

Pages Missing

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What Spray Mixtures Shall We Use ?

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

I HAVE been asked several times what spray mixtures I should recommend for fruit trees this coming season. The following in my opinion are the best:

For the dormant spray lime-sulphur, either commercial or home-made. If there is San Jose Scale in the orchard the commercial should not be used weaker than about one gallon diluted to eight, or a specific gravity reading on the hydrometer of 1.032 to 1.035. Weaker solutions often fail to give good results. If there is no scale, either Oyster Shell or San Jose, the wash may be diluted one gallon to eleven or twelve. On peaches this should be applied early before the buds have any more than begun to swell, but on apples or pears it may be applied any time, say from two or three weeks before the buds burst right up to the time they are bursting. On plums and cherries it is better postponed until a few days before the buds burst.

For the second application on apples and pears, which should be just before the blossoms begin to open,—the earliest varieties being sprayed first,—either lime-sulphur of the specific gravity strength of 1.010 or 1.009, which is equivalent to the commercial diluted not more than about one gallon to thirty, or bordeaux mixture four-four-forty, should be used as the fungicide, the latter being given the preference. To each forty gallons of either of these mixtures two or three pounds of paste arsenate of lead should be added as a poison.

To prevent apple scab this application should be done very thoroughly and as near the time advocated as possible. Many tend to overlook the importance of this spraying but after such a bad season for scab as we had last year, the greatest care should be taken this season.

The second application for plums and cherries should be in about a week after the blossoms have fallen or as soon as the fruit is well set. The same mixtures should be used as for apples but in the case of Japanese plums and possibly sweet cherries the lime-sulphur should be a little weaker.

If peaches receive a second application paste arsenate of lead alone, two or three pounds to forty gallons of water should be used when the fruits are formed, and about one-third of an inch in size. The object of this spray is to destroy the plum curculio in the peach.

The third application for apples and

pears should be, especially in the case of apples, as soon as from eighty to ninety per cent. of the blossoms have fallen, beginning with the earliest varieties. By this time the bees will have almost abandoned the trees and gone to other flowers. For this application it is not advisable to use bordeaux mixture for these fruits as it often causes russeting, instead I prefer lime-sulphur of the strength of about 1.008 specific gravity, which is equivalent to one gallon of the commercial diluted to from thirty-five to forty gallons. To every forty gallons of this diluted mixture two pounds of the paste arsenate of lead should be used. More than this is not necessary but does no harm. This is the great application for codling moth and apple scab, and the trees cannot be too thoroughly and promptly sprayed.

For cherries and plums the third application should be about two weeks after the second and the same fixtures as for the second may be used.

If the weather in about ten days after the third application is cold, dark and wet it will be absolutely necessary to

give a fourth application for apples and pears with the same mixtures as for the third, otherwise there will be an attack of apple scab, especially in varieties like Snow and McIntosh. If the weather, however, is dry and warm there is no need for this application except in the far eastern part of the province where it should always be given.

Cherries should receive a fourth application with the above mixture or bordeaux as soon as the fruit is off to prevent leaf spot. Plums that are inclined to rot should be sprayed as late as possible without danger of staining the fruit for market, either lime-sulphur or bordeaux being used. Peaches may receive an application of the so-called self-boiled lime-sulphur about one month after the blossoms fall to ward off brown rot. For method of making this see Spray Calendar or Bulletin 198.

Towards the end of August or in early September cold, wet weather sometimes requires an extra application to keep off late attacks of scab and sooty fungus on apples. I should use the same mixtures as for the third application.



A Power Sprayer Possessing Useful Features

This sprayer starts and stops automatically by means of the pressure. No safety valve is required. The pump only pumps up the pressure when it stops itself.

In the foregoing it will be noticed that I have not included the new spray, Soluble Sulphur, or the powder forms of arsenate of lead. I think that Soluble Sulphur will prove satisfactory against San Jose Scale; it gave me good results on this pest last year, but even for this it would be better to test it further before strongly recommending it. As a summer wash I should advise every grower to be very careful in using it with arsenate of lead as a substitute for lime-sulphur and arsenate of lead. There were not many cases of burning last year from its use but I am not at all sure that under different weather conditions it may not cause serious injury. Therefore, my advice would be to use it only in an experimental way. I doubt very much whether it will prove to be nearly so safe as lime-sulphur or bordeaux mixture. It is a soda sulphur compound, not a lime-sulphur. Further study by chemists as to the reactions that take place when arsenate of lead is added to it may help us to supplement the knowledge we shall soon have obtained as to its safety and efficiency. I do not find that this wash

will kill aphids as claimed by many of its advocates.

As for the powdered forms of arsenate of lead, some experiments in the laboratory tend to show that it will be necessary to test these considerably before recommending them as a substitute for the paste form. The claim that they stay up in suspension much better than the paste form did not seem to be justified either when mixed alone in water or with lime-sulphur. Moreover the sticking qualities were seen to be not quite so good as those of the paste forms, though different makes differ in these respects. The particles are not quite so fine as in the paste. The greater convenience, however, in using, shipping and storing justifies their being used on a small scale by fruit growers.

In conclusion, I should mention that for grapes and potatoes bordeaux mixture should always be used instead of lime-sulphur. For potato beetles most men will get better results from paris green than arsenate of lead. Use from one to two pounds to every forty gallons of bordeaux.

take. Starved trees usually produce poor crops of small size fruit.

Select land with elevation for air drainage. Dead or stagnating air is as sure to foster diseases of trees and fruits as of human beings or live stock. Low lands cannot produce fruits of highest color, free from fungous injury. Actual elevation above sea level is not nearly as important as relative elevation, above immediate surroundings.

Plant the orchard in soil with good water drainage. A tree cannot thrive with wet feet any more, than can a man. Wet soil means poor growth, diseased trees, and small, pale, insipid fruit. If your orchard has been planted in wet soil, nothing will pay better in the production of fruit of quality and quantity than to drain it well.

Plant good varieties, and top-work the older trees of poor varieties if they are vigorous enough. In an orchard there will be no figs from thistles, and no Rome Beauty or Stayman Winesap from Smith Cider or Ben Davis.

In any region plant only those varieties that do best there. It would be a mistake to reduce the quality of the ensuing product by planting the Spy in the Albemarle region, or the Rome Beauty in the Snow region, however excellent each of these may be when grown "at home."

Plant only healthy trees from reliable nurserymen, but pay no attention to the "old foggy" notion that hardy trees are to be obtained only from the north or young-bearing trees only from the south.

Plant at such distance between trees as to permit abundant growth without crowding, and also provide for the spreading of low broad tops, without that crowding and shading which must result in light-colored fungus-specked fruits.

Help to obtain color by so pruning as to grow low, open spreading tops. Top back old tall trees to spreading branches. Get sunshine and air to each fruit, if possible, to give color and flavor.

Obtain color by (a) growing in suitable soil, (b) at some elevation, (c) with potash and phosphoric acid fertilizers, (d) reducing the nitrogen so as to avoid too rank growth where greater color is wanted, (e) not cultivating too late in the season, and (f) not pushing too much leafy growth by severe dormant pruning, but (g) remove superfluous small growth by judicious midsummer pruning.

Strive for uniformity of color by adopting a definite, uniform system of pruning that will keep the tops open and spreading; avoid dense masses of foliage or such arrangement of branches as will close and become dense by weight of fruit; adopt a system of uniform feeding.

Better Fruits at Less Cost *

Prof. H. A. Surface, Pennsylvania

The two points involved in this topic are, first, the production of fruits of higher quality, and second, the reduction of the cost of production.

Before proceeding far upon a discussion of quality, we should establish a definite basis by defining this much abused word. Perhaps we should go farther back and explain what quality is not. Therefore, we are prepared to say that quality does not mean huge size. Compare a Jonathan apple with a Wolf River, for example. Neither does this word mean the production of giants within any one variety. Let it be remembered that the scoring rules of the American Pomological Society properly provide for the scoring down of specimens of any variety if they are over size, or above a fair standard.

Quality is not red color. Compare Ben Davis and Grimes. Neither is it fine appearance alone. Compare a western boxed apple of any variety with a roughly-handled eastern grown Northern Spy, Baldwin, McIntosh, Tompkins, King, Grimes, Jonathan, or Stayman Winesap. Neither is quality produced by boxing what should be put into a barrel. Neither is it to be found in naturally low grade or mediocre varieties.

Quality in fruits is an epitome of those desirable features embraced in pleasing flavor; fair, uniform size for a certain variety; good, uniform color for the variety; freedom from injury by insects, or

by fungous diseases, and the absence of artificial injury, such as bruises.

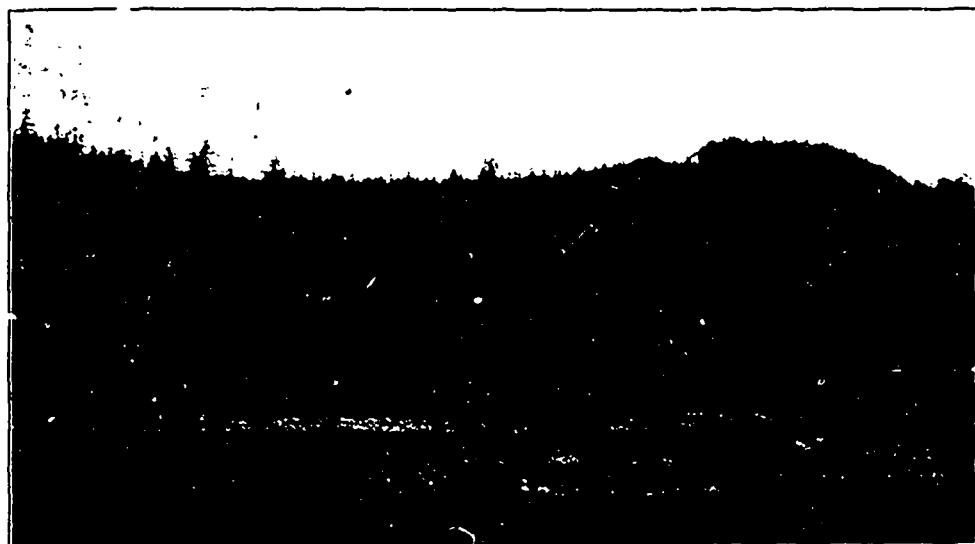
Now comes the very important question: "Will one-tenth of our fruits measure up to this standard?" and the more important reply, that the average of the crop for America does not. Why not? Because there are more persons growing fruit trees who absolutely neglect them, producing nothing but culls and seconds, than there are who attempt to care for them and produce a first-grade product. We have shown in the demonstration orchards of the Bureau of Zoology of the Pennsylvania Department of Agriculture, trees bearing apples ninety-eight per cent. free from worms, which but two years ago produced fruit ninety-five per cent. wormy. The difference is due chiefly to negligence on the one hand, and care on the other.

With all orchardists the greatest problems involve the questions of how to improve quality, and how to reduce cost. To such men we venture to speak from personal experience in our own orchards which are, we believe, the largest in the Keystone State, and which produced, this year, carloads of fancy fruits that sold at record prices.

ESSENTIALS TO SUCCESS

To produce fruit of better quality, first select "fruit soil." This must be deep, loose, and originally fertile. This produces good growth and large fruits. The "abandoned farm" proposition for successful fruit growing is generally a mis-

*Extract from an address delivered before the Niagara District Fruit Growers' Association



Orchard of W. Palmer, near Victoria, B. C., in 1903

The trees are such more whips as to be practically indistinguishable.

Where growth is liable to be too rank, and thus reduce color, as it usual on low or damp ground, or where dormant pruning has been too severe, manuring too heavy, or cultivation too long continued, better color for any one season may be obtained by summer pruning.

SECURE PROPER SIZE

Obtain size by those methods that give strong leaf and twig growth, and by thinning: but, in so doing, avoid producing that extreme rankness of growth which detracts from color of fruit. Do

this by (a) securing a fertile soil, (b) by retaining moisture by mulching or by cultivation and cover crops, (c) by replacing removed fertility and organic matter by commercial fertilizers, manure and cover crops, especially the legumes, (d) by stimulating growth when needed by dormant pruning, and (e) by thinning early and vigorously, and (f) by keeping the leaves healthy through spraying with proper insecticides and fungicides. Healthy leaves mean large, healthy, late fruit.

Pears and Pear Culture

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

IF one were to listen to a fruit grower giving his experiences with twig or pear blight, the sad experiences that had spelled disaster, one would naturally be under the impression that there was not the least chance to make pear growing profitable. The writer remembers very clearly listening to such an experience. The grower said: "Why, do you know, the thing kills them in a night," and it does as far as their knowledge is concerned. The truth, however, is that pear blight can be controlled, and is being kept in check to-day. Those who contemplate growing pears should not start unless they do so with a thorough knowledge of this bacterial disease, and a strong determination to control it. If one does this, there is money to be made in pears.

The pear situation is taking on brighter prospects. In the past fifteen years pear growing has been a doubtful business for many an average grower, simply because of their neglect to give proper attention to the work. We do not hear of pear orchards being planted to such a large extent as some of the other fruits that are not nearly so popular with the consumer. This is on account of

there having been a very suspicious sentiment held against this industry because of a few negligent fruit growers. This condition is diminishing. Fruit growers have begun to awaken to the fact that there is money in pears when judicious care, systematic pruning and thinning, and the proper food elements are given to the producing tree.

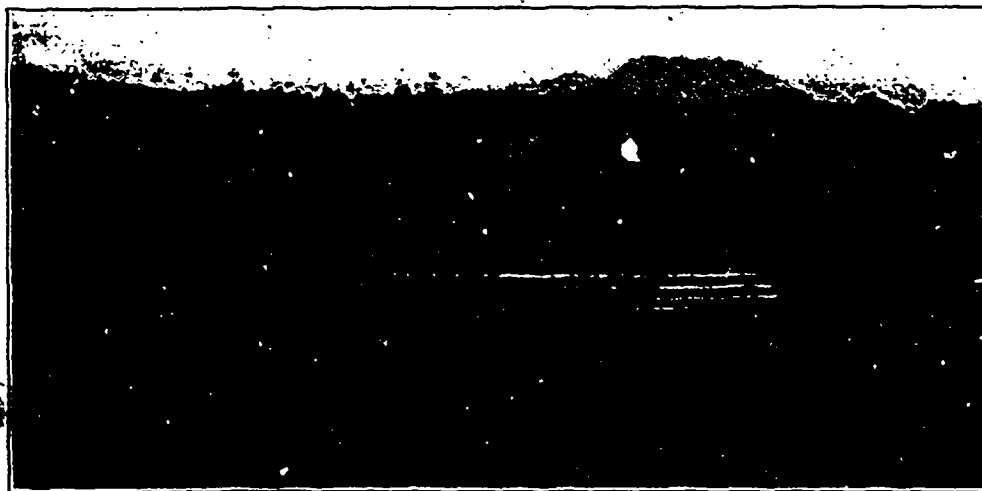
The pear is a fruit that will grow in a

large geographical area. In Ontario there is hardly a section in the older portion of the province where the pear will not thrive. I cannot vouch for the ability of this fruit to withstand the severe low temperature of the northern parts.

There is nothing to be gained by planting a large number of varieties of pears. The consumer should be encouraged to purchase nothing but the best, and the grower should strive to produce a high class article. There is a steadily growing demand for the very best, and it should be the ideal of every grower to produce this grade and place on sale this grade only. There is nothing to be gained by the man who tries to undersell a man who has a good uniform article, no matter what the competition may be. The best article will always command the very highest price, and sell first.

Plant just a few, well selected varieties, that are strong, hardy trees and which bear uniformly every year. The best to plant would include pears that would bear one after the other, so that all the crop would not have to be harvested at once. Among the varieties that are seemingly the best, judging from the experience of various growers, are such varieties as Bartlett, Kieffer, Anjou, Duchess, Bosc and Clapp's Favorite.

Like many other lines of agriculture, the pear should be chosen to suit the market, location, and the demand from outside sources. Some markets have very little use for certain varieties, while for export or canning purposes there is a steady demand for such varieties as the Kieffer. For the city trade there is some demand for an early fruit, which would naturally be the Clapp's Favorite. If one wants a good all-round pear that is a universal favorite with the purchasing public and a profit producer for the grower, there is nothing like the Bartlett. It has one strong characteristic that distin-



The Orchard of Mr. W. Palmer in 1913

Note the difference in ten years in the growth of the trees.



Pruning in Orchard of T. W. Palmer, Victoria, B.C.

guishes it from all other varieties, that is its adaptability to soils and location. Its demands for soil conditions are few compared with those of some of the other varieties. If one were to plant Bartlett's as their chief crop, then Keiffer, Duchess, Anjou and the Bosc for winter fruit, they would have a good combination.

The pear is not very exacting as to soil conditions. There is, however, one very

important point in selecting a location. Choose a soil that will produce a slow-growing tree. This is a very essential factor in pear growing. Neglect to attend to it has often spelled disaster for pear growers. The pear tree should be a slow growing tree. The pear tree that grows rapidly is very tender. This condition is conducive to pear blight. On the other hand, the slow, sturdy growing tree often wards off attacks of this disease, and is sure to put up a stronger fight for existence.

The pruning of the tree is another essential factor in the successful pear business. The trees should be headed low, with an open centre. Some growers make it a practice to cut back each year's growth after the tree has come into the bearing stage of life. By following out this method they argue that they can obtain the fruit near the centre of the tree. One must remember that in all pruning operations, where severe pruning is practiced, it encourages strong wood growth. This naturally increases the amount of labor each year for the pruning of the orchard. Some of the varieties, such as the Anjou and the Bosc, are spreading in their natural growth. If they are planted closer than twenty-three feet they are apt to crowd, which will necessitate unnecessary pruning. The other varieties are more upright in their growth and consequently can be put close together. The distance of planting is governed by the nature of the soil and variety.

A Last Season's Test of Soluble Sulphur

J. G. Mitchell, Clarksburg, Ont.

SOME seven years ago I was induced to experiment with what at that time was considered a new spray, lime sulphur. As soon as I heard of this spray, I felt confident that it should soon do away with the troublesome bordeaux mixture. The professors at Guelph said that it was not safe to use as a summer spray, and practically forbade its use, but the splendid results obtained with lime sulphur over the old spray were so pronounced that the following season it was strongly recommended by growers and professors, and became the standard as a fungicide.

However, growers have been asking and hoping that some more convenient way of using the sulphur spray would be devised and we now have this in the latest form called "Soluble Sulphur." In my opinion it is just as much superior to lime sulphur solution as the latter is to the old bordeaux spray.

In the way of convenience there is no comparison. I always used to dread the loading and unloading of the heavy six hundred pound barrels of lime sulphur, and the men would nearly go on strike

when asked to handle it. Last year I got the spraying done for about half what it cost the previous year. I used two barrels of the lime sulphur solution and soluble sulphur for the rest of the spraying. As soon as we used the first hundred pounds of soluble sulphur, I could see there was no use asking the men to go back to the old spray. We had absolutely no trouble with nozzles clogging and never had a stoppage from the time we commenced using soluble sulphur.

Of course I insisted on the spray tank being cleaned out every night, all the water being strained, and a screen kept over the feed pipe to the pump. We filled the spray tank about half full of water, then put in our soluble sulphur, eight to ten pounds to forty gallons. This was well agitated by the time the tank was filled. We put this spray on just as the buds were bursting, in fact on some trees the blossoms were nearly open. In the summer spray we used from one to two pounds to forty gallons of water, putting the soluble sulphur in when the spray tank was half full of water, and

adding arsenate of lead last, two and a half pounds to forty gallons. Doing it in this way there is absolutely no trouble. Where aphid appeared in our orchards we used nearly two pounds of soluble sulphur to forty gallons for summer spray, and only about one pound in orchards where there was no aphid. Scab and fungi were controlled perfectly in all our orchards. I do not consider it necessary to use the mixture stronger than one and a half pounds to forty gallons, except for aphid.

Our McIntosh Red apples were absolutely clean and beautifully colored; ninety-nine apples out of every hundred went into number one boxes. The Greenings were just as nice, having a lovely bright glossy appearance. If these varieties come out in this way there is no need to worry about others. We also had good results in fighting aphid, having practically no loss from this pest, while in 1912, when we used lime sulphur, our loss was well up to two thousand dollars.

It is now a recognized fact that soluble sulphur is bound to take the place of the old material. It is just as efficient as a fungicide, if not better, than lime sulphur, and is so much more convenient that every grower should be made thoroughly acquainted with it.

Varieties of Currants and Gooseberries*

L. B. Henry, B.S.A., Windsor, Ont.

The best varieties of black currants are Naples, Champion, and Victoria. The Naples is a strong, upright, vigorous bush, healthy and very productive, and the berry is large, of good quality, and borne on short clusters. It is probably the most widely planted in Ontario.

The Champion is a very good variety. The bush does not become as large as the Naples, but it is productive and quite hardy. The fruit does not ripen uniformly, and is five days to a week later than the former variety. Victoria is vigorous and hardy, but from my experience is not as productive as Naples or Champion.

There are many varieties of red currants. A few of the best ones are Cherry, Fay, Prince Albert, Chataqua, Perfection, and Raby Castle. The Cherry is the principal red currant grown in southern Ontario for commercial purposes. The berry is large and the bunch short and compact, and the bush very productive.

Fay's Prolific has been widely advertised as superior to the Cherry, but is very similar in fruit and productiveness, the bunch being a little longer, but loose towards the base.

The bush of the Prince Albert is a

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

poor grower while young,, but becomes more vigorous and productive with age. The berry is medium in size and very acid.

Chatauqua has the same fault as the Prince Albert, being a very slow grower when young, but very productive. The berry is large, light red, and the seeds are very large.

Perfection is a cross between White Grape and Fay's. The berry is very large, clusters are long and a beautiful bright red. Ripens with Fay's.

Raby Castle or Victoria is exceedingly productive, but is rather out of favor on account of its small size, larger currants having a preference on the market.

GOOSEBERRIES

People have been planting gooseberries extensively during the past few years, and at present prices they are profitable. Up to a few years ago the preference was for American varieties on account of their resistance to mildew, but recently, in the light of improved spraying methods, the English varieties have been largely planted. On the whole the latter sorts are much larger, but not of better quality.

There are innumerable varieties of English gooseberries, but only a few are grown commercially in Ontario, among the best being Industry, Lancashire Lad, Crown Bob, Keepsake, and Whitesmith. The Industry is a vigorous, upright grower and a heavy cropper. The berry is red when ripe, hairy, and has a pleasant, rich flavor. Lancashire Lad is not as strong a grower as Industry, nor as heavy a bearer. The berry is smooth and roundish-oblong, of medium size.

Crown Bob is another red berry favored by some, but we pulled ours all out, as they were poor growers and shed their leaves prematurely. The fruit is large, oblong, and hairy. The Keepsake is a large, straw-colored berry of excellent flavor, and can be pulled very early for green gooseberries. The Whitesmith, in my opinion, is the best of them all. It is very vigorous and an excellent bearer of large, oblong, smooth, greenish-white berries, the ribs of which are plainly marked.

There are practically only three American varieties that are worth planting commercially, namely, Pearl, Downing, and Smith's Improved. The Pearl is an exceedingly productive variety of good size and quality. It is as productive as Houghton, and larger than Downing. The Downing produces large, roundish, light green fruit which has distinct veins and a smooth skin. The bush is vigorous and productive. The Smith's Improved is a vigorous grower, and the berry is larger, oval, light green, and has a bloom. The flesh is moderately firm.

A Perennial Border at Small Cost

H.R.H., Que.

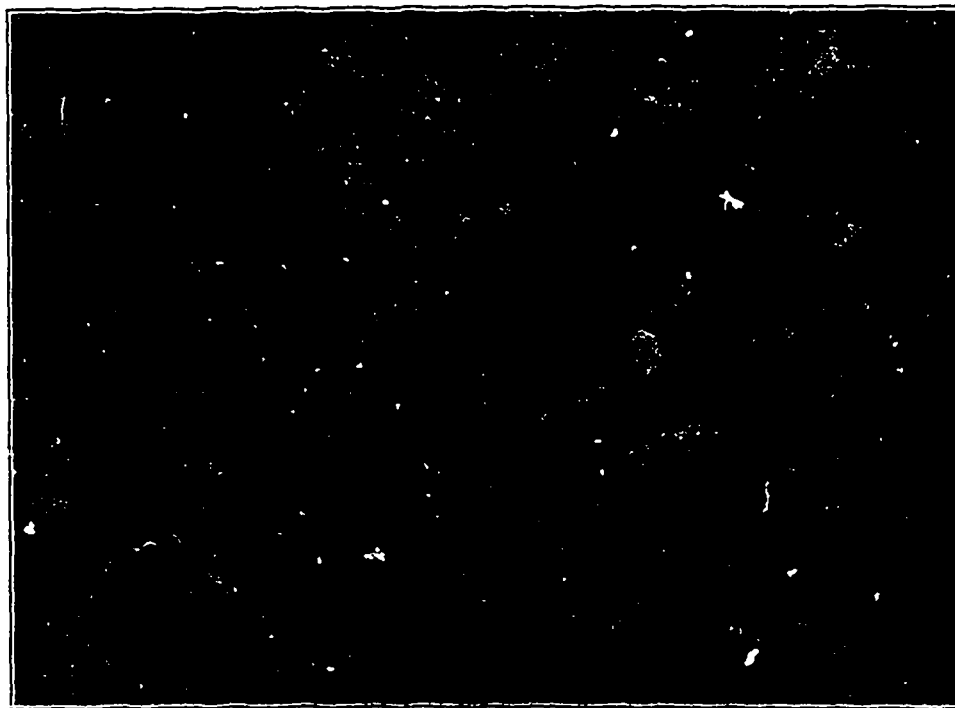
THE perennial border is a "thing of beauty" which is within the reach of every garden-maker, and yet, except in very large gardens tended by professional gardeners, very few successful ones are seen. Many amateurs shrink from undertaking a perennial bed for the same reasons which for many years caused me to confine my horticultural efforts to the cultivation of annuals, in spite of the fact that these require much more care and attention and reward one's best care but for a single season. These reasons are, firstly, the by no means trifling expense of establishing a well-filled bed of good perennial plants; and secondly, the mental vision of a semi-naked bit of garden forming an eyesore during the two or three years that must elapse before the plants grow to sufficient size to cover the ground and produce the abundance of bloom desired. As an amateur who has successfully overcome both these difficulties I should like to give others the benefit and encouragement of my experience.

Having decided that I would have a perennial border, and having likewise determined that the cost must not be great, I started operations in the fall, marking out my bed along the west side of my lot, a length of eighty feet, and making the bed eight feet wide. This area I had dug up and the soil thoroughly worked to a depth of three feet. A large load of well rotted manure was distributed over the surface and dug into the soil, then the bed was raked over

and made ready for the fall setting-in of plants. Spring planting, of course, is often practised.

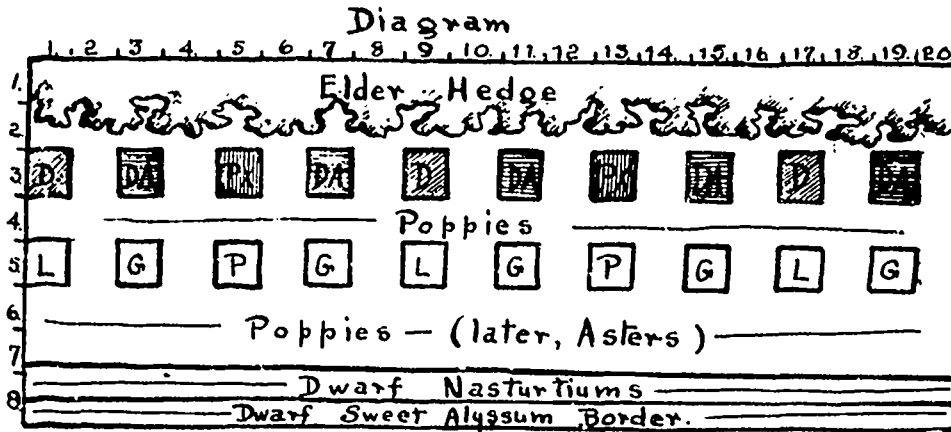
Behind the bed was an ugly wire fence separating my lot from that of my neighbor; to cover this completely, permanently and promptly was my first problem, and a serious one it proved, for to buy enough plants to set out a hedge eighty feet long involved too much expense, and the plants would take several years to grow to the height required to conceal the fence and form an adequate background for my border. After careful consideration I decided to plant a thick row of common elder which grows wild in large quantities in most parts of the country, and is extremely easy of cultivation. A man with a cart dug, hauled and planted, with my supervision and assistance, enough thrifty young bushes to line the entire fence; every single root grew and flourished, and, the following season, formed a complete screen of its own peculiarly effective, light green foliage, surmounted with white blossoms and later with clusters of red berries. The result has given me cause for much self-congratulation. By the time my background was established, the perennial roots and plants I had ordered from the seedsmen had arrived, and these were duly set out in their allotted positions, as shown in the diagram. The supply was modest, not to say meagre, considering the extent of the bed. It consisted of:

Ten large-sized delphinium roots, ten



A Veteran Amateur Gardener: Mr. J. G. Graham, St. Thomas, Ont.

Mr. Graham was awarded first prize last year for his vegetable garden, in a contest conducted by the St. Thomas Horticultural Society.



D = Delphinium
DA = Dahlia

P = Peony
PX = Phlox

L = Lily
G = Gladiolus.

paenies, ten phloxes, ten lilies, twenty dahlias, and twenty gladiolus bulbs.

The gladioli and dahlias were saved for spring planting; the rest were planted immediately and, the fall work being now completed, I staked, labelled, and mulched the various plants in preparation for their winter rest.

Early in April the mulching was removed; every one of my plants had survived the winter and sent up fine strong shoots. I had the bed covered once more with a layer of good manure and dug it in thoroughly, being careful not to disturb the plants, after which I worked and pulverized the top soil and smoothed the surface ready for planting. The last week in April I put the gladioli bulbs and dahlia tubers into the ground and on the first of May I planted quantities of poppy seed, the pompon variety, just scattering it and raking it lightly into the ground, between and around the perennials and in a solid strip two feet wide in front of them. It was a risk planting poppies so early in this climate, but I had plenty of seed saved from my own garden the previous year and could replant if the frost cut down the first seedlings. Fortunately they were spared, and I consequently had poppies in bloom nearly a fortnight earlier than usual.

In front of the poppies I planted a single, perfectly straight row of dwarf nasturtiums, and at the edge of the bed as a border I set out plants of dwarf sweet alyssum. These latter I had planted early in March in the house and later transferred to the hotbed so that at the time of setting out they were already starting to bloom and kept right on without setback, making a solid white border from the middle of May until after the heavy fall frosts had killed every other flower in the garden.

By the middle of May, when the poppies were up, the bed was well covered with green, besides the alyssum, a few paenies were in blossom, the delphin-

iums were sending up promising flower spikes and the border began to be attractive to the eye. It was quite contrary to all rules and to my better judgment to allow the paenies and delphiniums to bloom the first year after setting out, but it was very gratifying to see something of what was coming, and served to encourage my efforts.

The real show began about the middle of June when the pompon poppies came into bloom, and for nearly three weeks they were one glorious profusion of beautiful paenony-like flowers forming one of the most magnificent masses of color that I have ever seen, and that, too, at a time of the year which, in this part of the country, is an "off season" in the flower garden. Earlier we depend upon the paenies, delphiniums, and spring-flowering bulbs for massed color effects; later we have phlox, asters, nasturtiums, dahlias and a wealth of other heavy bloomers, but in between are a couple of weeks when the poppies fill a felt want and are almost alone.

As soon as the glory of the poppy-bed began to show signs of departing, and the plants began to yellow at the base, although many were still in blossom, I ruthlessly rooted up every poppy plant, worked a little more fertilizer into the soil and set out in their place the asters which I had planted in the house early in March, cherished in the hotbed, and finally potted off and plunged into a cold frame to await their turn in the border. By this time, the first of July, the plants were already branching freely in preparation for the flowering season, and, receiving no setback from careful transplanting, they were soon in bloom, and gave abundance of beautiful flowers from mid-July till killed by severe frosts in the late fall. They were of the Ostrich Plume variety which, to my mind, are the most satisfactory where a long-continued, showy mass of bloom is desired—I have counted forty to sixty good flowers on a single plant.

In the meantime the dahlias, phlox, gladioli, and lilies grew and blossomed, making a very fair show indeed for the first year's planting, while the dwarf nasturtiums, according to their wont, almost obscured their own foliage completely with their wealth of blossom, throughout the entire season.

At no time from May to late October did my border fail to show abundant color. A study of the accompanying diagram will show how, by careful planning and taking into account the habit of growth of each variety the plants were placed quite close to one another without, in the least, interfering with one another above ground or crowding each other for root room. Of course, care should always be taken to see that taller-growing sorts be placed behind those of smaller growth so as not to obscure them, also that deep-rooted plants be alternated with those requiring little or shallow root room; finally one should plan to have plants flowering at the same season to harmonize in color so as not to "kill" one another. For that reason I have not yet ventured to introduce into my border the gorgeous oriental poppy which I have known to ruin many otherwise charming borders of more delicately tinted flowers.

SUCCESSION OF BLOOM

The following table will show the succession of bloom: Late May and June, delphineums, paenies, alyssum, poppies; July, nasturtiums, dahlias, alyssum, gladioli, asters; August, asters, alyssum, elder hedge, lilies, dahlias, nasturtiums; September and October, asters, alyssum, nasturtiums, dahlias, phlox.

Now to consider the cost of that eighty-foot bed: Two loads manure, five dollars; digging of ground in fall, two dollars fifty cents; hired help on elder hedge, two dollars; ten delphineum plants, one dollar twenty-five cents; ten phlox plants, one dollar fifty cents; ten paenony plants, two dollars fifty cents; ten lilies, one dollar; twenty gladiolus bulbs, one dollar fifty cents; twenty dahlia tubers, three dollars fifty cents; seeds, one dollar; total, twenty-one dollars seventy-five cents.

Thus at the small initial cost of twenty-one dollars seventy-five cents (which could have been even more reduced had I been willing to wait a year or two and raised some of the plants from seed) I established an entirely satisfactory perennial bed eighty feet by eight feet which made a splendid showing from the very first year of planting, and which has greatly increased in beauty and value during the two years that have passed since it was planted.

In the meantime, in a sheltered, sunny corner of the kitchen garden, I established

ed a little nursery, out of which I got more enjoyment to the square inch than from any other spot on the place. Here I raised rows upon rows of thrifty perennial plantlets, delphineums, shasta daisies, perennial chrysanthemums, Canterbury bells, gypsophila (baby's breath), foxgloves, and many others, which, as

they became large enough, I transplanted to the perennial bed, so that now, after three years, I have my border filled to overflowing, and could do away entirely with the annuals, although I still reserve a strip in front of the bed for the gorgeous, annual display of poppies, succeeded by an equally beautiful

display of asters, and I still outline the border with the staunch alyssum. The result every season is a bed which is the object of interest and admiration to every passerby, as well as the unfailing source of supply for cut flowers throughout the summer, and so a joy also even to my most distant friends.

Orchids: the Goddesses of the Flower Families

F. E. Buck, C.E.F., Ottawa, Ont.

ALD. J. A. ELLIS, M.L.A., of Ottawa, is one of the very few men in Canada who has grown orchids successfully. As an amateur who has grown them for many years he speaks appreciatively of the rewards they have given him.

On the occasion a short time ago of a visit to his home to see his plants, I asked him if he did not experience a good deal of pleasure in being able to grow the flowers of a millionaire on the income of an ordinary man. To this he replied that the flowers which could be grown with the very minimum of care and with a maximum of results, were orchids. He added, of course, that this is provided one does not attempt the high temperature section, or some of the expensive varieties which are often less beautiful than those of reasonable price.

"As a matter of fact," said Mr. Ellis, "I haven't spent a cent on orchids for the past five years. Some of the plants I have to-day are those I began with many years ago. Of course they have increased, as most orchids do, until to-day the increase of some has been perhaps fifty-fold."

Mr. Ellis took me into several rooms of the house where orchids were used for table decorations, and similar purposes, instead of palms or ferns. He remarked about one fine flowering plant that "it had been brought out of the greenhouse when it started to bloom three weeks ago, and was good for another month, when another one from the greenhouse would take its place." Varieties which flower in winter are his choice, because, as he says, "in the summer there are plenty of flowers in the garden which can be used as cut flowers in the house."

WHY ORCHIDS

Orchids are seldom grown. Most people think that they cannot be grown by the amateur, or that they are the flowers of the millionaire. Such opinions in some cases are well founded, although only in some cases. The experience of Mr. Ellis and others who have grown them, refute such an idea. Actually there is a strong case in favor of the orchid as a plant for home use, and especially for the winter season. The case is supported by the following facts:

First: Orchids require a minimum of care and attention.

Second: The expense of growing orchids is not prohibitive, and after one has started, less than that of other plants.

Third: As suitable house plants, wonderful in their beauty of coloring and charm of form, they are unsurpassed.

WHY EXPENSIVE

The varieties which the amateur should attempt to grow are not expensive, but rare varieties fetch sums which only a millionaire could dream of giving for them. Such varieties are bought on the same basis as curios are bought, to add to priceless collections. Some few years ago I was visiting a commercial establishment which has a fine collection of orchids, and in discussing prices with the manager I was told this: That a short time before his firm made a purchase of several hundred bulbs, paying, I think, on the average about a dollar apiece for them. In this collection were one or two rare plants. About the time they were in bloom another orchid specialist visited this collection and asked to be given a price on two of the rare plants. One

was quoted to him at seventy-five dollars, and the other, a very beautiful plant, at one hundred and fifty dollars. He bought them at these prices and a few months later the one hundred and fifty dollar plant was shown by him at a world-famed exhibition where it took the first prize, and was then sold to some admiring rich man for five hundred dollars. An incident like this explains high prices, but the amateur is not to be frightened by such incidents, and they should not keep him from trying his hand at a most interesting, even if sometimes a rich man's hobby.

There are three essentials to success in growing orchids. Should you be able to supply these essentials try a few orchids.

First: The greenhouse, or that part of it set aside for the orchids, must always be heated to a temperature ranging from 55 degrees F. to 70 degrees F. It would prove fatal to the plants if it fell below 45 degrees F. We shall see why, later.

Second: Proper ventilation must be provided. But it must be provided so



The Vine, *Clematis Paniculata*, Growing on the Residence of Mr. Herman Simmers, Toronto, Ont.

This is an easy growing, hardy, free flowering, fragrant climber. The vine on the verandah is a *Clematis Virginiana*, a rapid growing, very hardy, native variety of *Clematis*. It is not as nice a vine nor has it as fine foliage as the *Paniculata*.



Lady's Slipper or Showy Orchid

that the cold air of winter is warmed before it reaches the plants.

Third: A method of watering must be followed which is not too far removed from Nature's method of supplying water to these plants.

As one writer says, "common sense" is necessary for success in growing orchids. And what common sense does is to recognize that orchids are wonderful and "to be desired" plants, which can be grown quite easily if we provide for them a few simple conditions. In other words as Mr. Ellis says, we must appreciate the fact that the habitat from which they come is quite different to what it is in the case of most flowers.

TREAT ORCHIDS REASONABLY

Orchids come from damp, swampy places, where the air is humid, the temperature never cold, and the soil a particular type. They grow on dead trees and the like,—in many cases at least, and their roots never feed in ordinary soil. In practice we find that peat will answer as the best material in which they will thrive. With regard to water, they like it with the chill off, in fact they must have it so, they can't stand the cold bath. And then, if a nice warm balmy atmosphere is supplied they will blossom as if they felt all the better for the change. In fact they like to be tamed if they are not poorly treated, or "herded with the common herd of plants." They soon forget their native haunts, especially those varieties which have been reared under strange conditions. Many of the children of the older races, the hybrids, are most beautiful, in fact so beautiful that one feels like acknowledging that perhaps they are the very angels and goddesses of the flower world.

POINTS IN ORCHID CULTURE

Orchids need very little attention.

Orchids are generally free from insects. Orchids need re-potting only about once in three years.

Orchids do not need to be trimmed up, or fussed over like other plants.

Orchids have healthy and fairly attractive leaves when not in bloom.

"Orchids," says Mr. Ellis, "are easier to grow than fuchsias, begonias or geraniums.

ESSENTIALS TO SUCCESS

A correct temperature; from fifty-five to seventy degrees in summer, and from forty-five to seventy-five degrees in winter.

Shade from the strong rays of the summer sun.

Abundant moisture, especially in summer, in winter, watering with tepid water twice or three times a week is sufficient.

Abundant fresh air secured by a good ventilation system.

When these four conditions are provided for orchids, a general condition approximating that which exists in their native haunts is secured. Success is then practically certain.

Never take a chance during cold snaps in winter. Watch the temperature. Any temperature below forty-five degrees is fatal, even for one night.

For watering, Mr. Ellis has an attachment to the kitchen heater, similar to those used in bathrooms. He warms the water by the turn of a tap. This is an ideal plan.

The floor, or part of the floor, of the greenhouse should be earth. This will keep the air humid.

Pots, cribs, or baskets may be used in which to grow orchids. If pots are used they must be well drained.

Soil is seldom used; in its stead, peat, moss, or fern-fibre are used.

Excessive heat and drought are both to be carefully avoided.

The night temperature for orchids should be about ten degrees lower than the day temperature.

VARIETIES FOR THE BEGINNER

In the matter of varieties; Mr. Ellis grows only those which will bloom in winter. Of these he has tried about fifty different varieties. The following are recommended by him:

First best six—*Cattleya Trianae* or *Labiata*, *Cattleya Schroderae*, *Oncidium varicosum* *Rogersii*, *Odontoglossum grande*, *Laelia Anceps*, *Cypridium insigne*.

Second best six—*Cypridium nitens*, *Laelia autumnale*, *Oncidium Forbesii*, *Vanda coerulea*, *Lycaste Skinneri*, *Laelia praestans*.

To enrich the lawn and cause a more luxuriant growth, there is nothing better than raw bone meal evenly strewn over the surface at the rate of ten pounds to three hundred square feet. Or one of the many patent lawn enrichers may be used in the same manner. A brisk going over with a sharp steel rake should follow application of enricher or bone.

Planting Roses and the Time

Jas M. Bryson, Toronto, Ont.

The planting of roses should always be deferred until the soil is in a proper condition to receive the plants. There is no greater mistake than planting roses in wet soil. The soil to be in proper condition for planting should be dry and free. The best time to plant roses which have been raised or grown in Canada, is the last week in October, and for imported roses the second week in April. With good culture roses may be planted saved up till the middle of June. Care must be taken not to plant too deeply. By placing the union or callus three inches below ground you will be about right. For dwarf roses see that the roots do not cross or coil around. This is most important. Be particular also to see that no manure comes in contact with the roots directly, and always firm the soil by treading it down with the feet, but leave a rough surface.

The best soil is a strong holding argillaceous loam, so tenacious as to admit most tough clay in some of its more inviting forms. Not a few soils that are called clay when wet, turn into strong loam when dry. Though such loams are on the whole most favorable for the perfect cultivation of roses it must not be asserted that they cannot be grown elsewhere. I have seen prize roses grown on soil so light that it could be driven and drifted like sand during a protracted drought, and also on sheer peat. The natural quality of rose soils is often of less vital importance than might at first sight appear, inasmuch as in many cases the soil is the mere dish, shell or basin to hold the materials which are freely given to roses to feed upon. While saying this much, so that nobody may despair of growing fair roses with soils such as they have, or can make with the materials within reach, it should be added that no loam can be too good or too rich for roses. In selecting a site for a rose border or rose garden, the cultivator should endeavor to marry the three S's, namely, sun, shade and shelter to advantage.

Making Garden Paths

John Gall, Inglewood

With the necessary materials at hand, it is a simple matter to make a firm, sound pathway anywhere. The first thing to be done is to peg out the site at the width desired, and the next to dig out a V-shaped trench along the whole length. Then, if the soil is of a light and porous description, it is only necessary to place a quantity of rubble, composed of broken bricks and large clinkers in the bottom, then a thickness of coarse gravel, and finally enough fine binding gravel to bring the surface up to the required height when well rolled

down. Should the soil be heavy, or the situation damp, it is necessary to put in a two or three inch drain pipe along the bottom of the trench. The joints of the pipes must be covered with a turf, grass side downward, then cover with the rubble, coarse and fine gravel as before.

A foot is about deep enough to dig the trench. These directions serve for all ordinary purposes, remembering, of course, wherever a drain-pipe is put in,

that it must have a slight slope in the direction of the outlet. Paths may be surfaced with gravel, ashes, flagstones, concrete or cement. Where gravel or ashes are employed, the middle of the path must be slightly higher than the sides, and it is most important where these are used, that the rubble and coarse gravel is well pounded before the fine gravel is put on. The gravel should be about three inches deep.

two borders full of plants, not breaking it up by numerous meaningless small beds.

Another important feature of your home improvement is to make your place attractive in winter. This can be done by having a few evergreens grouped in threes or singly. The contrasting effect of evergreens with the winter snow is fine. Evergreens give an air of comfort to the place by their appearance. If you have a steep terrace or bold bank its stiffness and barrenness is removed by planting a few dwarf evergreens starting near the bottom and gradually working your way diagonally across till you come to the top, dotting an evergreen here and there, just as you may notice them growing up some farm hillside. For this purpose the junipers are just the thing or a few shrubs may be sparingly planted for the same purpose.

In the way of manuring, dividing and keeping the weeds down you may have by a judicious selection, plenty of flowers and foliage the season through.

The earliest flowering plants should always be planted in the most conspicuous place. Such plants as the Bleeding Heart follow any bed you may have of tulips or hyacinths. On the edge of the border or bed in front have a mass of pansies and forget-me-not, or a clump of daisies are pleasant to see. In the shady place caused by a fence or the side of the house, close to a walk, have a clump of lily-of-the-valley and some ferns. Two or more paeonies in variety are indispensable. Their bold character of foliage and flower make them fine lawn plants, either singly or in a group.

Plans for This Year's Garden

J. McPherson Ross, Toronto, Ont.

WHEN planning the improvement of your home surroundings, have in mind some special feature of ornamentation, either by trees, shrubs, or flowers, different from your neighbors within the bounds of good taste. See in your mind's eye your house as a picture and your grounds surrounding as the frame to set it off.

When an artist paints a picture he has first the story to tell. Then with the aid of his canvas, paints and brushes and technical skill he tells the story as best he can.

The gardener gives us the real picture. True he has the real sky above him and real nature and things to work with. Then on the canvass of his ground he spreads the green grass, either by sodding or seeding it. With real plants he produces real flowers. Real trees grace his lawn, and real roses climb up his cottage window.

To have a nice front lawn it should be properly laid out, and to do this let me point a few rules to observe: Never plant anything in front that will obstruct the view from the window to the street, or obstruct the view from the street to the house. In other words, plant your garden so that it will look nice from the house or the street.

Have as much grass as you can. Nothing looks better than a nice, green, neatly-kept lawn. Place your walk as much to the side of your lot as possible and on that side which you use when you leave your house going or returning from business. Leave enough room on the narrowest side to allow a shrub or group of three to grow in. This enables you to have a larger lawn in front of the house curving your walk gracefully to the steps, and to branch the walk to a side path to suit children and the butcher and baker for kitchen demands.

If your ground is low raise it up so as not to have water standing on it after the spring thaws or heavy rains. Nothing is more disagreeable than to have to wade through water on the paths.

If your plot is large enough to have a border let it commence ten or fifteen feet back from the front fence, running back

with dividing fence as far as you wish and desire to plant. If your neighbor and you are good friends, get him to start his border opposite yours having both front outlines run back irregularly, that is never a straight line but vary it as nature does planting your tallest shrubs at the back, the tallest perennials also, tapering down to the front, finishing with some plant that serves as an edging, such as sweet alyssum or sea thrift, pinks.

Start your border on the other side on the large side of the lawn in front of your house by the steps, and carry it around to the fence and down towards the street. Never put a bed in the centre of your lot or lawn as it spoils the effect, and breaks it up. A bed of geraniums in the centre of your lawn looks like a scarlet patch on a green coat.

Aim to make your lawn or grounds look as large as possible and also at simplicity of design, so as to have a grander effect of masses of growth in flowers and shrubs. This is done by having one or



The First Prize Lawn of Ex-Mayor Guest, St. Thomas, Ont.

For tall herbaceous plants we select larkspur, rudbeckia, *Bostonia*, phlox, campanula, fox glove and hollyhock. For shorter growing kinds we have columbine, oriental poppy, dwarf phlox, iris in variety, achillea and chrysanthemums.

In our garden we must find room for annuals such as asters, petunias, nasturtiums, stocks, antirrhums and Indian pinks. For a small circular bed at the end of the walk nothing looks better than one of pink geraniums massed and margined with a circle of sweet alyssum. If our space allows and we have room for one of a more ambitious nature let the centre be a castor oil plant encircled by a row of canna, next a row of coleus Verschappildint of Perilla

Nankinam, a row of scarlet geraniums, margined by a circle of suitable edging. A little study and observation combined with experience gives anyone interested the necessary knowledge to make any number of combinations.

Climbing plants have an important part in our decorative work. For brick houses or stone the Boston ivy is unsurpassed, but for training up on a verandah or trellises roses are first, and then clematis.

For annuals, the most valuable would be *cobea scandens*, morning glory, dolichos and scarlet runner.

Make it a point to have some floral effect by one flower to dominate your garden.

Home Culture of Chrysanthemums

W. Hunt, Ontario Agricultural College, Guelph

(Continued from March issue.)

WHEN the roots of chrysanthemums are about an inch in length, which should be in about five or six weeks from the time they were set, they can be potted off singly into small two and a half or three inch pots,



Chrysanthemum Cuttings, Rooted and Not Rooted

or set about one and one-half inches apart in shallow boxes. Use the same kind of soil and treatment as recommended for the root divisions, and re-pot them into larger pots as soon as the roots fill the smaller ones. About the end of June or early in July the plants may be potted into quite large seven or eight inch pots. The pots may be sunk to the rim out of doors in the open garden early in June. Place a piece of slate or stone, or an inch or two in depth of coal ashes underneath the pots outside to keep out earth worms and prevent the roots from getting through the bottom. The plants may be planted out of the pots in the open ground instead of potting them. Give the plants plenty of water at the roots and keep the tops

sprayed every day with clear or soapy water, in hot weather, as well as with insecticides.

Plants can be raised from seed that will flower the first season if the seed is sown early in February indoors. The young seedlings should be transplanted singly into small pots, or be set about two inches apart in shallow boxes in good potting soil when four or five small leaves have developed. Grow these on indoors until about the middle of May, when they may be stood out of doors to harden, and be planted out in the open garden, or be potted into large pots, and the pots sunk out in the garden, and treated as before described for plants, from divisions and cuttings. The summer care and insect enemies of chrysanthemums will be described in a later issue.

During the winter place the plants in a sunny window away from fire heat as much as possible to flower. A temperature of fifty to fifty-five degrees will suit them. After the plants are through flowering, cut the tops down and place the plants in a cool window, tempera-



Young Chrysanthemum Plant Before and After "Pinching" or "Topping"



Section of Plant Before Dividing

ture forty to forty-five degrees, or they may be put in a light cellar or basement in about the same temperature. Keep the soil moist, not too wet, all winter. Bring the plants out in the spring early in March, and start them into growth on the window before dividing them up or taking cuttings.

White—Early Snow, Smith's Advance, and White Cloud.

Yellow—Golden Glow, Golden Gate, and Golden Chadwick.

Pink—Glory of Pacific, Pacific Supreme, and Uganda. Nellie Pickett,



Section of Plant After Dividing

cream color; Brutus, orange red; and Black Hawk, crimson, are other good varieties.

Good pompon (small flowering) varieties are: Rose Travenna and Alena, pink; Snowdrop, Anna and Nic, white; Klondike, yellow; Mme. Beau, bronzy old gold; Julia Lagravere, red; Lady-smith, pink.

Liquid solutions of manure water should be given chrysanthemum plants as soon as the buds show, or earlier if necessary. It is best to discontinue the liquid manure as soon as the flower-show color. Clay's Fertilizer or Bonora, sold at seed stores, are good commercial fertilizers. One-fourth part of pail of cow manure and about one pound of chicken manure put in a pail, the pail filled up with water, well stirred, and

then allowed to settle, makes an ideal liquid fertilizer for all pot or garden plants out of doors, if diluted with an equal quantity of water before using. Half a pint of the diluted solution once a week or so would be beneficial to the plants before the blossoms show. The

commercial fertilizers named are best for indoor use for sanitary reasons. Half an ounce of nitrate of soda dissolved in a gallon of water is a good substitute fertilizer. About half a pint of this once every week or ten days will benefit the plants.

the soil. The tops and the old dry black corms, under the corm to be planted, should be cleaned off just the same as with gladiolus before planting. The culture of the Montbretia is very similar to the culture of the gladiolus.

It is best to plant Montbretias in clumps or groups about twelve to fifteen corms in a group. Set the corms about three inches apart and cover them with about three inches of soil. They will grow in any good garden soil, but succeed best in a fairly rich, loamy soil. Like the gladioli and other bulbs, fresh strawy manure for a fertilizer should not be used when planting them. No manure or fertilizer should come in direct contact with the corms when planted. I have often wondered that more of these pretty little bulbs with their quaint, oddly colored flowers are not oftener seen in our gardens. Most of our seedsmen catalogue them for sale. Plant a few of them as early as possible this spring.

Short Hints on Planting

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

IN transplanting fibrous rooted, or indeed almost any perennial plants, the height and density of habit are the main points to consider as to the distance apart. A good general rule is to have the very tall plants at least two or three feet from any other plant. By setting the taller plants four or five feet apart toward the back or centre of the border, plants of medium height could then be planted between them. The same rule could be followed to some extent with the medium height plants. Plants of medium height should be planted mainly toward the middle of the border. One or two feet apart is a good distance apart for these last. Planted two or three feet apart would allow of dwarf plants and clumps of spring flowering bulbs, such as tulips, narcissus being planted between them. These last named bulbs should, of course, be planted in the fall.

A plant or two of perennial larkspur or *Anchusa Italica* dotted here and there about twenty or thirty feet apart may be planted in about the centre of the border. These plants stand out in conspicuous relief. The plants used for this purpose should be of a fairly compact habit, the kinds named are well suited for this purpose. The dwarf perennials should be planted about a foot apart. The clump or group system of planting is best for perennials. I consider spring the best time for transplanting fibrous-rooted perennials, as the spring flowering bulbs are all showing, and there is not so much danger of disturbing them as there is by planting in the fall. Otherwise, early fall planting for all perennials is desirable.

MONTBRETIAS

The pretty, late-flowering plants known as Montbretias belong to the bulbous-rooted class. To be correct, they are produced from corms similar to the crocus and gladiolus. Indeed, the Montbretias might very justly be called "miniature gladiolus," being much like the last named flower, not only in the form of growth and the reproduction of their corms, but also from the habit of their growth and the form of their flowers. In the color of their flowers, however, there is not found the wide range found in the gladioli, the dominant colors of Montbretias being mainly of a yellow or brown, or shades of these colors. They are, however, very

pretty and attractive. A vase of them with their wavy, graceful, dark green foliage interspersed with their oddly-shaped trumpet-like blossoms of all shades of orange, brown and bronze, make them very acceptable for cut floral decorations toward the end of summer, when flowers are sometimes scarce in the garden.

The best time to plant the corms is very late in the fall or very early in the spring, just as soon in spring as they can be got into the ground. The corms (or bulbs) cannot sometimes be obtained early enough in the fall to plant, as the plants are often green and vigorous and in flower until winter sets in for good. If the corms can be obtained, they may be planted successfully in November. They are not quite as hardy as tulips and narcissus, therefore it is best to protect them during winter by placing over them four or five inches of strawy manure. Most of the varieties will come through the winter all right treated in this way. Some growers make a point of digging the corms very late in fall after the tops have been frozen and winter them over in a cool, fairly dry cellar in a temperature of about forty degrees Fahrenheit. They should not be kept in a hot, dry cellar during winter. I have found it a good plan to lay the corms in a shallow box and cover them with an inch or two of dry sand or dry sandy soil, leaving the tops on and standing out from

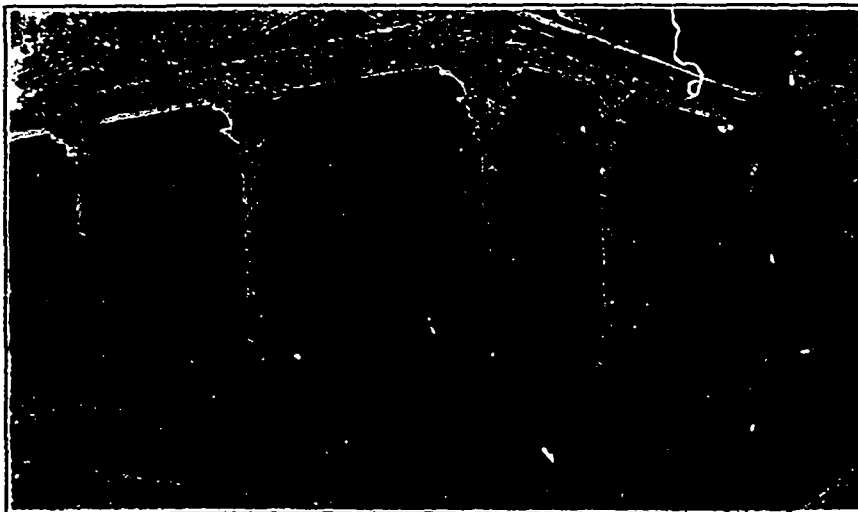
Rose Culture

By an Amateur

Whatever shade you have for your roses must not be provided by trees. The roots of these rob the soil and their leaves prevent a free circulation of air. Close proximity to buildings and fences should be avoided, as the reflection of the sun's rays upon the flowers causes them to wither very quickly, and in winter the snow is liable to drift too deeply over the plants, breaking them down.

LOCATION OF THE BED

The location of the rose bed should be on ground thoroughly drained either naturally or artificially. The matter of soil is of less importance than location, as roses will grow in almost any soil short of pure sand. You will, however, give them the best sort you have or can procure.



A Prize Verandah in a Competition Conducted Last Year by the Ottawa Horticultural Society
Residence of Mrs. D. T. MacLaurin

Progressive Vegetable Culture*

S. C. Johnston, B.S.A.

PROGRESSIVE vegetable growers are looking for new and improved ideas regarding the growing of their products, and any method by which they can realize increased returns from their gardens interests them. The following methods and appliances are being adopted by vegetable men in parts of the United States, and may prove of interest and value to Ontario vegetable growers.

From the greenhouse vegetable growers' standpoint let me say that sterilization of soil is being extensively carried on by practically all progressive growers. In some cases steam boilers are purchased for the sole purpose of treating the soil. Some are using the inverted pan method. Others the spike method, and one progressive grower in Grand Rapids (Mr. Yonkers) has made a sterilizing apparatus which amounts to putting a modified skimmer irrigation line under the soil to a depth of four to six inches and forcing live steam through the nozzles. He claims to have had better success from this method than from any other employed. Sterilization will give results. This has been proved by many growers on the other side, and many make an annual practice of treating all soil in the greenhouse.

Some growers make a point of growing only one or two crops and making a specialty of those particular ones and improving as they can. They select their own seed and do their own cross-breeding and aim to supply the market with the best possible varieties of that particular vegetable that can be found. Some make a specialty of cucumbers, others tomatoes, and others lettuce, and during their season the quality of the produce from these specialists can be seen on the markets realizing ten and fifteen per cent. more than that of their competitors. Improved varieties are due largely to selection of seed. These men do not depend on seedsmen for their seed, but at different times go through the growing crops themselves and pick out the best plants and select their specimens from these. The progressive grower knows what his market demands, and the main point on his score card is probably his selection of specimens for seed.

CUCUMBER GROWING

The large greenhouse plants around Toledo are devoted to extensive growing of cucumbers, and they have adopted a device for training their cucumbers on a stake one-half inch by one inch by seven feet in length. It is fitted with a simple nail lock, one nail being driven through, and another, somewhat longer, being

* Extract from an address delivered at the last annual convention of the Ontario Vegetable Growers' Association.

driven through the stake and bent so that it forms a lock with the small nail. The bottom of the stake is either driven into the ground beside the plant or is fitted with a small resting shoe, and stands on top of the ground beside the plant. The tops are let into a piece of ribbon wire which is permanently stretched through the houses. This wire holds the cucumbers solidly in place and excellent results are given.

Skinner irrigation cannot be spoken of too much. Growers in all sections are beginning to use this system on gardens from an acre to forty acres in size with remarkable results. Satisfied growers are everywhere the best answer to any question regarding Skinner irrigation.

It is the custom of some vegetable growers to hold their manure before applying it to the greenhouse. They have told me that they find it worth considerably more to them. Some of them have built concrete manure pits. They pile the manure to a depth of three or four feet in these pits and turn the water on to the manure at intervals to keep down the fire fanging. Some turn the manure at different times. These pits are built with concrete walls about one foot thick and eighteen inches to two feet high. As a rule paving brick is laid in an inch or so of concrete for the bottom. They are higher at the ends than at the centre and are made wide enough to permit hauling manure right into them.

Several growers are now making an annual practice of holding their manure four or five months in this way. They advocate this method especially for the manure that is to go into the greenhouse. The liquid manure is soaked up by the coarse manure and its full benefit is thus gained. Some growers make pits for this manure only and build it entirely of concrete and do not drive in them, simply throwing the manure into a pile in them and watering as they see fit.

A New York firm has a patented celery bleacher which is being tried out by several growers. It consists of a strip of material very similar to some of the common ready roofings, twelve inches wide, and in rolls of one hundred feet in length. This is placed around the celery instead of boards or paper, and is held together by means of U-shaped wire holders, which fit over both sides of the paper. This method is not more than a year or so old and it has been tried with some degree of success by some growers.

STAKING OF TOMATOES

Possibly the staking of tomatoes is being tried out more than any other method by progressive vegetable growers. Fully fifty per cent. of the growers visited last summer were either experi-

menting with it or were beyond that stage and carrying it on as part of their yearly work. There are different methods of staking employed and as yet it is mainly the early varieties that are being staked and in quantities ranging from a few plants to one and a half to two acres.

The commonest method is to drive a stake into the ground beside the plant and tie the plant to it with either twine or raffia. The stakes are of one and one and a half inch material, and are made from five to seven feet in length. The plants are set eighteen to twenty inches apart in the rows and three to four feet between the rows. The vines are trimmed to one stem. Growers claim that they get earlier fruit by nearly a week, and that the quality of the fruit is improved. The estimated cost of staking plants is between five and ten cents a plant.

Sowing Vegetable Seeds

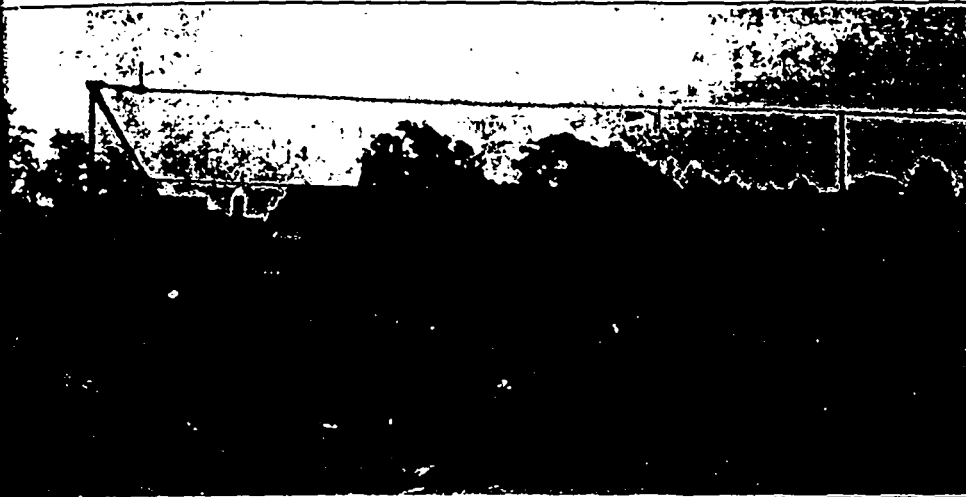
Mrs. Dell Grattan, Port Arthur, Ont.

THE time for sowing vegetable seeds out of doors varies greatly. First of all have the ground well prepared and enriched. Before starting to sow, remove all stones and rubbish and pulverize the soil thoroughly. Be neat in all you do.

Onions, peas, spinach, carrots, parsnips and other hardy vegetables may be planted as soon as the ground is fit. Leave cucumber, squash and corn until danger of frost is passed. Sow the seeds in moist or freshly stirred soil. Do not plant too deeply. Sow radish in good rich soil in order to have quick growth. For a succession, sow every two weeks.

Cauliflower seed is very expensive, so when I do not plant in the hot bed but out in the open garden I always put in with it about a cupful of turnip seed, mix them and sow. The turnip plants may be removed before they smother the cauliflower plants. Early Snowball or Dwarf Erfurt are fine for the garden. A great many sow cauliflower and cabbage in the hot bed. It is all right to plant a few seeds so as to have early ones to use, but as a rule the better plan is to sow them directly in rows in the garden as soon as the weather will permit. Mix cabbage seed with turnip seed the same as with cauliflower. This saves time, and I have had good heads just as quickly from plants grown from the start out in the open, although it is hardly considered possible by some. Try both ways.

Cabbage is a gross feeder, and needs lots of rich manure. Most of the best growers apply manure broadcast. In growing early cabbage it is an excellent plan to apply a little dry hen manure around the hills when the plants are half grown. This should be put close to the plants, but scattered over a radius of a foot or more from the plants and then cultivated into the soil. The Early



(The Skinner System of Irrigation as Used at Several Places in Essex County, Ont.
—Photo by W. E. J. Edwards, B.S.A.

Winningstadt, Early Express and Glory of Enkhuizen are good varieties. Corn should not be planted until the soil is warm as the seed is apt to perish

if the season is backward and wet. I have tried several varieties and have found the Malakoff and Squaw to be the most suitable for the west.

Irrigation and Its Practical Results

ONE of the most practical and instructive addresses delivered at the convention of the Ontario Vegetable Growers' Association in Toronto last November was that of J. J. Davis, of London, Ont.

"In the course of a year," said Mr. Davis, "we have a great variety of weather. I have never seen a season in which there have not been periods that could use water very profitably. Of course, there is a great difference in seasons. Sometimes we get very nearly as much rain as we want, but at other times not nearly a sufficient supply.

"Our business is in one way a great deal more favored than that of some others. For instance, the milkman must not introduce water into his business, and there are men behind prison bars to-day for selling watered stock. But we can introduce water into our business and get a premium for doing so.

The first time I started watering was on a fine patch of pickling cucumbers. It was a very dry season, and I was losing money. I had a well sixty feet deep, and I pumped the water by hand, raised it into a barrel, and drew it to the cucumber patch. I got fifty feet of hose to run it over something else growing in the same patch. Although this was a very crude system the results were so good that it opened my eyes to the value of water, and I began to turn my attention to a better system.

"I got a windmill and tanks and did some watering that way. After that I purchased a gasoline engine. I laid pipes out through the fields, and when water was wanted I would start the

engine and attach hose to the piping. That worked pretty well. One can supply a lot of water in a day with that kind of an outfit. The trouble, however, was that it took a great deal of time to apply the water.

"A neighbor of mine had seen the Skinner system in operation, and we got our heads together and came to the conclusion that the Skinner system was about the thing we needed. The advantage that this system has over any other that I have ever tried is that it applies the water itself. The system is direct lines of pipe and the water is applied with pressure from an engine. All you have to do is to start the engine, and by simply sending a boy to oil the pump it will run half a day without being looked at.

"With the old system of watering I found that as long as there was a cloud in the sky a person would put off watering in the hope that rain would come. In a dry period every day that the crop is going without water a certain amount is lost. It takes so little time to start the Skinner system one does not depend on the rain."

Mr. Davis strongly advised any member who was starting to irrigate to start on a large enough scale. If a small plant is put in on the start one cannot add to it, but has to start right at the beginning again, for unless you have sufficient power it will not operate more than a certain amount of piping.

"A man who has never had any experience," continued Mr. Davis, "has no idea how much water it takes to water a small piece of ground. Some soils will

take a great deal more than others. With the outfit that I have I can apply about two thousand seven hundred gallons an hour. There is practically no water wasted, and on account of having plenty of water I very rarely have a poor crop. If it wasn't for the water I would go out of the gardening business and find something more profitable."

Mr. Davis was asked if he had found it necessary to put in more drains since using this system. Mr. Davis replied that he had not. The idea is not to fill the soil full of water, but just to keep things in good growing condition.

Mr. J. Lockie Wilson asked what was the cost of Mr. Davis' outfit and how much land he could irrigate.

Mr. Davis replied that as near as he could figure it out, the full equipment had cost him about one thousand dollars, and that he had about four acres of garden.

Another member asked what width apart the pipes were paced and how often they had to be turned when watering. The pipes were fifty feet apart, Mr. Davis said, and a handle was arranged on the pipe so that one could turn it one way and it would throw water for twenty-five feet, then gradually keep turning it until a space of fifty feet was watered with one pipe.

The question was asked, "What time of day is best to water?" to which Mr. Davis replied that he considered four o'clock in the afternoon the most satisfactory. A member remarked that a neighbor of his tried watering in the morning and evening and found that the crop that was watered in the evening was nearly sixty per cent. better. This, Mr. Davis said, was easily explained, as the water applied in the evening would have all night to evaporate.

"What pressure do you use?" was another question. Mr. Davis replied that he had a five horse-power engine which he runs for all it is worth. One can run it with ten pound pressure or a seventy or eighty pound pressure.

Before leaving the platform, Mr. Davis was asked if he was in the habit of keeping an account of his receipts and expenses for each year, to which Mr. Davis replied: "The only book I have around my house is a bank book. It tells me at the end of the year how much money I have."

We should rotate cabbage and potatoes because these are the most exhaustive crops we grow. A ton of potatoes contains about twelve pounds of potash, four pounds of sulphuric acid, four pounds of phosphoric acid, and one pound of magnesia. We may replace these substances by abundant manuring, but if we follow a well-planned rotation the amount of manure required will be greatly reduced.

The Canadian Horticulturist

COMBINED WITH
**THE CANADIAN HORTICULTURIST
AND BEEKEEPER**

With which has been incorporated
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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 a year, including postage.

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

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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, 1913. 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	.....13,775
March, 1913	.....11,209	October, 1913	.....13,775
April, 1913	.....11,970	November, 1913	.....12,967
May, 1913	.....12,368	December, 1913	.....13,233
June, 1913	.....12,618		
July, 1913	.....12,626	Total	.....150,293

Average each issue in 1907, 8,677
1913, 12,574

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."

Refuge shall not be given to 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

PLANNING THE SMALL GARDEN

We cannot expect satisfaction in the planting and developing of the home surroundings unless we have a definite conception of what is to be done. The trouble with home grounds is not so much that there is too little planting of trees and shrubs as that the planting is meaningless. Every plot should be a picture in itself. Happy is the lover of gardening who finds himself in a position so fortunate that, either as the owner or the tenant of a virgin strip of land, he is able to design his own garden so that it becomes, as it ought to, a true image of his own personality. However, it is not every owner of a garden to whom is offered the opportunity of taking part in the planning and laying out of this plot of ground. If we live in the city or in the suburbs of a town the chances are that when we take possession of our new home we find inexorably fixed for us the shape of our garden; its walks constructed; its borders made; and the lawn already laid. This has been either the work of the builder, who may have had no soul above stone and lime, or of a previous occupier, who had neither the time nor inclination to make his plot a thing of beauty. When this has been our fate, there is nothing to be done but, at some considerable expense, design anew our misshapen and disfigured plot, and to bring it by hard work and perseverance into shape in which the plants of our choice will thrive.

The perfect garden is that which, at a first embracing glance, satisfies the artistic sense of the beholder. Therefore, where the garden is to be transformed into a delightful setting for the home, it will be necessary to consider other things than the successful culture of perfect flowers. Should there be any feature of it out of proportion, which attracts the eye and detains it to the exclusion of other things, then is the garden ill-planned.

Have your plot so planned that the observer catches its entire effect and purpose without hesitating to analyze its parts, every feature contributing its part to one strong and homogeneous effect. This style of designing and planting makes a landscape, even though the garden be no larger than your parlor.

A mistake that is commonly made in garden planning is to make the principal borders subservient to the paths. Their consideration should be in the reverse order. If the desire of the owner be to cultivate perfect flowers, he must not stint his beds and borders for space. The two feet border only tends to cramp and overcrowd, whereas a border five or six feet in width gives scope for bold massing and tasteful arrangement.

Regarding the paths, it rarely occurs that we have much say in this matter, as these are generally fixed for us, and we must make the best of them. Whether they be triangular, rectangular, or curved, we are compelled, in the majority of cases, to make our plan conform to the outlines which other people have decided for us. We may, however, if we desire, so harmonize our paths that they shall work in with the design chosen for the principal

borders and beds. It should always be borne in mind that the path is meant to serve a useful purpose; that it is intended to lead somewhere. The straight, broad path, leading past the principal border, has superior advantage over all others, especially where space is limited. The winding path is difficult to plan tastefully, and tends to eat up ground which might be devoted more satisfactorily to the cultivation of flowers.

We must each decide for ourselves the features we wish to introduce; whether, for instance, if we love roses, we shall devote a section for this flower; whether we will introduce a pergola and arches for the support of the many climbing plants that go a long way in adding to the splendor of the garden; whether we will construct a rockery; or whether we will have space enough for the erection of a summerhouse. Accessories, such as seats and benches, and tubs for ferns, if good taste be displayed, add to the beautifying of the garden picture. The greatest returns from our labor will be obtained if we plan our gardens so that they will have a pictorial effect, that is restful and satisfying.

FRUIT COMMISSIONER WANTED

The death of Alexander McNeill has left the Dominion Fruit Division without a chief executive officer. Hon. Martin Burrell, Dominion Minister of Agriculture, will do well if he takes advantage of the situation to fulfill the promises made when his party was in opposition, by raising the status of the Fruit Division through the appointment of a fruit commissioner responsible only to the Deputy Minister and the Minister of Agriculture.

Hitherto the Fruit Division has been one of three divisions under the charge of the dairy and cold storage commissioner. For ten years the fruit growers of Canada have been agitating that the Fruit Division should be given the same standing in the department as is occupied by the seed, live stock, and veterinary divisions, each of whom have commissioners at their head who have the entire responsibility for the work conducted in their respective divisions. Such a change was strongly advocated at the Dominion Fruit Conference held some six years ago. The change was again urged at the fruit conference held in Ottawa two years ago.

The great development that has taken place during the past two years in the fruit interests of the Dominion has made it imperative that this change should be made without further delay. Nothing Hon. Martin Burrell can do would please the fruit growers more than the making of this change at this time. Knowing the interest the Minister of Agriculture takes in the fruit industry we are assured that whoever may be appointed as fruit commissioner will be a man thoroughly well qualified to administer the important position he will occupy.

A WIDENING VISION

The rapid development that is taking place in the fruit interests of Canada is evidenced by the business-like view the officers of our leading fruit growers' associations are taking of the future of the industry. A few years ago most of our fruit growers paid but little attention to fruit interests outside of their respective provinces. The improvement in transportation facilities and the development of cooperative marketing of fruit has brought

the fruit of the different provinces into competition in the western and British markets of late years in a manner that is forcing our fruit growers to investigate conditions more thoroughly than ever before.

Our leading fruit growers to-day look forward not only to the prospect for the current year's crop, but to the probable production of fruit for the world's markets for years to come. In their survey of conditions apple growers are now taking into consideration the competition that may be expected from the growers of other varieties of fruit, such as oranges and bananas. On one point a unanimous decision has been reached: The markets of the future are going to demand a better quality of fruit, packed strictly according to grade. The sooner the rank and file of our fruit growers recognize the impending change in methods, the better will it be for them and for the fruit industry.

One of the chief elements of success in the work of a horticultural society is enthusiasm. Without exception those horticultural societies in Ontario which are doing the best work are those which are manned by enthusiastic officers. In most cases the enthusiasm is provided in the main by some one individual who has succeeded in grouping around himself other horticulturists who have caught his enthusiasm, and who therefore render willing and ready support. Most of the horticultural societies in Ontario are doing effective and efficient work. Some are not doing as well as they might. Where members or officers of societies feel that they are not doing all that is easily possible they might well, as a first step towards improvement, ask themselves if this little element of enthusiasm is present to the requisite extent.

SOCIETY NOTES

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

Society Work*

H. W. Brown, Berlin, Ont.

I am strongly in favor of horticultural societies holding at least one exhibition each year, and more than one where conditions are right. Societies which omit exhibitions spare themselves a great deal of work (possibly not unknown to themselves) but they lose one of their most potent forces for stimulating interest among their own members for actually increasing their membership, and for creating enthusiasm among the public generally. Healthy competition is an influence for good which must not be thoughtlessly cast to the winds. I would like to see exhibitions, modest or otherwise, made compulsory. The prize lists, of course, must be drafted to suit conditions, but to many new societies, and indeed to some older ones, a circular from the superintendent outlining a model or type of prize list for a small society, with hints as to how and along what lines its value to a society might be increased, would be very welcome, for where a new society is organized, having as one of its members a man really competent to arrange these and other details for his society, ten other societies are not so fortunately situated.

*Extract from a paper read at the last annual convention of the Ontario Horticultural Association

In our city, which is pretty generally regarded as a city of homes and gardens and home-like surroundings, the short three-year period of organized work in horticulture has taught many of us to see to details of grounds and gardening before overlooked, has brought to the front vegetable and flower growers hitherto unknown except to their immediate neighbors, and has produced incipient horticulturalists where before none existed. It is gratifying to know that abundant assistance lies within the reach of every society which shows merit or progress. My plea is not for more and for greater assistance, but for a wider, more direct and more certain distribution of the assistance which is already available, but to some extent not apprehended.

Suggestions for Societies

In the talk he gave at the last annual convention of the Ontario Horticultural Association, a portion of which was published in the March issue of The Canadian Horticulturist. Dr. Frank E. Bennett, the enthusiastic president of the St. Thomas Horticultural Society, gave the following additional suggestions to the officers of societies:

During the winter of 1912-13 we planned a larger and broader lawn and garden competition, giving the working man a class of his own and the man who had a gardener a class of his own. Some good prizes were also offered to the janitors of the public schools and Collegiate Institute for the best kept lawns and floral effects, with wonderful results.

The cooperation of the Board of Trade was secured and a splendid cup offered for the best kept factory ground, while another very popular contest was the school children's contest. Prizes in cash and goods totalling three hundred dollars were awarded, in addition to several valuable medals and cups. The usual monthly flower shows were held during 1913 and at the last show five hundred entries were received, taxing to their utmost two large store windows, and making it almost compulsory to secure larger quarters for the shows of 1914.

The merchants, banks, and factories located on corner lots were especially canvassed and their interest in the beautification of the city secured, with the result that early every corner in the city now has its small boulevard, lawn, and flower bed. Fifty-two public flower beds, most of them twenty feet by four feet, were planted, as many as possible being placed along the route of the street car belt line, where the most people would be able to enjoy the beauty of the flowers. Eight more beds have been added this fall, and have been planted with tulips. Flower beds have been placed at the City Hall, the Public Library and the Post Office, and in each place the lawns have been improved, while the rivalry for the Board of Trade cup has created the keenest possible competition among the factories of the city.

I had almost forgotten one big factor in our success. I refer to the splendid service and support given to the work of the society by the local press. When you have printing to do, don't go round the corner to a cheap shop, give it to your newspaper; even if the price is a little higher, you will reap your reward.

As I have said before, new members are joining by dozens and every old member is renewing his subscription and member-

ship, and with a combined effort we shall reach the 1,200 mark. We'll do it.

I would like to give you a few pointers on your canvassing. Send out enthusiasts, send out workers and not drones. Have several good arguments to offer as to why a citizen should be a member. Then, if all other arguments fail, try this one; I have tried it and I know. Whenever I meet one, I say to him, "Is it worth a dollar to you to have St. Thomas made the finest city in Ontario?" and hardly ever have I any answer but "Yes." At this point pull out a membership card (fill it in, and hand it to him, with a receipt, and wait for the dollar. You will not have to wait long; that inherent civic pride germ works quick, and you have another member.

To conclude and summarize, put out plenty of public flower beds, hold frequent flower shows, arrange lawn, garden, and floral beautification contests; form street improvement societies; give liberal premiums; elect one but workers on the executive—a mere just a word of warning, avoid as much as possible placing semi-professional horticulturists in official or executive positions as it has an unfortunate tendency to dampen the interest and ardor of the entirely amateur. By following these rules you may soon have a society like unto ours..

Shade Trees Suffer

Dr. Fernow says that in "walking along the streets of any city one will find at least from twenty-five to fifty per cent. of the trees in a damaged condition." In the small towns of eastern Canada, it is safe to say that at least seventy-five per cent. of the shade trees need attention, for, unlike the cities, these towns employ no "tree doctors" to guard the health of the trees, and even trimming is done but irregularly, and often carelessly. Yet if the shade trees in many of these towns were destroyed one of their chief attractions would be gone.

There are several reasons why the trees in these old towns require special attention. The chief is probably due to defective crown development, the result of overcrowding. Misshapen and weakened crowns result in excessive windbreak, and ragged brook, if left untrimmed, provide the best possible entrance for fungi and insect pests, so that a great number of these fine old shade trees, which because of their very age are unable, unassisted, to shake off these foes, are slowly dying through neglect.

Mature trees of whatever species should be at least thirty feet apart and the municipal act empower municipal councils to remove trees within this limit without the owner's consent. If this provision were judiciously acted upon in the old towns of eastern Canada, the remaining shade trees would be given a new lease of life. The Forestry Branch of the Department of the Interior, Ottawa, has on its staff a skilled silviculturist, whose services are available to woodlot owners. Municipal shade trees are not, strictly speaking, woodlots, but municipalities so desiring could doubtless secure the advice of this expert regarding the trees requiring removal.

Even if no more trees are planted in British Columbia than are there now, the apple production of the province will be ten times as great as it is at present when immature trees now out come into bearing.—C. J. Thornton, M.P.

Nova Scotia Fruit Growers Face the Future

At the annual convention of the Nova Scotia Fruit Growers' Association, held in January, President S. C. Parker of Berwick, discussed frankly the work of the year and the prospects for the future. As his remarks were of more than usual interest, we give them here almost in full. Mr. Parker spoke as follows:

We are gathered to-day to review the successes and failures of the past year, to look into the present situation, and to consider what can be done in the future to place our business on a better basis. The results of the past year have been far from satisfactory. We had our chance and failed to take advantage of it. On the first day of May, 1913, this Valley had a chance to make good. We had a good show of blossoms, with a prospect of, at least, a fair crop of apples. We gathered a very moderate crop of very poor apples. Nineteen hundred and thirteen was a year, when to make good in apples meant a lot of money and much free advertising of our orchards and their products. The markets of the world were open to us—no apple growing section on this continent had a full crop.

The markets were ready to absorb all good fruit available at a good price. We have not made good, and, in my opinion, this failure is the fault of the fruit growers rather than that of Providence, upon whom too many of us are inclined to put all blame. I know there are hundreds of fruit growers in this Valley, and doubtless some here to-day, who will hasten to dispute this assertion. I am prepared to back this statement to the limit. Show me any orchard in the Valley that in the season of 1913 grew a few measly barrels of scabby apples, and I will guarantee to find within five miles of this orchard a farmer who, under practically the same conditions with the same environment, had a fair to good crop of comparatively clean apples. I will make another assertion that some may rise to dispute. Thorough spraying will not only make apples grow clean, but it will make apples grow when otherwise there would be none. I can give you concrete proof, and much evidence to this end will be offered before the meeting is closed. And, just now, all will concede that there was not a crop of clean apples in any orchard this season that was not sprayed in the most thorough manner.

There is only one salvation for apple growing in this Annapolis Valley, and that is in the gospel of good spraying. We must grow clean apples—nothing else counts. The grower of spotted apples is certain to grow poor, and the more apples he grows the poorer he will become. Scabby apples will not be worth anything in the near future, and the man who grows them will not earn his board.

Apples can be kept clean even in the worst season, for we have men here to-day who have succeeded in doing so; and what one has done others may do.

THE WORLD'S CROP

The world's crop of apples for the year 1913 was small. Ontario had a small crop, and patchy both in quantity and quality. Ontario, of course, is a large province and the apple areas are widely distributed. Some sections had good quality and others very spotted: New York and New England had an off year. The crop of the middle west was comparatively light, British Columbia had the most apples she has ever

had. The western states had about half of last year's crop.

THE SHADOW OF OVERPRODUCTION

It is from the western states that the shadow of overproduction looms large. New York and New England are giving their orchards better care, and improving rapidly in quantity and quality; but the enormous population in the east will take care of an increasingly large quantity of apples. Ontario this year shipped nearly 400,000 barrels to western Canada and that growing country will consume any Ontario surplus, if she can hold the market. The four states of Oregon, Montana, Utah, Washington, produced in 1911, 18,000 carloads. This year, with an off crop, 10,000 carloads. Next year they expect to produce 25,000 carloads. This tier of western states is said to have 120,000 acres of orchard just coming into bearing. At 100 barrels per acre, or 300 boxes, as they count them there, we are to face 30,000,000 barrels of apples added to the world's production. That is the problem we are facing, and that is why I say it is useless for us to face that tremendous flood of big, red and yellow apples with a few thousand barrels of miserable spotted trash that is scarcely worthy a place in the cider mill.

Many of you who keep in touch with the foreign markets, know that two years ago thousands of boxes of Oregon Newtons, the highest priced apple in the world, were selling in Liverpool and London at four shillings a box. This is what increased production may mean: and that is the reason this Association is calling on all interested to get busy and grow clean apples, and only clean apples in competition for the world's market.

ORGANIZATION NEEDED

The next step in the fight for supremacy in the struggle, is good organization in marketing. The United Fruit Companies have taken a prominent place in the great selling factors of this country. For an organization in the first year of its history to handle nearly one-half of the output of apples of this province, is certainly a remarkable record. If there had been no central organization to manage the output I am convinced there would have been a far different record, both last year and this. The flood of scabby apples poured on the London market, as without the guiding hand of the central organization would have been the case, must have resulted disastrously to all fruit interests.

I am convinced that one organization, controlling all the export apples of this province, is essential to the best interests of all progress. The United Fruit Company may well feel proud of its record and its work, and this association may certainly be proud of the part it had in effecting the organization.

BRITISH COLUMBIA ALERT

The British Columbia Government sent their Secretary for Agriculture to the head office at Berwick to inquire into the methods of organization. British Columbia is organizing cooperative companies, with Government assistance and Government capital. The United Fruit Companies has its present standing without Government grants or Government assistance of any kind. In fact, more than once, the organization has been effected in spite of Legis-

lative indifference, if not active opposition.

Your president was invited by the Ontario Fruit Growers' Association to visit their annual meeting in November and address them on Cooperative Marketing in Nova Scotia. I had the honor of giving that association a brief history of the organization of the United Fruit Companies, in the presence of the Minister of Agriculture and Dr. C. C. James, adviser to the Minister, both of whom expressed a great interest in the work being done in this province.

In listening for two or three days to the discussion of the Ontario fruit men, I found their problems much the same as ours. Transportation is a big question with them owing to their long rail haul and enormous output of soft fruit. Their troubles cause ours to shrink into insignificance. They have a permanent transportation committee with a paid secretary. This committee is kept busy in looking after matters in this connection.

THE COOPERATIVE ASSOCIATIONS

Second, only, to the importance of growing clean apples is the importance of standing close by the cooperative organizations: the next five years means five years of struggle to maintain our ground. We have many advantages that none of our competitors can ever have. The fittest only will survive, and it is up to us to make good.

In the death of Alexander McNeill, for many years Chief of the Federal Fruit Division, this association and the great fruit interests of Canada have lost a tried and proven friend. Mr. McNeill was a familiar figure in these meetings. He came to us many times at much personal sacrifice. He was always ready to assist when needed, to speak the cheering word and work for the advancement of the fruit interests of Canada. Personally, and, I am sure I speak for every member, we deplore the death of our late chief and feel the loss of a friend and co-worker, who was always ready to work for the advancement of a true Canadian nationality.

While the Fruit Division is without a head, it seems an opportune time to press on the Government the growing importance of the fruit interests, and to urge the Minister of Agriculture to establish horticulture as an independent department under a commissioner, rather than remaining subsidiary to some other department.

A Wasted Fertilizer

Jas. Sackville, Bewdley, Ont.

Does it not seem strange that more attention has not been turned to the utilization of the sewerage of the cities and towns for manurial purposes? This material should increase the productiveness of the soil and return an increased supply of food to the markets instead of polluting, as it now does, the rivers and lakes with the filth of towns and cities.

There are many thousands of acres all over this fair Dominion, lying almost waste, which under proper cultivation and by the use of the manure husbanded and by the sewerage and waste of towns and cities might have their productiveness increased in some cases tenfold their present yield. We hear a good deal about government ownership and municipal and governmental control. Why could not city and town councils and municipalities secure the necessary land and turn this filthy nuisance into a profitable asset?

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



Also options on 1914 puppies for summer delivery.

JOHN DOWNHAM, Box N, Strathroy, Ont.



FLOWER POTS

Hanging Baskets and Fern Pans FOR THE SPRING TRADE

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST

The Foster Pottery Co.
HAMILTON - ONTARIO
Main Street West

Ontario Fruit in the West

E. F. Palmer, Ontario Fruit Branch

AT the convention of the International Apple Shippers' Association, Cleveland, Ohio, August, 1913, Ontario fruit carried off premier honors, in competition with fruit from Oregon, Washington, Colorado, Virginia, and other states. At the Canada Land and Apple Show, Winnipeg, October 10th-18th, 1913, Ontario fruit was awarded first and second prizes in the five box lots of apples. This was the only open competition for apples. British Columbia fruit came third. At Rochester, at the annual meeting of the New York State Fruit Growers' Association, January 7th to 9th, 1914, Ontario fruit won first prize in the three box lots of apples—the only open competition. Oregon and New York State were "also rans."

Ontario, in the only three competitions in which she entered, carried off the premier honors in each case. Who says Ontario cannot produce as good or better fruit both as to quality and appearance, as can be grown anywhere in the world, or, coming nearer home, in America? British Columbia, Oregon, Washington, Virginia, and New York States among others had to take a back seat when Ontario chose to compete.

That is one side of the question: Ontario produces the finest apples in the world. The other and vital side of the question, as I stated in the February issue of *The Canadian Horticulturist*, is that Ontario, as a whole, is not producing such fruit—or what is almost, if not quite, as important, she is not, as a province, putting her fruit up in such a manner that

Douglas Gardens

OAKVILLE, ONT.

The short list published in this space in the March issue is continued as under:

- Anemone Japonica**, 3 vars., each 15c; 10, \$1.25.
- Artemisia lactiflora**, new, each 25c.
- Asters** (Michaelmas Daisies) 13 vars.; each 15c; 10, \$1.25.
- Astilbe**, (Spiraea) 4 vars., each 15c; 25c; 30c; and 35c.
- Bellis Perennis** (English Daisy), 2 vars., each 15c; 10, \$1.25.
- Boltonia asteroides**, each 15c; 10 for \$1.25.
- Campanula** (Bellflower) 4 vars., 1 yr plants; each 20c; 10, \$1.50.
- Dicentra** (Bleeding Heart), each 20c
- Digitalis** (Foxglove), 5 vars., 1 yr. plants, each 20c; 10, \$1.50.
- Helenium**, 5 vars., each 15c and 20c.
- Hemerocallis**, 3 vars., each 15c, 20c; 10, \$1.25, \$1.50.
- Heuchera**, each 20c; 10, \$1.50.
- Kniphofia** (Tritoma), each 15c; 10 \$1.25.
- Shasta Daisies**, 3 vars., each 25c; 10, \$2.00.

Above prices include carriage prepaid

These and many other plants are described in our Spring Planting List sent free on application. Early orders are recommended.

JOHN CAVERS

RED CYPRESS HOT BED SASH



Size 3 ft. 2 in. by 6 ft. for 4 rows of 8 in. butted glass.
Price, \$1.20 in Clear Cypress.

What a pleasure to have home-grown vegetables and flowers weeks ahead of the regular season. A hot bed fitted with our superior Hot Bed Sash will ensure this.

DURABLE

Our Hot Bed Sash are made of the very best material, put together to withstand the most severe usage, and are guaranteed to last for years.

All the joints are tight fitting, blind mortised and white leaded before being put together. A half-inch oak rod runs through the bars and into the stiles. A metal pin is driven into each of the bars and stiles through the rod. In this way each bar is held in the proper place and prevented from sagging.

Folder Sent on Request



Size 3 ft. by 6 ft. for 3 rows to in. lapped glass.
Price, \$1.15 in Clear Red Cypress.

BATTS LIMITED ³⁷⁴ Pacific Ave. West Toronto

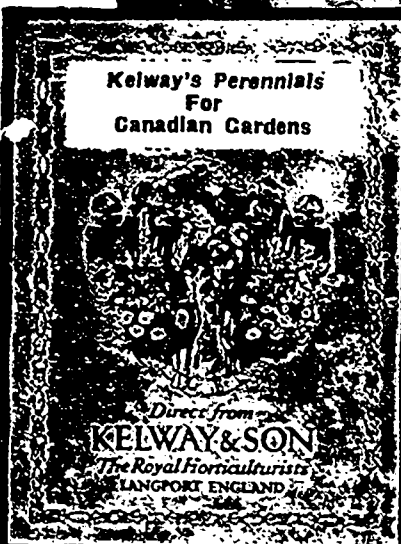
GLORIOUS GARDENS from ENGLAND

KELWAY'S famous Hardy Herbaceous Perennials—Gaillardias, Pyrethrums, Pæonies, Delphiniums and others—are from strong, country-grown stocks which flourish under almost all conditions of soil and climate and make it possible to reproduce successfully in this country much of the charm and beauty of the finest old English gardens.

Choice named collections (specially picked to suit Canadian conditions) of Pæonies from \$3.75 to \$17.00; Delphiniums from \$2.25 to \$13.50; Gaillardias from \$1.50 to \$4.50; Pyrethrums, \$1.50, \$3.00 and \$5.10 a dozen.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed Free on receipt of 60 cents, by

KELWAY & SON
LANGPORT - SOMERSET
20871 — I ENGLAND.



This is the Kelway-Book which every Garden lover should write for to-day.

it appeals to the consumer. Western dealers are accused of being unjustly prejudiced against Ontario fruit, and while there is some truth in this, yet they also have reason to be prejudiced, to some extent at any rate.

THE CRITICISM OF A FRIEND

The following are the contents of a letter, written from Regina, under date of January 13, 1914, and recently received by P. W. Hodgetts, Director of the Fruit Branch, from one of Ontario's leading apple growers

"Being desirous of finding out, for myself, first hand as to the requirements of the apple market at Regina and Moose Jaw, I took our last car at the beginning of December and accompanied it to Regina, where I placed it in storage. It consisted of boxes and barrels,—about half a car of each. They were all Spy and No. 1 stock throughout.

"I have met practically every dealer of importance in Regina and Moose Jaw (retailers only), and could find none who had boxed apples from Ontario. Several cars of Ontario barrel stock were placed here and the most of it was horrible to behold. The only barrel stock I saw, which I was not ashamed of, was put up by a Fruit Growers' Association, and sold at Moose Jaw.

"Fully 90 per cent. of the retailers here, being so dubious of Ontario stuff, have quit it entirely and stock up with the western fruits.

"I have been able in almost every case to interest the retailers sufficiently to have them examine these apples, and they all appear enthusiastic about the wrapped and boxed apples. It was a big surprise to me to hear most of them remark that 'this was the first lot of Ontario boxed stuff they had seen.'

"The one feature which has been most gratifying is the fact that this car of fruit is superior to any Western fruit I have been able to find on sale.

"I will list as briefly as possible my observations of conditions as they at present exist at Regina, Moose Jaw, and surrounding country.

"Ontario apples are admitted to possess the highest quality.

"Ninety per cent. of the dealers state that they will never buy barrel apples again.

"Ninety per cent. of the dealers here are stocked entirely with western boxed apples now. They buy western stuff on account of getting an honest and uniform grade throughout.

"Seventy-five per cent. of the retailers are prejudiced against the Ontario pack. The retailers state that they would favor the Ontario apple if they could get it wrapped and boxed and honestly put up.

"Ontario can grow the best apples known, but in spite of this Ontario apples have a bad reputation.

"It is high time that the crooked dealers were roughly handled.

"This lot of apples will net us approximately five dollars a barrel and two dollars a box."

I believe I voice the desire of the greater part of the fruit growers and shippers in Ontario when I say that we want the Inspection and Sales Act changed as to give us inspection at point of shipment, and that inspection there shall be final.—D. Johnson, Forest, Ont.



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

BEES FOR SALE
For Sale - Early swarms at fall prices. 1/2 lb. bees \$1.00, 1 lb. bees \$1.50, f.o.b. here. Add price of Queen if wanted. Untested Italian Queens, 75c each. Tested Italian Queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction I guarantee to any Express Office in Man., Ont. and Que., which has connection with Detroit, Mich. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5th. Capacity, 40 swarms per day. You will get your bees when wanted, or money back by return mail.
W. D. ACHORD, FITZPATRICK, ALA., U.S.A.

FOR SALE
Swarms of bees in packages. Replace your winter losses and strengthen weak colonies with young, healthy Italians. 1/2-lb. packages, 90c. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young, untested Italian Queens, 75c. each. No disease. Safe arrival and satisfaction guaranteed. Let us send you our little circular and price list on our queens and bees.
BROWN & BERRY
HAYNEVILLE - - ALA., U.S.A.

Bees and Bee Supplies
Roots, 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.



**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.

STRAWBERRIES
Your copy of our Strawberry Catalogue is now ready. A Post Card will bring it. It describes all the best varieties of Strawberries and Raspberries. Cultural directions and lots of other valuable information.
THE LAKE VIEW FRUIT FARM
H. L. McConnell & Son Grovesend, Ontario

COMB FOUNDATION
Write for our prices before getting your wax made up. We can please you. Wax taken in exchange at market prices.
LEWIS MINOR, SMITHVILLE, ONT.

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 follows. *Gleanings*, 30c., *A. B. J.*, 10c.
Address
THE BEEKEEPERS' REVIEW, North Star, Mich.

**50,000
FIRST CLASS FRUIT TREES**
Two year old, 3 to 5 ft. high. To introduce our stock will sell while they last at \$20.00 per 100, \$2.50 per 10. All varieties of Plums, Pears, Peaches, Cherries and Apples. Special prices to Associations.
W. P. POWE & SON - CAINSVILLE, ONT.

QUEENS
Bred from Doolittles best Italian stock. It is to your advantage to order now.
ONE DOLLAR EACH
The bees from my breeding queens are very gentle and good honey gatherers.
P. TEMPLE
438 Gladstone Ave. - Toronto, Ont.
Safe arrival guaranteed

**POWER
HONEY EXTRACTORS**



(6 Frame L. Extractor with 1 1/2 H. P. Engine)

Cut Gears, Heavy Steel Brake, Removable Comb-Baskets

This outfit combines **Simplicity, Strength and Efficiency**

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BRANTFORD, ONT. LIMITED

Apple Shippers



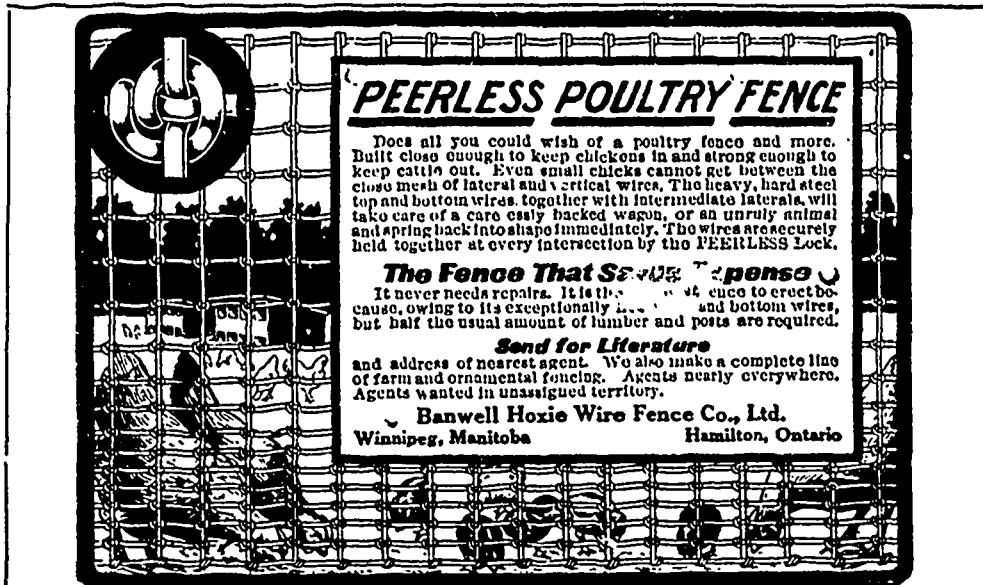
Read this before disposing of your Apples

IT'S ONLY NATURAL to give your own property **THE PREFERENCE** — Blood is thicker than water.

Having no bought apples of our own, we are in a position to look after your interests. Consign your apples to us—we can take care of them for you.

Have ample storage to hold for improved market.

Dawson-Elliott Co.
32 West Market St., TORONTO
PHONE MAIN 1471



PEERLESS POULTRY FENCE

Does all you could wish of a poultry fence and more. Built close enough to keep chickens in and strong enough to keep cattle out. Even small chicks cannot get between the close mesh of lateral and vertical wires. The heavy, hard steel top and bottom wires, together with intermediate laterals, will take care of a carelessly backed wagon, or an unruly animal and spring back into shape immediately. The wires are securely held together at every intersection by the PEERLESS Lock.

The Fence That Saves Response

It never needs repairs. It is the easiest fence to erect because, owing to its exceptionally close top and bottom wires, but half the usual amount of lumber and posts are required.

Send for Literature

and address of nearest agent. We also make a complete line of farm and ornamental fencing. Agents nearly everywhere. Agents wanted in unassigned territory.

Banwell Hoxie Wire Fence Co., Ltd.
Winnipeg, Manitoba Hamilton, Ontario

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—w/ 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—Westco, La Salle, Illinois—and he'll come to you prepaid.

British Columbia

The fruit growers of the Okanagan district were encouraged by the reports presented at the recent annual meeting of the Okanagan United Growers' Limited. They showed a balance on hand on December 31, 1913, of \$21,400. The total shipments through the central body up to December 31st included five hundred and forty-one cars of fruit valued at three hundred and twenty-two thousand five hundred and sixty-three dollars. The operating expenses charged to the Central Organization totalled four decimal four per cent., including the sum of five hundred dollars, which had been set aside to offset possible bad debts and similar charges. To this should be added the brokerage charges, amounting to two decimal forty-three per cent., making the total operating expenses of the Central Company six decimal eighty-three per cent. The reserve fund amounted to twelve thousand three hundred and sixty-seven dollars, which will be returnable to the shareholders after three years at four per cent.

The strongest competition the company had to meet was furnished by the North Pacific Fruit Distributors, representing the four States of Washington, Oregon, Idaho and Montana, which maintained about thirty wholesale fruit houses in the Canadian west, on whose behalf two large brokerage firms were operating. The United Growers Limited early in the season arranged to sell much of its product to the Mutual Brokerage Company of Calgary.

The company expects to make considerable improvements in its business arrangements this year. These include an estimated saving of four thousand dollars in the purchase of box material and one-half cent a pound on all wrapping paper needed. Arrangements are in progress for the purchase of vegetable seeds from an association in Ontario which will effect a great saving.

Niagara District

A series of very successful meetings was held the first of March by the Niagara Peninsula Fruit Growers' Association. Meetings were held at Grimsby and St. Catharines. The speakers included Dr. H. A. Surface, of Harrisburg, Pa., who gave several excellent addresses. Extracts from one of these addresses appear elsewhere in this issue. A report of a second address will be published later.

Prof. R. Harcourt of the Ontario Agricultural College spoke on "The Most profitable Commercial Fertilizers for the Orchard." Mr. W. T. Macoun, Dominion Horticulturist, spoke on "The Best Varieties of Strawberries" and "The Influence of Chemistry on Fruits and Fruit Growing," as well as several other subjects. For a commercial plantation of strawberries, Mr. Macoun recommended Senator Dunlap, Glen Mary, Parson's Beauty, William Splendid, Warfield, and Grenville. For raspberries he recommended the Marlboro for early and Cuthbert for the main crops, with Herbert as a special for the colder parts of the province.

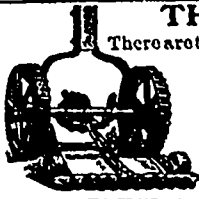
Prof. W. W. Farnsworth, of the Ohio Agricultural College, spoke on the general management of the orchard. Mr. W. A. McCubbin was another speaker. The meetings concluded with the holding of a banquet in St. Catharines, which was largely attended and most successful.

Spraying intelligently done will control all the orchard insects in the district.—S. E. Todd, Lake Huron District, Ont.

**Parks, Gardens, Lawns
Planned and Planted**

Expert Advice

CHARLES ERNEST WOOLVERTON
Landscape Gardener, GRIMSBY, Ont.



THE CLIPPER

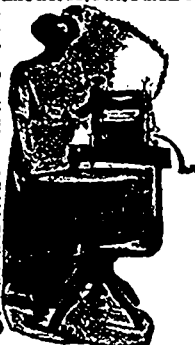
There are three things that destroy your lawns — Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out. Your dealer should have them — If he has not drop us a line and we will send circulars and prices **CLIPPER LAWN MOWER CO.** Box 10, Dixie, Ill.

**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. G. MORRIS, Manager, 1900 Washer Co., 37 Yonge St., Toronto, Ont.



Why Not Cut Off the Two Cars of Filler?

It takes 400,000 cars to carry American Fertilizers to our farmers and planters every season. Forty per cent.—2 cars out of 5—of this stuff is Filler, which requires 160,000 cars! Order less filler, higher grade and

Nitrate of Soda

for your active Nitrogen and save freight bills.

The greater productive capacity of high-grade fertilizers without so much filler means a greater outbound tonnage for railroads and greater purchasing power for farmers, so that railroads and everybody would be benefited.

DR. WM. S. MYERS, Chilean Nitrate Propaganda

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*Seeds with
a Lineage*

Lovers of gardens and grounds should know that at Raynes Park, London, England, Messrs. James Carter & Co. have the finest and most complete testing and trial grounds in the world.

Their equipment and the unique methods employed guarantee the quality of their seeds. For generations they have been cultivating, selecting and perfecting until Carters Tested Seeds have reached the highest percentage of purity and germination.

In England, where the art of gardening is most highly developed, Carters Seeds rank first. Ask any gardener with experience in Great Britain—he will know Carter.

In Canada, Carters Seeds have achieved a tremendous success, both on large estates and in smaller gardens.

We import these seeds direct from Raynes Park and carry a complete stock at our Toronto warehouse. We issue an American Catalogue, with all prices in American money. It includes selected varieties of Flower and Vegetable Seeds, with valuable directions for planting and cultivation.

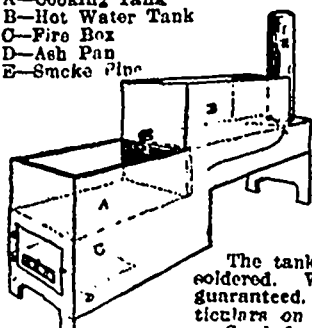
A copy of this Catalogue will be mailed you FREE. Write for it to-day.

CARTERS TESTED SEEDS, Inc.
133 A King Street, Toronto

**Carters
Tested
Seeds**

If you are interested in upkeep of Lawn, Tennis-Courts or Golf-Course, write for the "Practical Greenkeeper." Every Championship Golf-Course in America is to-day using Carters Tested Grass Seeds.

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



Make Your Own Spray

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

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

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

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

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

Annapolis Valley Notes

The United Fruit Companies have made arrangements with a local newspaper to edit and publish one page each week under the name of the Cooperative News. The name of every member in the local companies is on the lists, and in this way the central body is kept closely in touch with the members. Part of the space each week is given up to a report on the condition of the apple market, prices, and similar information. From time to time articles of an educational nature pertaining to fruit growing are printed. Before this the majority of the growers did not know what was being done, and were easily deceived by interested parties, thus causing dissatisfaction with the management.

Apple prices are still a little stronger, ranging from two to five dollars a barrel, according to grade and variety. The quality of the late winter apples is excellent. Fruit growers are beginning to realize that there is a market for their more tender varieties packed in boxes.

The agents for power sprayers are doing a rushing business, as the experience of the past two seasons have about convinced the fruit grower that it is either spray well or look to some other line of farming for his living. In fact, the orchardist who does not spray to-day should be ashamed to look a full grown tree in the face.

The duty on basic slag, which came in force this winter, is a serious tax on the farmers of this Valley. On the order of the United Fruit Companies alone the duty means all of three thousand dollars extra charge. Almost as many tons of slag are now bought as all other kinds of fertilizer taken together. Uplands that would not yield one half ton of hay to the acre, are by the application of eight hundred pounds of slag made to grow clover most luxuriantly. By using vetches as a cover crop, and putting on a dressing of slag every few years, apples can be grown with no other expense for fertilizer. After seeing how this and other fruit grower raw materials are taxed, anyone with a sense of humor must have the face ache who reads in his morning paper that the Government have appointed another commission to find out the reason for the high cost of living. —M.K.E.

Eastern Annapolis Valley

Esau Buchanan

Early last spring I put some apple twigs in water in order to watch the flowers develop, but they hatched out aphids and the flowers were sickly. I remarked that these insects would be troublesome in the summer, but I had no idea that they were going to be as bad as they were. This year I do not see any sign of aphids on the shoots in the house which will shortly be in blossom. By the way, lilac shoots will well repay the trouble of placing them in water if the flower buds are selected.

Farmers' meetings to discuss spraying are to be addressed between March 16th and 21st in eight different centres of King's county. Addresses will be given by Messrs. Woodworth and Robinson.

During the week ending March 7th, 7,972 barrels of apples were shipped from Nova Scotia to England; of these 7,263 were shipped by the United Fruit Companies. Prices for Ben Davis and Nonpareils were very good.

Dollar-Saving Facts

Before buying any fence, consider the following points carefully: Then you'll discover why so many shrewd farmers declare the

"Frost Fence"

Canada's Best Fence, worth more than it costs

We manufacture every inch of wire woven into FROST FENCES in our own mills right here in Hamilton. Therefore we know the *Quality* of both Laterals and Stays.

Our process of galvanizing is thorough and assures a thick, even coat—so we can guarantee it to be free from the

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corrosive and destructive influence of varying climatic conditions.



The Laterals are deeply waved in the making—hence we can guarantee that heavy spring, the come-back qualities

for which the FROST FENCE is famed.

The Stays, you will see, are straight and uniformly spaced. That's the reason why we can guarantee *even distribution* of strain.

The Tie Wire is wrapped around both Laterals and Stays several times, making a permanent lock—a double surety of strength and lastingness.

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Write for Free Book on **Brown's Auto Spray** 300,000 use these wonderful sprayers to rid fields, fruit trees, gardens of blight, disease and insects—to make all produce big. Auto Spray No. 1—Capacity 4 Gallons. Auto Pop Nozzle throws from fine mist to drenching stream. Does not clog. 40 styles and sizes of Hand and Power Outfits. Large sprayers fitted with **Non-Clog Atomic Nozzle** only nozzle that will spray any solution for days without clogging. Fits any make of sprayer. Write for valuable **Spraying Guide Free**. The E. C. Brown Co., 57 JAY ST., ROCHESTER, N. Y.




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Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection! Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Boe-coop - Raspberries Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. — Garden Roots, Asparagus, Rhubarb. Write for Catalogue. WM. FLEMING, Nurseryman, 496 - 4th Avenue W., OWEN SOUND, ONT.

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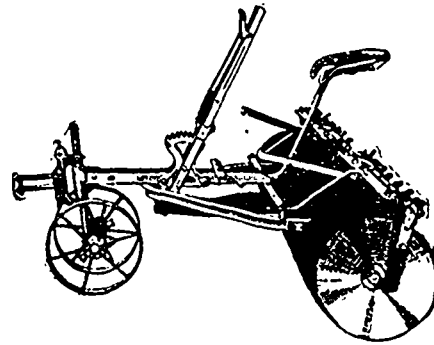


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Mowers
Rakes, Stacks
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CORN MACHINES
Planters,
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WHEN disked with a Deering disk harrow the ground is so prepared that it stores away and holds the moisture from snow and early rains, liberating it to the roots of your growing crops at the time when they need it most.

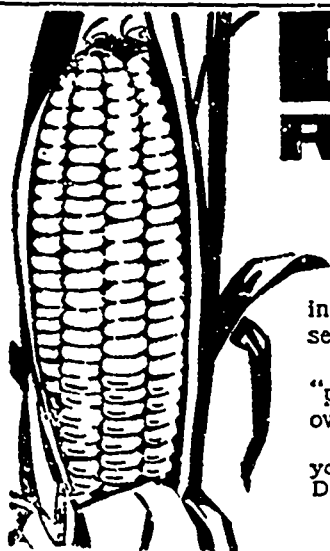
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Breeding counts in plants as well as in animals, as Ewing's "pure-bred" seeds have been demonstrating by splendid crops for over forty years.

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Fruit, shade and ornamental trees, Grape vines, Shrubs, Roses, Hedger, Himalaya Berries, St. Huges, Herbert Fruit till November. Prices right, so are the offers. Send for free priced catalogue. Let us book your order while in Verity—Special prices on Apple trees by the 100, choice early seed potatoes, etc.

Everything from a berry plant to a shade tree.



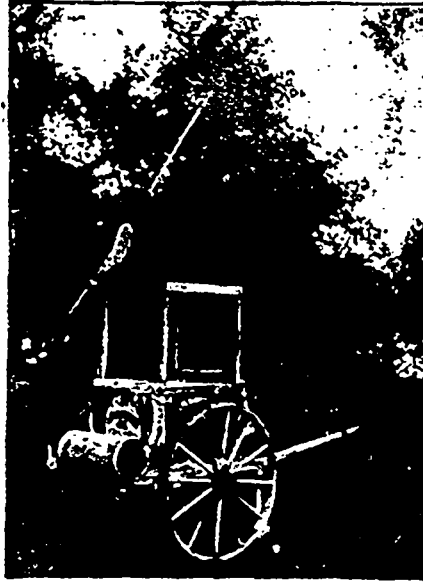
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Leading fruit growers and men who have large tracts of row crops under cultivation find the Spramotor a big dollar gatherer. It earns its cost the first year. Every year thereafter it keeps up the good work and repays its owner over and over again.



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is the most efficient spraying machine made, because it has twenty distinct patented features to be found on no other make. We have been at the making of spraying machines for over twenty years, devoting all our thought and energy to the perfecting of the Spramotor. We manufacture every part that goes into our machines, in order to be sure that each is perfect. Every outfit gets a thorough test under high pressure before being shipped.

Hand Spramotors

are efficient in orchards up to 500 trees, and on the medium-sized farm for spraying potatoes, weed destruction, etc., also for painting. They are moderately priced machines, from \$12 to \$30, yet will do all this work.

We make a bigger range of spraying outfits than any other firm in the world. Prices run from \$6 to \$350, each and every machine guaranteed.

FREE

Send us a letter containing some idea of your spraying requirements and we will mail at once full particulars of a Spramotor that will do your work to best advantage at the lowest possible cost. We will also

forward a copy of our valuable illustrated treatise on Crop Diseases, WITHOUT CHARGE and without placing you under any obligation whatever.

SPRAMOTOR WORKS

1753 King Street, LONDON, CAN.

Transportation Problems*

C. E. McLatosh, Forest, Ont., Transportation Agent,
Ontario Fruit Growers' Association

ONE outstanding fact in regard to express rates is this—while the Dominion Express Co. has running rights over practically two-thirds of the railway mileage in Canada, some of our most extensive fruit districts are served only by the Canadian Express Co., and these shippers are compelled to pay rates greatly in excess of those from non-competitive points.

To outline just how this affects the shipper from a non-competitive point, take, for instance, shipping points in the Niagara Peninsula, west to Berlin, north to Streetsville, the local commodity express rate on fruit to Winnipeg is \$2.65 per 100 lbs. From the Leamington and Essex district and from Sarnia and other points where two express companies operate, the rate is \$2.90. Exclusive points, however, have been paying enormously high rates, such as from Forest, where only the Canadian Express Co. operate, twenty-three miles less haul than from Sarnia, the rate was \$4.20. This was brought to the attention of the Express Co. officials, and they issued a tariff June 7th, 1913, allowing these exclusive points the \$2.65 or \$2.90 rate plus 30 cents in the former and 35 cents per 100 lbs. in the latter instances. There are many complaints of high express rates to points within the province; but this matter has not yet been presented to the Express Companies.

REFRIGERATOR CAR REQUIREMENTS

An effort was made to get an estimate of refrigerator cars that the fruit shippers would require last fall, at the different shipping points, with a view to supplying the different railway car distributors with the requirements for each division, between certain dates. I regret to say only thirty-three shippers responded to our request for the information. These were, however, compiled and sent to the proper officials, from whom a reply was received stating information was of great assistance in arranging for the supply. I have reason to believe the greater portion of these thirty-three shippers requiring 692 cars, between October 24th and November 10th, received much better service than they would otherwise have received. With this information the railways could better estimate their requirements, and they had promised to cooperate with us in an effort to improve the conditions of last year. The shippers were not mindful of their own interests in this matter, but I hope when occasion again demands they will be prompt, and be more unanimous in their response.

L. C. L. FREIGHT SHIPMENTS

Another matter of a monetary benefit to some fruit shippers in some districts was an arrangement made with railway representatives, whereby L. C. L. shipments were carried on freight rates instead of by express on the same train. For instance, in the Lambton district, the shippers at Forest and Theodford were shipping to Stratford at an express rate of 50 cents a 100 lbs., and London, 60 cents a 100 lbs. on a mixed train. It was my privilege to take this up with the divisional agent at Stratford, and he consented to placing a car for 6,000 lbs. minimum at a rate of

*Extract from a report presented at the last annual meeting of the Ontario Fruit Growers' Association.

EXPERIMENT on ONIONS conducted by
Geo. S. Chapman, Lorne Park, Ont.



Fertilizers Applied Per Acre	Muriate of Potash Acid Phosphate Nitrate of Soda	Plots I	II	III
		—	100 lbs.	—
		—	500 lbs.	500 lbs.
		—	200 lbs.	200 lbs.

Order Your **POTASH** At Once

The Potassic and Phosphatic Fertilizers should be applied as soon as the land is workable.

Many disappointments with fertilizers are due to the fact that they have been applied too late for the crop to get full benefit from them in the first season. Remember that fertilizers are not used up in the first season, but are effective for several seasons. Nitrate of Soda should generally be applied as a top-dressing at planting time. Slower acting Nitrogenous fertilizers can be applied earlier with the other materials.

Muriate of Potash and Sulphate of Potash

can be obtained from the leading fertilizer dealers and seedsmen.

Write for our Free Educative Bulletins, which include :

- “Artificial Fertilizers; Their Nature and Use”
- “The Farmer’s Companion” “Fertilizing Orchard and Garden”
- “The Potato Crop in Canada”
- “The Principal Potash-Crops of Canada” etc.

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A practical book of working instructions. Tells how and when to spray. Explains how to select the right mixtures for certain pests, how to treat insects and fungous growths, how to prepare, what strength to use, how to apply, which type of sprayer. Forty pages of the very information you want to increase your crop yield 25 to 75 per cent. We send it free. Write to-day.

Goulds Reliable Sprayers

are more durable, more practical than cheap outfits which only last a season or two. That is why 400,000 orchardists and gardeners have chosen Gould’s Sprayers. They never clog, are easily cleaned and spray most uniformly. Before you decide on any sprayer, find out about Gould’s improved methods. It will save you money and trouble.

Send for the book to-day. It tells you about every type of sprayer, from small hand outfit to big power pumps. (19)

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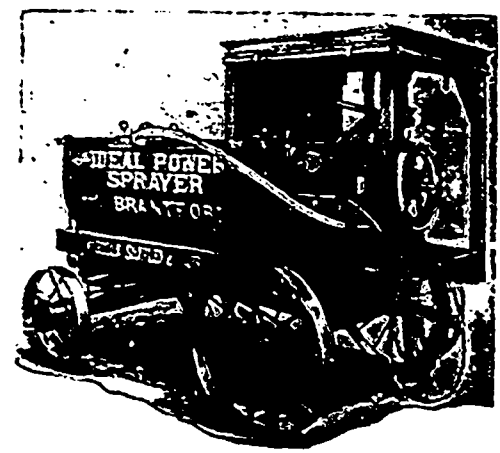
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Catalogues describing our different lines, sent on request

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22 and 24 cents respectively. The service was used to good advantage because the shipper or shippers did the handling, received the same despatch, and saved 28 and 26 cents a 100 lbs. respectively on their shipments.

Where similar conditions exist, if shippers would report to the committee or myself, it would receive attention.

These are some of the matters which received the attention of the Transportation Committee and myself during the past year. The concessions granted have been made possible by your assistance in furnishing records, and just here may I express the necessity of keeping the records asked for from time to time by circular. The power under which your committee can work successfully is in your hands. We must have these facts well substantiated; it only remains, then, for you to make this keeping of records one of the first things attended to on each shipment. I want to assure you that railway companies are beginning now to realize that the Ontario Fruit Growers Association is a body alive to their rights, and can substantiate a request with something behind it. Evidence which you shippers can produce will demand a hearing at any time, and I sincerely hope if this work continues your committee will have the cooperation of every shipper in the province.

The Brown Tail Moth

In an open letter published in some of the Nova Scotia papers, Dr. C. Gordon Hewitt, Dominion entomologist, deals with the Brown Tail Moth infestation in that province in part as follows:

The serious character of this insect as a pest of fruit and shade trees, and as cause of physical discomfort and possible illness owing to the poisonous nature of the hairs of the caterpillar, needs no emphasizing, as most of our readers will be acquainted with the experiences of the New England States in regard to this insect and the Gipsy Moth.

The Dominion and Provincial Departments of Agriculture are making every possible effort to keep the insect in check by collecting the winter webs or nests on the trees, each of which webs contains on the average about two hundred and fifty young caterpillars. On this work a body of ten inspectors employed by the Dominion and Provincial Governments, is engaged, and they are covering the whole of the infested territory. Owing to an enormous flight of moths which were blown across the Bay of Fundy from Maine in July, 1913, the infestation has been very greatly increased. With the annual increase of the infestation in Maine we may expect a recurrence of such a re-infestation by wind-carried female moths in the future, and it is therefore more than ever necessary to call the attention of the owners of orchards and trees to the requirements of the law in this regard.

The conditions in Nova Scotia are such as to demand the strict observance of the law. While the respective governments are leaving no stone unturned, the duties of their officers are to inspect, and the fact that they are collecting the webs on infested premises does not relieve the owners of such premises of the necessity of conforming with the regulations, and taking steps to eradicate the Brown Tail Moth when the same occurs in their premises.

Orders have been issued to the inspectors to instruct the owners of properties on which the Brown Tail Moth has been found in any abundance to spray their trees thor-

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THIS year ten disk harrows will be sold where one was sold five years ago. Why? Because so many farmers have learned that the proper use of a disk harrow is the best guarantee of a successful crop.

Proper use of a disk harrow means the purchase of a McCormick disk harrow because they are the ones built to do the best work. The frames are strong, to stand the strain of following the binder or of disking hard ground. The set levers keep the gangs to their work at even depth. The bearings are the most durable that can be put on a disk harrow.

The full line includes disk, peg tooth, and smoothing harrows, drills and cultivators. See this line before you buy. We send catalogues on request.

"The Disk Harrow," a book which illustrates and explains the proper preparation of a seed bed, and gives examples of the value of disking—32 pages of valuable information—is yours for four cents to cover postage and packing.

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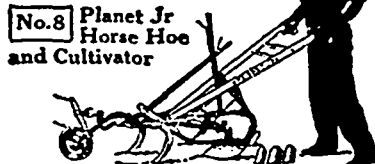
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The greatest cultivating tool for the grower of garden crops from drilled seed. It has steel frame. Light enough for woman's use. A favorite with onion growers.



No. 8 Planet Jr Horse Hoe and Cultivator

The best-known cultivating implement made. Strong, yet light. Cultivates to any depth and adjusts to any width. Has new steel wheel.

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In the top eight inches of average soil there is enough plant food in the form of nitrogen to last for 90 years, in phosphoric acid for 500 years and in potash for 1000 years.

And yet that very spot may prove barren. Plants have to take up their food in solution, in the "sap of the soil." All this food may be locked up so tightly by nature that the plants can't get at it fast enough for the commercial farmer, and he has to put in the same food in the soluble form of fertilizer.

Just so, a fertilizer may, by analysis, have all the necessary elements and yet not give the plant full value because these elements are not ready soluble.

Put into your ground a fertilizer that will feed not your already overstocked soil but your hungry crops with food which is available and easily absorbed.

Bowker's Fertilizers

have chemically correct elements—there is a brand to fit every need. More than that, these chemicals are blended and mixed so that they are rendered water-soluble and go into your ground in the most available form. Most crops do most of their feeding in 60 days.

Write for our illustrated catalogue, based on forty years of experience. In writing, state what your crops are.

BOWKER FERTILIZER COMPANY
43 Chatham Street, Boston, Mass.

Exterminating the Scale*

Prof. W. H. Brittain

The work of inspecting orchards for the San Jose Scale, that was continued during 1913, began June 2nd last, and continued throughout the season, with six to ten inspectors employed in the work. Beginning at Windsor, all the orchards as far west as Dibby were inspected. The inspectors were then placed in Hants County and worked eastward into Halifax and Colchester counties. As a result of the inspection fifty-seven trees were found infested with living scale as compared with seven hundred and twenty-three the previous season. Of these fifty-seven, six were the 1911 planting, forty-five of the 1912 planting, and six of the 1913 planting.

In addition to the scale work the inspectors gathered some valuable data as to the number of orchardists who spray and the acreage sprayed, in comparison with the total area. This information has been tabulated according to counties and makes very interesting reading.

Though I would not wish to predict that the San Jose Scale has now been wiped out of Nova Scotia, for such predictions are always unsafe, I can at least safely say, that in no country of which I am aware has this pest after having become so widely distributed been brought so nearly to the point of extermination. Though I do not wish to magnify the seriousness of this pest, and am very far from saying that its establishment in Nova Scotia would sound the death knell of the fruit growing industry of the province, it would increase the cost of production, which is already sufficiently high. It would cost the country, at a conservative estimate, about fifty-five thousand dollars. When you consider that by spending about four thousand dollars a year by the government, we stand a very good chance of keeping it out entirely, you will see that a very large profit accrues to the people.

At present we are concentrating our energy in keeping out all infested trees. We are increasing our facilities at the port of entry so that all incoming stock will be given a searching inspection, in addition to fumigation, before it is allowed to enter the province. Of course we do not have control of the stock coming in from the United States and other country, but I am assured by the Dominion Government authorities that they are taking all necessary precautions. By these methods we hope to keep this pernicious pest forever outside our borders.

Nova Scotia

A four days' packing school was held at Kentville, beginning February 24th, under the auspices of the College of Agriculture, Truro. The local arrangements with regard to all necessary equipments for the work were looked after by Prof. W. S. Blair and staff of the Kentville Experiment Station. Dominion Fruit Inspector P. J. Carey of Toronto had charge of the work. The actual packing of apples in boxes and barrels along modern lines was taken up. Great interest was shown. The attendance was very large.

As a result of the benefits derived from the demonstration, it is intended that packing schools shall be conducted next season at different points all through the valley. More and more box packing will be done hereafter throughout the Valley.

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

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Get our Big Free Book, "Why, How and When to Spray." Contains 74 illustrations of insects and fungus diseases and gives the remedy for each. Every farmer, truck or fruit-grower should have it. Shows a complete line of sprayers—barrel—horse, engine and man-power for field and orchard.

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No Money in Advance—No Freight to Pay
Our liberal selling plan enables you to buy a Hurst Sprayer without any risk, and pay for it at your convenience. Write today and tell us what size sprayer you need or what you have to spray and get our great **Money Saving Offer** and Big Free Book. It will save you money in buying a sprayer and increase your profits. Write at once.
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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.

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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 hand tools while the horses rest. 18 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" each free.
The Eckman-Wilkinson Co., Limited
402 Spadina Ave., Toronto, Can.

A revolution in spraying that you should know about.

SHERWIN-WILLIAMS

New Dry Powdered Arsenate of Lead

represents the greatest development in the manufacture of insecticides. In addition to its superiority over pastes, it is a step in advance of present day Dry Arsenates of Lead in its more finely divided condition, proved by its bulk. Greater bulk means better suspension, hence a more uniform and far reaching spray. One pound of dry will produce the same results as 2 or 3 pounds of paste lead. Write for prices to-day.—we will also send descriptive booklet.



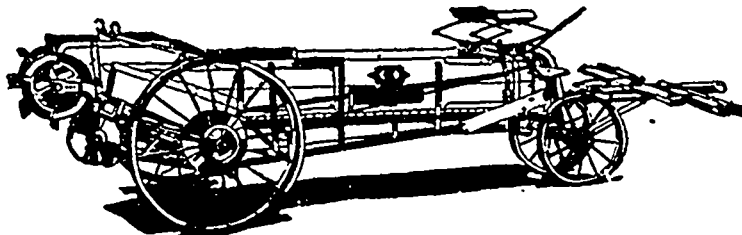
THE SHERWIN-WILLIAMS Co.
of Canada, Limited

MANUFACTURERS OF INSECTICIDES

Offices and Warehouses:

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

International Harvester Manure Spreaders



THE I H C LINE GRAIN AND HAY MACHINES

Reapers, Reapers Headers, Mowers Rakes, Stackers Hay Loaders Hay Presses

CORN MACHINES

Planters, Pickers Binders, Cultivators Essage Cutters Shears, Shredders

TILLAGE

Combination, Peg 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 Binder Twine

INTERNATIONAL Harvester manure spreaders have a score of good features in their construction. Each one is the result of careful field experiment.

An I H C spreader is low enough for easy loading, yet it has plenty of clearance underneath. The rear axle is well under the load, rear wheels have wide rims and Z-shaped lugs, insuring good traction under all conditions. Frame, wheels, and all driving parts are of steel. Apron tension is adjusted by a simple device. Winding of the beater is prevented by large diameter, and beater teeth are strong, square and chisel-pointed.

International manure spreaders are built in several styles and sizes, low or high, endless or return apron, for small farms or large. Examination will show sturdiness of construction in every detail. Repairs, if ever needed, may always be had of the local dealer.

Examine International spreaders at the dealer's. We will tell you who sells them, and we will send you interesting catalogues.



International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.



EVERY FARMER KNOWS

That fertilizers are an absolute necessity to successful farming. The only question that confronts him is getting the *right* fertilizer.

GUNNS

SHUR-CROP FERTILIZERS

are prepared under the supervision of chemical experts—are backed by forty years' reputation, and are guaranteed to be in perfect condition chemically and mechanically.


Gunns' fertilizers are finely ground, insuring an even, easy distribution. For users of our fertilizers we are ready at all times to analyze samples of soils and recommend the fertilizer best suited, making it up especially if necessary.

For fertilizer book and other information, write **I**

GUNNS LIMITED, WEST TORONTO

**Black
Tan
and
White**


**Best
for the
Shoes**



In new
patent
"Easy
Opening
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10c
Easiest
to use


GILLETTS' LYE

**The Standard Lye of
Canada. Has many
imitations but no equal**



**CLEANS AND
DISINFECTS**

100% PURE



ENGLISH HAND-MADE LACE

MADE BY THE COTTAGERS OF BUCKINGHAMSHIRE.

This is the old-fashioned lace made on the cushion, and was first introduced into England by the Flemish Refugees. It is still made by the village women in their quaint old way.

Our Laces were awarded the Gold Medal at the Festival of Empire and Imperial Exhibition, Crystal Palace, LONDON, ENGLAND, for general excellence of workmanship.

BUY some of this hand-made Pillow Lace, it lasts MANY times longer than machine made variety, and imparts an air of distinction to the possessor, at the same time supporting the village lace-makers, bringing them little comforts otherwise unobtainable on an agricultural man's wage. Write for descriptive little treatise, entitled "The Pride of North Bucks," containing 200 striking examples of the lace makers' art, and is sent post free to any part of the world. Lace for every purpose can be obtained, and within reach of the most modest purse.



COLLAR—Pure Linen.
\$1.00.



DAINTY HANDKIE—70c.
No. 210.—Lace 1 1/2 in. deep.

Collars, Fronts, Plastrons, Jabots, Yokes, fichas, Berthes, Handkerchiefs, Stocks, Camisoles, Chemise Sets, Tea Cloths, Table Centres, D'Orilles, Mats, Medalions, Quaker and Peter Pan Sets, etc., from 25c. 60c., \$1.00, \$1.50, \$2.00, up to \$5.00 each. Over 300 designs in yard lace and insertion from 10c. 15c., 25c., 45c., up to \$3.00 per yard.

IRISH CROCHET.
Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

Every sale, however small, is a support to the industry.



(1 1/2 in. deep.) **STOCK—Wheel Design.**
Price 5c. each. (Half shown.)



No. 122.—80c. per yard.

MRS. HORACE ARMSTRONG, OLNEY, BUCKS, ENGLAND

The Export Trade in Pears and Peaches*

Mr. Harrison Watson, Canadian Trade Commissioner, London, E.C.

A FEATURE of the autumn fruit trade has been the record supplies of Canadian pears which have come to hand, and there have also been several shipments of peaches. Although the extremely high prices realized have been due to exceptional circumstances, there seems to be no reason why a profitable trade should not be maintained in the future.

The well known firm of Messrs. W. D. & Sons, Ltd., of Covent Garden Market, who have handled considerable supplies of both Canadian pears and peaches, according to my request, have been good enough to draw up a report which reviews the chief features of the trade which have come to their notice, and also contains several practical suggestions. This report is hereby reproduced for the information of Canadian growers and shippers:

"The prospects are promising for a lucrative and extensive business in the future, but the past season being in many respects abnormal, is not a good basis for generalizations as to the future.

HIGH PRICES OBTAINED

"The season for Canadian pears commenced at a very favorable time for the realization of high prices. The English and French crops were practically failures, and the sprinkling of Californian and Hudson River pears which had come forward had left the demand unsatisfied. Under these circumstances, we were able to return to the shipper highly satisfactory prices for the first arrivals, and had the fruit continued to come forward in good hard green condition, prices would have been maintained at a high figure for the whole of the season. Unfortunately towards the middle of the season it became apparent that the greater part of the fruit arriving was over-ripe, which state of affairs continued for the rest of the season.

"The early varieties, principally Bartletts, were in by far the most satisfactory condition on arrival, and the strength of the demand for good pears at the commencement of the season is illustrated by the first parcel of Bartletts we handled, which came forward in barrels and was found to be in excellent condition. Thus we were able to sell at 50s per barrel for the first grade, and 45s per barrel for the second grade, prices which we believe constitute a record.

"The largest part of the arrivals of Bartlett pears from Canada, however, were packed in half-boxes, which realized satisfactory prices right through, ranging from 6s to 9s 6d, for sound fruit of the first grade, whilst for one parcel of fruit packed in a patent package which we shall hereafter describe, realized 11s per half-box. The half-box averaged in weight about 25 lbs. gross. Boxes of Bartletts, for which we realized up to 12s 6d, were only a small proportion of the arrivals.

SHIPMENTS IN BARRELS

"As regards stocks (other than Bartlett) we cannot report altogether favorably, for whilst very good prices were realized for some parcels of fine hard green fruit, these were few and far between, and most of the arrivals, if not actually wet and running, were too ripe for profitable marketing. Consequently prices ruled lower than the

*From a report to the Department of Trade and Commerce, Ottawa, Ont.

(Continued on page 51)

Roses Roses

Irish, Dutch and American. Hybrid Perpetual, Hybrid Teas and Climbing. Strong 2 year field-grown bushes that will bloom the first year—none better, none cheaper.

ALSO

Trees, Shrubs, Vines, Perennials

Get Catalogue

A. W. GRAHAM

St. Thomas - Ontario.

A GREAT

Parcel-Post Offer!

Wonder Working Washer!

Delivered to you for Only \$1.50

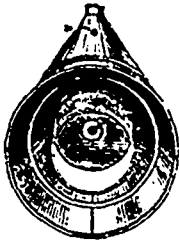
A Beautiful Present Free

If you order immediately. See Coupon at the bottom.

We are able to make this great offer on account of the great reductions which have been made in the cost of postage.

Here Are a Few of the Reasons Why You Should Buy the Rapid Vacuum WASHING MACHINE.

- 1—It is the only machine that has a valve which is absolutely necessary to create a vacuum, and supply the compressed air, which forces the water through the clothes.
- 2—It is the lightest machine made.
- 3—It has been awarded prizes in washing competitions over 450 washing machines.
- 4—It will wash the heaviest Hudson Bay blankets in 3 minutes.
- 5—It will wash the finest lingerie perfectly in 3 minutes.
- 6—It will wash a tub of anything washable in 3 minutes.
- 7—It will last a lifetime.
- 8—It will save you hours of needless toil.
- 9—It will save many dollars a year by not wearing out the clothes.
- 10—It can be operated by a child as easily as an adult.
- 11—It is as easy to wash with this machine as it is to mash a pot of potatoes.
- 12—It will thoroughly blue a whole family washing in 30 seconds.
- 13—It will do everything we claim for it, or we will return every cent of your money.
- 14—It can be used in any boiler, tub or pail, equally well.
- 15—After use it can be dried with a cloth in ten seconds. Nothing to take apart. Nothing to loose.



After you own one of these washers the hardest part of the work will be hanging out the clothes. If for ANY reason you are not satisfied with the RAPID VACUUM WASHER we will gladly return your money.

No more boiling. No more rubbing. You can throw your washboard away.

FREE—A SILVER TEA SPOON

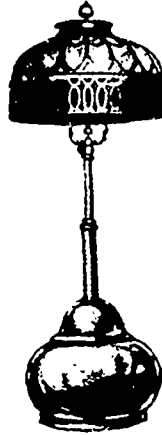
To every reader of this paper who sends us this coupon and \$1.50 for a Rapid Vacuum Washer within two weeks of the receipt of this paper, we will send along with the washer absolutely FREE, a genuine Wm. A. Rogers Silver Tea Spoon. Also our agent's terms which will show you how you can make \$50.00 a week. Don't wait. Send to-day and the washer and spoon will be delivered to you in dress postage paid for \$1.50.

Fisher-Ford Mfg. Co., Dept. W. 110
31 Queen St. W. - Toronto, Ont.

A BETTER HOME LIGHT

Costs less than 1c. a night for 300 Candle Power light.

Here is a lamp that is truly a wonder. "The Faultless Lamp" makes its own gas from coal-oil—will produce 300 Candle Power of bright, white light at less than 1c a night. Simple, strong, most beautiful portable lamp.



THE FAULTLESS LAMP

CANNOT EXPLODE. CAN BE ROLLED ON THE FLOOR WHILE BURNING. REQUIRES NO CLEANING.

Why sacrifice your eyes with a poor light when the saving of oil alone will pay for a "Faultless" in a short time.

Write for free booklet "M." showing how it works, and giving other valuable information.

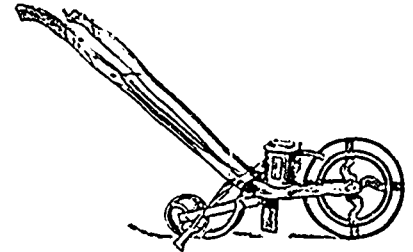
MAC LAREN & CO.

Drawer D. Merrickville, Ont.

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.



"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.



STRENGTH-GIVING BREAD

If the men of the house have an extra call on their strength at this spring season they should be fortified for it by having the best of food three times a day.

As bread is the main item of every meal much depends upon its wholesomeness and strength-giving quality. Avoid guesswork by always using

REINDEER FLOUR

The flour that will always produce an appetizing, satisfying and muscle building loaf.

YOUR GROCER CAN SUPPLY IT

PETERBOROUGH CEREAL CO., Simcoe St., PETERBOROUGH, ONT.

CUTS EVERYTHING!

Bread—meat—cooked fish—vegetables—fruit—anything and everything in the food line you put into a

Maxwell

"HOME 65" FOOD CUTTER

is minced to perfection. Here too, is a machine which is quite watertight. No food or juices can escape as is the case with most Food Cutters.

No Food Cutter works so easily or is so reliable as the "HOME 65"

Four cutting plates (or 3 plates and 1 nut grater.)
Tight fitting screw cap.
Machine quite watertight.
Open end cylinder, easy to clean.

Better than any foreign made machine—and cheaper, too!
With every "Home 65" we give a "Food Chopper Cook-Book" free.

MAXWELLS LIMITED

ST. MARY'S ONT.



GLADIOLUS

America, \$1.50 per 100 Theonic, \$3.00 per 100 Express collect Send for list of other varieties.

H. P. VAN WAGNER

R. R. NO. 5 HAMILTON, ONT.

STRAWBERRY PLANTS

Williams Improved, Parson's Beauty, Splendid, Sample Fountain, Stevens, Champion, Senator Dunlap and other leading varieties. Write for catalogue and price list.

W. WALKER - PORT BURWELL, ONT.

Fruit Markets of the Future

The European representative of The United Fruit Companies of Nova Scotia, Limited, Mr. John N. Clute, in a recent letter to that company, reported in part as follows:

I am of the opinion that the development of our fruit industry should be along the line of quality rather than quantity. Within the next decade or two there will be strong competition in the fruit trade. England, with her cheap supply, and Oregon and other western states with their superior class of apple, will both be strong competitors with us for the English markets. We must not disguise the fact that the planting of orchards within the last ten years has been out of proportion to any previous period, and out of proportion to the development of the markets.

In England not only has the planting been extensive, but growers have adopted more scientific methods of caring for and marketing their fruit. I was forcibly impressed with this when attending the Ken. fruit show at Maidstone this year. Although only their third annual show, there was a display of fruit that would do credit to any country. One thousand two hundred boxes of apples packed in scientific western style were arranged in a most attractive manner. There was also on show one hundred and forty-four barrels of apples. There was more competition in the Bramble Seedling than any other variety. The particular object of the show was to encourage packing apples for export. England has a large and growing export trade in apples with South America.

With these facts in regard to our competitors fairly before us, we must equip ourselves in the very best manner possible to meet the conditions. We must produce fruit of the best quality, handle it carefully, and pack it honestly and systematically. It must be put on the market in the very best condition possible, and that with the least possible expense.

There is too much difference between what we receive and what the English consumer has to pay. If we wish our apple trade to increase sufficiently to take the increased supply we must put in operation a system by which our apples can be procured by the consumer as cheaply as oranges or bananas. I am pleased to say that the United Fruit Companies have a scheme whereby expenses can be so reduced that the consumer can buy more cheaply and at the same time we, as growers, will receive more money for our fruit.

Recent bulletins and circulars that have reached The Canadian Horticulturist, include the following: Bulletin No. 241, issued by the Agricultural Experiment Station, Berkeley, Cal., entitled "Vine Pruning in California." This bulletin is well illustrated, and deals among others with the grape vine. Bulletin No. 171 is being distributed by the Agricultural Experiment Station at Lafayette, Ind. It is entitled "The Vegetable Garden." Vegetable growers will do well to obtain a copy of it. "Peach Leaf Curl" and "Apple Growing in New Jersey" are the titles of two circulars, Nos. 29 and 30 respectively, being distributed by the New Jersey Agricultural Experiment Station.

Too many fruit growers forget that one spraying done at the proper time does much more good than two or three sprayings done at other times.—H. K. Rowell, Northumberland Co., Ont.

ROSES

11,000 splendid Hybrid Tea Rose Bushes, mostly two year old, will be ready for delivery about June 1st in the following varieties: White and Pink Killarney; Richmond (red); Hillingdon (yellow); Canadian Queen (pink); American Beauty (dark pink). Plants will have splendid roots and will make first-class summer bedding stock. We are offering this stock at the following very attractive prices to clear out quickly: \$10.00 per 100 on orders of not less than 25. Write for special prices on large quantities. Orders will be booked in the order in which they are received. Cultural instructions will be sent with every order.

THOS. A. IVEY & SON, LTD., PORT DOVER, Ont.

**D. & F's HIGH GRADE VEGETABLE SEEDS**

- BEAN**—A new, stringless, wax bean of great merit. Early, hardy, stringless, rust-proof and exceedingly prolific. Pkt. 10c. ½ lb. 20c. 1 lb. 30c.
BEAN—Stringless green pod. First introduced nineteen years ago. Still unequalled. Pkt. 10c. ½ lb. 15c. 1 lb. 20c.
BEEF—Bobbies Selected Globe. The best of the Turnip-rooted class. Pkt. 10c. oz. 40c.
CABBAGE—Copenhagen Market. Early as Jersey Wakefield and half again as large. Pkt. 10c. ½ oz. 30c. 1 oz. 50c.
CORN—Golden Cream. Very early, very sweet and juicy. The best for home garden. Pkt. 10c. ½ lb. 20c. 1 lb. 35c.
CUCUMBER—D & F's extra long white spine. The most beautiful and best long green. Pkt. 10c. oz. 50c.
LETTUCE—D. & F's Peerless. Most distinct and largest solid cabbage lettuces. Pkt. 10c. oz. 30c.
LETTUCE—Wayahead. Earliest and most solid of all early lettuces. Pkt. 10c. oz. 20c.
ONION—Cranston's Excelsior. Unsurpassed for exhibition purposes. Pkt. 25c.
PEA—World Record. Two weeks earlier than Gradus. Pkt. 10c. ½ lb. 30c. 1 lb. 50c.
RADISH—White Icicle. Easily the best of all early white "Lady-Finger" Radishes. Pkt. 5c. ½ oz. 15c.
TOMATO. D. & F's O.K. The best early bright red tomato. Pkt. 15c. ½ oz. 75c.

D. & F's Exhibition Spencer Collection of Sweet Peas

Sometimes it is difficult for the amateur to intelligently select the best varieties of sweet peas from the seedman's list. The following names with their descriptions will be helpful:

King White, pure white; Clara Ourtis, waved primrose; Elfrida Pearson, rose; Margaret Atlee, cream pink; Countess Spencer, select stock, large bluish pink, waved; Thomas Stevenson, orange pink; Stirling Stent, orange salmon; Vermillion Brilliant, scarlet; Maud Holmes, crimson spencer; George Herbert, orange pink, deep rose wings; Nubian, chocolate; Margaret Madison, pale lavender; Asta Ohan, deep lavender; Tennant Spencer, purplish mauve; Elsie Herbert, bluish white, picotte edge; Apple Blossom Spencer, waved rose and blush; Afterglow, bright violet blue; America Spencer, bright blood-red striped.

Special collection offer: one packet each, of the above 18 varieties, \$2.75

Send a postal for our new 1914 catalogue, the finest and most complete, listing only high-grade seeds.

DUPUY & FERGUSON

38 JACQUES-CARTIER SQUARE

MONTREAL, QUE.

Market Gardeners

It will pay you to look carefully over our Price List of

SEEDS

Ask for Special Prices on Garden Peas and Seed Corn.

Our Seeds will POSITIVELY, ABSOLUTELY, give you satisfaction.

Write us about your wants

Geo. Keith & Sons

Seed Merchants since 1866

124 KING ST. E., TORONTO, ONT.

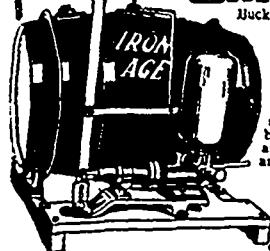
SPRAYERS

Are a Necessity and a Benefit.

Outside Pumps, Bronze, Brass, Galv. Vases, Hemp Packing, 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

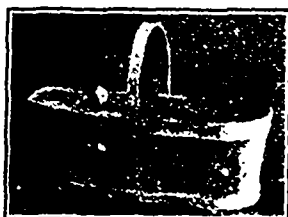
IRON AGE



Bucket, Barrel, Power and Traction Sprayers for orchards 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 164 Gillingham Av. Toronto, Can.

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

Canadian Woodenware Products Co.

ST. THOMAS, ONT.

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 Orego 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.

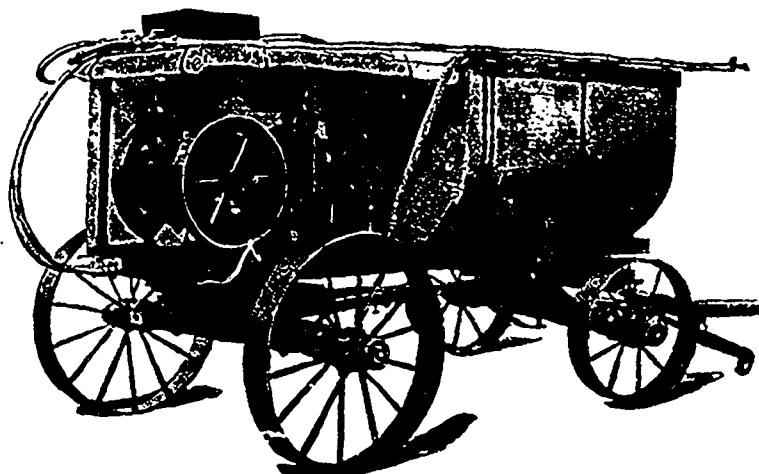
C. MORTIMER BEZZO

BERLIN, CANADA

"The Hardie Power and Hand Sprayers"

The Sprayer that is free from Experimental Risk

OVER 6,500 IN USE



"The Sprayer" (you are looking for) "With The Trouble Left Out"

CONSIDER WELL THE HARDIE FEATURES

SIMPLICITY OF CONSTRUCTION — Obtained by leaving out everything of a complicated or troublesome nature and using only such construction as experience has proven best.

STRENGTH — The liberal use of high grade steel and the use of metals which will stand the wear and tear of high pressure work.

BIG CAPACITY — Our pumps are properly designed and built by "sprayer specialists." We know the importance of lots of liquid at the nozzle and build accordingly.

HIGH PRESSURE — We use a powerful engine on our machines and our pumps are so light-running that high pressure can always be obtained.

LIGHTNESS — By the use of a high carbon pressed steel frame we get strength and long service.

FROST-PROOF ENGINE — We use the Ideal engine. It is compact, strongly built and reliable. Plenty of power and always ready to run.

PRESSURE REGULATOR — A simple, reliable device to control the pressure. There is no load on the engine when the stopcocks are off.

LITTLE THINGS — Stay-There hose ends which cannot be blown or pulled off. Angle cut-offs, a decided improvement over the old style stopcock. Hose, the kind that gives you the service you desire.

Whether your orchard is large or small there is a Hardie Sprayer to fill your requirements, assuring you spraying success, with a

Hardie Hillside Triplex
Hardie Western Triplex

Hardie Duplex
Hardie Junior

HARDIE HAND PUMPS — The world's best, so simple that the only tools required to keep them in perfect working order "are a boy and a monkey wrench."

There are now in use nearly 30,000 Hardie Hand and Power Sprayers. Our prices are lower than other machines of like specifications. Take advantage of our large output and the Sprayer Pump Value **BUY A HARDIE.** Write for our catalogue giving which you will receive, and mechanical details of our full line.

DISTRIBUTORS FOR CANADA

The Biggs Fruit and Produce Co.
BURLINGTON, ONTARIO LTD.

Florists, Gardeners, Fruit and Vegetable Growers

If you are contemplating building

GREENHOUSES OR CONSERVATORIES

We advise you to build right, provide against wind storms, save all your stock from destruction and yourself from worry, produce and work under a glass roof that will insure your labours and crops get PARKES MODERN GREENHOUSES.

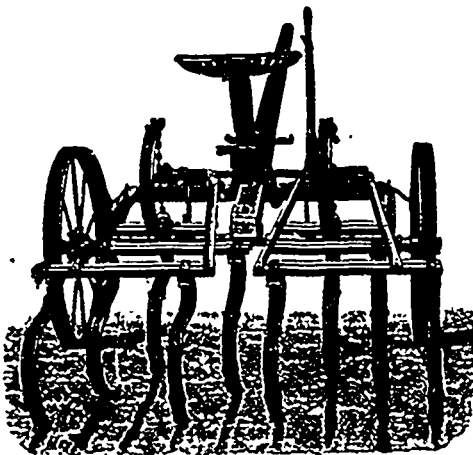
We also supply and manufacture

SHELF BRACKETS, PIPE CARRIERS, SPLIT TEES
GREENHOUSE WHITE PAINT, PUTTY and GLASS and all kinds of GREENHOUSE HARDWARE, HEATING and WATER SUPPLY SYSTEMS.

If you want a good addition to your greenhouse get a line on our **IDEAL SHELF BRACKETS**
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Implements for Orchard and Vineyard

Spring-Tooth Harrows
Spraying Outfits
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Cultivators
Grape and Berry Hoes
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Massey-Harris Co., Ltd.

Head Offices - **TORONTO**

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Agencies Everywhere



The fruit grower requires suitable implements if he is to be successful.

The manufacturer with a knowledge of the requirements is in the best position to supply the demand.

Our experience extends back for well over half a century and our implements are in successful use in orchards and vineyards in many lands.

Catalogues and full particulars from any of our agents or by writing our nearest Branch.

The Brown Tail Moth

(Continued from page 114)

oughly with a spray solution containing not less than two pounds of arsenate of lead (the arsenate of lead is to contain not less than fifteen per cent. of arsenic oxide) to every forty gallons of water after the leaves appear and before the blossoming of the trees. The spraying is to be carried out in a satisfactory manner, and all cases in which the instructions have not been carried out will be reported by our officers in charge to the Department.

Those fruit growers who are accustomed to spray thoroughly and at the proper time need fear no defoliation or trouble, but it is to their interests to cooperate with the Dominion and Provincial Departments of Agriculture in seeing that the less progressive persons carry out the necessary requirements.

Pre-cooling Advocated

At a recent meeting of the directors of The United Fruit Companies of Nova Scotia, Limited, Mr. Davidson representing the Fallmouth Fruit Company, presented an indirect argument in favor of the pre-cooling plant it has been proposed to establish for the benefit of Nova Scotia fruit growers.

Mr. Davidson stated that this year the management of the United Fruit Companies would have to place some ten thousand barrels in cold storage at St. John. It has been proved that the cost of having this stuff held in St. John is about fifty cents a barrel, or in round figures, five thousand dollars.

Commenting on this statement Mr. A. E. Adams, the manager of the United Companies, writes as follows: Five thousand dollars to have ten thousand barrels stored under the very worst conditions possible, but even then well expended, because it would keep that quantity of fruit off the market when the market was at the lowest point. Yet when that five thousand dollars was expended there would be nothing to show for it beyond the immediate benefit derived.

"How much better and how much more business like it would be to expend that five thousand dollars towards the equipment of a plant right here in the Valley, which would accomplish even better immediate results. The fruit being handled under much better conditions and immediately after coming off the trees, would arrive on the market in much better shape, and for that reason realize bigger money. In addition, we would still have a plant for similar operations in succeeding years. This is sound argument which we commend to the consideration of those who are not already convinced that cold storage or pre-cooling is absolutely essential."

Item of Interest

Members of the Port Arthur Board of Trade recently entertained Mr. Arthur Sitch, of Hymers, an agricultural district tributary to Port Arthur, in honor of his having established a record production for potatoes of four hundred and twenty-six and one-half bushels for an acre. The competition was open to the province. Mr. Sitch received as a reward a course at the Guelph Agricultural College. The establishment of an experimental farm in the Port Arthur district is being recommended.

The Export Trade in Pears and Peaches

(Continued from page 118)

demand for good pears would seem to warrant. The reason assigned for this over-ripe condition by competent authorities would appear to be the very wet weather experienced whilst the fruit was on the trees, which is considered to have militated against the keeping qualities and vitality of the fruit. However that may be, it is certain that warm weather whilst the fruit was in store or in transit must have been the determining factor of its condition on arrival here, and the demand being what it was, it was a mistake to have shipped a single package across the water in ordinary stowage. On the other hand, many parcels which came forward in refrigerator on the steamer were in over-ripe condition on arrival, which we consider to be due to them having been stored for several weeks before shipment in ordinary storage. At the beginning of the season the weather is too warm for the efficient transport of pears in ordinary stowage, and later in the season their keeping qualities are likely to be impaired.

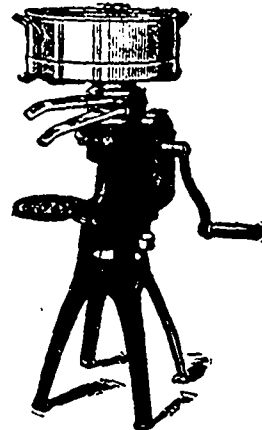
"The great bulk of pears in barrels were Kieffers, but there was a fair sprinkling of

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A few good market garden properties for sale or rent. Locations good, prices and terms attractive. Cheap natural gas for greenhouse fuel. Write for details to

O. PATTERSON FARMER - Jeannette's Creek, Ontario

International Harvester Cream Separators



A DAIRY farmer who does not use a cream separator is losing up to \$15 per cow per year. Complete your dairy equipment by the purchase of an International Harvester cream separator—Lily, Bluebell or Dairymaid. These separators skim closely—leaving barely a drop of cream in a gallon of milk—and they will do it for years.

These machines are furnished with pulleys for the use of power. Belted to a small I H C engine, you have the best outfit it is possible for you to buy. Note the low supply can on I H C separators, the height of the milk spout which allows a 10-gallon can to be used for the skim milk, the strong frame with open base which can be kept perfectly clean, and the dozen other features which make these I H C machines the best.

Your local dealer should have one of these machines on sale. If he has not, write us before you buy and we will tell you where you can see one; also send you an interesting book on separators.

THE I H C LINE GRAIN AND HAY MACHINES

- Reapers, Reapers
- Headers, Mowers
- Rakes, Stackers
- Hay Loaders
- Hay Presses
- CORN MACHINES**
- Planters, Pickers
- Binders, Cultivators
- Ensilage Cutters
- Shellers, Shredders

TILLAGE

- Combinations,
- Pea and Spring-Tooth,
- and Disk Harrows
- Cultivators

GENERAL LINE

- Oil and Gas Engines
- Oil Tractors
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- Farm Wagons
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Ploughs—Wilkinson

TRADE MARK REGISTERED
U.S.S. Soft Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulters. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.



No. 3 Sod or General Purpose Plough. 25 styles to choose from.

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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.

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depend largely on how the crop is planted. Every skipped hill is a loss to time, fertilizer and soil. Every double wastes valuable seed. It means \$5 to \$50 per acre extra profit if all hills are planted, one piece in each. That is why

IRON-AGE 100 Per Cent Planters

often pay for themselves in one season on small acreage. They also plant straight, at right depth, 12 to 24 inches apart. With or without fertilizer distributor. Ask your dealer to show you this Planter and write us for booklet, "100 Per Cent Potato Planting" and copy of Iron Age Farm and Garden News.

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We still have a few thousand first-class plants of the **BLACK NAPLES** variety. Very hardy and prolific.

Ask us for prices on **LAWTON BLACK-BERRY** Plants. Write to

J. E. HENRY & SON - WINONA

Mention The Canadian Horticulturist when writing.

Duchess, Anjou, Seckle, Louis Bon, Clageau, etc., which are subject to the same remarks. Barrels of Keiffer pears realized from 15s to 28s for the first grade of sound fruit according to quality, condition, and the fluctuations of the market. Duchess pears ranged from 25s to 45s, Anjou 20s to 26s, Seckle 26s to 42s. In addition to barrels of Keiffers, we also handled a good number of boxes and half-boxes. Prices for boxes ranged from 5s to 6s 9d, and for half-boxes from 3s 6d to 4s for first grade fruit. It must be considered that the prices quoted are very satisfactory, but when taken in conjunction with the large proportion of rotten fruit which did not realize the cost of marketing, etc., the net result cannot be considered in so favorable a light.

PEACHES SATISFACTORY

"We had a few half-boxes of Canadian peaches, with 36 to 48 fruits each, which sold at from 9s to 11s per package, which must be considered to be a very highly satisfactory result. We think there should be a good business in these rather lower prices for the future.

"As regards barrels, we consider the Canadian packing to be superior on the whole to that of other countries exporting to this market. The barrels are larger, containing some 180 lbs. of fruit average; whilst the use of eight hoops round the barrels which the best Canadian packers use, two at each end and four in the middle, should be made general, when the proportion of slack-packed fruit which so extensively diminishes growers' profits would be greatly reduced. The half-box package is the package for Bartlett pears, and we think it could be used with advantage for other varieties.

"We have mentioned that we had a parcel of half-boxes of Bartletts for which we realized 11s per package. The package used was a patent one, of which the lid fitted into a groove at each end, which groove was made in the size of a wooden clamp fastened to the edge of each of the end-pieces. When the lid had been so fitted, it was secured by a strip of wood nailed above it to the inside of each clamp. The clamps thus stood higher than the lid, and when the boxes were piled above one another in tiers, the top box rested upon the clamps of the box below and the whole weight of the boxes was thus borne by the end-pieces, edgewise, instead of being borne by the bulge of the lid, thus cutting and bruising the fruit. If this package could be generally used, the value of the fruit when it reached the market would be enhanced by several shillings per package.

"We also notice that various growers did not wrap all the pears in each box, but contented themselves with wrapping the top layer only. There is no utility in this, the pears should each be wrapped in the growers' printed paper, or otherwise it is cheaper to wrap none, as buyers will not pay the price of wrapped fruit for boxes, the contents of which are largely unwrapped.

FRUIT TO ARRIVE IN GREEN CONDITION

"The lesson of the past season, as of others, is that expense should not be spared in order to get the fruit here in hard green condition, which if accomplished will surely reap its reward in greatly increased prices; over-ripe fruit, i.e., fruit too ripe to stand during the period of reaching the ultimate consumer, has only a small chance of paying for its cost of marketing, and a very great chance of being thrown away as valueless, if market and weather conditions are against it; there is no margin for salesmanship in the handling of such fruit

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It's packed full of information that will prove helpful to you in the planning and planting of your garden. Information that's worth dollars—just a plain simple story of the best methods to pursue. Tells when to plant, how to plant and what to plant. Your copy is ready, drop us a post card now, you will get one by return mail.

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Protect your trees and garden

A Fairbanks-Morse Spraying Outfit offers you the most effective and economical means of destroying insects and of curing and preventing plant and tree diseases.

The spraying machine illustrated here can be used for practically every spray use on any farm, and will quickly pay for itself in improved crops.

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Send for free catalogue of spraying outfits and appliances. It contains much valuable information, tells you what to spray, what chemical compounds to use, how to prepare them, when to do the spraying, etc. We are the largest Canadian dealers in farm engines, scales, and mechanical goods of every kind.

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that produce workers for honey. The gentlest bees on the earth to handle and the yo'lowest Untreated, 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.

FOR SALE

Apiary, in first-class condition, Grey County, 2 1/2 mile from Tara. 110 hives of Bees, good strain of hybrids, no blacks. 250 supers of drawn comb, also winter packing cases; 8 ft. board fence surrounds yard. Price, \$1,200. Good reason for selling. Write for particulars. J. H. DUNCAN TARA, ONT.

Are you ready to spray, when the petals fall?

The young larvae of the codling moth enters the blossom end of the apple soon after the petals fall. A drop of



Neutral Arsenate of Lead

in the calyx cup before the lobes close, prevents the worm from entering and saves the fruit. This Arsenate is not only perfectly safe in use, but owing to its finely divided condition, it stays better in suspension, covers more foliage and sticks to it better than ordinary Acid Arsenate. We will be glad to quote prices and give further information.

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British Fruit Salerooms

The saleroom in Liverpool belongs to the Brokers' Association itself, and in Manchester, although the Corporation owns the building, they leased it to the Manchester Association for a term of years. Both buildings are very similar in internal appearance, being constructed on the amphitheatre or tier system, the seats of the buyers rising one above the other in a three-quarter circle facing the rostrum, the samples coming up from the cellar below the lift.

These salerooms are not open to the public, nor indeed to any buyer. Persons wishing to buy from the brokers must be members of the Fruit Growers' Association which was formed in each place some years ago. No other, except duly and formally admitted representatives of members' firms may attend the auctions, and even if the actual owner of the goods wishes to see them sold, he must take a seat with the auctioneer and his clerks and is not admitted amongst the buyers.

Admission to the membership of these buyers' associations is a most difficult matter, as it is to existing members' interests to keep new members out, the result being that while some members are little more than retailers other firms in the district whose business has so expanded as to well qualify them for membership, are unable to obtain admission to the charmed circle. If these wish to purchase goods in the saleroom they are compelled to get a member to do it for them, for which service a fee is charged.

STRAWBERRY PLANTS

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

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J. H. RUTHERFORD

Box 62

CALEDON EAST, ONTARIO

Glorious New Spencer Sweet Peas

KING WHITE—It attains perfection in every detail, which goes to make up a Spencer Sweet Pea. It is the experts' ideal for perfect form. The improvement in form, size, vigor, waviness and purity stands eminently out when compared to other White Spencers, and calls for unstinted admiration. The number of four-blossomed sprays and the great length of stem will appeal strongly to those wishing a good White for decorative work. Packet, 20c.

"EMPRESS EUGENIE"—The color is a delicate tone of light gray flaked with light lavender. A vase or bunch gives a most charming effect. The flowers are of large size, beautifully waved and crimped. A vigorous grower and very free bloomer, throwing a large proportion of four-flowered sprays. Packet, 20c.

ILLUMINATOR—A glorious orange-salmon Sweet Pea. In dull light the color appears to be a flat orange scarlet, but when in bright sunshine or artificial light, the color is completely changed, and it appears a bright salmon cerise, sparkling with orange. It introduces a new shade of color to Sweet Pea enthusiasts of rare beauty, and with its additional attributes of great vigor, floriferousness and symmetry, it is sure to captivate all who give it a place in their garden. Packet, 20c.

"WEDGEWOOD"—It is a true self and is appropriately named, as its color throughout is a unique shade of wedge-wood blue, a color so popular in China. It produces profusely flowers of good size, borne almost uniformly in four-flowered sprays, well placed, upon long stout stems of finest Spencer form, the standard and wings are well waved. Packet, 20c.

FREE—Our 112-page illustrated catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Implements, Poultry Supplies, etc. Write for it.

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 Leather, Rubber Canvas, etc. 100,000 rods Wire Fencing, 40,000 lbs. Barb Wire at 2c. per lb., 30,000 ft. Iron Pipe, also 1,000 other bargains at 25% to 50% less than regular value. Now lists just issued, sent free on request. Write immediately.
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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.

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The buyers are under an agreement with the brokers not to buy by auction within certain limits, and the brokers are in turn bound to conform to a certain standard in the selection and cataloging of the goods, so it will be seen that the brokers' monopoly is well maintained; the same regulations practically applying to both centres.

It is not our province to discuss the fairness of this, and of course there are strong opinions both ways. Growers who send goods to be sold for their own account must decide for themselves as to the relative value of the sale by auction as against the sale by private firms. These latter, of whom many are to be found in our advertising pages, just sell on the open market, or very often actually on the quay side in the ordinary private treaty manner.

What will most interest our readers, however, will be the selecting of apples for the big sales. Each broker has of course a staff of experienced men who examine the apples on the arrival and discharge of the boat. They are then classified, each according to its own mark and grade, as follows: (First) Tights, or barrels in perfectly good condition. (Second) Slacks, or barrels in which the apples have sunk a little, but which are not very bad. (Third) Slack and wet, and (fourth) Wasty. The last two designations speak for themselves. Occasionally we get some almost worthless, others worthless, and in the latter case the goods are only sold for the value of the barrel.

These selections have to be very carefully made, as under certain circumstances buyers can refuse their purchases if the selection is not up to the standard bought. In this case the goods are often sold again at the next sale, with the proviso "No rejections" which of course means a lower price.

Extended cooperation, the union of local associations in one central selling body, is the most urgent need in connection with the fruit growing industry of Ontario at the present time.

QUEENS

Northern bred Italiana, Hardy stock, best strain honey gatherers. Order NOW. Prices. April and May—Untested \$1.00. Tested \$1.50 Selected \$2.00. Extra selected, 3 banded, \$5.00.
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NIAGARA DISTRICT FRUIT FARMS—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

RELIABLE HELP, SKILLED AND UNSKILLED, supplied horticulturists and others. Canadian Employment Bureau, Proprietor member of B. G. A., London, England, 65½ James St. South, Hamilton, Ont.

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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. C. Haydock, Salmon Arm, B.C.

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50 COLONIES OF BEEES for sale. Address, W. S. Walton, Scarboro Junction, Ontario.

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

FOR QUICK SALE—25 Colonies of Bees, also 5 lbs. Bees Wax. Price reasonable.—Mrs. W. H. Webster, Hellam, Ontario.

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

I CAN NOW SUPPLY the demand for Old Country Gooseberry Bushes—2 year 25c. one year 15c each. Tam O'Shanter Red Currant Bushes, 25c.—Wm. Duck, Echo Place, Brantford Ontario.

EXPERIENCED BEEKEEPER desires an engagement for the season. Age 30.—Box 20, Canadian Horticulturist, Peterboro, Ontario.

FOR SALE—Bees and Queens. 2 frame Neuk Queenless \$2.25. 3 frame \$3.25. 30 frame Colony with Queen \$8.00. F.o.b. Berolair, Queens, Toronto \$1.35, untested \$1.00.—John W. Pharr, Box Clair, Texas.

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EXTREMELY EARLY,
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A week earlier than the Earliana. More productive than the Chalk's Jewel. As large as the Mostful. As solid as the New Globe. In fact, the world's leading extremely early Tomato.

In our field tests, I.X.L. Tomato proved to be a week to ten days earlier than the Spark's Earliana, with an abundance of fruit larger and more prolific than Chalk's Jewel; in fact, any number of specimens could be found as large as the Mostful Tomato. The I.X.L. Tomato is without a single exception the leading extremely early Tomato. Do not experiment with it, but plant your entire early crop in I.X.L. Tomato. Your crop will net you big returns.

1. A beautiful, brilliant red color.
2. Vase are a perfect mass of large, smooth fruit, a single plant yielding 1 bushel.
3. Fruit extremely early, enormously abundant, ripens all at once.
4. Vase compact and can be placed two feet apart in three-foot rows.
5. The largest growers tell us that we cannot say too much in favor of the I.X.L. Tomato.

Price: 1 lb. \$2.25, or 75c. 1/2 oz. 40c. pk. 15c

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We want every person who owns seeds to secure 1914 Seed Book and try the Splendid Early Tomato, and we will send a packet for 10c. with Seed Book. This book is full of new photographs of Vegetables, Fruits and Flowers. Send your address to-day.

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