

Pages Missing

The Canadian Horticulturist

Vol. XXXVII

MAY, 1914

No. 5

The New Soluble Sulphur Spray

LEADING orchardists in Canada are interested in the new spray mixture Soluble-Sulphur. In last issue of *The Canadian Horticulturist* appeared an article by Prof. L. Caesar, Provincial Entomologist, Guelph, Ont., advising its use this year only in an experimental way. In the same issue Mr. J. G. Mitchell, of Clarksburg, Ont., the well-known fruit grower and manager of the Georgian Bay Fruit Growers' Association, who used it in his orchard last year, advocated its use strongly.

Writing in "Better Fruit," F. A. Frazier, of Portland, Oregon, an authority on apple culture, says regarding it:

Soluble Sulphur is a compound made by melting under high degree of heat in specially designed furnaces, of sulphur and soda (not caustic soda), resulting in a soluble powder fifty-seven to sixty per cent sulphur. All sulphur in solution is caustic in a certain sense. The sulphur is simply more active in the solvent condition. The caustic property of soluble sulphur is due only to the sulphur in solution and not to the solvent agent. Much loose talk has been indulged in pertaining to things caustic. No properly made sulphur spray ever injured a tree. Sometimes the fruit or foliage has been burned, but in most cases such burning is because of previous fungus infection and injury admitting the spray to the wounds caused, or a devitalized condition of the tree where it does not have normal power of resistance. Soluble Sulphur is sometimes spoken of as being more caustic than lime-sulphur. What is really meant is that there is a greater spray value to a given quantity.

All contact sprays in general use of any value have the caustic or burning quality. The virtue of crude oil, as a scale spray, over the lime-sulphur is because of its greater burning properties. That is why crude oil can not be safely used on tender trees or foliage which together with its gumming and pore-filling characteristics has rendered it unsafe as a tree spray for continued use. Lime-sulphur Solution re-acts very rapidly in presence of the atmosphere (returns to its solids), thus withdrawing from action a large portion of sulphur.

A solution of soluble sulphur does not re-act in the same way. The tendency is to spread and penetrate until evaporation

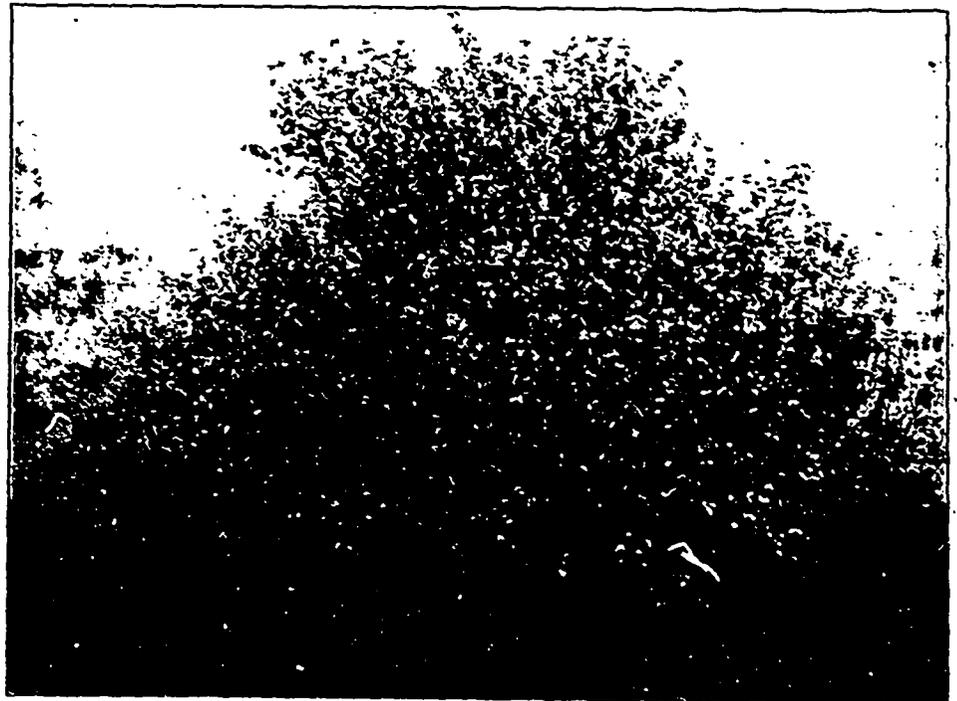
of water leaves the finely divided sulphur thoroughly spread over the surface and effectually carried into the scale crusts. Thus a given quantity of Soluble Sulphur spray will go farther in effective work than the same quantity in the old time lime-sulphur way.

In soluble sulphur the perfect spreading quality prevents the concentration of spray in drops, so when used in proper proportions it does no harm to the most tender plants. Soluble Sulphur is, therefore, not only a superior scale spray, but a very effective and economical scab spray. There is also a valuable feature in that the trees assimilate very readily the sulphur in this form, thereby producing a greater vigor and extending to a better coloring of fruit. Soluble sulphur can be safely applied at winter strength when the fruit leaves of apple trees are the size of a squirrel's ear. This combines the winter strength spray with the first scab spray and at this time also the aphids are more susceptible to control.

Sulphur, even the old time home-boiled and later the concentrated solutions, has been an element of no small value to the western orchards through the assimila-

tion by the trees. The orchardists of the east know this truth better because of the comparisons which they have observed between sulphur orchards and those otherwise sprayed or unsprayed. If there is one factor above another to which the success of the western orchards can be attributed, it is the thirty-odd years' use of the sulphur sprays. In the last six or seven years the same thing has been the greatest single factor which is bringing eastern orchards up to the standard of the much and justly famed western orchards. Should the western orchardist ever forget what he owes to the sulphur sprays, just that soon he stands aside while the east passes him on the way to market with the high-grade fruit.

The economy of soluble sulphur is apparent, one hundred pounds being equal in effective value to fifty-seven gallons of thirty-three degrees lime-sulphur solution. As to the efficiency, results count for more than far-fetched theories. Having been under the closest investigation for three years, we find it used exclusively on many orchards of two or three hundred acres, the equivalent of fifteen thousand barrels of solution being used out



Golden Russets in Bloom: Orchard of W. H. Gibson, Newcastle, Ont.

These Russets were fifteen years planted and averaged four barrels to a tree. This variety is in great demand on the English market and should be more extensively grown where the soil is suitable.



Mr. D. Johnson, Forest, Ont.

The announcement that Mr. Johnson has been appointed to the newly created position of Dominion Fruit Commissioner has met with general approval. Note reference to Mr. Johnson published on page 133

of the eastern factories in 1913. In point of convenience, the elimination of the heavy barrel with the high freight and haulage charges, the leakage, freezing, and crystallization are all elements which any fruit grower will appreciate.

Scientific investigation is always slow. Progressive spray manufacturers employing the best chemical engineers obtainable, and the progressive fruit growers bent upon results, cooperating with the experiment stations with their equipment for-research work, are right along bringing efficiency up to the minute.

Soluble Sulphur is a true spray efficiency up to the minute. The combination of the materials for spray purposes and the process of making are recognized as new and valuable, after most thorough investigation by the United States and Canadian patent offices and letters patent have been issued. Neither the discovery of the elements nor the fact that they would combine and form a soluble material is claimed, but the obstacles which have halted previous efforts to produce in a practical way a practical spray have been overcome by the invention of the soluble sulphur.

By cultivating early in the season fruit is better matured to a marketable size, and better coloring is secured; early cultivation also induces the fruit buds for next year's crop to form. The tree will grow with a steady, healthy growth, holding the sap at the top of the tree for the sustenance of the fruit buds. Early cultivation conserves the moisture. —W. T. Macoun, Ottawa.

Pears and Pear Culture

A. W. Cook, O.A.C., Guelph, Ont.

PRUNING pears must be done with the idea of securing fruit buds near centre of tree. This alleviates the tendency of large limbs to break under the strain of their crop. Remember to disinfect all large wounds, that are the result of pruning or other causes, with lime-sulphur solution or some other disinfect. Take the greatest care to thoroughly treat the pruning tools while going from one tree to another. If this is done it does not leave an opportunity for this disease to gain a foothold in the tree.

THIN THE FRUIT

When the tree reaches maturity and comes into the bearing state there can be a considerable amount of time saved in the thinning of the fruit by pruning off the fruit spurs. There is one disadvantage in this method when the orchard is located in a section that is known to have late frosts. As the pruning should be done before the leaves start there is apt to be enough fruit spurs left on the tree that has been late in maturing to give a yield of fruit while if no thinning had been done there probably would have been a light crop of fruit. However, taking into account this one disadvantage, pruning can be and should be practiced more throughout Ontario than it is. The pear, like many other varieties of fruit, can be made to yield more regularly by regular, systematic pruning and the thinning of the fruit each year.

The cultivation of the pear is very similar to that of the apple. Cultivation should commence as early in the spring as it is possible to do so. Cultivation should be very thorough and done systematically. It is very essential to keep a dust mulch at the surface to maintain the necessary moisture for proper plant and fruit development. As all fruits are composed mostly of water, the necessity of maintaining the soil moisture will at once be seen. This is the case in practically all orchards. The humus can to a large extent be enlarged by the use of cover crops. Among the best cover crops we have vetch, rye, rape, turnips and winter oats. The rye and vetch are sown in the later part of August so as to attain a good heavy crop. After this is ploughed in during the spring it is generally followed by rape or summer turnips.

In cultivating the orchard one should not continue it later than the latter part of June for the southern counties. If cultivation is kept up it induces large twig growth. If a high color is desired, this is a serious handicap. There has been a feeling amongst fruit growers in Ontario that certain chemical fer-

tilizers would produce highly colored fruit. From experiments conducted by the Ontario Agriculture College, it has been found that very little of the color is derived from the use of fertilizers. If one were to alternate the use of barnyard manures with commercial fertilizers it will be found more profitable than if either is used separately.

In some sections of the western states pears are put up almost exclusively in boxes for the fancy markets. In Canada, up to date, they have been handled very carelessly. This may be accounted for to a large extent from a large percentage of them being disposed of to the canning factories. The size of the package that has been used in the north-western states is somewhat smaller than that of our standard apple boxes. The British Columbia growers use a box somewhat the same. The majority of pears that are marketed are usually put up in small baskets holding eleven quarts. This is used for the local trade. By using this size of a carrier the pear can be made to appear pleasing to the eye. However, if the fruit is to be shipped to a distant market it is best to pack it in a box that would be about half the size of our regular apple boxes. By doing this the pears present a better appearance upon reaching their destination, because they have been provided better protection. If one takes the care to pack regularly the fruit should always be wrapped. If the points here touched upon are borne in mind and followed out, pear growing can be made a success.

Fruit Tree Borers

I. F. Metcalf, B.S.A., Gore Bay, Ont.

An enemy of fruit trees that has done a great deal of damage is the borer. The presence of borers in a tree is indicated by the lack of growth and by the presence of sawdust like gnawings and excrement that are pushed out from their holes. These may not be detected until after the damage is done, unless the sod is kept away from the base of the tree. Frequently a tree will be entirely girdled before you are aware that the borers are working in the tree.

When the work of the borers is noticed the best remedy is to cut them out with a sharp knife, or a very flexible (copper) wire may be pushed in and they may be killed in that way. However, there are several ways of preventing this trouble. The idea is to prevent the female beetle from laying her eggs on the trunk of the tree. These eggs may be laid any time in the early spring, and would soon develop into the borers which would later on do the damage to the trees. Any pre-

ventative treatment must be given in the spring, as these treatments would have no effect on the borers themselves.

AN EFFECTIVE WASH

A great variety of washes have been used for preventing the female beetles from laying their eggs upon the trees. The following is probably as effective as any that can be safely used without injury to the bark (after having removed all loose bark with a dull hoe or scraper).

Dissolve one-half gallon of soft soap or five pounds of whale oil soap in one-half gallon of hot water, and add a half-pint of carbolic acid. When mixed, add five gallons of warm water and enough lime to make a whitewash of about the consistency of paint. Finally, stir in one-fourth pound of Paris green. Apply the wash with a stiff brush, covering the bark thoroughly and completely, and filling all cracks and crevices. Another application should be made in about three weeks' time.

The use of something that will not only protect the trees from the attack of the

borers, but also from the heat of the sun, is more useful and economical than a simple wash. The parts of trees injured by heat are more liable to the depredations of borers than the healthy, uninjured portions, and so anything that will prevent sunscald and will at the same time keep off insects, will be a double benefit to the tree.

Take some wood veneer, such as is used in basket-making, or birch bark, and wrap around the trunk of the tree beginning just below the surface of the ground and extending upwards for about two feet. Bank the base of this up with some soil to prevent the insects getting in that way, and fill the top with cotton wool. See that there are no openings along the length of this covering where insects could get in. If applied in the fall this covering would also protect from mice. A small amount of money and a little time spent in looking after the trees that you now have will be much better spent than it would be in buying and setting out new trees.

Black Leaf 40 and lime-sulphur (1-10), \$1.35.

Black Leaf 40 and lime-sulphur (1-30), 80 cts.

Black Leaf 40 and lime sulphur (1-30), and lead arsenate, \$1.04.

KEROSENE EMULSION

Kerosene at 17 cts. per gallon.

Soap at 5 cts per lb.

Cost of 40 gallons of spray, 78 cts.

WHALE OIL SOAPS

The cost of the different makes will range from about sixty to seventy-five cents for forty gallons of the diluted wash.

I have purposely omitted mention of several mixtures of which a good deal is heard, because I consider the cost prohibitive.

A number of years ago it was confidently stated that the dormant spray of lime-sulphur was a specific against all kinds of aphid eggs. This has since been disproved both by experiment station workers and practical men all over the country, even when the spray is deferred until the buds are bursting and the aphids hatched, only a small percentage are destroyed. It is significant to note in this connection that in British Columbia last year, whereas the amount of lime-sulphur used fell off forty-one per cent., there was an increase of twenty-four per cent. in the sales of Black Leaf 40, indicating that the growers considered aphid the chief pest, and found control during the growing seasons most satisfactory.

APPLY IN TIME

Though in bad years more than the one spray will be found necessary, one thing must be recognized, and that is, that the spray must be applied before the aphids have had time to curl the leaves, or subsequent sprayings will be of little value, even with the use of a fairly high pressure. In spite of its relative high cost, I am inclined at the present time to recommend the Black Leaf 40, as from the standpoint of efficiency, cost, convenience of application, ability to mix with other sprays, it has, in my own experience, proved most satisfactory. I do not believe that when there is reason to fear an attack of aphids a grower would be justified in "taking a chance," and risking no spray. By doing this, he would stand to lose, not only a large proportion of his crop, but also the time and money he had spent in cultivating, pruning, thinning, and all other operations incidental to the production of his crop. I am convinced that most of the cases of non-success that have been reported by those using this spray have been the result of two factors: First, not spraying until the leaves have curled, and second, insufficient pressure.

Orchard Aphids and Their Control*

Prof. W. H. Brittain, B.S.A., Provincial Entomologist, Truro, N.S.

THE rot form of orchard aphids is the most troublesome, and I have been informed by several Nova Scotia fruit growers they have been troubled with it, especially in young trees. The best treatment known for this form is tobacco waste, which can be obtained from tobacco factories at small cost. Nursery trees can be protected from the aphids by laying a line of dust in a furrow on either side of the tree loosely covering

with earth. Larger trees can be protected by removing the earth to a depth of about four inches for a radius of three feet around the tree and putting in about a peck of the tobacco waste. It is most convenient to do this in the spring when plowing. Throw a furrow away from the tree on each side, having a man follow the plow with a hoe and scraping away the earth for a short distance around each infested tree.

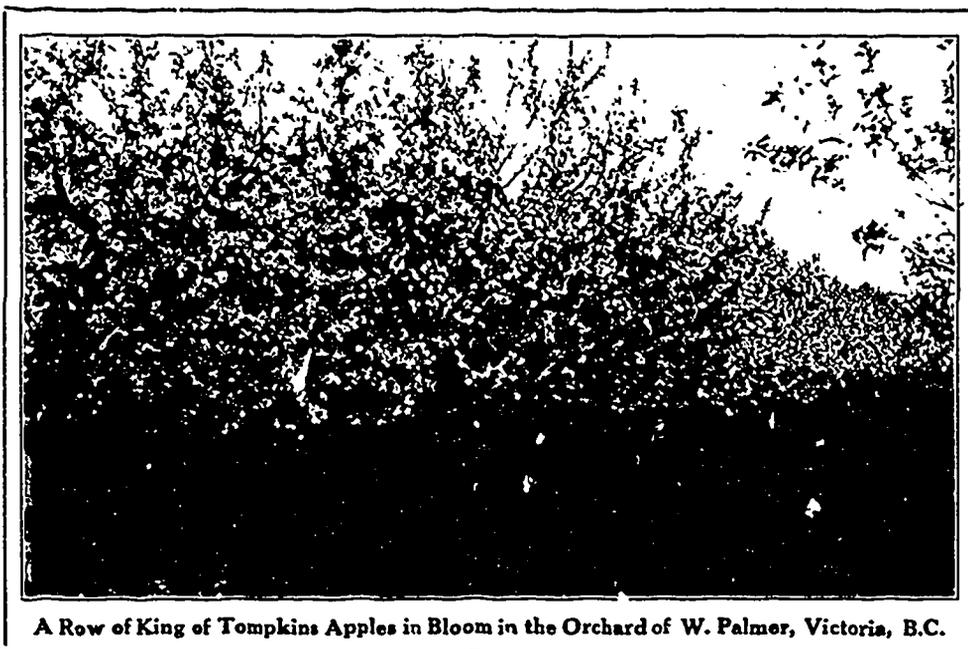
COST OF DIFFERENT SPRAYS (40 GALLONS)
Black Leaf 40 and soap, 55 cts.

*Extract from an address delivered at the last annual convention of the Nova Scotia Fruit Growers' Association.



Nests of the Tent and Forest Caterpillars which have done so much damage of late years. The eggs of these caterpillars may be found in little lumps around the ends of the branches of the trees early in the season. Cut them off before they hatch out. If you neglect to do this an early spraying will quickly destroy them.

—Photo by Rev. Father Leopold, La. Trappe, Que.



A Row of King of Tompkins Apples in Bloom in the Orchard of W. Palmer, Victoria, B.C.

The Pollination of Fruit

Wm. Gibbs, Appin, Ont.

POLLINATION is accomplished through two agencies: To a small extent by wind under favorable conditions, and to a large extent by pollinating insects. Of these the honey bee is the most important, because of its great numbers, owing to the many apiaries that are kept throughout the country.

The relatives of the honey bee, which also assist in pollinizing fruit trees and flowers, include the bumble bee, which is almost the only medium by which red clover is pollinized. The balance of her relatives include ants, lonely wasps, digger wasps, and colony wasps. These latter have little effect on the pollination of fruit blossoms on account of their not being present in sufficient numbers.

Investigations have shown that bees are an absolute necessity for the production of fruit and clover seed. They are also the only agencies by which cross-pollination takes place excepting that affected by wind, which is not considered to take place to any great extent. In some flowers the pistils are sterile to their own pollen. Thus they are dependent entirely on cross pollination for their very existence. It is claimed that because of cross-pollination the apple is more vigorous and more resistant to disease, better able to withstand frost without killing, grows larger, and has more color.

Prof. F. A. Waugh, of the Massachusetts Agricultural College, has frequently warned fruit growers against the danger of spraying fruit trees when in bloom because of the destruction of honey bees that results. Speaking at a convention last June he gave some conclusive evidence, showing that the honey bee was

the principal and almost the only agent in the pollination of fruit trees. He referred to the claim to the effect that there are other agencies than bees for doing this work, principal among which is the wind. To determine the relative importance of these factors he stated that he had taken pieces of glass, coated them with vaseline, and secured them on the windward side of fruit trees in full bloom, at a distance that was about equal to the distance between trees. He found that these glasses, smeared as they were with grease, received almost no pollen dust, even when the wind blew through the trees in full bloom in the direction of the plates. He further stated that there are practically no insects except bees that are flying when fruit trees are in bloom, and that nearly all the cross-pollination that is effected is through the agency of the bees. There are some varieties of trees that are self-pollinating, but even these varieties have more and better fruit when bees are present. Prof. Waugh is not only not a beekeeper, but he is regarded as one of the greatest authorities on fruit culture in the United States.

A Remedy for Plum Aphis

A. H. Ruff, Toronto, Ont.

The following remedy has been used by me as a remedy for the plum aphis (*aphis pruni*). I feel that I can highly recommend it:

Thirty pounds of soap (soft soap is the best), one gallon of coal oil, three pounds of naphthalene, and nine parts of water for the stock solution. If boiled until the soap is dissolved it will readily mix. Use eighteen pounds of the stock solution to one hundred gallons of water. Spray before the buds swell.

Changing Varieties

D. L. Mackintosh, Calgary, Alberta

There are by far too many varieties of apples grown in British Columbia, as well as in most other fruit districts. Growers are aware of this, but when you mention the advisability of changing to varieties that have proved themselves worthy of culture they shake their heads and seem to have the idea that this is going to involve a great loss.

Most growers consider that the trees should be taken out and young trees planted in their places. This is wrong. The thing to do is to cut over the present trees, leaving about one-half dozen branches about six inches long above the crotch, and more if the tree is of any size, and crown graft at least four scions into each branch. This would give at least twenty-four young growths right away, and owing to the vigor of the roots they would make great growth the first and second year. The chances are that if everything was favorable there would be a quantity of fruit the third year. Thus the whole character of the orchard could be changed in a few years with very little loss.

If the right varieties were worked on the old trees, the grower would be more than compensated for any trouble or apparent loss he might have had. I should never think of taking the old trees out, because the change can be made so much sooner by cutting back and grafting the desired varieties.

Better Fruits at Less Cost

Prof. H. A. Surface, Pennsylvania

Obtain uniformity of size by a uniform system of pruning, and especially by systematic thinning, feeding, cultivating, mulching, manuring, etc.

Both increased size and color can be obtained by making several pickings, taking each time only those that are well developed and colored, leaving the others for future development in size and color.

Avoid blemishes from diseases by spraying with fungicides, according to the teachings of our plant pathologists, and by planting varieties on ground suited to each respectively. For example: Champion peach, on low ground or where there is no air drainage, is almost sure to have ripe rot; and Salway in such a location is very liable to have scab and crack. Also spray with strong lime-sulphur solution once each dormant season, better immediately before the leaves appear; and with bordeaux mixture or self-boiled lime-sulphur just before the blossoms open; and spray again with the same, at proper intervals, two or three times after the blossoms fall.

The road that leads to the orchard is the pathway to a simple, happy prosperous life.

Making a Lawn

J. H. Grisdale, Director of Experimental Farms, Ottawa, Ont.

"The lawn
Which, after sweeping broadly round
the house,
Went trickling through the shrubberies
in a stream

Of tender turf, and wore and lost itself
Among the Acacias."

Mrs. Browning here paints such a picture as all love to dwell upon. Who among us has not some pleasing memory of just such a grass set scene. Such surroundings bespeak the peace, the calm, the restfulness so welcome to the weary soul, so kind to the tired eye. Not one of us but admires a well kept lawn, and better still, not a man or woman among us but may have one at small outlay of time and money.

THE SOIL

The best grass growing land is a good loam. Any well drained, well prepared area of any other sort of soil may, however, be so handled as to ensure a pleasing result. Where building operations have recently been going on such residues as bricks, stone chippings, etc., should be buried at least six inches below the surface. The surface should be graded with a slight fall away from buildings and any depressions or hollows should be filled in, even something higher than the surrounding land to allow for settling. Manure should then be applied, about one pound per square foot of lawn surface. After scattering the manure evenly over the surface, the whole area should be well ploughed or spaded. If time presses or labor is too expensive, ploughing or spading may be done only the once, and that to a moderate depth. If it is desired to ensure the very best results possible the land should be ploughed, burying the manure to a moderate depth (four or five inches) then later, after harrowing and rolling several times, or when in a good state of tilth ploughed again about half an inch deeper than before. Harrowing and rolling will be again in order and any new unevenness due to settling should now be corrected. After harrowing, levelling and rolling till in good shape it should be left untouched for a week or ten days.

SEEDING

After the surface has lain fallow for ten days or so, it should be again levelled and well harrowed. If not very firm underfoot it will be advisable to roll with a heavy roller once or twice before seeding. The seed should be divided into two equal portions and the first part scattered as evenly as possible over the whole lawn, walking from east to west while sowing. Each and every square foot of the whole lawn having received its fair share of the first half of the seed, the sower should then proceed to sow

the second half of the seed as evenly as possible over the lawn walking from north to south during the process and again being careful to give every square foot of land its fair share of this, the second part or other half of the seed, as well as a fair proportion of the first part. Carelessness in seed scattering is responsible for many patchy looking lawns and is in fact the cause of not a few failures. The seed once sown, the whole surface should be lightly and evenly raked or harrowed. On most soils a rake will give better results than a harrow. The main point is to cover the seed, although at the same time, one must guard against too deeply burying it. After raking or lightly harrowing the land should be rolled again, unless very damp, in which case the rolling operation should be postponed till a later date.

Many lawn grass mixtures are to be had at seed stores. Not infrequently these ready prepared mixtures contain a rather large proportion of weed seeds. It is important to buy grass seed free from weed seeds, since if preparation has been made as above outlined, the chances are very strongly in favor of a lawn free from weeds other than such as spring from seeds sown by wind or mixed with grass seed.

Taken all in all probably the best grass to sow is Canadian Blue Grass, or failing this, Kentucky Blue Grass. Pains should be taken to secure a good

sample of this grass and it should then be sown liberally at the rate of about fifty pounds an acre, or one pound to the hundred square yards.

After the seed is sown the lawn should be well rolled, care being taken to pack as evenly as possible and retain a smooth surface. No rousing should be done, however, if the surface is at all damp when the seeding is performed. It would be much better to postpone the rolling for a day or two, or if the soil continues moist it might be advisable to postpone the rolling for two or three weeks.

After the grass is well up should a drought occur or a heavy rain come and the surface later become very dry, it would be found advantageous to roll again, using a light roller. This will break the surface crust, create a mulch, and so encourage growth and ensure a better stand.

Care should be taken not to use a lawn mower upon the young grass, since this machine is almost certain to pull out by the roots rather than clip it at this stage of growth. If weeds spring up or the grass becomes unsightly, the whole area should be carefully gone over with a sharp scythe rather than with the lawn mower.

The process of getting a lawn by sowing is of course rather slow. The seeding down method may be very often improved upon, at least so far as speed is concerned, by sod laying. For laying sod, practically the same preparation



An Inexpensive Beauty Spot Where the Birds Delight to Stay. Lily Pond in the Garden of Mrs. McNair, Hamilton, Ont.

should be made as for seeding. The lawn maker should see that the sod supplied is thick enough to include a fair

proportion of growing roots, and so ensure the grass getting a good start in its new seeding ground.

Planting and Pruning Shrubs

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

IN order to arrive at the proper time and method of pruning shrubs a study of their characteristics is necessary. For this purpose we must recognize two distinct types, distinct in the sense that one flowers upon the current year's wood, and the other upon the old or previous season's growth. It is easy to distinguish between the two. As a general rule shrubs should be pruned at once after flowering if pruning is necessary, but in the case of the more tender ones which flower upon the current season's growth, it is unwise to prune before danger of heavy frosts is past in the spring, say about the first week of April. roses and hydrangeas. There is always danger when these are pruned early in the season, of the remaining buds being killed, which is often the case when bright sunlight succeeds excessive frost. When this occurs the plants may be seriously injured, and the resultant growth and flowers worthless.

Lilacs, Shrubby Honeysuckles (*Lonicera*), Weigelia, Snowballs (*Viburnum*), Deutzias, Forsythias, and similar hardy shrubs should all, if necessary, be pruned at once after flowering, and the old flowers removed from such as the lilac before seed formation has occurred.

In the case of shrubs, except evergreens, which are dependent upon the formation of new growth for the following season's flowers, the immediate removal of old flowering wood or branches favors the development of new growth and the subsequent ripening of vegetative or flowering buds ere winter sets in. Shrubs, however, bearing berries (fruits) which mature during the fall should not be pruned after flowering, as this will eliminate their winter beauty, as upon the flowering branches the berries are borne. In this category are such examples as *Berberis* of many kinds, snowberries white and red fruited (*Symphoricarpos racemosus* and *Vulgaris*), and deciduous species of *Euonymus*, many of which bear very ornamental fruits.

BENEFITS OF PRUNING

The objects of pruning are: To encourage the development of vigorous growth and the subsequent production of flowers; to eliminate worthless branches and superfluous growth, and thus favor the equal distribution of air and light: To remove defective parts, and to promote growth to replace these and thus assist nature to restore symmetry.

It is an easy matter to remove all undesirable growth, providing certain principles are observed. When remov-

ing branches, do not leave stubs, each undesirable portion should be removed with a slanting cut at its junction with another stem or just above a bud. Whenever it is necessary to shorten or "head back" the longest branches all should not be cut at the same height.

Growth should be encouraged close to the ground rather than at the apex of the shrub. To induce this the longest branches must be gradually removed. As the stronger branches grow more quickly to the source of light, the weaker lateral ones eventually succumb. It is a case of the survival of the fittest, consequently the main stems near the ground appear bare and unsightly, therefore, the stronger must be removed to be replaced by the weak. Dilapidation quickly ensues where careful pruning is not exercised, but where the practice pertains renovation is constantly taking place much to the enhanced appearance of the subjects.

It is utter folly to clip shrubs into grotesque shapes unless they are planted as hedges or are included in a formal garden scheme. Clipped shrubs are not desirable for any other purpose, neither are they natural, as usually all their beauty and grace vanishes with the removal of growth which produces flowers. A well pruned shrub should appear to an artistic eye a perfect object, no sign of mutilation should be visible, the head should be perfectly symmetrical with being grotesque. Clipped shrubs are always grotesque, as the pernicious practice of hacking these beautiful subjects results in their total failure to produce annually their abundant blossoms. Shrubs differ from trees in that they possess no well defined leader (trunk). When pruning trees it is proper to retain the leader, but in the former no such leader should be encouraged.

ROSES

Roses planted in the spring should be cut back somewhat severely. Other shrubs may simply require thinning to counterbalance the loss of roots caused by lifting. Roses, however, which are established are pruned according to the characteristics of the class to which they belong. Hybrid perpetuals are stronger growers than hybrid teas, while climbing or rambling roses are distinct from either of the former. Strong growing plants should be pruned lightly, weak growing ones such as many hybrid teas severely, but in the case of ramblers it is only necessary to remove old or dead branches to prevent crowding of young



A Well Pruned Hydrangea

growths, or to allow such growths to be trained into desirable positions. It may also occasionally be necessary to shorten back the longest growths to keep the plants within bounds.

Briefly the shoots of hybrid perpetuals should simply be severed at points six inches or so from the previous season's wood, and all superfluous or weak growth removed. The mistake of cutting all at the same height should be avoided. Hybrid teas should be severely thinned, completely eliminating weak growths, leaving only the strong, say, three or four to each plant, or if these are exceptionally weak, only two. Cut these back to four inches from the old wood and the resulting growth will be much stronger than were a larger number allowed to remain, and will produce flowers of finer quality and in greater profusion.

HYDRANGEA

Prune the shoots of hydrangea paniculata back to two buds and after growth has commenced rub off one of the shoots, leaving the stronger in each case. Restrict the number on the plant to four or five. In this way weak unsightly plants will become rejuvenated, and if carefully cultivated and mulched enormous flowers will result. The illustration is that of a plant bearing individual flowers eighteen inches in depth and sixteen inches in diameter at the base, pruned in the manner indicated above.

Some of the Clematis are almost herbaceous in character, dying down to the ground in winter. Others, by protection, or during mild winters, come through the winter without the growth being killed back very much. If the wood is not killed back when starting them in the spring, it is well to leave some of the strong live wood rather than cut them right down to the ground. The variety Jackmanni is one of the best varieties grown. They flower on the new growth produced from older wood.—Wm. Hunt, O.A.C., Guelph, Ont.

The Culture of Sweet Peas

J. H. Bowman, Elmira, Ont.

THE sweet pea is one of the most popular of annual flowers, and deservedly so. I know of no other flower that will yield so much beautiful bloom over so long a period.

Disease has been very prevalent during the past few years, and appears to be increasing each season. The disease, commonly known as streak, is said by some authorities to be caused by root rot fungus. Light to dark brown streaks appear on the lower parts of the stem and on the leaves. The points of the shoots are often abnormally thick and of a yellowish color. The flowers often come malformed and are usually very poor in color, thin and flimsy. The stems are also weak.

Whatever the cause may be, I am convinced, after three years' careful observation and experiment, that heavy dressings of animal manure encourage the development of streak. If your soil is in fair condition, I wouldn't use any animal manure at all, but would advise the use of a phosphate and potash fertilizer.

Those authorities who hold that "streak disease" is caused by root rot fungus, *Thulavia basicola*, advise disinfecting the soil by one of the following methods: By heating to two hundred and twelve degrees F. This is hardly practicable where any quantity of soil is to be treated. By soaking with formalin—one per cent. solution, one part, to twelve and one-half gallons of water. By making holes all over the ground, twelve inches apart and ten inches deep, dropping half an ounce of petrol in each, and closing immediately to keep vapor in. This disinfection should be done at least two weeks before sowing or planting. Some writers also advise soaking the seed the night before sowing in permanganate of potash, a half-ounce to a gallon of water.

Dig your trenches about two feet wide and twelve to eighteen inches deep. Don't use any animal manure unless your soil is in very poor condition. After you have worked up the soil, dust on the following fertilizer, and rake in thoroughly: Two ounces bone meal, two ounces superphosphate, two ounces sulphate of potash per square yard.

It is important to get your sweet pea seeds in as early in the season as possible. Sweet peas do best if they have an opportunity to make good root development before hot weather sets in. Sow seeds in two rows, one foot apart, and three inches apart in the row. They may be thinned later to about six inches apart.

A trellis or support of wire netting or string should be provided before the plants make any tendrils. Sweet peas

never grow away so freely if the support is not provided in time.

After the plants are up a few inches, they should be cultivated thoroughly, and this cultivation should be kept up through the season at least once a week. The Buco cultivator is an excellent tool for this purpose.

If you have room for but twelve varieties, the following (selected as the best of over fifty Spencer varieties I grew last season) are recommended: Elfrida Pearson, blush; Etta Dyke, white; Hercules, pink; Mrs. Routzahn or Gladys Burt, cream pinks; Mrs. R. Hallam, deep cream pink; Clara Curtis, cream; Nettie Jenkins, lavender; Maud Holmes or King Edward Spencer, crimson; Queen of Norway, mauve; Nubian, maroon; Mrs. C. W. Breadmore, picotee pink on cream ground; Thos. Stevenson or Edna Unwin Improved, orange scarlet.

Making Flower Beds

P. D. Powe, Cainsville, Ont.

Making the beds for garden annuals is one of the most important steps to be taken in the getting of good flowers. In the city, where manure is hard to obtain, the scrapings from the road are good if mixed with a little prepared fertilizer (obtainable from all seed dealers) and worked into any fairly good garden soil. Where manure

is plentiful and soil abundant, a good bed may be made up of one-third manure, well rotted, and if the soil is dry, one-fifth sand. Remember, the richer the beds the better the plants if you can keep the weeds down.

When we have our soil well worked in a pile we must decide what shape our bed will take and its size. This depends greatly on experience. If you are not an expert and a true judge of beauty, you had better stick to the plain square, round, diamond or oval bed, and not try any of the more complicated designs. Leave these to the florist or landscape gardener.

The size of the bed should be determined by how much land you have at your disposal. We can only say that one large bed is far more beautiful and artistic than several small beds.

These points decided, turn again to your compost heap and after spading the bed you have laid out wheel your prepared soil upon it and with a rake round it up and make it to the size and form decided on. Remove all grass, weeds, stones and other matter, and make the whole firm and smooth, gently sloping towards the edges of the bed. Long, narrow beds may be made in the same manner at the foot of a trellis or along the porch, where vines may be planted. These beds are best prepared as soon in the spring as the ground is ready to work.

When trees are starting leaf take a stick and make shallow lines in the beds. Sow



An Arch of Dorothy Perkins Roses in Bloom (at entrance to Rose Garden of Wm. Hartry Seaforth, Ont.)

Fully one thousand choice roses are grown in Seaforth by some half dozen enthusiasts. They include all the standard varieties and many new sorts that promise to increase in popularity. Mr. Hartry keeps bees as well as roses. His honey house may be seen in the background.



Something of the Beauty of a Well Arranged Pergola is Here Revealed
Pergolas in the garden are gaining rapidly in public favor. They make ideal retreats at almost any time during the growing season. This pergola is in the garden of Mrs. D. Lumsden, Ottawa, Ont.

these thinly and cover lightly or they may be sown broadcast if the whole bed is to be planted solidly in one variety of plants. One of the most beautiful beds we ever saw was planted in this manner. It comprised all the mixed poppies in all colors. The beauty cannot be described in words and can only be understood by making a similar bed. Balsam, petunias, phlox or other quick

growing plants of a like character, are the best for this purpose. Where a border is desired a drill or light furrow one half inch deep, may be made around the edge of the bed with a sharp stick, and sown thinly with the seed of alyssum, mignonette, portulaca, or many other low growing plants. As the seed is mostly small, give a very light covering of earth.

Experimental Work with Flowers*

F. E. Buck, Experimental Farm, Ottawa

SINCE 1911, the seed of several hundred different varieties of annual flowers has been obtained each year from seedsmen in this and other countries, and tested at the Central Experimental Farm, Ottawa. Details are not possible here, but some results have been obtained which are suggestive and encouraging. Some results have suggested other lines of experiment, for instance, the seed of a number of annual plants left over from previous years and saved for a test as to germinability, was sowed just before the period of drought of last June and July. A certain number of the young plants which came up did not succumb to the heat and drought but survived under the most adverse conditions and gave bloom late in the year after those of the regular test were over. As a point of interest it may be stated that they bloomed with us at Ottawa up till the end of October. From this we conclude that it may be well for us to try out most annuals under similar conditions in order to know what can be recommended to people who wish to raise flowers under conditions that would make a weed blush to do well.

*Extract from an address delivered before the Ontario Horticultural Association.

One very interesting point of general interest which has been called to our attention by visitors from the old world in connection with these annuals is that the intensity of their colors is greater with us at Ottawa, than it is, say, in England. The brilliancy of the whole patch of annuals tested at Ottawa was very great this past dry season.

To tell you anything about the recent experiments, commenced in 1911, with roses, more particularly the hybrid tea varieties, other than this, that already a first edition of a pamphlet on roses has been exhausted and another edition will be ready shortly, is unnecessary perhaps, because what we have to say about the test so far will be said in that pamphlet. I must mention, however, that we started tests with sweet peas about the year 1910. So far these tests have been chiefly variety tests but in future we are planning to make them cover in addition methods of growing, and so forth. We need definite information on several points, such as whether sweet peas will do well when grown under certain conditions in the same position year after year. We want more information as to the control of sweet pea diseases and troubles, reliable data regarding which can-

not be given till definite observations have been carried on for several years. We do know certain things about certain methods which seem to contradict certain prevailing opinions. One is that sweet peas grown in a trench did not do so well in our soil as those grown by their side which were sown in level ground. Another is that those planted from six to twelve inches apart did not do so well as those planted about three inches apart, and that those planted closer than this did best during the early part of the year only.

In all our experimental work at Ottawa we wish to keep in mind at least two things, one is improvement, that is, in the widest meaning of the word. Improvement is sought by selection, by introducing new things and discarding old, by rearranging old and new, by modern technique, by methods of culture, of control of insects and diseases, by the cultivation of that taste and knowledge of the best which leads to the improvement of those things that make better home surroundings possible. Improvement, that is, in things themselves and in the way of doing things. This must be the *raison d'être*, the basis of our experimental work.

The other thing is this: we do not seek the new things so often as the slight improvement of the old, and therefore our chances of success are greater. So long as we do not duplicate the work of others but remember to do work called for by local conditions, and do it without deviation, by discouragement of seasons or events, even so long will the experimental work be of a quality and quantity justifying, we hope, its continuance and increase.

Geraniums

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

To secure good geranium plants for flowering in winter, slips should be taken in the fall or very early spring. A nice plant potted from a three and a half or four inch pot into a six or seven inch pot in June in bedding out time and put into good potting soil, will make a good plant for winter flowering. Plunge the pot to the rim out in the open ground early in June. Pinch the tips of each shoot out when about eight inches in length until about the second week in July. This induces a bushy, sturdy growth.

Keep all the blooms and buds pinched off until the middle of August. Lift the pot from the ground early in September and bring it into the window when it should flower all winter. The plant should have plenty of water at the root during the summer when plunged in the ground. After bringing it into the house some liquid fertilizer should be given the plant about every ten days. "Bonora," sold at seed stores, is the best plant food for pot plants.

The Art of Potting

John Gall, Inglewood

THOUGH it may seem a simple matter enough on the surface, there is some art in potting plants properly. The pots should be well drained, using for this purpose pieces of broken pots or crockery, and placing one large piece over the hole in the bottom of your pot. A little Sphagnum or rough material of some kind should next be placed over the crocks to keep the soil from being washed down and blocking the drainage. Then put on an inch or so of soil before placing the plant in position, and fill in with the compost, pressing this down firmly with the fingers until the pot is nearly but not quite full.

If the pot is overfilled, insufficient room is left for watering, while, if not filled full enough, not only does the pot not contain enough soil, but the plant is liable to become "drowned" when water is given. There ought always to be enough space left between the top of the pot and the surface of the soil to allow the giving of sufficient water to saturate the whole of the soil and moisten all the roots.

Some people seem to throw the plants into the pots almost anyhow, and still they grow and do well. This plan may answer well enough in a country garden, where plants seem to thrive under any condition, but too much care cannot be taken in the suburban or town garden. Most plants, especially those of the "hard-wooded" or shrubby type, require

to be potted very firmly—that is, to have the soil made almost hard in the pots, but in the case of soft-wooded plants generally, pot rather loosely for rapid growth and more firmly for early bloom. In all potting operations, see that the roots of the plants are spread out in the soil, that is to say, they should not have the soil thrown on them, but among them. The soil should always be slightly lower at the rim of the pot than at the neck of the plant.

Hardy Perennials*

H. W. Cooper, Ottawa, Ont.

Of all the plants that are cultivated for ornamental as well as for cutting purposes there are none which have made such rapid strides in public favor as the hardy garden flowers. Their popularity is not at all surprising when we consider the many varied and pleasant changes which take place throughout the growing season in a garden, or portion of one, given over to this class of plants, which every week, yes, almost every day, brings forth something fresh and new to interest and delight. Beginning in April the early flowering kinds, such as the anemones, hepaticas, Arabis and others, open their flowers soon after the snow has left the shadier parts of our gardens. From then on we have constant

*A paper read at a recent meeting of the Ottawa Horticultural Society.

changing variety throughout the summer until the fall, when only the severe frosts stop the more persistent and late blooming kinds.

The most effective position for this class of plants in general is an open border surrounding a lawn, or backed by a fence dividing a garden or lot. They will not thrive if given a northern exposure.

The method of cultivation is of the simplest nature. Begin with any good soil as a foundation. When preparing the soil for planting the ground should be dug to at least two feet in depth and enriched with well-decomposed manure, or other fertilizer. The best time to plant perennials is in the spring as soon as the plants show signs of growth. Hardy plants, such as hemerocallis, dionysium, paeonies, and Oriental poppies, which produce their growth from a crown of close compact roots and flower in the early summer, are best planted in the autumn, as these take some time to get established. Fall planting of these varieties saves a season's bloom. These particular kinds should be left undisturbed for several years. Add a suitable fertilizer as a surface dressing each spring after growth is well started.

The late summer and autumn blooming kinds are usually of a more vigorous growth than the former. They are of such sorts as the rudbeckias, heleniums, helianthus, the perennial phlox and asters. On these the original crowns die out each season and many new side growths are made. These are best replanted every second spring, selecting from three to five growths, which, after the ground has been redug and enriched, may be replanted in their same positions or in another part of the garden. Treated in this manner they will not only produce more and larger flowers, but will prevent these stronger and more rampant growing kinds from crowding out their equally interesting, but less vigorous, neighbors.

May Garden Notes

Ferns may still be transplanted from the woods to a sheltered spot about the house or yard.

Morning glories, wild cucumber, and hyacinth bean are good vines to cover up unsightly fences or rock piles.

Sow annual flower seed such as nasturtiums, portulaca, California poppy, and Shirley poppy in the open ground.

It is not too late to spade up that weedy place on the lawn, add well-rotted manure and sow good bluegrass seed.

Dahlias and gladiolus may still be planted. In fact, it is an excellent plan to plant gladioli at intervals in order to get a succession of bloom the whole season.



Spring Bloom in the Garden of Charles Hunter, Niagara-on-the-Lake, Ont., where many Beautiful Shrubs and Novelties such as Figs are grown

Commercial Fertilizers

Prof. E. M. Straight

WHEN are all the people to disregard the size of the fertilizer bag and the color and perfume of the contents? These matters need not condemn them for they have nothing to do with values; but the analysis printed on the bag—printed there for the protection of the grower—cannot afford to be neglected. One hundred pounds of fertilizer may be good value at one dollar, and it may be good value at two dollars. It depends upon the amount and form of the plant food present.

It is of primary importance that the grower should know, that what are supplied in the fertilizer, is complete, is potassium, phosphorus and nitrogen—the three plant foods which become exhausted in soils. He must also know that these elemental substances exist in the fertilizer in the form of compounds, that the potassium will be stated in terms of potash, the phosphorus in terms of phosphoric acid, and the total nitrogen may be present partly as a nitrate and partly as ammonia, or other form stated in terms of ammonia. All this is very confusing.

The grower will not have proceeded far when he will conclude that the amounts of essential food exist in the bag in very small amounts, and he will wonder why he cannot purchase them in a pure state, and apply them directly to the soil. He will find that a few pounds of plant food and no more, are contained in one hundred of the mixed and complete fertilizer. He will find that the attempt to apply plant food as elements would be far from practical, and would never pay. Nitrogen is abundant, but a gas. As such it would be found exceedingly difficult to purchase and harder to apply.

The form in which the food is found in the fertilizer is second in importance to the food itself. Plants take up their food from the soil in solution, so that if the chemicals applied are insoluble they are not used. For example, the phosphorus present may be stated as (first) phosphates soluble in water; (second) reverted phosphates; (third) insoluble phosphates; and (fourth) total phosphorus, which would be the sum of the other three. Reverted phosphates are soluble in a solution of ammonium citrate, and are sometimes referred to as "citrate-soluble phosphates." Ammonium citrate, to a certain extent, exerts a solvent power upon the reverted phosphate comparable with that exhibited by the roots of plants. Such phosphates are less valuable than those soluble in water. To make the total phosphorus

appear large the insoluble part is added to the soluble and reverted, but it is only fair that the grower should know this.

The materials used as sources of nitrogen by the fertilizer manufacturer are quite varied. One of the commonest forms is nitrate of soda, commonly called Chili saltpetre. This important substance is found in large deposits, occurring in the rainless regions of Chili and Peru. The commercial article is about ninety five per cent. pure, and contains about fifteen or sixteen per cent. of nitrogen. Sulphate of ammonia is a by-product of the local gas works. It contains about twenty per cent. of nitrogen.

Calcium cyanide is a new compound containing nitrogen, which promises well. The inexhaustible supply of nitrogen in the air is drawn upon in its making. Dried blood is a by-product from the slaughter houses, extensively used. It contains about thirteen per cent. of nitrogen. Tankage is a by-product from the slaughter houses, of various composition. Bone, hair, skin, blood and complete animals, condemned for other purposes, are boiled, and the fat removed. The dried product is then ground and offered for sale as tankage. The amounts of nitrogen contained in tankage depend upon the materials entering into the composition.

Ground bone is one of the chief sources of phosphoric acid. It is a very slow acting substance, however, so slow that for many purposes it is of little immediate value. When acted upon by sulphuric acid it becomes immediately available for plant life. This material is known as superphosphate. On account of the limited amount of bone, phosphatic rock has been used for the same purpose. In many cases this dissolved rock, or acid phosphate as it is commonly called, has given good results. In other cases results have not been striking.

Basic slag is a by-product of the Bessemer steel manufacture. The slag is ground to a fine powder. It contains about twelve per cent. of phosphoric acid.

One of the best potash fertilizers is the muriate of potash, a salt mined in Germany. It contains about fifty per cent. of potash. Kainit is a low-grade potash salt, varying somewhat in composition but averaging about twelve per cent. potash.

Wood ashes is a valuable source of potash, which also contains lime. Much more of it should be used in New Brunswick, as it is a cheap source of supplying potash.

When the various amounts of plant food are known, as stated on the bag, it is an easy matter to compute what should be paid per hundred, if the commercial values of the fertilizer constituents are known. These values vary from year to year, so that the commercial prices are no indication that the price is on a par with what the grower can afford to pay. This must be determined by comparing price with increase in crop, and what it sold for

Commercial prices not long since were something as follows:

Nitrogen in nitrates	16 cents
Nitrogen in dried blood and tankage ..	15 to 20 cents
Phosphorus in water-soluble phosphates.	10 cents
Phosphorus in ammonium-citrate soluble phosphates	9 cents
Phosphorus, insoluble in ammonia citrate	4 1-2 cents
Potassium	5 to 6 cents

MIXING FERTILIZERS

The mixing of fertilizers is not a difficult matter, and may be performed by any grower if a barn floor and shovel are available. A sand sieve is also an aid in getting rid of lumps and in bringing the mixture to a uniform mass. There is a saving in the home mixing of fertilizers. The amount of the saving will depend somewhat upon the quantities of chemicals purchased, wholesale or retail.

Sulphate of ammonia should not be mixed with wood ashes or lime. Bone meal should not be mixed with lime. Barnyard manure should not be mixed with lime or nitrate of soda. Thomas slag should not be mixed with nitrate of soda, kainite or muriate of potash. If some fertilizing constituents are mixed, valuable plant food may be lost in the air, or hard, lumpy masses obtained. The common fertilizers, other than those mentioned, may be mixed with safety.

It is an easy matter to determine the required amount of each material with which to make a fertilizer of a given formula. Suppose we desire to mix a fertilizer containing four per cent. nitrogen, eight per cent. phosphoric acid and ten per cent. potash, and that we have on hand nitrate of soda, acid phosphate, and muriate of potash. Nitrate of soda contains about sixteen per cent. of nitrogen. Every one hundred pounds of fertilizer must contain four per cent., or four pounds of nitrogen. It is seen at once that we must have four times twenty or eighty pounds of nitrogen to meet this formula, and as each one hundred pounds of nitrate of soda contains sixteen pounds of nitrogen, we must have five times this quantity, or five hundred pounds of nitrate of soda.



Irish Cobbler Potatoes, Grown by W. E. Turner, Duval, Sask.

These potatoes show the results of three years of selection under the rules of the Canadian Seed Growers' Association.

The formula calls for eight per cent. of phosphoric acid, or eight times twenty or one hundred and sixty pounds for a ton. Dividing one hundred and sixty by fourteen, the per cent. of available phosphoric acid in the phosphate used, we find that 1,143 pounds of phosphate are needed. Two hundred pounds of potash are required. Muriate of potash contains fifty per cent. of actual potash, so it will take four hundred pounds of muriate of potash to supply this. These amounts make a total of a ton and forty-three pounds.

If a low-grade fertilizer were wanted smaller amounts of these ingredients should be used, and the amount made up to a ton by means of a filler such as sand, land plaster or the like. The color of the resulting mass, and the volume of a hundred pounds of the same, de-

pends upon the character of the filler used. It is seldom profitable to buy or use low-grade fertilizers.

Try the following formulae this year:
POTATOES—

- Nitrate of Soda 100 lbs.
 - Dried Blood 200 lbs.
 - Superphosphates 1,200 lbs.
 - Muriate of Potash 500 lbs.
- Apply at the rate of 2,000 per acre.

SWEET CORN—

- Nitrate of Soda 100 lbs.
- Dried Blood 200 lbs.
- Superphosphate 1,300 lbs.
- Muriate of Potash 400 lbs.

Apply at the rate of two thousand lbs. an acre. These amounts are to be used when no stable manure is used. If used in conjunction with stable manure a much less quantity should be used.

Early Potatoes

James Anthony, Agiacourt, Ont.

The best soil for early potatoes is a rich, sandy loam, with a porous subsoil. The best crop to precede the potatoes is clover. As soon as the clover is removed the sod is covered with a thick carpet of manure. This is left to leach into the soil, with the result that the early fall finds the field covered with a long and thick winter-crop of clover. The field is plowed in the early fall, about six inches deep. In the spring it is disked and re-plowed and the soil thoroughly worked up in order that it may be deep and mellow. It can be readily seen that it is crammed full of humus.

The Early Eurekas give the best of satisfaction. About the middle of March the seed is put, one row deep, into crates. As far as possible the potatoes are stood

seed end up in the crates. The crates are placed in a fairly warm room in order that they may be well sprouted by planting time.

As soon as the danger of frost is believed to be over the potatoes are taken to the field and planted. A potato planter with a fertilizer attachment is used for making the marks for the seed and for depositing a fertilizer rich in potash in the mark for the potatoes. The potash is applied at the rate of about three hundred pounds an acre. The potatoes are then placed in the marks by hand, about twelve or fourteen inches apart, and covered lightly by hand. The smaller sized and the medium sized seed is planted whole in order that a period of slow growth may be the more successfully

resisted. The planting and covering are done by hand in order that the sprouts may not be broken off. It is best to plant the seed quite deep and to cover lightly. The shallow covering encourages quick growth, as the sun's heat is readily admitted to the seed, and, should a frost threaten, the sprouts above ground may be quickly covered either by the hoe or by a light furrow turned over them.

This may look like a good deal of trouble, but it must be remembered that the early potatoes bring the largest profits. A week at the beginning of the season may mean more in profits than a month later on.

Sowing Vegetable Seeds

Mrs. Dell Grattan, Port Arthur, Ont.

Beans grow well and yield abundantly. But beware of the June frost. Dwarf Black Wax is one of the best sort. I have never known this variety to rust or mildew. Beets should be sown as early as the ground can be worked, in light, well manured soil. Early Egyptian or Eclipse will not disappoint you. Plant in rows twelve inches apart and cover the seed to the depth of three-quarters of an inch.

Parsley grows freely, and the housewife will find many uses for it. Peas grow abundantly almost anywhere.

Turnips are grown mostly in the field, but sow some in the garden also. Golden Ball is a fine table turnip but is inclined to become "punk" towards fall. Purple Top Swede is a fine turnip for winter use.

May Vegetable Notes

Rhubarb and asparagus are two perennial vegetables that are early on the market and are easy to raise. Rhubarb should be set in autumn. Strong one-year-old plants of asparagus may be set as late as the middle of June. Prepare the land well and set at least six inches deep, covering but two inches deep at first, gradually filling the trench as the plants grow.—LeRoy Cady, Horticulturist, University Farm, St. Paul.

Make a liberal planting of Golden Bantam sweet corn. Stowell's Evergreen may be planted at the same time for late corn.

Do not set out tomatoes, cannas, coleus, or other tender plants until the end of May, as there is always danger of frost or cold weather until that time.

Keep the cultivator going in the garden. It is easier to get rid of the weeds when they are small than when they are well established.

The main crop of potatoes should go into the ground now. Treat all seed with formalin or corrosive sublimate, for scab, and plant on land that has not been

The Canadian Horticulturist
 COMBINED WITH
THE CANADIAN HORTICULTURIST
AND BEEKEEPER

With which has been incorporated
 The Canadian Bee Journal.

Published by The Horticultural
 Publishing Company, Limited

PETERBORO, ONTARIO

H. BRONSON COWAN Managing Director

The Only Magazines in Their Field in the
 Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC
 FRUIT GROWERS' ASSOCIATIONS
 AND OF THE ONTARIO AND NEW BRUNSWICK
 BEEKEEPERS ASSOCIATIONS.

REPRESENTATIVES
 UNITED STATES

STOCKWELL'S SPECIAL AGENCY.

Chicago Office—People's Gas Building
 New York Office—286 5th Avenue.

GREAT BRITAIN

W. A. Mountstephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

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 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,779
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,947
May, 1913	12,368	December, 1913	13,253
June, 1913	12,618		
July, 1913	12,626	Total	150,283
		Average each issue in 1907,	6,617
		" " " 1913,	12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist." Rogues shall not buy their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
 PETERBORO, ONT.

EDITORIAL

THE IMPROVEMENT TAX

Our system of taxing improvements is a relic of the past. It should have been abolished long ago. It operates continuously to prevent people from improving their homes by the establishment of lawns, the planting of vines, shrubs and flowers, the more general use of paint or the construction of sun rooms or conservatories. Expenditures of this class may involve only a few dollars but they improve the appearance of a home so greatly as to lead the inexperienced to believe that a large outlay has been made. The result is that when the assessor next calls one's assessment is likely to be marked up several hundreds and possibly a thousand dollars or more above its original figure. The annual increase in taxation thus brought about may equal and even exceed the money laid out on the improvements.

Only those who have studied this question, or who have had special opportunities for observation, can realize what a check on enterprise is this tax on improvements. At one time in France there was a tax on window panes. It finally was abolished when it was found that thousands of houses in the poorer districts were being erected without windows. Even the larger houses had so few windows it was seen that the health of their inmates was likely to be seriously affected. At another period, in the city of Brooklyn, a frontage tax was imposed on houses according to the number of stories they had on the street line. Within a few years houses were being erected that were only one or two stories high on the street line but several stories higher at the rear. History shows clearly that there is no law more certain than that people will resort to all manner of expedients to evade the tax collector. A ridiculous and aggravating feature of the law is the fact that where people neglect to paint and otherwise improve their homes, and thereby permit them to deteriorate in appearance their taxes are likely to be reduced in proportion to their lack of enterprise or thrift.

The issue has a more serious side. These are days when the increased cost of living is recognized as a heavy burden on the wage earner. When a man erects a house and thus helps to reduce the cost of living by lowering rents, we fine him by increasing his taxes whereas had he held the land out of use for an increase in land values, he would have escaped such a fine. The fruit grower, who lowers the cost of living by converting unused or only partly used land into an orchard or garden, is penalized by a heavy increase in taxes. It is true that the earning powers of the land are also increased but nevertheless the net returns to the grower from his enterprise are in every instance reduced by the exact amount of the increase in his taxes. The injustice and folly involved in this method of raising municipal revenue is realized by the people of western Canada, who in several provinces are rapidly removing all taxes from improvements and raising them by a tax on land values instead.

The officers of the Guelph Horticultural Society have found difficulty in inducing citizens to enter the lawn and garden

competitions, because any improvements these citizens might make in the appearance of their homes would tend to increase their assessment. They are asking the officers of other horticultural societies in Ontario to unite with them in an appeal to the provincial government to have the law so changed that municipalities need not be required to tax such improvements. The appeal deserves to meet with a hearty response.

COOPERATIVE PRINCIPLES

Elsewhere in this issue appears an article by Mr. A. E. Adams, of Berwick, N.S., dealing with the principles that underlie all truly successful cooperative enterprises. Much of the remarkable success of the United Fruit Companies Limited of Nova Scotia has been due to the capable work of Mr. Adams. Mr. Adams is, therefore, well qualified to deal with this subject.

Canada is on the eve of a wonderful development of cooperative enterprise. During the past ten years our attention has been devoted mainly to the organization of local associations. During the past few years the movement has reached a new stage, which has resulted in the formation of provincial organizations that, by linking up the local units, have greatly strengthened the whole movement. Already we have in Canada several large organizations that compare favorably with the most successful enterprises of the kind in the world.

The United Fruit Companies Limited of Nova Scotia, the Ontario Cooperative Apple Growers' Association, the Grain Growers' Grain Company of Winnipeg, and several British Columbia organizations are all striking examples of cooperative enterprises conducted on a large scale. The Grain Growers' Grain Company, while not purely cooperative, is largely so, and is probably the greatest farmers' organization in the world. It has assets of over one million dollars. The business it transacted last year exceeded fifty million dollars in volume.

To-day there is a widespread demand for information relating to the true principles of cooperative enterprises. The article by Mr. Adams makes a number of these clear. In the June issue of The Canadian Horticulturist we purpose publishing a continuation of this article, which will be equally as instructive, and which will deal more fully with the cooperative situation as it exists in the Maritime Provinces. Our readers are advised to follow these articles closely.

TWO WELCOME ANNOUNCEMENTS

Fruit growers heard with pleasure the double announcement made recently by the Hon. Martin Burrell, Dominion Minister of Agriculture, that he has separated the fruit from the dairy division, giving it the status of a separate division, and that he had appointed Mr. D. Johnson, the well-known and successful fruit grower of Forest, Ontario, as Dominion Fruit Commissioner. This has been brought to a successful conclusion an agitation that has been waged by the fruit growers of Canada during the past nine years.

The first protest against the amalgamation of the fruit with the dairy division of the Dominion Department of Agriculture was lodged by The Canadian Horticulturist in its January issue, 1905. Shortly before this it had been announced that Dr. Jas. W. Robertson was retiring as Dominion

Commissioner of Agriculture, and that the fruit was to be united with the dairy division under the Dominion Dairy Commissioner. The protest registered by The Canadian Horticulturist was taken up by the various provincial fruit growers' associations, and later the subject was discussed at the first Dominion Fruit Conference. It was felt that the fruit interests of Canada would never receive the attention that their importance deserved until the fruit division was given the same standing in the Department of Agriculture as the seed, live stock and dairy divisions. The former Government having refused to act in the matter the question was again urged at the last Dominion conference. A partial promise of action was then secured.

The announcement that Hon. Mr. Burrell has now given the fruit division the standing that the fruit growers have so long desired, is the most important, relating to the fruit interests, that has been made for some time. It should mean an increased expenditure on behalf of the fruit industry and an extension of the activities of the department.

In selecting Mr. Daniel Johnson to have charge of the fruit division the Minister of Agriculture has made a wise choice. Mr. Johnson has both the practical knowledge of fruit growing and the executive ability that is required to ensure the wise management of the department. Mr. Johnson has been successful as a fruit grower, as president of his local fruit growers' association, of the Ontario Cooperative Apple Growers' Association, of the Ontario Fruit Growers' Association, and as a leading member of the Dominion Fruit Conference. There is every reason to expect, therefore, that he will be equally successful as Dominion Fruit Commissioner. Mr. Johnson will have great opportunities to benefit the fruit industry of Canada, and is assured of the hearty sympathy and support of fruit growers in all our provinces.

The United States Post Office Department is conducting an experiment with the parcel post system that will be followed with interest on this side of the line. Ten cities have been selected for the experiment. Farmers living on rural routes leading out from these cities have been invited to notify the postmaster as to produce they have to sell and the price for the same. A printed list is then prepared and left with every housewife in the city by the mail carrier. The housewife may then call up the farmer by telephone or drop him a card and have the supplies transferred from the farm to her door by the parcels post. There are manifest disadvantages connected with such a system, but the experiment will be followed with interest. Serious difficulties will have to be overcome before the system can be made a success, but they should not prove insurmountable. If it proves successful across the border we may expect to see the same experiment tried out in this country.

The discovery on an apple shipped to England of a deposit of copper sulphate in a quantity sufficient to prove dangerous to any person eating the apple has caused great consternation across the water. Were there any likelihood that careless spraying might result in any considerable quantity of apples being affected in this way there would be cause for apprehension, but there is only one chance in thousands of such a report being reported again. It is surprising that this case has been heard of.

PUBLISHER'S DESK

The annual meeting of The Horticultural Publishing Company, Limited, publishers of The Canadian Horticulturist, The Canadian Florist and The Beekeeper, was held in Toronto, on March 26th. The reports presented showed that the Company had had the most satisfactory year in its experience. A substantial sum was voted to the reserve account. Improvements in the publications published by the Company were authorized.

The old officers were all re-elected. They are: President, W. H. Bunting, St. Catharines, Past President Ontario Fruit Growers' Association; Vice-President, John H. Dunlop, Toronto, Past President of The Canadian Horticultural Association; Managing Director and Secretary-Treasurer, H. B. Cowan, Peterboro, President of The Canadian Horticultural Association, and Ex-Superintendent of Horticultural Societies for Ontario. Directors: A. W. Peart, Burlington, Past President Ontario Fruit Growers' Association, Harold Jones, Prescott, Director Ontario Fruit Growers' Association; Hermann Simmers, Toronto, Ex-Treasurer of The Canadian Horticultural Association, and P. W. Hodgetts, Toronto, Director of Horticulture for Ontario.

SOCIETY NOTES

THE TAX ON IMPROVEMENTS

At a recent meeting of the directors of the Guelph Horticultural Society, the secretary was instructed to forward the following resolution to The Canadian Horticulturist for publication, with the suggestion that the matter of the increase of taxation on account of landscape improvements, be taken up with all other horticultural societies, and be brought before the next annual convention.

"To the Mayor and Aldermen of the City of Guelph, greeting: At a meeting of the officers and directors of the Guelph Horticultural Society, held in the City Hall on Thursday, December 4th, 1913, after considerable discussion a resolution was passed unanimously, and a committee was appointed to draft a resolution to be placed before the City Council to the following effect: 'Heretofore the society has experienced difficulty in persuading citizens to enter the lawn and garden competitions, frequently for the reason, that any improvement they might make in the appearance of their lawns and homes, from a landscape point of view, tended to increase their assessment. Instances were quoted, in the case of double tenement houses, where one owner or tenant spends his spare time in adding to the beauty of his surroundings, and in that way to the beauty and improvement of the city. When the assessor sees the improvement he feels justified in adding considerably to the assessable value of that particular property, whereas the occupant of the other tenement, who has allowed weeds to grow on his lawn, and his place to become generally disreputable, and an eye-sore, and in many cases a nuisance to the neighborhood, actually re-

ceives a premium on his laziness and neglect in the shape of a lower assessment than that of his industrious neighbor.

"As the Horticultural Society has for years been endeavoring to aid in the beautifying of the city, and has been greatly handicapped by this particular point, it was suggested that a slightly lower assessment might be allowed to those who beautify their places and thus aid in the beautifying of the city, rather than to those who neglect their lawns and gardens and allow them to become a positive eyesore to the community at large.

"Your petitioners respectfully request that this resolution be not laid aside, but dealt with at once, and a recommendation be made to the new council that a committee be appointed from your honorable body to act with a committee from the Horticultural Society, to take steps to recommend a change, if necessary, in the Assessment Act, whereby this may be accomplished, and the assessor's hands be thereby strengthened in this matter.

New Fruit Commissioner

Mr. D. Johnson, of Forest, Ont., whose appointment as Dominion Fruit Commissioner, a new position, has been announced recently, was born on a fruit farm at Forest, Ont., thirty-six years ago. He took charge of the orchards when only sixteen years of age, and for ten years served as foreman at the spraying, cultivation, picking and packing of the fruit. Ten years ago he became interested in the cooperative movement and took a leading part in the organization of the Forest Fruit Growers' and Forwarding Association, one of the first and largest associations established in Ontario, and was for six years its president and manager.

Four years ago Mr. Johnson withdrew from the Forest Association to devote all his time to Johnson Bros., fruit growers, shippers and exporters, of which he was a half owner. This firm desired to cut out the wholesaler and sent its own salesman to the West, who sold in car lots during the fall months. The firm's output last season from its own farm was six thousand seven hundred boxes of apples, wrapped and tiered, thirteen thousand eleven-quart baskets of peaches, eleven thousand baskets of plums, and ninety-five thousand seven hundred pounds of dried fruit. In 1912 their output was over four thousand barrels of apples.

In Mr. Johnson's orchards spraying is done with power sprayers. They make their own lime-sulphur, barrels and boxes. Their peaches and plums are sold largely by their own mail order system. All their apples are now packed in boxes. The lower grades of apples are worked into evaporated apple rings by their own plant in the orchard, and shipped in car loads to Europe and the West. The peelings and cores are dried and shipped to Germany. Arrangements are being made to convert the lower grades of tender fruit into jam.

Mr. Johnson was for some years on the executive board of the Ontario Fruit Growers' Association, and was for two years president. He was also president of the Cooperative Fruit Growers of Ontario for two years, and is now president of the Lambton Fruit and Vegetable Growers' Association, an organization composed of fifteen active cooperative fruit and vegetable associations in Lambton. Mr. Johnson was a delegate at the last Dominion Fruit Conference.

The Cooperative Marketing of Fruit *

A. E. Adams, of the United Fruit Companies, Ltd., of Nova Scotia, Berwick, N.S.

BEFORE taking part in any cooperative movement, however large or however small, it is absolutely essential one should thoroughly understand what cooperation really is, what the object of cooperation is, and what are its great and beautiful principles. Unless the membership of all cooperative organizations thoroughly understand this it is a difficult matter to make the movement a success.

What is cooperation? Cooperation is the power of individual effort associated for the common welfare.

Therefore, when allying himself with any cooperative movement, the individual must be prepared if necessary to make sacrifices, having absolute faith that if called upon to do so, the sacrifice, being for the good of all, is therefore ultimately for his own good. There is no place in any cooperative organization for the selfish, grasping, greedy man, for the very spirit of cooperation is unselfishness and a readiness to help one another, a splendid brotherhood of interests.

There are some people we meet who speak of the cooperative movement that has obtained such a firm footing in the Annapolis Valley as though it were something new, as though it were a dreamer's ideal, as though it were an experiment, but I can assure you that cooperation passed the experimental stage years and years ago, and is now recognized to be the only means of remedying many of the evils and disadvantages under which we labor.

The cooperative movement started, as most successful movements do start, very humbly, and has only succeeded by actual demonstration continuously maintained, that it is not only right in principle but that it is justified by its success financially.

The idea of cooperative effort was first evidenced in Scotland over one hundred years ago, but it was not until 1844—seventy years ago—that it took a really tangible form. In that year a number of Rochdale weavers, who had long been discussing various social problems, came to the conclusion that profits derived through dealings in the necessities of life, should be paid out on the same basis as they are paid in—that as they are first reckoned and obtained on the purchase price, they should be paid out as dividends on purchases, while capital should only receive a fair interest. This seemed to have been the original discovery by these Rochdale weavers. They held very strongly that profit made out of the people in front of the counter should be paid back to these people who created the profit after a fair interest had been paid on the capital required to maintain the business.

In ordinary business capitalists invest their money only when they have an assurance of a good return and there is no inducement to the capitalist to invest unless there is some indication that the business under consideration will give him a better return than, say, as your funds are invested. There is therefore no inducement to the capitalist to invest his money in a cooperative concern because he will never under any circumstance get a large return, and in addition it is contrary to true cooperative principles for outside

capital to be used. No cooperative concern works for profit and the difference between cost and actual return is rebated. It is true certain so-called cooperative organizations invite outside capital. I know of one in Canada that is advertising its stock for sale, but I wish to place it on record that such an arrangement cannot exist under a true cooperative system. In any true cooperative concern the only stock holders are the actual cooperators.

These Rochdale weavers tried the experiment of running a shop, or as we should call it, a store, that should belong to the customers and their efforts were attended with immediate success. It held the germ of a great ideal, that no individual should be allowed to amass a fortune out of the necessities of life to the community. Out of that humble beginning and out of that great ideal has grown that great, that mighty organization known as the Wholesale Cooperative Society of Great Britain, an organization with a yearly turnover exceeding \$600,000,000.

It must not be supposed, however, that this movement was allowed to grow without strenuous opposition. In this direction I would like to direct the attention of those who are so foolishly opposing cooperation in the Annapolis Valley, to history, which clearly demonstrates how futile is opposition, for cooperation has shown repeatedly that it has some great principle of life within it which makes it grow steadily. It makes an appeal to the cool reason of man unlike the hot pride and passion of war, and even, if I may say so, the enthusiasm of religion. Note how opposition acted as a spur to the humble pioneers of cooperation in England, and tended very largely to hasten its development.

The people who were most seriously affected by the Rochdale weavers were the retail merchants, for the cooperators considered these merchants unnecessary and expensive encumbrances between the manufacturer or producer and consumer. The merchants, therefore, through the press, which was largely supported by their advertisements, heaped ridicule on the movement.

This had the reverse effect to what was intended and simply directed attention to the several cooperative stores that had come into existence, and made people think that after all there must be something in what these cooperators were doing, with the result that many other cooperative societies were formed, and the membership of all existing societies was much increased.

Finding that their first move to destroy these societies had miscarried, the merchants tried other tactics, and through their association gave notice that any wholesale merchants or manufacturers having any dealings with the cooperators would be boycotted. At that time the cooperative societies were not many in number, and at first the boycott was a serious matter to them, but as is often the case, opposition caused them to adopt a more vigorous programme and carry their cooperative movement a stage further, resulting in all the societies amalgamating under one head, the present Cooperative Wholesale Society. The boycott I have referred to proved the finest advertisement the movement could have had, and proved to the world at large that cooperation was accomplishing what it set out to do. The natur-

al result was that the membership of the societies still further increased, and again many new societies came into being. All the societies collectively formed a very powerful organization, which being under the boycott immediately proceeded to make other arrangements for obtaining the goods necessary to run their business, and resulted in a still further strengthening of the movement.

The Cooperative Wholesale Society was formed in 1863. A sentence taken from the prospectus sums up in a few words the object of the whole movement. "The object of the society is to bring the producer and consumer of commodities nearer to each other, and thus secure for the working classes those profits that have hitherto enriched only the individual."

The Cooperative Wholesale Society is the central association for the subsidiary companies in the same way as the United Fruit Companies is the central for all the Cooperative Fruit Companies in Nova Scotia.

All the subsidiary societies operate large stores, in which are handled practically every article that one can imagine. These include groceries, drapery, millinery, furniture, hardware, fish, meat, poultry, dairy produce, and so forth, and in connection with each society there is a large bakery. The members can obtain absolutely everything they require in the world, through their own store. These subsidiary societies obtain all their supplies from the central, which acts as buyer, manufacturer and distributor. All the trade of the central is done in goods bought by their own buyers at home and abroad, and distributed to the retail societies from its warehouses. One general principle runs through all the purchasing done by the Cooperative Wholesale Society buyers, namely to go direct to the source of production, whether at home or abroad, so as to save the commissions of middlemen and agents.

In New York, Montreal, Spain (Denial), and Sweden the Cooperative Wholesale Society has purchasing depots with resident buyers, whose office it is to purchase and ship home the productions of these countries as required by English cooperators. On arrival in England the goods are divided among the warehouses at Manchester, Newcastle, London, Birmingham, Bristol, Cardiff, Leeds, Huddersfield, Blackburn, Northampton, etc., so that the subsidiary societies can conveniently draw their supplies as needed. The total amount of the goods imported direct by the Cooperative Wholesale Society from foreign countries in the twelve months ended December, 1911, was \$35,363,350.

(To be continued)

Mr. A. H. MacLennan, B.S.A., Demonstrator in Pomology, Ontario Agricultural College, Guelph, Ontario, has been appointed lecturer in horticulture at Macdonald College, P.Q., succeeding Mr. F. M. Clement, B.S.A., who has recently been appointed director of the Vineland Experiment Station, Ontario. Mr. MacLennan graduated from the Ontario Agricultural College in 1908, and for the past four years has been connected with the horticulture department at that institution, where he has had charge of the vegetable work, in which he has had a very wide experience. He has been closely identified with the Ontario Vegetable Growers' Association, and has done much valuable work for their experimental investigations, and will be a valuable acquisition to the staff of Macdonald College.

*Extract from an address delivered before the last annual convention of the Nova Scotia Fruit Growers' Association.

Administration of the Fruit Marks Act

By F. H. Grindley, B.S.A., Assistant Chief, Fruit Division

THE chief work of the Fruit Division is the administration of the Inspection and Sales Act, Part IX., commonly known as "The Fruit Marks Act." This Act, passed in 1901, was the result of a desire on the part of progressive fruit growers for an improvement in the methods of marketing fruit, in order to prevent complaints by the consuming public against fraudulent packing. With the passing of the Act, fruit inspectors were appointed for its enforcement. In those early days, on account of the ignorance on the growers' part of the provisions of the Act, much educational work was found necessary. Consequently, the inspectors spent a great deal of their time among the growers, in orchards, in packing houses and at public meetings. It was not till several years later that the initial leniency shown towards growers was lessened, and the inspectors began to rigidly enforce the Act. At that time all reports of inspection were sent to the Fruit Division at Ottawa, and when a prosecution was advised by an inspector, such prosecution was not carried on until authorized by the Fruit Division. Between 1907 and 1910 all cases of prosecution in Ontario were handled either by the Chief of the Fruit Division or his Assistant, and even before those dates many of the Ontario cases were handled from headquarters.

NUMBER OF INSPECTORS INCREASED

With the extension of fruit growing areas, and the consequent increase in production, there came the necessity for increasing the number of inspectors, in order that a fair percentage of the fruit packed might be satisfactorily examined. Since

1905 this increase has been gradual. In 1905 there were seven permanent and five temporary inspectors. Last year there were sixteen permanent and thirty-five temporary inspectors.

In the summer of 1912, in order that supervision of the inspection work might be more complete, the country was divided into five districts, with a chief inspector in charge of each. This change accounts for the large increase in the staff, and the result has been extremely satisfactory, in that it has brought about greater efficiency in the administration of the Act.

THE SYSTEM OF INSPECTION

Under the present system of inspection, there are five chief inspectors, covering the five districts: Maritime Provinces, Eastern Ontario and Quebec, Western Ontario, Prairie Provinces and British Columbia. These five supervise and control the work of a staff of forty-five inspectors and are in turn directed by and report to Fruit Division at Ottawa. Weekly reports are received at Ottawa from the entire staff, so that a complete record is always on hand of their movements. Reports of inspections are not now, as formerly, all sent direct to Ottawa. The chief inspector in each particular district receives the reports from his own district, handling violations at his own discretion, and sending other reports to Ottawa after personal examination.

The detailment of the various inspectors throughout the season is arranged, so far as their number will allow, to cover the main points of production and export. The several centres in the fruit growing districts, the larger towns and cities, and the

Douglas Gardens

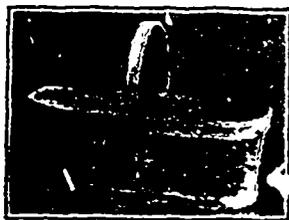
OAKVILLE, ONT.

We name below a few things that we desire to emphasize, viz.:

- ANEMONE JAPONICA, 3 vars., each 15c. 10 for \$1.25.
- AQUILEGIA (Columbine), 2 sorts, each 15c. 10 for \$1.25.
- ARABIS ALPINA (Columbine), each 15c. 10 \$1.25, 100 \$10.00.
- ARTEMISIA LACTIFLORA (New), a fine plant, each 25c.
- ASTERS (Michaelmas Daisies), planted in spring they bloom the following fall, 12 vars., each 15c. 10 \$1.25.
- BELLIS PERENNIS, should be 10c each. 10 for 75c. 100 \$6.00.
- DELPHINIUMS, Gold Medal Hybrids, each 20c. 10 for \$1.50.
- HELENIUM, RIVERTON BEAUTY and GEM, each 20c.
- HEMEROCALLIS, 3 sorts, each 15c and 20c.
- HEUCHERA ROSAMANDE, each 20c.
- KNIPHOFIA (Tritoma) PFITZERII, each 15c. 10 \$1.25.
- PANSIES, in colors for late blooming, each 5c. 10 45c. 100 \$4.00.
- PHYSOSTEGIA, 2 sorts, each 15c. 10 \$1.25.
- SHASTA DAISIES, 3 sorts, each 25c. 10 \$2.00.
- DAHLIAS, planty only, 10 sorts, each 15c. 10 \$1.25.
- GLADIOLUS, 3 unnamed sorts, 25 corvus, 60c. 75c and 80c.
- ANTIRRHINUM (Snapdragon), including Silver Pink, 10 60c.
- CHINA ASTERS, grown in pots, 6 sorts. 10 25c. 100 \$1.25.
- GERANIUMS, SALVIA, SCABIOSA, STOCKS, Etc.

JOHN CAVERS

Peerless Climax Fruit Baskets



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping. Last year the demand exceeded the supply

Therefore Order Early

Canada Wood Products Co.

ST. THOMAS, ONT.

TO DESTROY APHIS, THRIPS, ETC.

Without Injury to Foliage

SPRAY WITH

"BLACK LEAF 40"

Sulphate of Nicotine

"Black Leaf 40" is highly recommended by experiment stations and spraying experts throughout the entire United States, also by Canadian experts.

Owing to the large dilution, neither foliage nor fruit is stained.

Black Leaf 40" is perfectly soluble in water; no clogging of nozzles.

PACKING:

In tins containing 10 lbs. each, 2 lbs. each, and ½ lb. each.

A 10-lb. tin makes 1,000 to 2,000 gallons for Pear Thrips, with addition of 3 per cent. distillate oil emulsion; or about 1,000 gallons for Green Aphis, Pear Psylla, Hop Louse, etc., or about 800 gallons for Black Aphis and Woolly Aphis—with addition of 3 or 4 pounds of any good laundry soap to each 100 gallons of water. The smaller tins are diluted in relatively the same proportions as are the 10-lb. tins.

PRICES: In the United States, our prices for the respective sizes are as follows:

10-lb. tin, \$12.50; 2-lb. tin, \$3.00; ½-lb. tin, 85c.

IN CANADA, Dealers usually charge about 25% to 30% over the above prices because of the Canadian duty, etc. Consult your dealer about this.

THE KENTUCKY TOBACCO PRODUCT CO.

(Incorporated)

LOUISVILLE - KENTUCKY

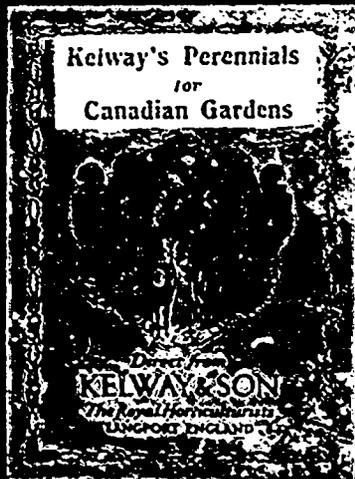
FAVOURITE FLOWERS from the BEAUTIFUL OLD-FASHIONED GARDENS of ENGLAND

KELWAY'S famous Hardy Herbaceous Plants are modern developments of the old English favourites. The cottage "Piny Rose" has become the Pæony, incomparable in form, colour and fragrance. The old-fashioned Larkspur has developed into the stately blooms of the Delphiniums; Gaillardias, Pyrethrums and the rest, all serve to bring back the charm of the old-world English garden. Special care is taken in packing plants to arrive in Canada in good order, and they can be relied upon to thrive with a minimum of attention.

Full particulars and illustrations given in the Kelway Manual of Horticulture mailed free on receipt of 60c by

KELWAY & SON
LANGPORT - SOMERSET,
England

Send—now—for a copy
of the Kelway Book—
and make your Garden
glorious



ports of Montreal, Halifax, St. John, Quebec and Vancouver, are all under supervision during the busy season. The provinces are fairly extensively covered and care is taken to inspect fruit imported from the United States, the grade markings on which must conform to those on Canadian packages. During the winter months, when navigation is closed at Montreal, and when Ontario fruit is being shipped from American ports, the Montreal inspectors, with one exception, are transferred to points in Ontario where fruit has been stored and inspections are then made of shipments from such points. At the end of the season, the services of many of the Inspectors are dispensed with, only sixteen out of the one being at present retained permanently. These men devote their time during the slack season, as far as possible, to other meetings and other demonstration work.

In 1912 the position of "Apple Packing Demonstrator" was created, and a man competent in packing and in plant "sneaking," now devotes practically his whole time at orchard and other meetings, demonstrating modern methods of fruit packing. The services of this man are always in demand, and much good has resulted from the work he has done.

No small task is the keeping of a thorough index, at Ottawa, of all inspection reports. Thousands of these are received during the season, and a tabulation is made of the grower's name and address, the number and kind of packages examined, and the date and result of inspection. This index has been kept since the inception of the Act of 1901, and has been of great value in many cases where a grower's record has been desired.

Imported Nursery Stock

The quantity of trees, shrubs and other plants, including ornamental and fruit trees, all of which are classed as "nursery stock," imported into Canada is increasing annually. According to the place of origin these trees are fumigated or inspected under the Destructive Insect and Pest Act before their entry is permitted, to prevent the introduction of insect pests.

To increase the facilities for importing trees into western Canada, the Ministry of Agriculture established an additional point of entry and a fumigation station at Neepawa, Sask., last summer. A new and enlarged fumigation station was also erected at St. John, N.B., to provide more accommodation and better facilities. Arrangements are now being made to erect an additional fumigation and inspection station at Niagara Falls, Ont., to meet the increased importations entering Canada via that port and destined chiefly to points in Ontario. The importation of nursery stock through the mails was prohibited from March 1st.

At a meeting in Morrisburg, Ont. of the St. Lawrence Valley Fruit Growers' Association, held on April 20th, it was decided not to make another exhibit of apples to the fruit department of the Ontario Horticultural Exhibition in Toronto unless a law be made prohibiting Government men to act, assist, or advise as packers, framers, or judging as judges. One such official was said to have shown bias at the last year's exhibition. In certain instances Baldwin apples were rated as a better apple than the Baldwin Red. Members of the Fruit Growers' Association of the St. Lawrence Valley contend there is no comparison between the two.

PURE - BRED ITALIAN QUEENS
AFTER JUNE 15th
 Untested Queens \$1.00 each, \$10.00 a doz
 Warranted purely mated Queens \$1.10 each.
 -12.00 a doz Tested Queens \$1.50 each, \$16.00
 a doz. Breeding Queens \$2.50, \$5.00 and \$10.00
 10% Liberal discount on large orders.
JOHN A. MCKINNON - ST. EUGENE, ONT.

BEES
 We make a specialty of supplying Bees, Italian
 Queens, supplies, etc., for Bee-keepers. Circulars
 sent upon request. Address
ALISO APIARY CO.
 GLENDALE, CAL., U.S.A.

Italian Queens and Bees
NORTHERN BRED
 Superior Wintress. Descriptive List free. Un-
 tested, \$1.00. Sel. tested, \$1.50.
 Plans, "How to introduce Queens," 15c.
 "How to increase," 15c.; both, 25c.
E. E. MOTT, GLENWOOD, MICH., U. S. A.

THE BEEKEEPERS' REVIEW CLUBBING LIST
The Review and Gleanings one year, \$1.50.
The Review and American Bee Journal one
 year, \$1.50.
 All three for one year only \$2.00.
 Canadian Subscribers add for postage as fol-
 lows: *Gleanings*, 30c.; *A. B. J.*, 10c.
 Address
THE BEEKEEPERS' REVIEW, North Star, Mich.

QUEENS
 Bred from Doolittles best Italian
 stock.
 Order now to insure prompt de-
 livery. One dollar each, six for
 five dollars.
P. TEMPLE
 438 Gladstone Ave. - Toronto, Ont.
Safe arrival guaranteed

Send your consignments of APPLES to the
 Home Country to
Ridley Houlding & Co.
 COVENT GARDEN
 LONDON, ENGLAND
 who specialize in APPLES and PEARS dur-
 ing the Season. Personal attention, prompt
 account sales and remittance
 Correspondence invited

MAX STOLPE
Landscape Architect
 Ex-Superintendent Royal Gardening Institute
 Saxony - Germany
 Holder of Gold and Silver Medals
 Artistic Plans, Sketches furnished for all
 kinds of LANDSCAPE CONSTRUCTION
 WORK.
 Ornamental Trees, Shrubs, Conifers,
 Hardy Perennials, etc.
ASK FOR PRICE LIST
 17 Main Str. East - HAMILTON, Ont.
 Phone 143

Bees and Bee Supplies
 Rcots, Dadants, Ham & Nott's goods.
 Honey, Wax, Poultry Supplies, Seeds, etc.
Write for a Catalogue
THE CHAS. E. HOPPER COMPANY
 185 Wright Avenue, Toronto, Ont.

QUEENS
 Tested, \$1.00 each, 3 to 6, 90c. each.
 Untested, 75c. each; 3 to 6, 70c. each.
 Bees per lb., \$1.50, no Queens.
 Nuclei per frame, no Queens, \$1.50.
I. N. BANKSTON
 Box 141, Buffalo, Texas, U. S. A.


Bee Supplies
Bees and Queens
 Improved Model Hives
 Sections Comb Foundation
 Italian Queens
 Bees by the Pound Packages
 Etc., Etc.
EVERYTHING for the BEEKEEPER
Catalogue Free
 Highest Price paid for BEESWAX
F. W. JONES - BEDFORD, QUE.

BEES
 AND
QUEENS
 By quickest Express Service only
 12 hours to St. Louis, Mo. U.S.A.
 Untested Queens 75c. each, \$7.50
 per dozen. Extra select tested, will
 make good breeders, \$2.50 each,
 Nuclei, \$1.25 per frame, no queen.
 Young bees, no queen but full
 weight \$1.50 per pound, with
 queen \$2.25. Five or more with
 queens at \$2.00 each.
THE STOVER APIARIES
 MAYHEW, MISS., U.S.A.


BUY CARNIOLANS
IN CARNIOLA
 Pure Carniolan Alpine Bees
 Write in English for Booklet and
 Price List. Awarded 60 Honors.
Johann Strgar, - Wittnach
 P.O. Wochsiner Faistriz
 Upper-Carniola (Krain), Austria


PRICE LIST
 of
Three Banded Red Clover
Italian Queens
 Bred from Tested Stock
 Untested Queens, \$1 each, \$5 for six
 Selected untested, \$1.25 each, \$7 for
 six
 Tested Selected Guaranteed Queens,
 \$2 each
Cash With Order
W. R. STIRLING
 Box 214 Ridgetown, Ont.

Famous Queens Direct from Italy
 Bees more beautiful, more gentle, more
 industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition.
 Berne, 1895.
 Swiss National Exposition,
 Geneva, 1896
 Beekeeping Exhibition, Liege,
 Belgium, 1896
 Beekeeping Exhibition, Frank-
 fort, O. M. (Germany), 1907.
 Universal Exposition, St. Louis,
 Mo., U.S.A., 1904.
 The highest award.
 Extra Breeding Queens, \$3.00; Selected,
 \$2.00; Fertilized, \$1.50. Lower prices per
 dozen or more Queens. Safe arrival guaran-
 teed.
ANTHONY BIAGGI
 PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND
 This country, politically, Switzerland it is
 public, lies geographically in Italy and pos-
 sesses the best kind of Bees known.
*Mention in writing—The Canadian Horticulturist and
 Beekeeper*

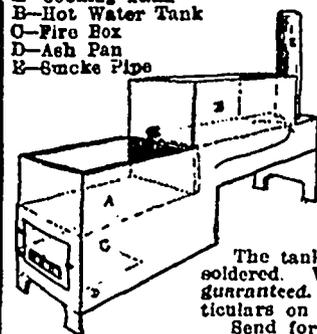
Northern Bred Hardy Stock

Italian Queens
 from selected stock of
 the best strain of
 honey gatherers for
 1914. Quick delivery.
 Cash with order.
Prices—April till
 June, Untested Queens, \$1.00 each;
 6 for \$5.00; in lots of 25 or more,
 75c. each. Selected Tested, \$2.00.
 Breeders, \$5.00.
W. B. Davis Company
 AURORA, ILLINOIS, U.S.A.

Sprayers
Sulfur Dusters
 For Fighting Every Disease of Cultivated Plants
 Knapsack, Pack Saddle or Horse Drawn
 Power Sprayers
 Send for Catalogues and particulars to:
VERMOREL Manufacturer,
 VILLEFRANCHE
 (Rhone), FRANCE



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



Make Your Own Spray

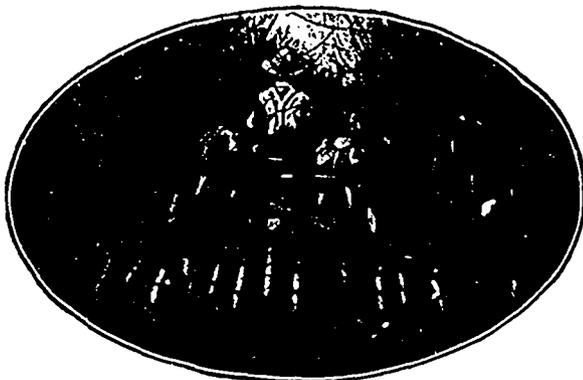
Home Bolled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

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

The tanks are made of heavily galvanized steel, thoroughly riveted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

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



Cultivate Underneath the Branches

With This Cultivator

A Massey-Harris nine-tooth Cultivator equipped with extensions, enables you to cultivate under the overhanging branches, close to the tree.

The attachment may be quickly removed when not required.

Frame and Sections are Angle Steel. Teeth are of Steel with Reversible Steel Points and attached so as to be readily adjustable.

Wheels are 29 inches high with $2\frac{1}{2}$ inch face and are on extension axles, permitting of change in the tread from 4 ft. to 4 ft. 10 in.

One lever raises and lowers both Sections.

MASSEY-HARRIS CO., Limited

HEAD OFFICES: TORONTO, CANADA

Branches at
MONTREAL MONCTON WINNIPEG REGINA SASKATOON
SWIFT CURRENT YORKTON CALGARY EDMONTON
Agencies Everywhere

Annapolis Valley Notes

On April 16th, "The Valley" experienced a regular mid-winter blizzard. We have had no spring weather as yet, buds were not swelling, and summer seemed a long way off. The "oldest inhabitant" talks about the coldest spring on record.

In spite of the twenty below temperature in February, apple trees seem to have come through the winter in good condition. They give promise of an abundant bloom. Nova Scotia is noted for her regular bearing orchards, and all are looking forward to a bumper crop following the poor one of last season. Judging by the happy faces of the power sprayer agents, spraying will be almost universal this coming season; at all farmers' and fruit growers' meetings this past winter the spraying question was thoroughly discussed, and from what one hears the lessons of the past two seasons have been pretty generally taken to heart. As soon as our people really grasp the idea that spraying for spot is an insurance that cannot be neglected without disastrous results, both to the quantity and quality of their crop, the Valley will take the premier place in Canada for profitable apple growing.

The members of the cooperative companies are enthusiastic over the showing made by the United Fruit Companies for the season just closing. Organization continues. Six new companies were formed this spring. All are uniting themselves with the Central Association.

A "Good Roads Association" was organized at Kentville last month, having for its object the improvement of the country roads throughout the Valley. This is not an automobile organization, as in some other places, but has its chief support from the farmers who are badly in need of better roads leading across the Valley to the various shipping stations on the railway. Proper drainage of the roadbed, and the increased use of the split log drag will be encouraged.—M.K.E.

The New Zealand Trade

Canadian Trade Commissioner Beddoe, stationed at Auckland, New Zealand, reporting to the Department of Trade and Commerce, at Ottawa, relating to the sale of British Columbia fruit in New Zealand, writes as follows:

The Canadian shipper at first took the risk of consignment, and finally receiving large orders for cash. The position now is: That, whereas in the first instance the shipper demurred to send on consignment it was pointed out that such an expression of confidence in his own goods would assist in their future sale. The sales by auction were very satisfactory. Then the shipper wanted to send again on consignment, it was suggested that the goods having been favorably received, it would be better to quote a price f.o.b. Auckland, as the market might vary. Shippers hesitated to do this and the result was that last shipments from Vancouver included a large quantity of American apples, and the price of United States and Canadian went down. This is mentioned to illustrate the importance of accepting local advice.

Another point of importance is, that too much space is given to the American product on the Vancouver boats. It seems inconsistent that the Canadian Government should subsidize steamers to carry foreign products which compete with the Canadian on this market, thus tending to lower prices.

Renew Your Subscription Now

PERENNIALS

Every plant grown from seed sown last year, and developed wholly in the open air. Most of the plants listed will not be ready for shipment till after May 1st.

Large Clumps

10c each \$1.00 dozen

Sweet William—Choice Auricula Eyed
Digitalis (Foxglove)—Large Flowered Mixed.
Aquilegia (Columbine)—Select Long Spurred Hybrids
Heuchera (Coral Bells)—Sanguinea.
Polemonium—Richardsoni.

From 3 inch Pots

8c each 60c dozen

(Except Hollyhocks)

Arabis Alpina (Rock Cress)—Single.
Orientale Poppy—Fine large Crimson Black Blotch.
Excelsior Strain, an Extra Fine Mixture.
Iceland Poppy—Mixed Colors.
Aquilegia—Long Spurred Hybrids.

10c each \$1.00 dozen

Hollyhocks, Double—Chater's Finest English Strain.
Mixed colors.

Medium Sized Roots

7c each 60c dozen

Chrysanthemum Maximum, Moonpenny Daisy (often called Shasta Daisy.

King Edward VII.

Calliopsis (Coreopsis)—Grandiflora.

Delphinium—A Fine Mixture.

Delphinium Chinensis—Blue and White.

Lupinus.

Polyphyllus Mixed.

Lobelia Cardinalis.

Sweet Rocket.

Sweet William—3 splendid varieties in mixture.

Digitalis Ambigua.

At 5c each 50c dozen

Forget-Me-Nots—Several Colors.

English Daisy—The Bride, white, very free flowering, long stems.

Pansies—A grand mixture from named varieties.

ALSO

Strong Potted Plants, 75c per dozen, \$5.00 per 100.

SALVIA—Drooping Spikes. The finest of the tall Salvias. Ready May 10.

PENTSTEMON—Select Scotch strain. Ready May 10.

SPECIAL

Beat your neighbors, and have the first ripe Tomatoes in your neighborhood. Full of fun and interest you will find it. Eat fine, fresh fruit from your own vines, instead of buying flavorless tomatoes at 15c per lb. Ready May 10th.

BONNY BEST—The best of the Extra Earlys. Very large potted plants. 12 for \$1.00; 25 for \$6.00.

EARLIANA—The earliest of them all. Large potted plants. 20 for \$1.00; 25 for \$4.00.

All our tomato plants are hardened off properly in open air. They have travelled in good condition 1,000 miles.

TERMS: CASH

Plants will be sent by express, unless otherwise arranged for.

RYERSE BROS., SIMCOE, ONT.

Double The Yield of The Garden

GEM GARDEN COLLECTION

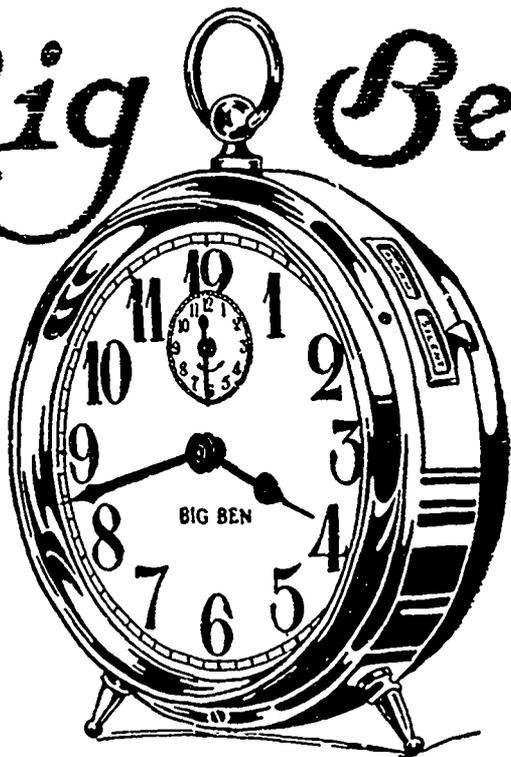
This Complete Collection will stock a moderate-sized Kitchen Garden throughout the Season. \$1.00, Postpaid.

- | | |
|---------------------------------------------|----------------------------------------|
| 1 lb. Beans... Dwarf Stringless Yellow Pod. | 1 pkt. Onion... Early, Slicing. |
| 1 lb. Beans... Dwarf Stringless Green Pod. | 1 pkt. Onion... Early, Boiling. |
| 1 pkt. Beans... Dwarf Bush Lima. | 1 pkt. Parsnip... Long White. |
| 1 pkt. Beet... Round Red | 1 lb. Peas... Earliest Dwarf. |
| 1 pkt. Cabbage... Early. | 1 lb. Peas... Medium Early Dwarf. |
| 1 pkt. Carrot... Intermediate Red. | 1 pkt. Radish... Early Round Red |
| 1 lb. Corn... Early Sugar. | 1 pkt. Squash... Marrow. |
| 1 pkt. Cucumber Slicing. | 1 pkt. Tomato... Early Smooth Scarlet. |
| 1 pkt. Lettuce... Cabbage Heading. | 1 pkt. Turnip... Round, White Table. |

W.M. RENNIE CO. Limited Cor. Adelaide & Jarvis Sts., TORONTO
Also at Montreal, Winnipeg and Vancouver.

With Rennie's Seeds

Big Ben



He's Big All Over And Good All Through

Big Ben is built for endless service. He has no "off-days," no shut-downs. His four years of existence have been one long record of on-the-dot accuracy. 7,000 Canadian dealers say that he does more efficient work for less pay than any other clock alive.

A Big Ben battalion, over 3,000 strong, leaves La Salle, Illinois, every day. Their sparkling triple nickel-plated coats of implement steel; their dominating seven-inch height; their big, bold, black, easy-to-read figures and hands; their big, easy-to-wind keys—all make Big Ben the world's master clock.

In return for one little drop of oil, he'll work for you a full year. From "Boots on" to "Lights out"—365 times—he'll guarantee to tell you the

time o' day with on-the-dot accuracy.

He'll guarantee to get you up either of TWO WAYS—with one long, steady, five-minute ring if you need a good big call, or on the installment plan, with short rings one half-minute apart for ten minutes, so you'll wake up gradually, and he'll stop short in the middle of a tap during either call if you want to shut him off.

Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of parlors.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to his makers—Westchx, La Salle, Illinois—and he'll come to you prepaid.

Eastern Annapolis Valley

Eunice Buchanan

Last month I mentioned that I said no sign of aphid on the first batch of apple twigs brought into the house, but on a second lot of Kings and Blenheims brought in later there were aphid.

The demand for nursery trees is not great owing to scarcity of cash. Last year although the season finished with good prices for fruit, the apples were badly spotted and did not pack up to expectation; the year before also produced spotted fruit. However, most of the growers intend to spray more thoroughly than ever, and more than one air-tight sprayer is being imported from the United States.

The forests and shelter belts are rapidly falling before the axe, and already one feels the effects of the strong cold winds as they sweep along the Valley.

The spring is unusually late (some years we have peas planted by the last of March). Snow fell on April 12th, and the following day was very cold, with icicles hanging all day, although we have had days this year with the thermometer as high as 60 degrees.

At this time of the year one is tempted to compare the spring here with that of England, where the snowdrops come in February and the daffodils and narcissi are in full swing in April, and where the fruit trees blossom long before those in Canada; but when autumn comes the tables are turned, for the Canadian fruits are ready to harvest just as soon as the English.

Seed potatoes from Nova Scotia have now also been prohibited in Bermuda; so those growers who have saved their crops for better prices are apt to be disappointed.

Many Englishmen are filling the places of the native hired man (who does not find things as alluring in the States as formerly), so wages are not likely to go higher yet awhile (the highest is about \$40 per month and house). There are many applicants for work, and this year the farmers need to economize; many of them do not care to keep men all winter, or more than one. Pruning has been going on during March and April, but there have been days when the average farmer was puzzled to find a job for his men. The old buck saw and horse are resting on many farms while the gasoline engine cuts the cordwood into stove lengths.

Another cooperative fruit company has been formed in Cambridge, King's county, N.S., with Mr. J. G. Webster as president.

Australian fruit is arriving in England—this, and the poor condition of Nova Scotian fruit on arrival has resulted in a bad drop in prices. The highest being \$4.39 for No. 1 Nonpareils, and \$2.30 for No. 3's. Ben Davis ranging from \$3.76 to \$2.80; Gano, \$4.10 to \$2.60.

Experimental Work at Ottawa

Four new greenhouses erected for the Horticultural Division at the Central Experimental Farm, Ottawa, are nearing completion, and already two have been occupied. They are what is known as the Person-U-Bar Flat Iron Curved Eave Construction, and will give about seven thousand five hundred square feet under glass. They are heated with hot water from sectional boilers and consist of a main house one hundred and seven feet, six inches long, and twenty-five feet wide, divided into two by a glass partition, and three detached houses twelve feet apart on one side of it, each fifty-eight feet six inches long and

twenty-five feet wide, and each connected with the main house by a glass portico. The main purposes to which these houses will be put are as follows:

Five different kinds of benches are being installed which will be tested for relative usefulness and desirability. On these and in the solid beds on the ground different methods of culture of flowers, vegetables, and of some fruits will be tried.

The cross-breeding of flowers, fruits, and vegetables will be carried on during the winter months and selections made from existing varieties or strains. A specialty will be made of the testing of florists' novelties and reporting on the same. Although tomatoes, radish, and lettuce are the winter vegetable crops usually grown, it has been found that other kinds of vegetables succeed well when forced, and experiments will be tried with a variety of crops.

Experiments will be conducted in the forcing of strawberries, grapes, and other fruits. This winter several hundred pots of strawberries are being forced with the object of learning which succeeds best.

Fifty pots of fifteen varieties of European grapes are being forced, it being believed that there will be a growing demand for grapes in Canada. Being in pots the vines do not take up space permanently in

the houses, but can be moved about when necessary. In England grapes are successfully forced in this way. A large number of plants are needed for bedding on the ornamental grounds at the Central Farm, and the greenhouses will be utilized for propagating these.

Experimental Cold Storage Warehouse

The experimental cold storage warehouse for fruit which the Dominion Department of Agriculture is erecting at Grimsby, Ont., is now nearing completion. This warehouse, which has been erected according to the design of the Dairy and Cold Storage Commissioner, Mr. J. A. Ruddick, is intended to afford facilities for carrying on experiments in the cold storage of different varieties of fruit, and also in demonstrating the value of pre-cooling for long distance shipment.

The total refrigerated space is about fifty thousand cubic feet. There are four rooms on the ground floor, each with a capacity of fully two carloads of fruit. The basement floor contains one large room and a separate chamber for experimental purposes. The warehouse is equipped with what is known as Cooper's gravity brine system, with special facilities for a quick cooling in two or three chambers at a time.

STRAWBERRY PLANTS

For sale. Fine stocky, well-rooted plants. Eleven tested varieties. Write for list and prices.

S. H. RITTENHOUSE, JORDAN HARBOR, ONT.

Some of the finest gardens in the world have been arranged by

KELWAY & SON

The Royal Horticulturists
Langport, Somerset, England

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue

HAND-MADE FRUIT BASKETS

The Best in the Market

HEWSON & FARRELL

GRIMSBY Box 536 ONTARIO

FLOWER POTS

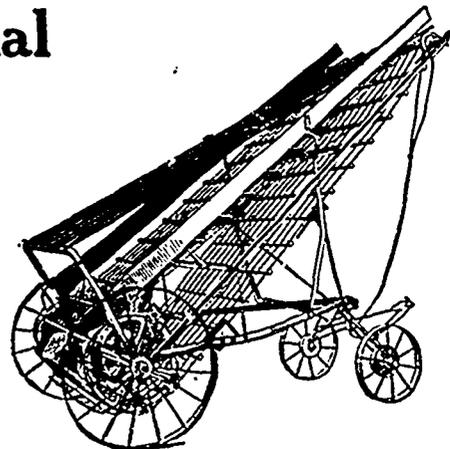


Large stock of all sizes for the Spring trade.

Send us your order NOW and receive your supply before the Spring rush.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

International Harvester Haying Machines



The I H C Line GRAIN AND HAY MACHINES

- Binders, Reapers
- Mowers
- Bales, Stackers
- Hay Loaders
- Hay Presses
- CORN MACHINES
- Planters
- Binders, Cultivators
- Ensilage Cutters
- Shellers, Shredders
- TILLAGE
- Combination
- Peck and Spring-Tooth
- and Disk Harrows
- Cultivators
- GENERAL LINE
- Oil and Gas Engines
- Oil Tractors
- Manure Spreaders
- Cream Separators
- Farm Wagons
- Motor Trucks
- Thrashers
- Grain Drills
- Feed Grinders
- Knife Grinders
- Baler Twine

WHEN haying time comes you cannot control weather conditions, but you can make the best of them if you use the rakes, tedders, stackers, loaders, and sweep rakes sold by I H C local agents. With a line of I H C haying tools in your sheds you can come out of the least favorable weather conditions with the highest percentage of bright, well cured hay.

I H C haying tools are carried in stock or sold by local agents who can take care of you quickly in case of accident. It is their business to see that you are satisfied with the I H C haying machines and tools you buy from them. You cannot go wrong if you buy only haying tools with the I H C trade mark.

Write the nearest branch house and get the name of the nearest agent handling I H C haying tools, and catalogues on the machines in which you may be interested.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Balford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton



WILKINSON PNEUMATIC ENSILAGE and STRAW CUTTERS

Our Climax "A" mounted is the only successful combination machine of this capacity on the market. It will cut and deliver green corn into the highest silo, or dry straw or hay into the mow. Its mouth rolls raise 8 inches and set close to knives, making solid compact cutting surface. Requires less power than any other of same capacity. No lost power.

Direct pneumatic delivery, no worm gears or special blower attachment. Knife wheel also carries the fans. No lodging on wheel arms, everything cut, wheel always in balance. Steel fan-case. Supplied with pipe enough to reach any silo, also pipe rock, tools, etc. Ask your dealer about them and write for catalog. We also make a "B" machine unmounted.

THE BATEMAN-WILKINSON CO.

LIMITED. 468 Campbell Avenue, Toronto, Ontario.



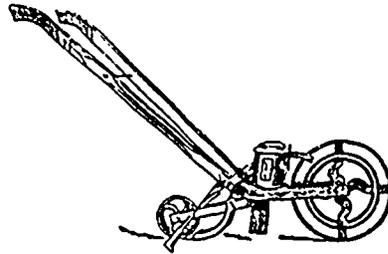
FREE LAND FOR THE SETTLER IN NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL
Director of Colonization
Parliament Buildings., TORONTO
HON. JAS. S. DUFF
Minister of Agriculture
Parliament Bldgs., Toronto



"THE BEST BY TEST"

Garden Seeder

Does the work of two men in half the time. Makes the drill, sows, covers and rolls the seed while you walk.

No better seeder can be built for the fast and accurate sowing of Turnips, Cabbage, Carrots, Beets, Corn and all other garden seeds.

Price \$7.50 delivered at your station.

THE SUSSEX MANUFACTURING CO.
SUSSEX, N. B. Ltd.

The fruit growers of the district will be afforded the facilities of the warehouse on payment of the usual charges for such service. The warehouse is conveniently located next the public school grounds in the village of Grimsby, and a siding from the electric railway has been laid down for convenience in shipping.

The services of Mr. Edwin Smith, B.S.A., who has been engaged during the past two years on cold storage and transportation work in British Columbia, have been secured to take charge of the establishment under Mr. Ruddick's direction. Mr. Smith has had special training in fruit work, and is well qualified to carry out the details of such experiments and demonstrations as may be undertaken. He will assume his duties about the first of May.

Poison on Apple Peel

Canadian Trade Commissioner J. E. Ray, stationed at Birmingham, Eng., has sent the following report to the Department of Trade and Commerce, at Ottawa:

The following paragraphs appear in the current issue of the London Daily Telegraph:

Some consternation has been caused by a letter which has appeared in the press on the subject of poison on apple-peel. Mr. Maurice S. Salaman, analytical chemist, has drawn attention to the presence of a deposit of copper sulphate (blue vitriol) with some admixture of lime on certain 'imported apples of excellent quality and flavor.' The analyst's letter says:

'Samples of imported apples of excellent quality and flavor were brought to me today, in my professional capacity, with an inquiry concerning what was described as peculiar green mildew near the stalk. I proved on analysis not to be a mildew but a deposit of copper sulphate (blue vitriol) with some admixture of lime, and was evidently left behind in spraying the fruit against parasites.

'The presence in appreciable quantity of rank poison, and this of a partially cumulative kind, in fruit largely eaten by children, is so grave a public danger that your assistance is urgently asked in calling attention to it.

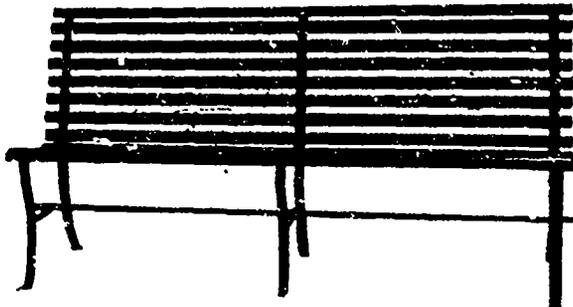
'Apples having any sign of green deposit in the stalk cavity should not be eaten unless peeled.

'But surely some steps should be taken to stop the importation of fruit thus dangerously contaminated.'

An exhaustive examination of the apples now on the market revealed the fact that the only variety affected was the Albemarle Newtown. Unfortunately this happens to be the best flavored apple available at the moment. But all Albemarles have not a poisonous deposit in the cavity which holds the stalk. The bulk have been carefully washed before shipment from America. Nevertheless, nobody is anxious to take the risk of eating poisonous matter, and what that need be done is carefully to wash the apple if one is desirous of eating the peel. If in addition the peel is removed then the danger disappears.

In less than a week the first cargo of apples from Australia is due on the market and it is to be hoped that the public will not allow the colonial growers to suffer because of the trouble which has arisen from the American Albemarle Pippin. In any case a peeled apple is quite safe. According to the analyst, no deleterious substance has been found beneath the skin.

HORTICULTURAL SOCIETIES.



PARK SEATS

Are as necessary to the improvement of your parks as flower stock. When making your plans for this year's park improvement, include our PARK SEATS.

We make well finished, durable Park Seats that will give satisfaction, at reasonable prices.

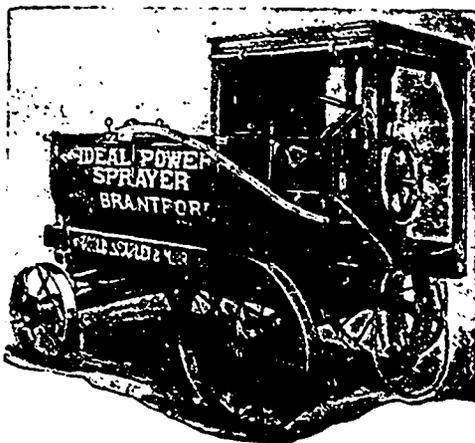
Among the parks already supplied are: Medicine Hat, Moose Jaw, Sault St. Marie, Welland, Windsor, Stratford and Toronto.

Catalogue "G" will give full information about this seat.

The Stratford Mfg. Co. Ltd., Stratford, Canada

THE BRANTFORD IDEAL POWER SPRAYER

CANNOT BE EXCELLED



We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

Catalogues describing our different lines, sent on request

GOOLD, SHAPLEY & MUIR CO. Ltd., Brantford, Ont.

CARNIOLAN QUEENS

Carniolans are excellent winterers, build up rapidly in the spring, enter supers rapidly, are gentle and the best of honey gatherers. Ask for our free paper, "Superiority of the Carniolan Bee."

Untested, \$1.00 each; dozen, \$9.00.
Full Colony in 8 fr. dovetail or Danz 10 fr. hive, \$10.00 f.o.b. here.

ALBERT G. HANN
Carniolan Queen Breeder - Clifton, N.J., U.S.A.

Superior Golden Queens

that produce workers for honey. The gentlest bees on the earth to handle and the yellowest. Untested, each \$1.00, six \$5.00. Tested, \$2.00 to \$3.00. Breeders, \$5.00 to \$10.00.

J. R. BROCKWELL, BARNETTS, VA., U.S.A.

THIS WASHER MUST PAY FOR ITSELF.

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

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

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

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

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

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them just as I wanted to try the horse.

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

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

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

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

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

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

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

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

Address me personally:
K. H. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.



Mother's Day

Mother's Day this year will be observed on May 10th. Probably no custom has met with such instantaneous and general approval in such a short space of time as has Mother's Day. Year by year the number of churches and other public institutions that refer to the practice of sending flowers or writing to our Mothers, or wearing flowers in their memory, that is encouraged by the observance of this day, has been increasing. This year the day is likely to be more widely observed than ever before. Horticultural societies should help on the good work.

Recent Publications

Copies of the following publications have reached The Canadian Horticulturist during the past few weeks: "The Apple in Pennsylvania: Varieties, Planting and General Care," being bulletin No. 128, issued by the State College, Central College, Pennsylvania; "Home-Made Cider Vinegar," by Walter G. Sackett; Bulletin 192 of the Agricultural Experiment Station, Fort Collins, Colorado; "Potatoe Diseases in New Jersey," being circular 33, and "An Analysis of Materials sold as Insecticides and Fungicides," Bulletin No. 262, of the New Jersey Agricultural Experiment Station, New Brunswick, N. J.

The Agricultural Experiment Station, Orono, Maine, has issued two bulletins, one dealing with "Woolly Aphid of the Elm," being Bulletin No. 220, and the other "Spraying Experiments and Apple Diseases in 1913," being Bulletin No. 223. The latter is particularly interesting.

The Connecticut Experiment Station, New Haven, Conn., is distributing Bulletin No. 182, entitled, "The Brown-Tail Moth." This bulletin is well illustrated and gives valuable information relating to this pest. It should be of special interest to fruit growers in those portions of the Maritime Provinces where this moth has made its appearance. Bulletin 181 by the same station is entitled, "Some Common Lady Beetles of Connecticut."

The Ohio Experiment Station of Wooster, Ohio, is sending out Circular No. 143, entitled "The San Jose Scale, The Oyster Shell Bark Louse and Scurfy Bark Louse," by J. F. Houser, and Circular No. 140, being an abridgement of Bulletin 264, entitled "Orchard Bark Beetles and Pin Hole Borers."

The Agricultural Experiment Station of the University of Wisconsin, Madison, has issued a valuable bulletin entitled "The Control of Damping-off Disease in Plant Beds."

The ninth annual report of the Ontario Vegetable Growers' Association is being distributed by the Ontario Department of Agriculture of Toronto, and the report of the proceedings of the 59th annual meeting of the Western New York Horticultural Society, is being sent out by Secretary John Hall, 204 Granite Bldg., Rochester, N.Y. This report deals with an unusually large number of interesting subjects.

"The Modern Gladiolus Grower," is the title of a new publication intended for both amateur and professional growers of gladioli, which is being published monthly by Madison Cooper, Calcium, N.Y. It contains articles of special interest to gladioli growers.

MILLER'S STRAIN ITALIAN QUEENS

By return mail after June 5th to 10th, or money refunded; bred from best red-clover strains in United States, in full colonies; from my Superior Breeders, northern bred, for business, long tongued, leather color or three banded, gentle, winter well, hustlers. Not inclined to swarm, roll honey in.

1 Untested \$1.00, 6 \$5.00, 12 \$9.00.
1 Sol. Untested \$125, 6 \$6.00, 12 \$11.00.
A specialist of 17 years' experience.
Safe arrival and satisfaction guaranteed.
I. F. MILLER, BROOKVILLE, PA., U.S.A.



EWING'S RELIABLE SEEDS

A Garden of Beauty and Fragrance

WHETHER you love the dear old Marigolds, Heliotrope, Nasturtiums and Petunias—the gorgeous Poppys and Asters—the many-hued Sweet Peas—the heavy-scented Nicotiana — or the huge and picturesque Ricinus—you'll find in Ewing's Catalogue the particular varieties which will make your flower garden a real satisfaction.

Ewing's Reliable Flower Seeds have been delighting beauty lovers for more than forty years. Write for Illustrated Catalogue to-day, and if your Dealer hasn't Ewing's Seeds, order from us direct.

THE WILLIAM, EWING CO., LIMITED,
Seed Merchants,
McGill St.,
MONTREAL.



NEW AND RARE SEEDS

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

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

New Easier Better Spraying

Write For Free Book How to save money, labor, time. Banish blight, disease and insects from orchards, etc. See Brown's Auto Spray. Stylish, compact, durable, capacity—hour-longing Auto Pop Nozzle. 40 other styles and sizes—hand and power outfits.

E. C. Brown Co., 57 Jay St., Rochester, N.Y.



New Cyclopedia of Horticulture

The Canadian Horticulturist is in receipt of the first volume of Prof. L. H. Bailey's New Standard Cyclopedia of Horticulture. The first volume contains some six hundred pages, and if the remaining five volumes of the set equal the standard set by this first volume the set will establish a new standard of excellence for works of this character. This new Cyclopedia of Horticulture (the second edition of the original Cyclopedia) has been freshly written in the light of the most recent research and experience. It is not merely an ordinary revision or corrected edition of the old cyclopedia, but is a new work, with enlarged boundaries geographically and practically. It supersedes and displaces all previous editions or reprints of every kind whatsoever.

It is the fullest and the most authoritative work of its kind and constitutes the most conscientious attempt that has been made to compress the story of our horticultural thought, learning and achievement into one set of books. The text is under alphabetical arrangement and is supplemented by a synopsis of the plant kingdom, a key to identification of species; a list of specific plant names with their meaning translated into English and their pronunciation given; a glossary with definitions of technical terms and a general index. Every name in the cyclopedia is also pronounced in its regular outcry.

In its approximately four thousand genera, fifteen thousand species, forty thousand plant names, in clear and concise arrangement, this cyclopedia opens a knowledge of plants and growing things not to be found in any other horticultural work. It presents the combined labor and experience of the foremost North American authorities on horticultural subjects. The six volumes place at the disposal of the horticulturist, whether practical, amateur or scientific, an account of practically every subject which at any time may be of interest or use in his calling. Its range is wide, covering plants, flowers, vegetables, trees, tillage processes, tools and implements, cultural discussions, botanical history, geography, commercial markets and myriad items that only constant use will reveal. The scope of the volumes has not been confined to botanical subjects alone, but every subject in any way incident to the activities of the horticulturist has been covered, commercially as well as scientifically. The publishers are The Macmillan Company of Canada, Limited, 70 Bond Street, Toronto, Ont.

Mr. Wm. Armstrong, Niagara River Fruit Farm, Ontario, will this season introduce a new fruit package. This package will be a crate holding about one bushel of fruit. It will contain a number of small crates, each holding one dozen or more of say peaches. Each peach will be wrapped so as to expose to view a small portion of each peach in the crate, and thus facilitate immediate inspection by all concerned. This crate will be useful as a cold storage package, as it provides for a free circulation of air through every part. Twenty-five years ago Mr. Armstrong introduced a now thirty-six quart berry crate which proved a success.

The British Columbia Department of Agriculture had one of its representatives give a series of demonstrations of top working apple trees during April in several of the leading fruit districts of the province.

"Twist the Coin"



In Our New Patent **"EASY-OPENING-BOX"** 10 CENTS

The best polishes in the handiest box. Black, Tan and White

THE F. F. DALLEY CO. LTD.
Buffalo, N.Y.
Hamilton, Ont.

2 IN 1 SHOE POLISHES

Beautify and Protect Your Property

Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

Peerless Ornamental Fencing

is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

Send for free catalog. If interested, ask about our farms and poultry fencing. Agents nearly everywhere. Agents wanted in open territory.

Banwell Hoyle Wire Fence Co., Ltd.
Windsor, Mass.—Hamilton, Ont.



EARLY VEGETABLES AND FRUIT

Sold At **HIGHEST PRICES**

We have special facilities that will ensure prompt handling of your Fruit this season. Market information freely supplied.

Write to-day and make arrangements with us.

H. J. ASH

44 Church Street - TORONTO, Ont.



MOST PERFECT MADE

THE INCREASED NUTRITIOUS VALUE OF BREAD MADE IN THE HOME WITH ROYAL YEAST CAKES SHOULD BE SUFFICIENT INCENTIVE TO THE CAREFUL HOUSEWIFE TO GIVE THIS IMPORTANT FOOD ITEM THE ATTENTION TO WHICH IT IS JUSTLY ENTITLED.

HOME BREAD BAKING REDUCES THE HIGH COST OF LIVING BY LESSENING THE AMOUNT OF EXPENSIVE MEATS REQUIRED TO SUPPLY THE NECESSARY NOURISHMENT TO THE BODY.

E. W. GILLETT CO. LTD.
TORONTO, ONT.
WINNIPEG MONTREAL

Back Yard Improvements

E. L. Dyer, Toronto, Ont.

In Toronto, through the efforts of Parks Commissioner Chambers, The Health Department, Civic Guild and Ratepayers' Association, a "clean-up and open-up" campaign has been started, and in some sections, neighbors are cooperating with each other to tear down the shabby, unsanitary, germ-breeding, old wooden fences, and erecting in their place, a neat, handsome, ornamental lawn fence.



How the Back Yards Used to Look

The views here reproduced show the old wooden fence, and two months later, the wonderful improvement and handsome appearance the ornamental fences have made. Here you see unsightly yards transformed into miniature parks. Fresh air and sunshine have full play and the shrubbery, vines and plants are in a healthy, thrifty condition.

An artistic fence like this around a house is like an artistic frame around a painting. It's not absolutely necessary, but nearly so. Home improvements of this nature cost so little, the wonder is that people generally have not adopted them. Modern conditions demand such improvements. Ornamental lawn fences in either iron or wire, are the only logical solution of the city backyard problem.



Improvement Some Ornamental Fences Made

Board fences keep out the sunlight and fresh air, afford a hiding place and dumping ground for garbage and filth, and are unsanitary. In some American cities by-laws against the erection of board fences are in force. Detroit is a notable example. The time is not far distant when Toronto and other cities will have similar by-laws.

Ornamental iron and wire fences let in fresh air and sunshine, and generally have the effect of turning dumping grounds into gardens with flowers, mudholes into green lawns, and transforming "eyesores" into beauty spots. They automatically cause people to obey sanitary laws by making them ashamed to have their back yards revealed as what they are to all who care to look.

A good orchard, well attended, is the most profitable branch of the average farm.—E. E. Adams, Leamington, Ont.

SPECIAL 30 DAY OFFER
BERLIN FIRELESS COOKERS at better than factory prices to you—A Great Big Bargain. 1 compartment, price regular \$8.00, now only \$5.50. 2 compartments, regular price \$12.00, now only \$8.00. Write at once to make sure of yours.
Peerless Cooker Co., Berlin, Ont.

EGG CIRCLE STAMPS

For neat Egg Markers for Circles or Individual Poultrymen

WRITE

W. E. IRONS
115 BAY ST. - TORONTO

A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hard tools while the horses rest. 38 combinations from which to choose at \$1.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.
The McLellan-Williamson Co., Limited
402 Symington Av., Toronto, Can.

HURST MAN POWER SPRAYER
10 DAYS FREE TRIAL 3 YEAR GUARANTEE

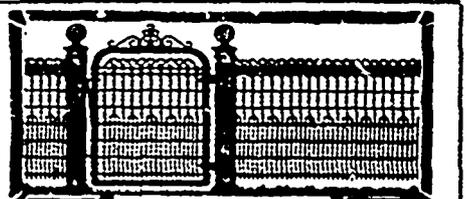
A practical hand machine for field and orchard spraying. Saves time, labor and money. High pressure, perfect agitation. High, wide-tired wheel makes pushing easy. Has long life for hilly country. Made in last. Has been 1-1/2 years, plunger, cylinder, etc., and 10- and 20-gallon fuel-tanks. Much larger capacity than hand sprayer, and costs much less than the horse-power machine. A great crop increaser.

READ THIS OFFER

I will send you this machine on 10 days' trial, without your advancing one cent. If satisfied will keep it and pay on terms to suit. If not, return it back at our expense. WE PAY THE F.R. BILL. This free trial backed by our 3-year guarantee and over 27 years' experience in making sprayers insure you complete satisfaction. Send today for my list.

Free Book and Money Saving Offer

This offer is made to the first buyer in each locality. Write me today—be the first—and I will send the offer and the book in the first possible mail.
E. H. Lamell, Gen'l Manager
H. L. HURST MFG. COMPANY,
9817 North St.
Canton, O.



CYCLONE LAWN FENCE

is the highest grade fence on the market, heavier, stronger and closer spaced than any other—it is heavily galvanized and rust-proof, durable, and made by the exclusive Cyclone method of weaving which makes it rust-proof.

Can be put up on wooden or iron posts; does not require an expert. Is self-adjusting to uneven ground; does not lose its shape.

Cyclone Fence COSTS LESS than inferior makes because it is made in enormous quantities in one of the biggest fence factories on earth.

We carry a full line of Cyclone goods

Ornamental Fences and Gates; Flower bed border, Trellis.

Write **E. L. DYER, The Fence Man**
478 East Wellington St., TORONTO
Please send Catalogue and Prices

Name

Address



A handy pump for farmers

It is a direct lift pump that can be attached to wind mills, a Fairbanks-Morse Eclipse Engine, or operated by hand.

This is one of the least expensive and most efficient of our high grade farm pumps.

Adapted for lifts from 30 to 125 feet. Altogether an ideal pump for any farm—easy to operate—will keep in good repair for years.

Send for free catalogue of pumps and water systems. If you are interested in farm engines, spraying outfits, lighting systems, power and hand tools, scales or mechanical goods of any kind, full particulars will be sent to you on request. Address Dept. No. 43

The Canadian Fairbanks-Morse Co., Limited

Montreal
Quebec
St. John
Fl. Williams

Toronto
Ottawa
Hamilton



Winnipeg
Regina
Saskatoon
Calgary
Edmonton
Vancouver
Victoria

Canada's Departmental House for Mechanical Goods

BEZZO'S FAMOUS PRIZE ASTERS

Prizes New York State Fair, Canadian National Exhibition, Toronto; Berlin Horticultural Society, 1910-11-12-13.

Violet King, Rose King, Royal White, Royal Lavender, Royal Pink, Royal Purple, Rochester Pink, Peerless Pink, Salmon Pink, Improved Oregon Pink, Queen of the Market White or Pink, Branching White, Rose, Pink, Lavender, Crimson, Mikado White. These are very truly the aristocrats of the Aster family. All plants sent by Express (unless otherwise arranged) to any part of Canada and guaranteed to arrive in good condition. Price, \$1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders amounting to more than \$2.00. Special prices to Horticultural Societies. All plants cold frame (not hot-bed) grown, and with favorable weather will be ready last week in May. Order early as the quantity is limited.

C. MORTIMER BEZZO

BERLIN, CANADA

WHILE THEY LAST

In order to clear out the remaining copies on hand of The Canadian Apple Grower's Guide, we are making a clubbing offer with The Canadian Horticulturist of less than half price. This book is written by Linus Woolverton, M.A., and is one of the leading authorities on Fruit Growing, and should be in the library of every fruit grower.

The Canadian Apple Grower's Guide \$1.50

The Canadian Horticulturist 60

Regular Price \$2.10

OUR SPECIAL OFFER, \$1.25

For One New or One Renewal Subscription.

If your subscription expires this month take advantage of this Extra Special Offer when renewing. Write to-day.

Address Book Department

THE CANADIAN HORTICULTURIST

PETERBORO, ONT.

Control of Steamboat Traffic

The Ontario Fruit Growers' Association, through their Transportation Committee and Traffic Officer, Mr. G. E. McIntosh, have for the past two years been carrying on an investigation of facilities afforded by the transportation companies for the handling of the fruit shipments of the province.

Included in a very complete report by Mr. McIntosh on this work presented at the annual meeting of the growers held in Toronto last November, were several recommendations for amendments to the Railway Act, whereby the jurisdiction of the Board of Railway Commissioners would be greatly extended. These were endorsed and submitted to Mr. J. E. Armstrong, the energetic member for East Lambton, who consented to bring them before Parliament.

This was done several weeks ago by Mr. Armstrong, in the introduction of Bill No. 85, the first clause of which compels all steamboats engaged in carrying freight from any port or place in Canada to another port or place in Canada to file their traffic agreements, tolls, classification of freights and traffic, with the Railway Commission. All questions of the places along the line of route where steamboats shall call for traffic, and the time of call, and the duration of stay, shall be subject to the approval and control of the Board.

It is interesting to note that there are over eight thousand boats in Canada which will be affected by this legislation, and of the total tonnage carried by these boats the agriculturists contributed nearly twenty per cent. Figuring the amount spent by the Government in keeping up the waterways, the average cost per ton for lake transportation in Canada in 1913 was 99.37 cents, compared with 55.19 cents for American traffic. It is only reasonable to expect that the people of Canada through the Government and Board of Railway Commissioners, should have a voice in the control of the steamboat companies, when we consider that the capital cost of Canadian canals up to the present time is \$105,656,037, and the cost of maintenance last year alone amounted to \$1,603,080.

For many reasons, therefore, this clause of the Bill is looked upon as one of the most important pieces of legislation advanced during the present session.

Another clause gives the Board control over all privileges and concessions given by any company to any person, the Board having power to order such privilege or concession be discontinued or modified or granted to any other person.

The last clause deals with the shipping of fruit in particular. In years gone by, men have been compelled to see their product, which has been carefully gathered and packed under the regulations of the Fruit Act, thrown in and out of cars and handed in a careless, reckless manner. Of the total shipments last season ten per cent. was damaged or pilfered. The railway and express companies seem utterly incapable to compel their employees to handle these products properly. This unfortunate state of affairs the Bill overcomes by imposing a fine on wilfully destructive employees.

With the adoption of Mr. Armstrong's Bill, one of the most embarrassing shipping problems for the fruit industry will be effectually solved.

That it is a popular piece of legislation is evidenced by the number of Boards of Trade throughout the province which have endorsed it and petitioned the Government

Where does it go?

is the most important question that should be asked, concerning the circulation of any magazine.

It's far more telling from the advertising standpoint than the question "How Many?"

It's quality rather than quantity that counts every time.

The Canadian Horticulturist

offers a high quality service to advertisers. It enters the homes of Canadian fruit growers and beekeepers, who are acknowledged to be the wealthy and progressive rural people of Canada.

When Making Your Plans

for next year, why not decide to include it?

"Ask and ye shall receive" detailed circulation statement and all other information at our disposal.

The Canadian Horticulturist

PETERBORO, ONT.

to have it become law, among the number being Toronto, Hamilton, St. Catharines, London, Saul Ste. Marie, Sarnia and Godrich, while several municipal councils have also sent in their approval.

The first clause of the Bill relative to navigation companies has been included in the Consolidated Railway Act, but the remaining clauses will come before the House again.

How Apples are Sold in Great Britain

Special Correspondent of the Canadian Horticulturist

In the fruit sales rooms of Great Britain a catalogue is made, generally about twenty or thirty barrels going to the lot, each lot of course being numbered. In a straight line of fruit, one may often see twenty or thirty lots of the same class of goods, but in a mixed lot various kinds are sold together in lots of twenty or more different kinds of apples. These mixed lots are not over popular with the buyers and growers should avoid mixtures as far as possible. On no account put two kinds of apples in the same barrel.

Out of each lot, or run of lots, of similar stuff, appearing on the catalogue, one or sometimes two sample barrels are sent up to the saleroom and each one is shot out for the inspection of the buyers as the previous lot is being bid for, so that all may see the quality of the goods all the way through. To save time the samples come up the hoist with the heads of the barrels knocked off, and are immediately turned right out into big baskets. At the end of the sale all the samples are sold together as one lot, and often at a very much lower price than the bulk has made, owing to their having been turned out. As soon as a buyer has bought all he wants he obtains an order from the office for the delivery of his goods in the usual way and is generally allowed a bare week in which to settle, the brokers naturally being very strict on the point of credit, although a firm may be good for very much more than the amount involved.

The selling by private treaty by those salesmen who, either from choice or otherwise, are outside the brokers' ring, does not call for much description. The goods are examined by the prospective buyer and are sold for what they are worth in either large or small parcels according to requirements. No particular selection or sampling takes place, but naturally the best and most perfect stuff makes the best prices. A barrel is perhaps opened here and there in the parcel, but with such dexterity that the goods are not upset nor in any way deteriorated for sale. Mention might be made of the tool used for opening the barrels. It is a short handled hammer of the adze shape, with a claw at one end and a square head at the other. It is very light, but in experienced hands quite powerful enough to get the head off a barrel with two or three well directed blows.

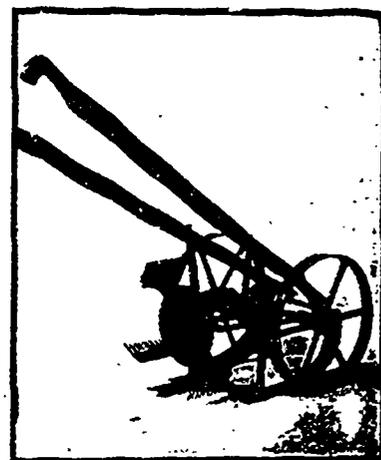
I would like to impress upon growers the vital importance of keeping their packing and grading well up to the standard. Competition is so keen amongst the retail trade, to say nothing of the dealers, that buyers will insist on having the best stuff if they are paying best price, and it is no longer possible to run a lot of inferior stuff in, even if it were politic. Growers should aim at making their own brand the best and most reliable they possibly can, and if they do that consistently there will be no trouble in disposing of the goods at this end, as no one has a better memory for the virtues, and more especially, for the failings of a particular mark than has the buyer.

FRUITLAND NURSERIES

are offering for sale a general assortment of first-class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

G. M. HILL, Box 42, FRUITLAND, ONT.

Onion Growers



Do you intend to have any weeds in your onions this year? If so, ask me for literature which describes a machine that will separate the weeds from the onions, practically doing away with most hand weeding. Don't delay. Act quickly if you want to secure a weeder this season.

R. G. Bruner, Manufacturer
OLINDA, ONT.

Repeat orders are the best recommendation

READ THIS

The Sherwin-Williams Co.
Mgr. Insecticide Dept.
Montreal

Dear Sir:—

I heartily recommend the use of Sherwin-Williams New Process Arsenate of Lead, and in proof of such, kindly accept my order for another 1,000 lbs., to be delivered to us with the 1,000 lbs. that I gave you some time ago.

Yours very truly,

FATHER LEOPOLD

Horticulturist at the Oka Institute, President of the Pomological and Fruit Growers Society of the province of Quebec.

THE SHERWIN-WILLIAMS Co.

of Canada, Limited

MANUFACTURERS OF INSECTICIDES

Offices and Warehouses:

Montreal, Toronto, Winnipeg, Calgary, Vancouver, Halifax, N. S., London, Eng.

Progressive Jones Says:

"Intensive Market-Gardening Means Intensive Fertilizing"

It is intensive market gardening that pays largest profits. If you want to make each plot of ground yield its utmost, I advise you to use Harab Fertilizers.

Harab FERTILIZERS

By fertilizing the Harab way you build up the soil as well as greatly increase and improve your yield. There are many different combinations of Harab Fertilizers, each of which is particularly suited to

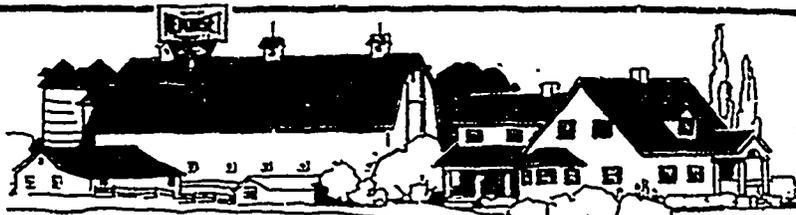
the crop for which it is recommended.

The Harris Abattoir Company will be pleased to send you their useful fertilizer booklet free. Send your name to-day direct to the Company or to nearest agency.



*Yours for bumper crops,
Progressive Jones*

The Harris Abattoir Co., Ltd.
Fertilizer Dept. Strachan Ave.
Toronto, Canada



NEPONSET Paroid Roofing

There's a NEPONSET Roofing for Every Building

GET Neponset Roofings—the "slowly made" kind. Then you are sure to get roofings that are slow to wear out. Then you'll never get a poor roofing when you need a good one.

Neponset Roofings are long on the roof—because long "in the making." This means more than you think. It means this: Maximum protection to your home—your stock—and your pocket-book. Protection against leaks—repairs—and that greatest danger of all—fire. Remarkable "year-in-and-year-out" protection—in cold or hot climates—at a minimum cost—this is the "blanket protection" slowly made Neponset Roofings *invariably* give.

There's a slowly made Neponset Roofing for every purpose. Neponset Paroid is the great roofing for fine farm buildings.

Other Neponset Roofings are—Neponset Shingles for residences; Neponset Proslate, the colored roofing.

Sold by dealers everywhere. Write for name of nearest dealer.

Surely Send for Roof Book—FREE

BIRD & SON (Est. 1795), 962 Heintzman Bldg., Hamilton, Ont.
Montreal St. John, N. B. Winnipeg Vancouver

Also makers of Neponset Wall Board, used in place of laths and plaster, and Neponset Waterproof Building Paper

SOCIETY NOTES

St. Thomas

Dr. Frank E. Bennett, of the St. Thomas Horticultural Society, with his usual enterprise, is organizing a party of enthusiastic horticulturists to visit Rochester on the eve of May 23rd for a couple of days, when the azaleas and rhododendrons are in full bloom. Lilacs will also be out, as well as some late tulips. The Park Superintendent of Rochester reports that this is the best time to see the wonderful sight these flowers present in that city. Parties of ten or more will be able to visit Rochester at the rate of a fare and a third. Several enthusiasts are going from St. Thomas, and it is expected that London will add to the numbers. Any horticulturist who would like to join this party are invited to write direct to Dr. Bennett.

His Royal Highness, The Duke of Connaught, has consented at the request of the St. Thomas Horticultural Society to plant an English oak in one of the parks on the occasion of his visit to St. Thomas on May 6th. The society has purchased a number of rare trees which will shortly be planted in Pinnafore Park.

In the annual report of the Ontario Horticultural Association the name of Mrs. Potts, who gave an address relating to the teaching of horticulture to the children in schools is incorrectly given. It should be Mrs. R. B. Potts, 16 Bruce St., Hamilton. The paper by Mrs. Potts was highly praised when read at the convention. Societies or others desiring to get in touch with Mrs. Potts will be able to do so at the address given.

Items of Interest

An international conference on city planning will be held in Toronto, on May 25th to 27th. During the last five years national conferences on city planning have been held annually in various cities of the United States, and have aroused wide-spread interest. This is the first conference of the kind to be held in Canada. The Dominion and Provincial Governments are contributing to the expense of the proceedings. It is expected that many towns and cities in Canada will be officially represented.

"Gardens of Delight," is the title of a most attractive booklet being distributed by Kelway & Son, the Royal Horticulture Establishment, Langport, Somerset, England. It contains profuse illustrations, many of them beautifully colored, of leading English gardens. The illustrations are a revel-

Chas. E. Woolverton
Landscape Architect
Grimsby, Ontario

THE CLIPPER

There are three things that destroy your lawns—Dandelions, Buck Plantain and Crab Grass. In one use the Clipper will drive them all out. Your dealer should have them—if he has not drop us a line and we will send circulars and prices.

CLIPPER LAWN MOWER CO.
Box 10, Missis, Ill.

ation of the perfection to which the gardening art has attained in England.

Mr. J. J. Kelso, superintendent of Neglected and Dependent Children, Toronto, is planning to place from two to three hundred boys now in industrial homes to work on fruit farms in the Niagara District during the summer months. The money earned by the boys is to go towards the support of poor relatives or to the boys' own bank accounts.

Prof. Lloyd, of McGill University, gave an address recently before the Royal Canadian Institute in Toronto, on "Artificial Ripening of Fruit." In the course of his address he changed a bunch of bananas from a green to a ripe condition in less than an hour, by means of the fumes of a chemical substance. Prof. Lloyd claimed that the flavor, aroma and quality of the fruit were in no way injured, and that one of the greatest benefits to be derived through artificially ripening fruit is the fact that it makes it possible to transport fruit over long distances.

The death occurred recently of Colonel Wm. Windle Pilkington, V.D., D.L. Col. Pilkington was the head of the well known English firm of Pilkington Bros., Limited, who have been regular advertisers in The Canadian Horticulturist for years. This firm is one of the best known firms engaged in the manufacture of glass in the world. The home of the late Colonel Pilkington was St. Helens, England, where for many years he was one of the leaders in all public enterprises, and where he held many important positions.

At an open meeting of the Burlington, Ont., Fruit Growers' Association, held recently, addresses were given by Prof. R. Marcourt, of Guelph, and Mr. W. T. Macoun, Dominion Horticulturist, of the Central Experiment Farm, Ottawa. Mr. Macoun stated that Nova Scotia is producing apples at a lower cost than any other part of Canada. British Columbia cannot and does not grow better fruit than Ontario, but they pack it better, and advertise it much more. A letter from Mr. A. W. Peart, of Burlington, was read dealing with the history of the Association and the great factor it had been in the promotion of horticulture in the district.

An effort made by the United Fruit Companies of Nova Scotia, Limited, to establish a Madison Cooper Plant, for cold storage and pre-cooling purposes this year, had to be abandoned owing to the work having been started too late to make it possible for the company to secure the necessary supply of ice. A cheap method, which it is understood has been successfully operated in various parts of the United States for pre-cooling, will be tried with the ice on hand.

At a meeting of the members of the Fruit Union of Summerland, B.C., held recently, a resolution was passed giving shareholders the privilege of shipping privately to consumers any variety of their fruit or produce providing the quantity does not exceed ten per cent. Growers who ship over ten per cent, will not have the right to expect the Union to handle the balance of their crop of that variety. In addition the directors will make whatever charge per box may be necessary towards meeting the cost of overhead expenses.

Reports from various sections of the Niagara district indicate that the peach crop this year, on account of the mild December, followed by the unusually cold spell during January and February, will be decidedly small.

Deering New Ideal A Money Saving Binder



THESSE Deering binder features appeal to the farmer. The elevator, open at the rear, delivers the grain properly to the binding attachment. Because the elevator projects ahead of the knife it delivers grain to the binder deck straight. A third packer reaches up close to the top of the elevator and delivers the grain to the other two packers. A third discharge arm keeps the bound sheaves free from unbound grain.

The T-shaped cutter bar is almost level with the bottom of the platform and allows the machine to be tilted close to the ground to pick up down and tangled grain without pushing trash in front of the knife. Either smooth section or serrated knives can be used. The Deering knottter surely needs no recommendation.

The Deering local agent will show why Deering New Ideal binders are the standard of binder construction. See him, or, write to the nearest branch house for a catalogue.

International Harvester Company of Canada, Ltd

Hamilton, Ont.
Ottawa, Ont.

London, Ont.
Quebec, P. Q.

Montreal, Que.
St. John, N. B.

These machines are built at Hamilton, Ont.

BEEKEEPERS

The honey season will soon be here. Have you any Bees, Queens, or Bee Supplies for sale? Now is the time to sell them. A small advertisement in the next issue of

THE BEEKEEPER

will bring you ready buyers. Here's what one of our advertisers says:

Dear Sirs

In reply to your letter of the 15th April, we have to request you to take out our advertisement. We have received a large number of replies. It is unnecessary to add that we are very satisfied with The Beekeeper as an advertising medium.

Yours truly

HARTWICK & WHITE

RATES:—1 in 3, \$1.40; 2 inch, \$2.80; 3 inch, \$4.20 per issue
Classified, 3c. per word, each sign or single number counting as one word.

Copy should be received by the 15th May

THE BEEKEEPER, PETERBORO, ONT.

SPRAYERS Are a Necessity and a Benefit.

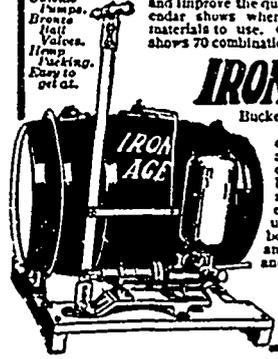
Outside Tanks, Bronze Valve, Heavy Trucking, Easy to get at.

They save your crop, increase the yield and improve the quality. Our Spray Calendar shows when to spray and what materials to use. Our "Spray" booklet shows 70 combinations of

IRON AGE

Bucket, Barrel, Power and Tractor Sprayers for orchard and field crops and other uses. Built complete or in units—buy just what you need. Ask your dealer to show them and let us send you our spray booklet, spray calendar and "Iron Age Farm and Garden News" free.

The Bateman-Wilkinson Co., Limited
165 Symington Av.
Toronto, Can.



FOR SALE AND WANTED

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gavman & Co., St. Catharines.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices
W. W. Dawson Ninety Colborne St. Toronto

SALMON ARM. Shusway Lake, B.C., has the finest fruit and dairy land in B.C. No irrigation necessary: mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. G. Haydock, Salmon Arm, B.C.

I BUY BEES STANDING. Myself pack and load. Owner pockets cash.—F. A. Allen, Phillipsburg East, Que.

BEZZO'S FAMOUS PRIZE ASTERS—Read particulars on page 2.

WANTED FOR THE SEASON—Young Man who has had experience to work as assistant in Queen rearing yard. State experience and wages expected.—John A. McKinnon, Queen Breeder, St. Eugene, Ont.

BUY THE CIRCLER, a new, up-to-date, hand engraved Aluminum leg band for fowl. Fits all sizes, simple, neat and durable. Send 25c for one dozen.—Wm. A. Curry, 28 Water St. E., Brockville, Ont.

WANTED—Primo swarms; hives furnished. Address Box 18, The Canadian Horticulturist and Beekeeper, Peterboro, Ont.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00, 3 to 6, 95c each, 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 55c each, per lb., \$1.50 Nuclei, per frame, \$1.50.—C. B. Bankston, Buffalo, Icon Co., Texas, U.S.A.

FAMOUS NORTH CAROLINA BRED ITALIAN Queens for sale (red clover 3-banded). Honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders; mated with Root's, Moore's, Davis' Select Drones; bees that get the honey. Free from disease. Untested, one, 75c; per doz., \$7.50. Select untested, one, \$1.00; per doz., \$9.00. Tested, one, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 and \$5.00.—H. B. Murray, Liberty, N.C., U.S.A.

FOR SALE—A bargain, one, two and half horse power sprayer. Two seasons in use. Good state of repair. Complete, sixty dollars.—Lawrence Harvey, Wardsville, Ont.

WANT TO SELL YARD OF BEES or some one to run them near Toronto.—J. Alpaugh, Innorkip, Ont.

Top Working Fruit Trees

R. M. Winslow, Provincial Horticulturist, Victoria, B.C.

The fruit growers of the Okanagan Valley have shown a great increase of interest in making remunerative unsuitable varieties of trees by working them over to the best commercial kinds. Inquiries and requests to the Horticultural Branch of the Department of Agriculture have been far more numerous than in any previous year.

While top-working fruit trees, especially apples, is often justified by the increased returns after the new top is well established, there are certain conditions under which it is not advisable. I refer particularly to the top-working of black-hearted trees, or those which have been badly affected by fire blight. The wood of a black-heart tree is brittle, and much of it is dead; decay starts very readily in the cuts made for grafting, and the scions either fail to grow, or if they grow, make a poor union, and eventually break off.

The appearance of a tree severely cut back in the effort to control an attack of blight, naturally suggests top-working to a blight resistant kind. If blight were quiescent or absent from the district, top-working might be feasible, but when blight is active, the inevitable crop of water sprouts furnish the best possible conditions for blight, and effort to save the blighted stock on which to build a new tree is likely to meet entirely with failure.

Aside from blight or black hearted trees there is a large number of sound, healthy and vigorous trees, of non-remunerative or non-productive varieties; these may be grafted over to the better commercial kinds; in fact, it is highly desirable that they should be so treated.

Items of Interest

Sunscaud is found almost entirely in trees having an open habit of growth or where they are headed very high and pruned out severely in the centre.—S. E. Todd, Lake Huron District, Ont.

The use of iced cars for the carriage of fruit is increasing year by year and fruit growers are learning that the question of temperature in transit is of as much importance as the length of time occupied in carrying the fruit from one place to another.—J. A. Ruddick, Dairy Cold Storage Commissioner.

The cooperative purchasing of supplies has built up in our vegetable growers' association a spirit of brotherly love and mutual confidence that has been of untold benefit to us. Our members have increased, our finances have grown (until one year we paid out over one hundred and fifty dollars in prize money), and still had a nice surplus at the end of the year—W. J. Kerr, Ottawa, Ont.

Since the creation of The United Fruit Companies of Nova Scotia, Limited, the fruit industry of Nova Scotia appears to have taken a new lease of life. The company has established a department in The Register, of Berwick, N.S., which is published weekly, and which keeps the fruit growers of the Annapolis Valley fully posted in regard to important matters relating to the fruit industry. This is creating greater confidence among the growers and assisting in bringing about reforms and improvements more rapidly than would otherwise be possible.

Mated pairs of Silver, black and patched foxes for sale.

Also options on 1914 puppies for summer delivery.



JOHN DOWNHAM, "Box N. Strathroy, Ont.

THE
**STRATFORD
EXTENSION
LADDER**

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

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

IF Interested write for Catalogue E

THE
Stratford Mfg. Co.
Limited

STRATFORD, CANADA

Makers of Ladders for every conceivable purpose



If you buy a cheaper Arsenate of Lead "to save money" don't buy any at all and you will save all the money.



TRADE MARK

Neutral Arsenate of Lead

is not made to sell at a low price, but is produced by a process, that gives it qualities which makes it more economical and efficient than the Arsenates selling for less money.

THE
CANADA PAINT CO.
LIMITED

PAINT-VARNISH AND DRY COLOR
MAKERS-LINGEED OIL CRUSHERS
MONTREAL TORONTO WINNIPEG CALGARY HALIFAX
QUÉBEC MINES REDMILL QUEBEC