches high; four to six inches apart.

GLADIOLI

The following corms of these can be planted at any time from early in May until the second week in June. As a rule, the best results are secured by planting about the second or third week in May. Plant flowering corms four inches under the surface of the soil and from four to six inches of space between the corms whether planted in rows or in groups. The old dry corm of last year should be removed before planting the fresh corms, also all of the small cormels. The small cormels should be planted as early in May as possible. A shallow drill about two inches in depth is deep enough to plant or sow these in. They can be sown thickly, about an inch apart in the drills, very similar to the way sweet peas are sown.

The hardening of tender plants gradually to outdoor conditions is one of the very important features of successful spring and summer planting. To expose plants at once from indoor to outdoor conditions without this "hardening off" process often results in serious injury from the hot sun, as well as from cold, chilly weather. Stand the plants out of doors in a cold frame or where they can be temporarily protected from hot sun in the daytime, or from cold at night, for a week or ten days before planting them out. Plants treated in this way make a much better start when planted out than when planted directly from the window or greenhouse into the flower border.

Dig and rake the ground well before planting. Any fertilizer dug in now should be well rotted, almost the nature of soil itself.

Plant when the ground is moist, not when it is very wet or soddened. Just before rain and in dull warm weather is the best time for planting.

Set all the plants out—especially pot plants—in the exact position they are to occupy, before starting to plant, if possible. It is easier to do this first than to dig them up and replant them, as is often done if not in their proper position.

Do not disturb the roots of potted plants too much when planting, except to remove the old drainage material. Avoid tramping the soil down any more than really necessary, especially soils of a heavy nature.

Pack the soil fairly firm around the roots. Do not leave the surface of the soil too fine, after planting; it packs down too hard if raked very fine on the surface.

Water plants well once if soil is very dry. Keep surface of soil stirred occasionally with a small hoe. Never use a large rake for this purpose; it is dangerous. Many a good plant has been snapped off by using a rake for surface stirring the soil.

A small hoe and a garden trowel are indispensable implements for planting purposes.

Vegetables in Young Orchard*

A. H. MacLennan, O. A. C., Guelph, Ont.

When growing vegetables in the young orchard the welfare of the young trees must be borne in mind and the crops not allowed to encroach upon them. The next thing to consider is the market for the vegetables and the facilities to reach that market. When that is decided, one may plant what suits his conditions the best.

For early potatoes the seed should be selected the year before and only those hills chosen that are still green and vigorous at the time of digging. This should then be stored in a light cellar, so that the potatoes may get green, and the temperature be maintained at thirty-eight degrees Fahrenheit, or as near to it as possible. About six weeks before planting, the temperature should be raised to seventy degrees Fahrenheit, and the tubers set upright with the eye and up, so that the best and strongest shoot may grow—the others should be rubbed off. The system of allowing only one shoot to grow will produce fewer potatoes, but all of them will be of marketable size.

THE SOIL

The ground should be thoroughly prepared. Three or four days before planting, the furrows should be run twenty-eight inches apart and four inches deep This will permit the soil to warm up more quickly and deeper. If one is using commercial fertilizer, it should be placed in this furrow and covered one-half inch with soil. The sets are then carefully placed in the furrow nine inches apart, sprouts up, and then covered with a hand rake or single horse cultivator. Care must be taken not to break off the shoots or one will lose more than the time gained.

The Early Ohio is the earliest variety, but it is not a very heavy cropper. Early Eureka is a week later and a heavy cropper. The Empire State, Green Mountain, and Davy's Warrior are main crop potatoes.

LATE CABBAGE

For late cabbage, the young plants must be started in a seed bed that can be covered because of the cabbage fly that appears in late May and early June. A plot eight feet by twelve feet will hold enough plants to set an acre. The large headed types should be planted about thirty-six inches by twenty-four inches, and the smaller early types twenty-four inches by eighteen inches. When transplanting to a field, about half of the larger leaf surface should be pruned off to reduce transpiration, and a batter of clay and cow manure should be made in which the roots of the young plants are immersed and carried to the field. They should be taken from this and planted direct. This treatment will give the plants a start in the ground because they have both moisture and fertilizer at hand in the shape of a film of this batter adhering to their roots.

ONIONS

The soil for onions should be worked down very fine and level and rolled because the onion grows on the surface of the ground and the seed requires to be barely covered. First of all the seed should be tested for germination power.

There are two methods of getting the crop into the ground—One, the seed may be sown with a drill in rows twelve inches to fourteen inches apart, which will require four to five pounds per acre. The seed drill should be tested and the sowing done acordingly, so as to be sure of sowing enough and not too much. This will save much tedious work of thinning later on. This system is suitable for all of the medium sized onions. If the sowing is done properly, no thinning will be necessary, as the small percentage of smaller onions may be used for pickling. Two, the seed is started in a hot-bed or greenhouse in February and later transplanted into the field. This will give a large onion and is suitable for the onions of the Gibraltar type.

*An address delivered at the Guelph College during the short course in fruit growing.

Trim out and burn the old raspberry and blackberry canes. Currant and gooseberry bushes should also be thinned. The fruit is improved both in quality and size.

A Bed of Ginseng as Grown in Ontario

Three-quarters of an acre of Ginseng plants, as grown in the gardens of Orr and Nickols, of Mono Mills, Ont., are here shown as photographed May 24, 1911. These growers have another half acre of Ginseng growing in the woods. The bed here shown was started in the year 1900, and proved a success from the start. Notice the lattice shade which is a necessity in the successful cultivation of this crop.

Growing Seed Potatoes*

I BEGIN this short article by making reference to the soil, for I am convinced that the kindly soil of Muskoka has largely contributed to my success as a grower of seed potatoes. My farm is slightly rolling, with natural drainage, exposed to south and east, and sheltered from the north-west by a granite ridge. The soil, being a rich, warm, sandy loam, quickly responds to good culture, and being underlaid by a compact subsoil, commonly called hardpan, it retains moisture, even in the driest seasons, such as 1911..

As potatoes require abundant humus in the soil, I prefer to grow in rotation following peas, which has been sod the previous year. Legumes are credited with drawing lightly on the manurial constituents of the soil and the vines, acting as a mulch, tend to smother weed growth and leave a clean, mellow seed bed for the following crop. I also grow on sod land, breaking pasture land the first week in August, disking and harrowing at once to hasten decomposition of the sod and prevent grass from growing. This is repeated as often as required until snowfall. When sleighing comes, and before the snow gets deep, I haul and spread twenty loads of barnyard manure to the acre. In the spring, early in May, as soon as the land is dry, I run a disk over it. I then plough manure under and harrow to a level surface. With a common single plough, with marker attached, I then begin on one side of the field, throwing out planting furrows, right and left alternately, four inches deep, planting by hand, distance apart depending upon habit of variety, and covering by a simple device drawn by one horse, resembling a snow plough, which covers two rows at a time and does the work satisfactorily. I run a short toothed, steel harrow lengthways of the rows, three times at intervals, finishing just as the plants appear above the ground. I then run the cultivator, getting close up to the plants thus making as little hand hoeing as possible. No implement yet invented can take the place of the hoe, and I use it every year so as to insure clean culture.

I cultivate four times, hilling only slightly by running the cultivator deep and narrow, thus making the ridges incline towards the plants, which ensures them getting the full benefit of the rainfall. I generally finish cultivating about July tenth, just as the plants are beginning to blossom. I never allow beetles to make havoc with the leaves, as potatoes never recover from a check at this stage of their growth. I use land plaster and paris green—thirty pounds of plaster to one pound of paris green, applied dry, when leaves are damp with dew. Two applications are generally sufficient but should a third aplication be required I think it is time well spent. This is the time to reduce the pest—it saves worry the next spring.

*A paper read at the Ontario Winter Fair. Guelph, December 1911.

As soon as the ground can be worked plant hardy vegetables, such as garden peas, onions, radishes, lettuce, parsley, spinach, carrots, beets and leeks.

Early Work With Celery*

In case the grower adopts the plan of transplanting, the seedlings will be ready for the first handling in from four to six weeks from the time the seed is sown. The seedlings may be transplanted in trays or to beds in the open ground.

This transplanting answers two purposes: First, the seedling plant of celery has a straight root or tap root which is broken in transplanting, causing a large mass of fibrous roots to be formed. In the case of a plant allowed to remain in the seed bed until planting out time this tap root has gone far down into the soil and the plant has formed very few side roots, consequently it suffers a great shock in the process of planting in the field, and a large number of plants will need to be replaced.

Secondly, when transplanting plants twice is practised there is no necessity for thinning and a more uniform lot of plants is obtained.

When the seed bed is prepared, the soil of which it is composed should contain as much moisture as possible, and yet be in good condition to handle. After sowing and covering the seed, the bed should be sprinkled lightly. During the period between seeding and the appearance of the plants the bed should be watered only as often as it shows indications of dryness; however, the surface should never become dry. During the first few days a moist cloth may be spread over the surface in order to conserve the moisture, but this should be removed before the seedlings begin to appear. After the plants are up care should be taken not to water too heavily, as they are liable to damp off, but the ground should never become so dry as to check their growth.

If possible, the planting should be done when the soil is rather moist and the atmospheric conditions suitable to the subsistence of the plants until the roots can again furnish sufficient moisture to supply them. The bed should be thoroughly watered a few hours before the plants are removed and a knife or trowel should be run between the plants so that they may be lifted with a clump of earth and with most of their roots attached.

Mark off the rows with a wheel hoe or cultivator. Place the plants in a shallow tray and set in the ground from the tray. When the plants are set and the soil well pressed down around them, they should be just a little below the general level of the soil, but not low enough to become covered by heavy rains.

Get the cold frame ready for plants as soon as they are sufficiently advanced to move from the hot beds.

*Extract from a bulletin of the United States Department of Agriculture.

The Canadian Horticulturist

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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

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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	8,082
February, 1911	8,260
March, 1911	8,523
April, 1911	9,469
May, 1911	9,783
June, 1911	10,178
July, 1911	10,062
August, 1911	10,043
September, 1911	9,973
October, 1911	9,991
November, 1911	9,988
December, 1911	10,137
Total	114,489

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 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 advertisers' 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

MARKET COMMISSIONERS

The marked success which last year attended the work of British Columbia's Market Commissioner in the leading fruit markets of the prairie provinces led the directors of the Ontario Fruit Growers' Association a few months ago to request Hon. James S. Duff, the provincial minister of agriculture, to appoint a similar market commissioner to represent Ontario in the west. Even although only a limited number of fruit growers ship fruit to the west during the early part of the season, it may be expected that the request of the fruit growers will be granted. While the government is about it, it should consider the advisability of appointing a second commissioner to visit and report regularly from the leading fruit markets in the east.

The great bulk of the tender fruit raised in Ontario is marketed in Ontario or in Montreal. Many hundreds of fruit growers consign fruit to the fruit markets in the large centres and to the smaller cities as well. Often gluts occur on these markets because the growers, not being in touch with one another, ship too largely to a few markets. Much of the fruit, also, goes forward poorly packed, and quantities of it are injured in transit. Were the government to appoint a market commissioner it would be his duty to visit these markets, as often as possible, and interview the local fruit dealers and railway officials. He would report the results weekly through the press and by special reports to the fruit growers and fruit growers' associations. By comparing the condition in which Ontario fruit from different districts reached the dealers, as well as fruit from points in the States, many valuable points would be learned by the growers, as the reports of such a commissioner would be followed carefully.

The amount of fruit marketed by the fruit growers of British Columbia in the western markets is such a small fraction of the quantity of fruit marketed in the east by eastern growers the benefits that would follow the work and recommendations of two such commissioners may readily be seen. Any one who read the weekly reports that were published last year by British Columbia's market commissioner will realize the need that exists for action being taken along this line by the Ontario government.

ADVERTISING APPLES

Such great developments have taken place during the past few years in the production and marketing of fruit, one may well wonder what the near future has in store for the fruit industry. As yet no systematic endeavor has been made to develop the home markets. Sooner or later this will be undertaken by means of carefully prepared advertising campaigns. The results that should follow such a campaign can hardly be estimated.

In the United States, where the competition for the best prices on the home markets is becoming more keen each year, some thought is already being given to this subject. In a recent issue of The Spy, the official organ of the International Apple Shippers' Association, there appeared an article entitled "Advertising the Apple," which gives some indication of what advertising might do to increase home consumption. The author of this article said in part, "So far as properly advertising the "apple is concerned, we growers and dealers are all sound asleep. We've got to "wake up. What, think you, would be the "outcome if positions were reversed and "the great advertising captains who are "now exploiting breakfast 'foods,' rubber "heels and scouring soap, took possession of "our apples and we their spearmints, powders and pink pills? I venture to say the "new apple owners would waste no time "in teaching that it's held 'bad form' to "start the day without eating a baked apple, "that the school children should eat more "apples and less glucose, that pork eaten "without apples is dangerous. In fact, we "would then learn a hundred uses for apples "never dreamed of before, and that it is "better to have no money in the bank than "no apples in the pantry. The consumer "would be taught the varieties and their "various good qualities; taught that buying "apples is buying bright cheeks, happy "smiles, sparkling eyes and elastic step. "Who would set a limit to the possibilities "of such a campaign? On the other hand, "what of our soap, soup and sawdust? "Well, you know what would happen if we "used no more sense in exploiting their "uses than we do our apples, and, mind "you, apples don't require half the boost "that some things do, which I might mention, that are making millions for their "owners."

The author of the foregoing is right. The first step in the approaching reform will come when our cooperative associations commence to advertise, in the magazines and daily press, different varieties of boxed apples under their special brands. When they do there will soon be a marked increase in the consumption of apples on our home markets, and oranges and bananas will be apt to lose some of their popularity.

CITY SOCIETIES

The directors of the Ontario Horticultural Association acted wisely when they decided to petition the Ontario government to so amend the Horticultural Societies Act as to make it possible for horticultural societies to be organized in each electoral district of a city. Hitherto the grant a city society could receive has been limited to five hundred dollars. Thus no matter how many members a city society might secure, the amount of its government grant automatically ceased when its membership and expenditures for horticultural purposes exceeded a certain point. The result has been that societies in cities like Ottawa and Toronto have not been able to accomplish the good work they otherwise might.

Toronto is now so large one society cannot begin to look after the work that should be done. As a result in part of this condition there has recently sprung up in Toronto, besides the Toronto Horticultural Society, the High Park Ratepayers' Association. This association, comprising approximately one thousand members, is located in the western part of the city. It is undertaking most valuable work in the line of encouraging and assisting its members to improve their boulevards and gardens. In spite of this fact, it has not been entitled to receive any government grant.

While it may not be advisable as yet to organize two societies in Hamilton or Ottawa, there is room for good work to be done by three, and possibly four, societies in

Toronto, and this without the work of the present society being handicapped in any way. Their establishment, however, would make it necessary for the government to increase materially the grant voted for distribution among the societies of the provinces at large.

MOTHERS' DAY

This year, as usual, the second Sunday in May will be observed as Mother's Day. Last year Mother's Day was celebrated more generally than ever before, and this year we may expect that it will be attended by still further evidences of public approval. It is a day that we should all respect.

Well may we, who are so fortunate as to have our mothers still with us, remember them on Mother's Day, not only by wearing a flower ourselves, but also, by giving them, where this is possible, tangible evidence of our love in the form of a gift of flowers. Where this cannot be done we should send these flowers in time that they may receive them on that day with letters that will tell them still more plainly how we appreciate what they have been and are to us. Those whose mothers have passed beyond will be blessed themselves and will bless others by their example if they observe the day in the customary way by wearing a flower, white if possible.

Last year a number of churches observed Mother's Day. Special services were conducted and appropriate addresses delivered, especially to children. Special services of this character may well become a fitting feature of the day. The cultivation of love for one's mother for flowers embodies such a lovely idea it is not surprising that the day is increasing so rapidly in public favor.

Many lovers of flowers heard with deep regret a few weeks ago of the death of Mrs. Annie L. Jack, of Chateauguay Basin, Quebec. The late Mrs. Jack, besides being the author of the well-known book, The Canadian Garden, was a well-known and appreciated contributor on floral and fruit growing subjects to numerous Canadian publications. During the past year several articles from her pen appeared in the columns of THE CANADIAN HORTICULTURIST. Art, music and flowers abounded in Mrs. Jack's farmhouse home, where, in addition to her literary pursuits, she accomplished the notable achievement of bringing up ten children, six sons and four daughters. Death called her away suddenly at the age of seventy-four. Canada was enriched by the life of Mrs. Jack.

PUBLISHER'S DESK

Have you noticed the great increase that has taken place in the circulation of THE CANADIAN HORTICULTURIST during the past five years? In 1907 the average circulation of THE CANADIAN HORTICULTURIST was 6,627. Last year the average circulation was 9,541. Up to date, this year, including the May issue, the average circulation has been approximately 10,500, and we anticipate that the average for the year will be considerably over 11,000 copies per issue. During the past five years the advertising rate of THE CANADIAN HORTICULTURIST has been only seven cents a line. The great increase in our circulation, amounting to considerably over seventy-five per cent for the period mentioned, has not only greatly benefited our advertisers, but, naturally, has also greatly increased our expenditures. We now find it necessary to advance our advertising rate to a flat rate of one dollar twenty-five cents an inch, or nine cents a line. This new rate will go into effect on and after the first of next August. Existing contracts will, of course, be fulfilled at our present rates. Our advertisers are thus being given three months' notice of the change in rates. In view of the fact that the increase in advertising rate amounts to only twenty-five per cent, while, as already stated, the circulation of THE CANADIAN HORTICULTURIST has been increased over seventy-five per cent, it is clear that our new advertising rates will be relatively lower in proportion to our circulation than our rates have been up to comparatively recently. According to our space rates our proposed advance in rates is small indeed. Up to the first of this year we charged as high as two dollars an inch for a one-inch advertisement receiving one insertion. From this rate we allowed reductions in proportion to the size of the advertisement and the number of times it was to appear. The average cost per inch of space was one dollar twenty cents. Our new rate will be only one dollar twenty-five cents an inch. As soon as possible after the new rates have gone into effect we purpose making a number of improvements in THE CANADIAN HORTICULTURIST that will prove of benefit not only to our advertisers, but to our readers as well.

We find it very difficult to predict with safety each month the articles which will appear in the succeeding month's issue. Contributors who sometimes promise faithfully to furnish articles on stated subjects are sometimes prevented, for one reason or another, from doing so, or their articles reach us a little too late in the month to make their publication possible. Sometimes, also, the pressure on our reading columns is so great, articles which we expected to publish have to be held over to a later issue. This month, for instance, we have been able to publish only a small part of a splendid article by Mr. F. E. Buck, of the Central Experimental Farm, Ottawa, on the perennial border. The best part of this article has been held over for publication in our June issue. An article on potato growing, by Prof. C. A. Zavitz, of the Guelph Agricultural College, which was to have appeared in this issue, reached us too late for publication, and will also appear in our June number. Two articles of special interest that we expect to feature in the June number include one on June spraying in the orchard by Mr. R. J. Messenger, of Bridgetown, N.S., and one dealing with the profit derived by thinning fruit by Mr. R. M. Winslow, Provincial Horticulturist, Victoria, B.C. A portion of the first prize essay, entitled "My Favorite Flower, the Geranium, and How I Grow It," by Mr. A. V. Main, of Ottawa, will also be published. The articles already on hand for our June number ensures its proving one of the most interesting issues of the year.

Recent Bulletins

Bulletin 151, of the University of Illinois Agricultural Experimental Station at Urbana, Ill., describes some important insects of Illinois shade trees and shrubs. Bulletin 154 deals with the home vegetable garden.

From the Maine Agricultural Experiment Station at Orono, we have received bulletins 195 and 196. The former is entitled "Insect Notes for 1911." The latter is Part III. of "The Fungus Gnats of North America."

The New Jersey Agricultural Experiment Station has issued bulletin 240 and the New Hampshire Experiment Station bulletin 155, both of which deal with the inspection of fertilizers. The former is particularly complete. It deals with the subject at length.

Fruit Growing in Ontario---Its Possibilities.

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

I HAVE had an opportunity, by direction of the Honourable Minister of Agriculture, to visit during the last six months every province of the Dominion in order. In the course of this trip I have come into personal contact with a great many representative fruit-growers in the different provinces, have visited them in their homes, have looked over their orchards, and have discussed with them many of the features of the industry as it is being carried on under varied conditions. I wish at the outset to express appreciation for the cordial reception given me, and the interest displayed in my mission by these gentlemen. The officials of the various Provincial Departments of Agriculture, of the Agricultural Colleges and the Experimental Farms, as well as the members of the staff of the Fruit Division, have taken every pains to make my trip pleasant and to facilitate the securing of such information as I sought. I am also deeply indebted to Mr. J. A. Ruddick, the Dairy and Cold Storage Commissioner, under whose direct supervision I have been working, for much valuable assistance, it being at his suggestion that the enquiry was instituted.

The Province of Ontario, on account of its geographical position, its large areas of suitable land, and its general adaptability for fruit culture, is easily the most important province in the Dominion from the standpoint of the fruit industry, commercially and otherwise. This province comprises four out of the ten districts which have been outlined by Mr. McNeill, Chief of the Fruit Division, for the purpose of defining fruit-growing conditions and production throughout the entire Dominion. These four districts, while differing in themselves and from each other, are all extremely important. Every one of them produces large quantities of fruit of a varied character. In addition to supplying an extensive local demand, these fruits must seek an outside market for the immense surplus grown annually.

A short description of these districts may be in order, so that we may obtain a better idea of the province as a whole. Their location may be briefly described as follows:

District 1. Counties bordering on the north of Lake Erie from Niagara River, including western portions of Lake Ontario,—to Detroit River and Lake and River St. Clair.

District 2. Counties on Lake Huron inland to York, with the exception of parts of Wellington, Grey and Waterloo above the 1,000 feet contour line.

District 3. Counties bordering on Lake Ontario, north to Sharbot Lake and Georgian Bay.

District 4. St. Lawrence and Ottawa Valleys to Lake St. Peter and a portion of south-western Quebec.

These are simply arbitrary divisions and do not differentiate the localities as being entirely distinct from one another as a whole. In fact they merge imperceptibly one into another at their boundaries, and can only be referred to as outlining in a modified way the general characteristics of the sections of country included.

DISTRICT NUMBER ONE

District number one—In addition to large orchards of apples, pears and plums, this district contains the major portion of the commercial peach orchards and grape vineyards of the Dominion. It is also largely devoted to the production of cherries, both sweet and sour, small fruits of all kinds, and early vegetables, as well as supplying the greater portion of the products required by the large number of canning factories stationed at strategic points from one end of the district to the other.

This district has been the scene of many changes during the past decade. The infestation of the San Jose Scale at several important centres has led to the decline and destruction of many of the large apple orchards for which it was formerly noted. This condition has turned the attention of the people to the increased planting of such fruits as are not so susceptible to injury from this cause or are more easily protected. In some cases, where conditions warranted, the production of early vegetables on a large scale has also been undertaken with splendid results.

Experience gained in the treatment of this once dreaded insect has, however, reached such a stage that its presence is now looked upon more as a salutary tonic than an unmixed evil, from the fact that it compels better and more careful methods of orchard treatment if a healthy existence is in any degree to be maintained. It having been clearly demonstrated that even large apple trees could be successfully protected against this enemy, and brought into splendid condition for the production of

*Extract from a paper read at the recent Dominion Fruit Conference in Ottawa.

high-class fruit, far-seeing orchardists at once began, with very gratifying results, an active campaign to care for those orchards which were not too severely injured, or in which a foothold had not as yet been obtained by the insect. Confidence has now been restored, a magnificent market is opening up, and the increased planting of apples, as well as other fruits, is now going on apace.

Advantage should be taken of the fact that fruit ripens considerably earlier throughout this territory than elsewhere, and prospective planters would be well advised if a considerable portion of their plantings were of the better sorts of the earlier varieties of apples, and of those fruits which will carry well for considerable distances. This would enable them to supply more fully the western prairie markets with the fruit required during the summer and fall months, a considerable portion of which is being imported from the United States. If the cold storage facilities, which are available on the ocean steamships, were fully utilized, an extensive trade could be also developed with the English market, in early, fancy, well-colored fruit. This has already been demonstrated by the trial shipments of peaches and early apples which have been made during the past few years by the Dominion and Provincial Departments of Agriculture, as well as those of private individuals.

TENDER FRUITS IN DEMAND

Notwithstanding that greatly increased plantings of peaches, pears, plums, cherries, grapes and small fruits have been going on throughout the district each year, the demand for this class of fruit has more than kept pace with the supply. In consequence prices have been advancing and all good fruit offered is quickly purchased by eager customers. This situation has caused great activity in fruit lands in favored locations, and it has become a question whether this feature is not being overdone to the detriment of legitimate investment.

DISTRICT NUMBER TWO

District number two—This section covers a large territory, whose residents are for the most part engaged in mixed farming, with an apple or plum orchard as subsidiary to the main activities of the farm. It is extremely gratifying to note, however, that as a result of the work that has been undertaken by the Provincial Department of Agriculture through its Fruit Branch, a very large number of men in this district have had their attention called to the great possibilities for profit that are lying dormant in a hitherto comparatively neglected portion of their farms. A widespread interest is now being taken in connection with the production of better fruit by many of the people. Considering the extent of territory involved, this district offers splendid conditions for an almost unlimited supply of the best late-keeping varieties of winter apples, in addition to many varieties of other fruits.

DISTRICT NUMBER THREE

District number three contains the major portion of the extensive orchards of winter apples of standard varieties, and has done much to establish the reputation which Canadian apples enjoy in the export markets. In common with districts one and two, an active campaign is in progress to improve the quality of the fruit now grown and to increase the orchard area.

Districts two and three are capable of becoming the most important producers on

the American continent of high-class, long-keeping winter apples. This opportunity, if fully taken advantage of, should result in such a condition of prosperity and contentment that instead of the rural population of Ontario showing a decrease from time to time a very marked increase should take place in exact ratio as the public becomes seized with this fact. It is generally admitted that fruit growing, properly conducted, provides for the profitable employment of a larger number of persons during a longer season than almost any other phase of general agriculture.

DISTRICT NUMBER FOUR

In district number four, owing to the winter season being more severe and protracted, the standard varieties of winter apples, such as the Spy, Baldwin, Greening and King, do not succeed as a commercial proposition. Fortunately, however, there is a class of apples of the highest quality for which this district is noted. These varieties are in great demand, and from their hardy, vigorous nature, grow to perfection and produce bountifully. This district is the home of the Fameuse, Scarlet Pippin, McIntosh Red, St. Lawrence, Alexander, Wolf River and Wealthy. It is to be regretted that there is not the activity and enthusiasm that should be in evidence towards maintaining the prestige that the St. Lawrence and Ottawa Valleys and the south-western townships of Quebec have gained for the production of these splendid apples. Unusual circumstances have conspired to give many of the finest orchards in this district a serious set-back from which they have not been able to entirely recover. New plantings are not being made with sufficient rapidity to replace these declining orchards and there is grave danger of a serious shortage in production in this part of Canada unless active measures are taken to correct the situation. A survey of some of the magnificent orchards that are still to be found and which are being handled under careful, approved methods, should be sufficient to inspire confidence in the younger men who have farms adapted for this purpose, and induce them to at once begin the planting of orchards to replace some of those which are passing away. There is perhaps no district in the Dominion to-day where an aggressive educational campaign is more necessary or desirable than in this particular territory.

Haldimand Growers Organize

That the county of Haldimand, Ontario, is awake to the fact that more fruit of a much higher quality can be produced from its orchards is evidenced by the fact that those interested have organized an association to be known as the "Haldimand Fruit-Growers' Association."

A public meeting in the interests of fruit growers was held in Hagersville on March 20. There was a splendid representation from many parts of the county. Haldimand being situated along the shore of Lake Erie, is especially adapted to the growing of a superior quality of apples. The soil is largely composed of a moderately heavy clay, rolling and well drained. There are many acres of fine orchard throughout the county, now being neglected, which only need up-to-date methods of culture to make them produce crops that will become one of the best paying branches of farm work. It is through cooperation that these ill-cared for, unprofitable orchards can be changed into veritable gold mines.

Pedigreed Nursery Stock *

U. P. Hedrick, N. Y. Experiment Station

My own belief is that there is nothing to gain even though there be a scintilla of truth in the claims of those who would have nursery stock sold with a pedigree. I believe that we should be doing great injustice to nurserymen, and indirectly therefore to fruit-growing, should we require growers of trees to take buds or grafts only from the bearing plants which seem to be superior to other individuals of their kind. I believe that a fruitgrower can spend his time to better advantage than in attempting to breed fruit trees by bud selection.

The practical difficulties in growing trees from selected buds, granting for the minute that improved stock may be so obtained, are almost insuperable. The following are a few of them:

First, a bearing tree surpassingly good in one quality, may be deficient in others. A tree bearing large apples might be unproductive, subject to fungi or insects, lacking in vigor or hardiness, or short-lived. Selecting for one quality will not do. The more qualities, the more difficult the tree to find and the more complicated is selection.

Second, the selected buds must be worked, in the case of tree fruits, on roots that are variable. To have "pedigreed" trees it is necessary to have "pedigreed" roots as well as "pedigreed" tops.

Third, the cost of trees would be vastly increased if nurserymen were required to bud from or to go back every few generations to bearing trees. Opportunities for dishonest practices would be greatly multiplied. The advertisements of some who sell "pedigreed" stock are an insult to an intelligent man and are only a foretaste of what we shall have if fruitgrowers force nurserymen to compete in selling "pedigreed" stock.

Fourth, it is the experience of those who have taken buds from bearing trees that the resulting nursery plants lack vigor, and remain weaklings for several years.

Fifth, if pedigreed trees become the vogue, tree-growing must become a petty business. Climate and environment would permit nurserymen who are growing pedigreed stock to propagate only a half dozen varieties of any fruit. Not more than this number of sorts is so pre-eminently adapted to any one geographical region as to give good mother trees.

Sixth, fruit trees are not sufficiently well fixed in their characters to make selection from single "best" trees worth while even should their characters be transmissible. Thus, trees in many cases do not show their best attributes until late in life; or to the contrary fail as they grow older; or are affected for better or worse by moisture, food, or physical conditions of soil in certain seasons; or insects and fungi may give them a variable and uncertain standing. A nurseryman with the best intentions might thus propagate from a prepossessing tree only to find later that he and his customers had been deceived.

Seventh, heritable variations can be told only by growing the parts bearing them—by studying the offspring, not the ancestor; by looking forward, not backward. This is impossible in the nursery.

In conclusion, the burden of proof is upon those who advocate pedigreed trees, for the present practices of propagating fruit plants are justified by the precedents of centuries.

*Extract from an address delivered at the meeting of the New York State Fruit Growers at Rochester, January, 1912.

Experimenters in this field encourage us to believe that they may sometime illumine the darkness but one cannot see by the lights they have thus far brought. "The assertion that outstrips the evidence is a crime" in this case as in any other. Let us have real, precise, abundant evidence before demanding a reform that will revolutionize nursery practices.

Drainage Lessons Free

The Ontario Agricultural College is again renewing its offer of assistance to farmers and fruit growers to aid them in laying out their drainage systems. The Department of Physics has a special staff of drainage advisors for this work. There is no charge for the services of these men, the only outlay to the applicant being the travelling expenses, which are low. As the railway fare is only one cent a mile for this work, and as several surveys are always made on one trip, the expenses are divided among the several parties concerned.

Anyone wishing to have a drainage survey made should drop a card to the Department of Physics, O.A.C., Guelph, whereupon a regular application form will be sent, and later on one of the Department's Drainage Advisers will make the survey.

Preparing Land by Powder

C. C. Nixon, B. S. A., Peterboro, Ont.

Not all land in its natural condition is adapted to apple growing. But lately I have found out that much of it can be improved and apple trees made to thrive grandly thereon. I refer particularly to those clay formations having impervious subsoil and hard-pan. These may be broken up by means of blasting powder, or dynamite, and the trees afterwards set will thrive as they do on naturally favorable soil.

Stumping powder in orchard work has several uses, one of the chief of which is in connection with setting out young trees. It saves much labor and time in planting the trees and ensures an open porous subsoil, conducive to the best growth and large ultimate yields of fruit.

The work of excavating for a tree, to do it properly by the old method of hand digging, may take an hour. Stumping powder will excavate it in an instant. The spaded hole will be hard all the way down, making it difficult for the transplanted roots to take hold, which is one of the chief reasons why transplanted trees so often die.

HOW A FARMER PLANTS TREES

Down in the New England States, notably in Virginia, stumping powder and dynamite have been used with great success in connection with orchard work. The following is the testimony of a Virginian farmer who has used dynamite in orchard farming and writes of his experience for Rural Life:

"I have just finished the planting of seven hundred trees, beautifully located on a southern slope, with an altitude of five hundred and twenty-five feet. The soil in this locality is red clay, with a slaty subsoil, so we think the only way to be successful with fruit trees is to blow up the planting holes with dynamite.

"I prefer the ground to be first drilled out three feet deep, then shoot one stick of dynamite in the bottom. This does not always blow it out to any great extent, but it turns the soil over, breaks up the slate and aerates the subsoil. This method we believe will put our slaty soil in condition to produce better apples and more of them."

And so it is with many of us farmers in

Ontario and other fruit growing provinces of Canada,—we can, by taking thought, make our land more suitable for apple growing, ensuring the success of our newly set apple trees, and thereby greatly increase our land in productiveness and in real value.

Quality Spells Success*

W. H. Bunting, St. Catherines, Ont.

It was my privilege to visit one or two important sections of the United States in connection with my recent tour of the fruit-growing districts of Canada. The one thing that impressed me most strongly, amongst our cousins to the south, was the strong emphasis placed on the question of quality by those who were most successful. Every possible method that will secure quality, finish and beauty of appearance in the product is being sought by many of these men and adopted. The result is apparent in the high prices which are now being obtained for Hood River, Wenatchee and Yakima apples, and in the reputation which many New York State leaders have established in the principal and most discriminating markets of the east.

While in the older fruit sections of the Dominion insect pests and fungous diseases have obtained a strong foothold, and have caused great loss and damage, such progress has been made in the discovery of remedies and methods of control that in the majority of cases the alert fruit-grower need not fear disaster from these causes. Climatic conditions may on occasion threaten his very existence. They should serve to awaken greater perseverance and determination. The disappointments that occur at times should develop a resourcefulness in overcoming difficulties, and promote a strength of character worthy of admiration.

It has been demonstrated over and over again, in every province of the Dominion, that while there is a very large surplus of indifferent fruit produced and offered to the public, the market never has been, and will not for years to come, be fully supplied with fruit that can called strictly "fancy." Altogether apart from the satisfaction derived from handling a first-class article, permanent pecuniary success depends upon a proper appreciation of this fact.

If I can give the Canadian fruit-grower a more thorough realization of the value and importance, not only to himself but to the country at large, of leaving no stone unturned and sparing no effort to secure the very highest quality and establish the very highest standard in every detail of his business, then I hope that the time and effort spent in making this investigation will result in giving some little impetus to the fruit industry of Canada.

Fined for bad Packing

The following persons have been convicted for illegal marking and packing of fruit since January third last: J. L. Denike, Prinyer, Ont.; M. Storms, Cressy, Ont.; J. N. Dalmas, Wooler, Ont.; G. W. DeWolf, Three Mile Plain, N.S.; G. C. DeWolf, New Minas, N.S.; J. Sexton, Falmouth, N.S.; Howard Bligh and Son, Sheffield Mills, N.S.; R. J. Graham, Windsor, N.S.; R. A. Jodrey, Gaspereaux, N.S.; M. L. Warner, Kingston, N.S.; Kingston Fruit Co., Ltd., Kingston, N.S.; A. L. Outhit, Kingston, N.S.; W. W. Pineo, Waterville, N.S.; W. C. Hamilton, Grand Pre, N.S.; R. E. Harris, Wolfville, N.S.; Guen Wo and Co., Vancouver, B.C.

*Extract from a report presented at the recent Dominion Fruit Conference.

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.

Good Work by Societies

Some very attractive option lists are being distributed this year by a number of the horticultural societies in Ontario. The list sent out by the St. Catharines Horticultural Society is a remarkable one. There are fifty-four options. The complete option list was published in the Daily Standard of St. Catharines, and occupied, with additional information about the work of the society, over five columns. The membership of the society last year was six hundred and seventy-five, the second largest in its history.

The society will hold a rose show this year as usual, and will continue the gratuitous distribution of aster seeds to the pupils of the schools who desire to accept them. Last year the society supplied a quartette of gladioli bulbs at the normal price of five cents per set, although it cost the society nearly three times that amount, to nearly one thousand pupils. There is not an option among the fifty-four offered by the society which would cost from one dollar twenty-five cents or two dollars if bought in the ordinary retail manner.

BARRIE SOCIETY IS GROWING

The Barrie Horticultural Society is offering ten options this year. During the past five years the membership of the society has increased from sixty-three in 1907 to two hundred and seventy in 1911. This year a membership of four hundred is aimed at. Prizes are to be awarded as usual for window boxes, flower beds, lawns and boulevards. The annual flower show will be held in the Town Hall in August or September. Last year the society paid about twenty per cent more than the town grant in prizes for lawns, boulevards, window boxes and flower beds, and returned to the members in premiums more than the value of their fees, besides giving generous prizes at the flower show.

ACTIVITY IN TORONTO

The High Park District Ratepayers' Association of Toronto, which this year is affiliated with the Weston Horticultural Society, has decided to donate prizes this year consisting of trophies, shields and medals, for the best kept lawns and gardens, and for the best specimens of flowers and flower gardens. The district has been divided into sub-divisions, and separate prizes will be offered in each sub-division. The districts comprise a territory of four square miles.

MONTREAL SOCIETY

During February and March the proprietors of a number of the finest conservatories in Montreal opened their conservatories to the members of the Montreal Horticultural Society and their friends on certain days and dates, a list of which was sent to all the members. Among the conservatories thus opened were those of Sir Wm. Van Horne, Hon. Senator Mackay, R. B. Angus, Esq.; Chas. B. Gordon, Esq.; Sir Montague Allen, Lt.-Col. Frank S. Meighen and a number of others.

PROVINCIAL NOTES

Nova Scotia

A report issued recently by the Dominion is as follows: "The total production of apples in Nova Scotia last year was variously estimated at from one million to one million and a half barrels, and that the larger estimate was not very far wide of the mark is shown by the fact that the total quantity shipped out of the province to date is approximately 1,300,000 barrels, and shipping is proceeding steadily each week. In view of this record crop—twice as big as in any previous year—growers, shippers and transportation companies are to be congratulated on the manner in which the fruit was handled and distributed among the various markets in Canada and abroad, including Ontario, Quebec and the Northwest, United States, Great Britain, Germany, the Netherlands, South Africa, Newfoundland and the West Indies."

An interesting meeting of the Berwick Fruit Company was held on Tuesday evening. The comparative merits, from a financial standpoint, of different varieties of apples, and the home manufacture of lime-sulphur spray were among the topics discussed. Mr. Percy J. Shaw, Horticulturist at the Agricultural College at Truro, gave an address, detailing the life history of the pests for which spraying is most important, and laying down the rule that these pests must be attacked at the weakest stage of their career.

A series of very successful fruit meetings were held in Kings and Annapolis counties during the latter part of March and first week of April. The principal speaker was P. J. Carey, Dominion Fruit Inspector.

Quebec

Auguste Dupuis, Director, Fruit Experiment Stations

The winter was very cold, but the fruit trees have not been damaged. Fruit buds are sound. East of Quebec City, snow has drifted into the orchards, and the damage to trees is great. Even to-day (April 15) snow is piled seven to eight feet high along fences and rows of trees, and about two feet in the middle of fields. Still we are not discouraged as we have organized for a general pruning and trimming of fruit trees.

This season more orchard owners will receive sound education in fruit-growing in all parts of the county than ever before. Lectures were given last winter by practical men in every parish and village, and they were attended by most farmers and their wives. Several priests allowed the meetings in the churches, and they induced the farmers to join the horticultural society. In one parish one hundred and fifty-two subscribed on the spot.

Last year our society sprayed ninety-two orchards and had them pruned partially. The result was very good. The apples were nice and clean, without worms in those orchards, whilst the apples were wormy and scabby in the adjoining orchards unsprayed.

The horticultural societies of Kamouraska and Lislet Counties have four hundred and sixty more members than usual. Every orchard will be visited, pruned and sprayed by government experts. Demonstrations of planting, grafting and lessons in culture

and modern management of orchards will be given by qualified instructors by the order of Hon. J. E. Caron, Minister of Agriculture, whose solicitude in favor of fruit-growers is not surpassed.

The spraying outfits and the insecticides were lately bought by us from firms who advertised in THE CANADIAN HORTICULTURIST, our best guide in the fruit industry. I will report the results of our demonstration work next fall.

Huron County, Ont.

The most striking development of the last few years in this lake shore district, according to a local paper, The Signal, is the increased attention given to apple-growing. It has long been known that this district produced fruit of a superior quality, but for one reason and another no special attention was paid to the possibilities of orchard cultivation and the business side of the orchard was almost wholly neglected. A change has come, however, and now every owner of a few acres of orchard is able to command a much better price for his farm. Orchards that for years were neglected are now receiving the attention that is due to the best-paying department of the farm, and many new orchards are being set out. In a few cases farms are being devoted exclusively to fruit-growing, and the number of these fruit farms will steadily increase.

One reason for this change in the attitude of the farmer towards his orchard is found in the success that has attended the apple-growing business in other parts of the country—in districts that cannot begin to grow apples like those of the Huron lake shore district. In these other districts the growers have found that by paying proper attention to the pruning and spraying of their trees and to the marketing of their fruit in good condition they can make splendid profits; and with the superior conditions of climate and soil in the Huron district even better results can be obtained here.

There are object lessons right at hand, too, which have opened the eyes of orchard-owners. Those of the Huron fruit men who first realized the money-making possibilities of the business, quit playing with their orchards, and turned their attention seriously to fruit-growing for profit, have had such success that, as has already been suggested, every fruit tree on a farm is now counted a distinct asset to its owner. When a clear profit of one hundred and sixty-five dollars eighty cents an acre can be obtained from an apple orchard of ten acres, as reported by one of our Huron growers, and when a company is willing to take old orchards on lease at twenty-five dollars an acre, expecting to make a profit after spending large sums in putting the orchards in fair condition after years of neglect, as a British company is doing in this district, then it is realized that what one man can do others can do, and that orchard cultivation is a highly profitable business. A case was reported in these columns some months ago in which an old plantation of an acre in extent, containing thirty-five trees, mostly Spies, had given as high as eighteen dollars a tree even at the low price of one dollar fifty cents a barrel, or six hundred and thirty dollars for the acre.

The market for apples is unlimited. Great Britain, Western Canada, the United States and other countries take all the good apples that can be grown, and ask for more. Indeed, all signs indicate that apple-growing will be more and more profitable, and that our lake shore district will in a few

years be one of the leading centres of orchard industry on this continent.

One of the most pleasing features of the development of the orchard business here is the fact that it is engaging the attention of young men of character and ability like Mr. Andrew Rougvie, Mr. R. R. Sloan, Mr. D. F. Hamlink and others

British Columbia

During the past few weeks several of the cooperative fruit growers' associations have been holding their annual meetings and preparing plans for the coming year. There are a number of very successful organizations in the province. The principle of co-operation has become firmly established although a few of the fruit unions are still handicapped by a lack of sufficient capital.

The annual meeting of the shareholders of the Okanagan Fruit Union, Limited, was held in Vernon, and resulted in R. H. Agur being elected president, W. C. Ricardo, vice-president, and J. Kidston, managing director. The directors' report showed that sales had been made throughout the season at the best wholesale prices going, although, owing to the prevalence of disease in nearly all classes of fruit, many allowances had to be made. The growers received the average price realized for each grade less only the actual cost of packing and handling, and a ten per cent commission for marketing. Owing to the turnover for the year having been less than was anticipated there was a considerable deficit on the year's operations. It is anticipated that the operations of the union this season will be more successful. The directors recommended that the union this year require growers to sign contracts to have the whole of their crops handled by the union, and that growers who desire to ship through the union must become shareholders.

The Kooteney Fruit-Growers' Union will continue operations this year. An effort will be made to secure additional capital as the union made the mistake of starting operations with too small a capital. Some of the largest fruit-growers in consequence have held aloof from the union, fearing that they might not obtain full returns for their fruit. The manager will make a tour of the district covered by the union to secure the additional capital required. Local associations are to be formed to ensure uniform loading and packing.

The report of Puyallup and Sumner Growers' Association for the year 1911 showed an increase of about $90,000 in the volume of business over the year preceding, and net profits for the year of $8,051.

Shipment of Exhibition Apples

The Department of Agriculture, Ottawa, shipped recently to Wm. Hutchison, Exhibition Commissioner, London, what is believed to be the finest lot of exhibition apples ever sent out of Canada. The apples were collected last fall under the direction of Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, by members of his staff, who went direct to the orchards at time of harvesting, making their own selections and packing them in a special manner. As soon as possible after packing, the apples were placed in cold storage and held at a temperature of thirty-two degrees. By these means it has been possible to preserve in excellent condition even such early maturing varieties as McIntosh Red and Fameuse.

All the fruit-growing provinces are well represented in the collection which comprises nearly eight hundred boxes. Some of these apples will be shown at the Great International Horticultural Exhibition to be held in London in May, and the balance will be used to continue the exhibition at the Crystal Palace.

Correction

In the April issue we quoted Mr. A. W. Peart, of Burlington, Ont., as having stated at the Dominion Fruit Conference that he estimated that the fruit interest of Canada represent an investment of $78,621,800. Mr. Peart writes us that his reference was to the province of Ontario and not to Canada. Mr. Peart further states: "Mr. Moore, of the Markets Division, gave the acreage of Canada, but from this I inferred, if my memory serves me right, not having his figures before me, there would be about $128,000,000 invested in Canada."

Disease in Potatoes from Europe

Dr. H. T. Gussow, Dominion Botanist, Ottawa, Ont.

Owing to the shortage in the potato crop this year dealers in and growers of potatoes find it necessary to import large supplies for table and seed purposes from Great Britain, Ireland and other European countries. Bulletin 63, issued by the Dominion Experimental Farm, Ottawa, explains how potato canker has found its way across the Atlantic into Newfoundland with potatoes imported from Europe.

Potato canker is a disease at present unknown in Canada. It is one of the most serious diseases known, affecting not only the farm lands on which potatoes are grown but the disease is also directly injurious to the health of the consumer of affected potatoes. Boiling does not destroy the injurious properties. The disease is characterized by nodular excrescences which may often be larger than the tuber itself. These "cankers" affect the eyes of the potato and are very small in the early stages. Any tubers found with smaller or larger outgrowths rising from where the eyes are situated should under no condition be used for seed or table purposes. The introduction and establishment of this disease would seriously compromise potato growing one of the most important agricultural industries of Canada. Farmers and consumers should be exceedingly careful in using potatoes that may have been imported from Great Britain or the continent of Europe. Suspicious looking tubers should be destroyed by fire and not be thrown on the ground or the disease, if present, will establish itself permanently in the soil.

The bulletin referred to explains in detail the character of the disease and is available to anyone making application for the same.

The appointment is announced of Walter E. Bigger, of Winona, Ontario, to the position of provincial inspector of fruit tree pests to succeed R. H. Lewis, of Hamilton, who has held the position for some years but resigned recently.

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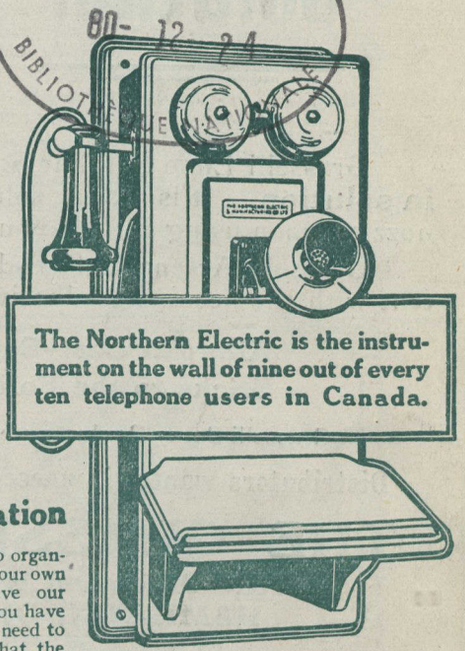

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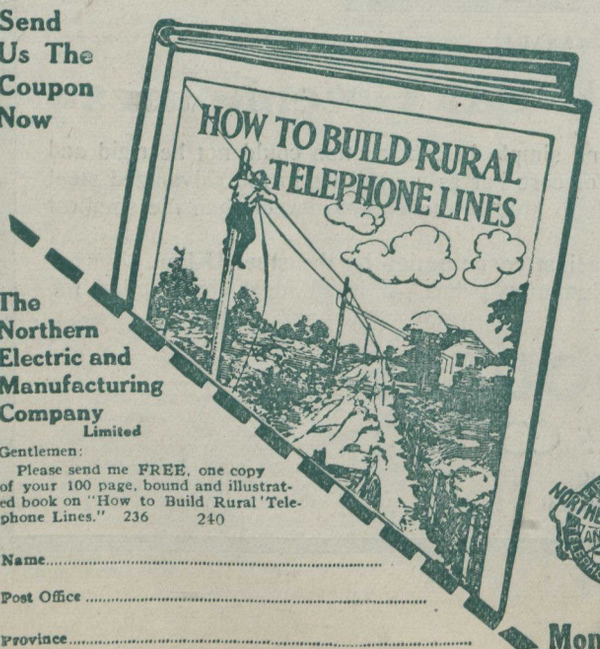

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