

THE CANADIAN HORTICULTURIST

MARCH - - 1911
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PETERBORO, ONTARIO

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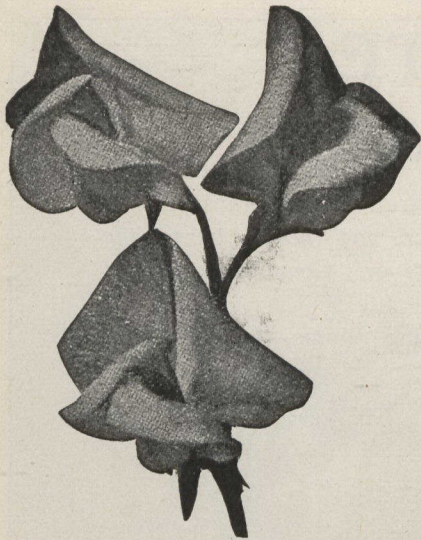
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==FOR 1911==



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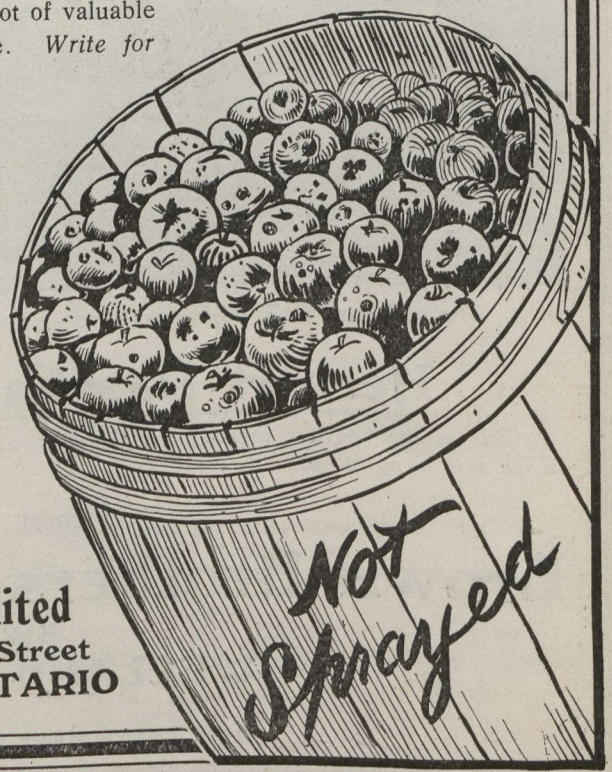
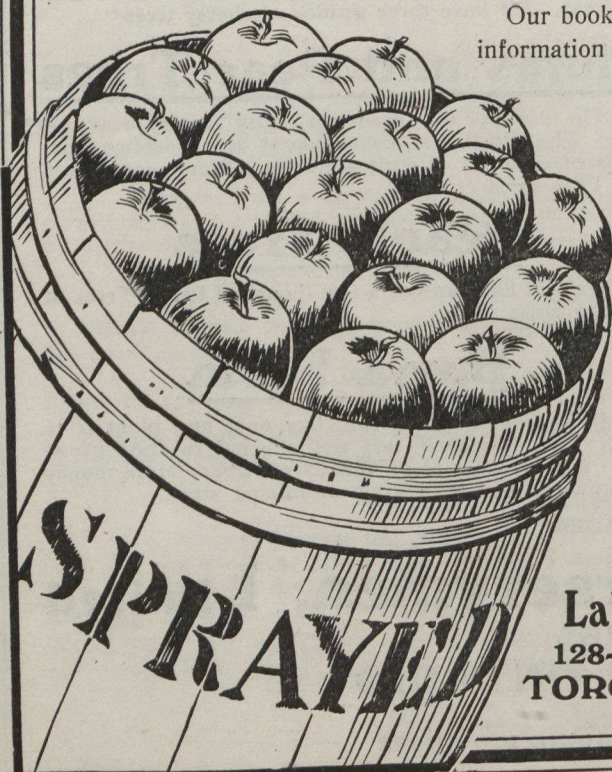
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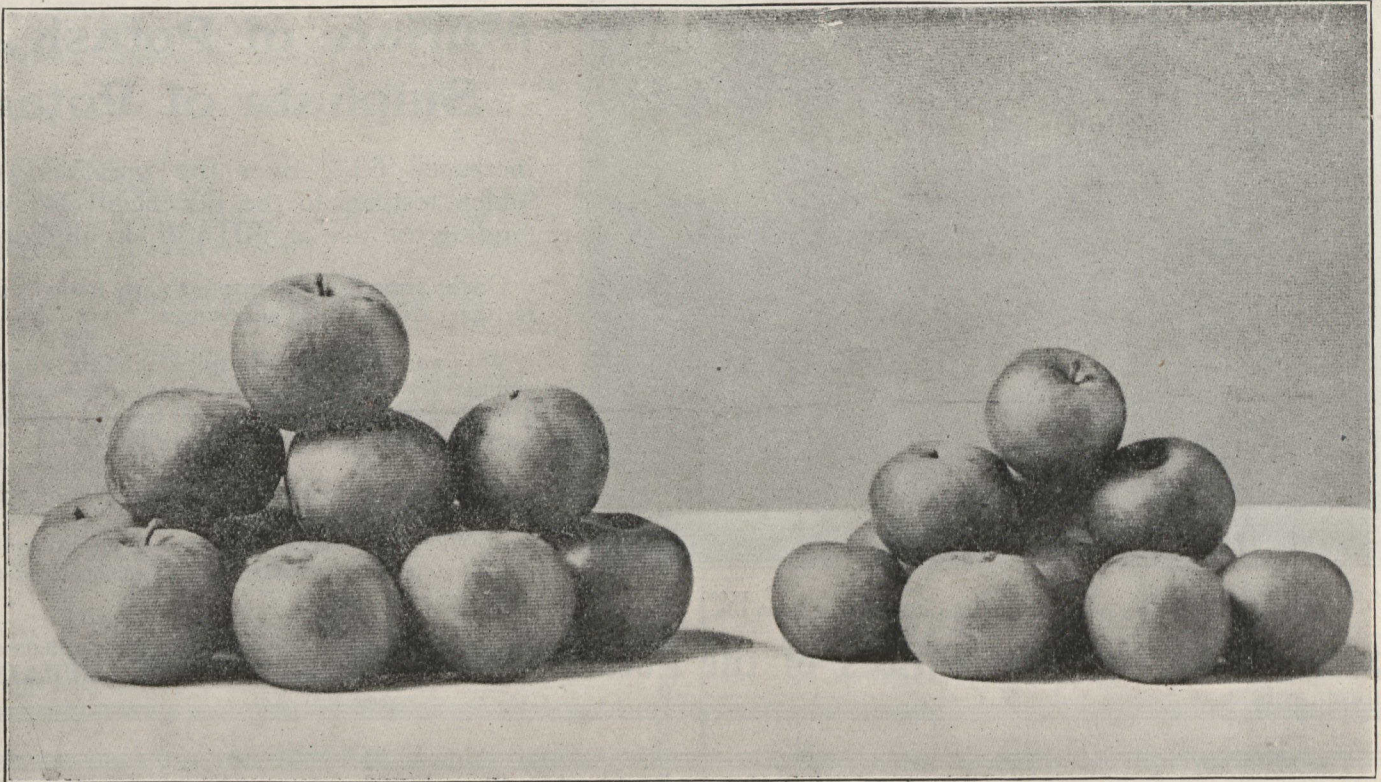
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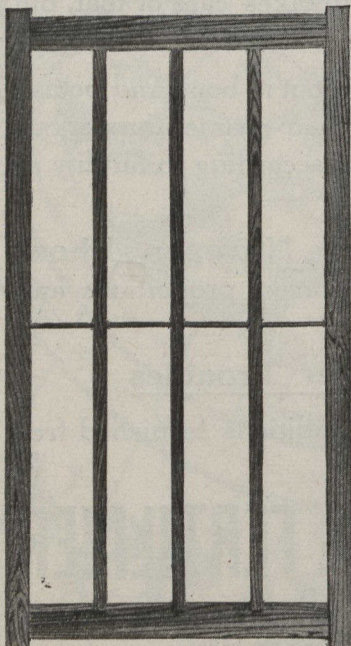
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The Canadian Horticulturist

Contents for March

Fruits and Fruit Growing

An Apple Orchard in the Niagara District . . .	Cover
The Planting and Care of a Large Orchard . . .	<i>W. H. Gibson</i> 53
Notes on Spraying for Results and Profits . . .	<i>W. H. Bunting</i> 54
Getting New Bearing Wood in Old Orchards . . .	<i>A. McNeil</i> 55
Experience in Spraying	55
Starting an Orchard	<i>Fr. M. Leopold</i> 57
Planting a Peach Orchard	<i>H. St. Clare Fisher</i> 58
Fertilizers for Fruit Growers	<i>Prof. R. Harcourt</i> 58

Flowers and Flower Growing

The Canna	<i>Dr. J. Wycliffe Marshall</i> 59
Timely Work for Flower Growers	59
Some Gardens and Gardeners in the Old Land . . .	<i>Miss M. M. E. Blacklock</i> 60
The Cultivation of the Dahlia	<i>J. McPherson Ross</i> 61
Climbing Roses	<i>Wm. Hunt</i> 62
An Old Fashioned Rockery	62

Vegetables

Intensive Gardening on a Small Plot	<i>H. F. Kennedy</i> 63
What to Grow and How to Grow it	<i>A. G. Wolley Dodd</i> 63
Experiments with Cabbages and Tomatoes	<i>Prof. C. E. Myers</i> 65

Miscellaneous

Editorial	66
Publishers Desk	67
The Fruit and Vegetable Growers at Ottawa . . .	67
Prices of Fruit and Fruit Land	68
Notes From the Provinces	69
Compulsory Spraying	74
Floriculture at the O.A.C.	76
The Necessity of Spraying	80
The Co-operative Movement in the Niagara District	ix

INDEX TO ADVERTISEMENTS.

Bank	80
Building Material	xi
Cameras	77
Classified Advertisements	xiv
Cream Separators	xii
Fencing	70
Fertilizers	iv, v, vi, 74, 75, 79
Flower Pots	70
Fruit Baskets	79
Fruit Lands	xiv
Gasoline Engines	75
Greenhouse Material	viii, 79
Hotbed Sash	vi
Hot Water Boilers	ix
Implements and Tools	70, 74, 75, 78, xii
Insecticides and Fungicides	ii, iv, 69, 72, ix
Lawn Mowers	xi
Lighting Systems.	xi
Nursery Stock	iii, 68, 69, 72, 77, 80, viii, ix, x, xi, xii
Pianos	76, 77
Premiums	xv
Roofing Material	80, xiii
Rubber Stamps and Stencils	ix
Salt	x
Seeds and Bulbs	iii, viii, 68, 69, 71, 72, 73, 76, 77, 80, ix
Spraying Machines and Supplies,	ii, 70, 72, 74, 78, 80, ix, xi
Stock Food	75
Telephones	xvi
Washing Machines	x, xi

TALKS ON ADVERTISING

By the Advertising Manager

No. 6

OUR GARDEN ANNUAL

Put your advertising where people will not only see it, but where they will see it often. Each time the advertisement is read the impression it creates on the reader is strengthened. The name of the advertiser becomes more firmly connected in the reader's mind with the thing advertised, and he is more apt to buy these goods when next he requires anything along this line. This explains why space in a paper or magazine which is carefully read and frequently referred to, is of greater value to the advertiser than space in a publication which is read once, and then discarded.

The April issue of The Canadian Horticulturist will be an important issue for our readers and for our advertisers. It is to be our Garden Annual. Coming out just at the time when everybody feels the coming of spring and wants to get out and make a garden, it will be of special interest to our readers. Some of the subjects dealt with in this number will be the laying out and planting of the home garden, how to grow a large variety of vegetables in a small garden, the use of fertilizers for flowers, vegetables and lawns, the culture of small fruits, the growing of roses, sweet peas and other flowers, perennial borders and a page of hints and suggestions for amateur gardeners for the month of April. Numerous other articles will also appear dealing with matters of interest to the professional fruit and vegetable grower. The contents of our Garden Annual will prove of intense interest to every person interested in any branch of horticulture.

Our Garden Annual will be referred to frequently during the spring planting season, as readers turn to its pages for information and ideas in regard to the laying out of their gardens and grounds, the best methods of preparation for the planting of flowers, vegetables and small fruits, the time to plant, and similar subjects, or consult its advertisements for information as to where they can buy the goods they want at this season. The advertisement which keeps popping up before them as they turn over the pages of this number, will create a strong impression on their minds that will prove to the advantage of the advertiser.

Advertisers who wish to interest women will find it to their advantage to use space in our Garden Annual. Every woman loves flowers and is interested in gardening at this season. There will be much in this number that will appeal to our women subscribers and to the women of all the homes reached by The Canadian Horticulturist.

Our Garden Annual will be of further value to our advertisers, as the circulation of this number will be greatly increased by the distribution of sample copies. For several months we have been securing the names of persons likely to be interested in such a number. We will distribute sample copies to these people, and call their attention to the good things this number contains. Not having been regular subscribers they will read this issue with interest, and will also be interested in the advertisements, many of which will be new to them. This extra circulation will be of great value to our advertisers. We will guarantee a circulation of at least 10,500 copies of this number.

Mr. Advertiser, it will pay you to use large space in our Garden Annual. If you have not been advertising in The Canadian Horticulturist before, this is a good time to start. Let us have copy by March 20th.

We do not admit Advertisers to our Columns except such as we believe are thoroughly reliable.



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All Choice Transplanted
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In the Niagara District

Lists and Prices Furnished on Application

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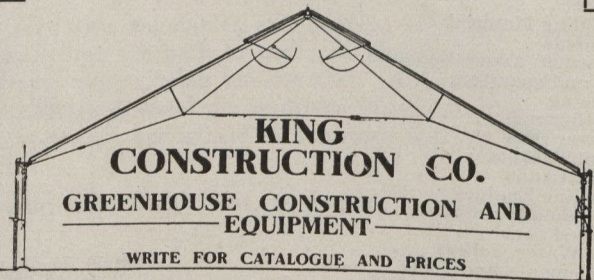
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THE KING CONSTRUCTION CO.
248 Wellington St. West **TORONTO, ONT.**

Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

Vol. XXXIV

MARCH, 1911

No. 3

The Planting and Care of a Large Orchard

W. H. Gibson, President Newcastle Co-operative Association

NEWCASTLE is situated in the heart of one of the greatest apple-producing sections of Canada. It is estimated that in the counties of Northumberland and Durham there are a million trees. Of these 400,000 are in bearing and 600,000 still to come into the production of fruit. Orchards of fifty and one hundred acres are common. The orchards on the farms all through the Lake Ontario apple belt will average at least ten acres in size.

I have no fear of over-production, as I have already seventy-five acres, and will plant twenty-five acres more in the spring. On my farm can be seen what it will be hard to find even in the bonanza apple ranges of British Columbia, or even the States, that is, apple trees in rows a mile long.

PREFERS HIGH HEADED TREES

Ninety-nine per cent. of the trees in this district are headed high. I see no tendency towards changing to the now popular form of low headed trees. Personally I am not in favor of the system of low heading, as I think it is not practical, and that many men who are planting low headed trees will in a few years regret their action. The hired man in plowing will bark them with the harness. The limbs will fly back and hit him in the face, knock off his hat, and cause him to swear, which will not aid harmony on the farm. The limbs will soon bend down with the weight of the fruit, so that they will lie on the ground, but my strongest objection is that in a country where the snow is deep and high drifts form, there is always danger of the snow drifting up over the limbs and breaking them down and destroying the tree. While I believe that a low headed tree might do in a district with a light snowfall, I consider it is a great mistake to plant them in the northern parts of Ontario. We must keep our trees above the snow drifts.

SOIL

A rich, clay loam or a sandy loam make good apple soil. I prefer clay loam myself with an open subsoil, but the apple will do on a variety of soils if it is well drained and given proper culture. There should be no permanent water nearer than eight or ten feet of the surface.

In laying out the field I have a good

plowman open out a double furrow thirty-five feet apart across the field. A good man will run these furrows perfectly straight. Then, with a measuring pole, I measure the distance of twenty-six feet apart in the row, and put up stakes, and then take out the kinks by sighting along the stakes.

I prefer the trees planted in squares thirty-five by twenty-six feet. This gives a wide row for cultivation and I think that in northern districts, where the trees do not grow as large as farther south and west, that they will be far enough apart. In any case they will be far enough apart as long as I have anything to do with them, and then some one

Flowers Won Prizes

I would not be without your most valuable paper, THE CANADIAN HORTICULTURIST, under any circumstances. At the last local fair my flowers took seven prizes and one honorable mention. I lay the credit to the useful information obtained from THE CANADIAN HORTICULTURIST.—Constance H. Royds, Rosedale, B.C.

else can cut them out if they want to do so.

The trees are planted a few inches deeper than they stood in the nursery. The holes are dug a little larger than the size of the roots and filled up with some good surface soil, care being taken to shake the tree, to work the soil around the roots and tramp the soil firmly as the hole is being filled. The filling is finished by turning the furrows back again, when the trees are mulched with a forkful of strawy manure to keep in the moisture. I like to get the trees headed at an average of three and one-half to four feet, though many are planted in this district headed at five feet as the farmers feel that they must keep above the snow line.

PRUNING

Very little pruning is done to the roots, except to cut off broken ones and straggling roots. In trimming the top I cut out lower limbs and thin out the branches, leaving three or four. These are cut back to about two-thirds their

length. The main stock or leader is not touched as my chief care is to have a good strong leader, and it will start more quickly if it is not cut back. The upright pyramid form with a leader in the centre will make the strongest tree with no danger of splitting at the crotch or other ills that open headed trees are likely to have. I have a ten acre orchard, seven years old, trained to this form which gives every indication of fulfilling the above predictions.

The varieties planted are Ben Davis, Stark, Baldwins, Spy, Russet and Greening. The number of trees of each variety planted and also on my own farm will run in rotation as named above. Also I believe that the profits obtained will be in the same rotation, the first named being the most profitable, and so down the list.

EARLY VARIETIES PROFITABLE

For the past two years I have been planting heavily of early varieties. Owing to the poor market facilities in the early days, very few early varieties were planted, and the few trees that were planted have been grafted to winter varieties. The best early varieties for this district are Duchess, Gravenstein, Alexander, Wealthy, Blenheim, McIntosh Red and Snow or Fameuse. The market is improving for early apples, and their growth lengthens the season greatly as we can begin picking the Duchess by August 23rd and continue picking a succession of varieties right through until the winter apples are finished.

SPRAYING

I spray three times. Once when the buds are swelling, with the strong solution of a commercial lime-sulphur; the next two sprayings are made, one just before the blossoms open, the other immediately after they have fallen. I have had good results from using the regular 4-4-40 Bordeaux, with one-third of a pound of Paris green added for the last two sprayings. Last year part of the orchard was sprayed with the dilute commercial lime-sulphur, one to thirty-three with three pounds of arsenate of lead to the barrel of the mixture. I am not as satisfied as many others are that lime-sulphur will entirely supplant the Bordeaux as a summer spray, but will give them both a fair test again the coming season.



Birdseye View of a Seventy-five Acre Orchard

This fruit farm is the property of Mr. W. H. Gibson, Newcastle, Ont. See preceding article for description.

The application for the codling moth should be thoroughly applied, using plenty of force to drive the spray well into the calyx of the blossoms. These three sprayings will control ninety-eight per cent. of the worms, as well as the

apple scab. If any sign of fungus is seen or hot muggy weather comes on, I would give another application of either lime-sulphur or Bordeaux two weeks later.

Select and buy your seeds early.

Notes on Spraying for Results and Profit

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

FOR many years I have been a believer in the necessity of spraying in our fruit orchards and vineyards. The process of spraying has, however, been a gradual evolution, and thus it has been only in recent years that even the more experienced advocates of spraying have been able to satisfy themselves as to methods and mixtures, and there is still a great deal to learn in order that best results may be secured.

My first efforts were directed towards controlling the black rot of the grape. This disease, which on sandy soils in Pennsylvania and Ohio had wrought great havoc, had gained a foothold in some vineyards in the Niagara district in the nineties, more particularly where the soil was of a light or sandy character. For several years, although the Bordeaux mixture was used, results were more or less unsatisfactory. This was largely because the efforts were not so much directed towards preventive measures as to effect a cure after the injury was manifest. This was very much like locking the barn door after the horse was stolen. About the year 1900 it became evident that earnest efforts must be made to control this disease in our vineyards, else it would be necessary to devote the ground to some other kind

of a crop, as large quantities of grapes of such varieties as the Rogers, the Niagara, the Brighton, and even the more resistant Concord were being entirely destroyed and rendered unfit for sale. Various spraying outfits had been employed. These were more or less efficient, but all of them lacked in one or more essential details, causing loss of time and considerable annoyance owing to their liability to get out of order at a critical time. In consequence the work was imperfectly or hastily performed.

About this time also the San Jose Scale had made such inroads in many portions of the district that it had become a serious question as to whether fruit growing as a commercial activity was likely to survive. This pest attacked nearly all kinds of fruit trees and multiplied with tremendous rapidity. Our knowledge of suitable and effective remedies was very meagre.

Thanks to the experiments and researches of our experts and professors, both in Canada and across the line to the South—so many of whom have been successfully engaged in this work that mention of a few names might be invidious—we have obtained an effective spray mixture. This is a compound of lime

and sulphur. It has proved itself so valuable that it bids fair, in combination with arsenate of lead, to be a specific for nearly all the ills that the fruit industry is heir to, and they are many and varied.

For the past few years we have been engaged in a campaign which has had for its object the control and reduction to a minimum of the pests to which I have referred, including also the cindling moth, apple scab, peach curl, and other fungus diseases. With this end in view we have established a steam plant for the economical preparation of our own home made lime and sulphur mixture. We have also secured a power spraying outfit of large capacity by one of the most reliable makers. We now feel that we are fairly masters of the situation.

The past season has fully demonstrated that a careful spraying in the dormant season with a strong solution of lime and sulphur will keep the San Jose Scale in such subjection, that if looked after each year it need cause no further anxiety. This same spraying has also been found a specific for peach curl, and will greatly assist the operator in his subsequent work of controlling fungus diseases.

For the apple orchard we followed this up with a spray of dilute lime and sulphur or Bordeaux, with an addition of ten pounds arsenate of lead to two hundred gallons of the mixture immediately the petals began to fall from the blossom. This was followed by a subsequent spray about July 1st. The result was a beautiful crop of apples of excellent color and quality, which were the admiration of all who saw them, and which commanded excellent prices wherever offered for sale.

In the vineyards we spray early. The first spray is given with the Bordeaux mixture, about 3-4-40, before the bloom opens. We give four sprayings at intervals of ten days or two weeks. The result last year was a crop of almost perfect grapes of all varieties.

Peaches up to the present have had the spraying only in the dormant season, but observations this year have brought us to the conclusion that to ward off the effects of damp and unfavorable weather conditions in the ripening season a thorough spraying with the dilute lime and sulphur when peaches are about half grown may prove time well spent.

I cannot too strongly urge that no pains be spared in an effort to spray thoroughly and well. A man may do all the other work in connection with an orchard in the way of pruning, cultivating and fertilizing, none of which should be neglected, and if he falls down with his spraying he will come far short of realizing the satisfaction and profit which comes from a complete rounding out of the work outlined.

Getting New Bearing Wood in Old Orchards

A. McNeil, Ottawa, Chief of the Fruit Division

IN renewing the wood of an old apple tree, it is usual to cut away the top more or less. The result is that numerous suckers sprout upon the large limbs and even upon the trunk. A few of the most favorably situated suckers are selected, and the rest are cut off, and these growing suckers soon develop the bearing wood.

A common mistake with the average orchardist is to allow these suckers to grow the second year unpruned; the result is that the main growth is made from the top of the suckers which probably have grown the first year four or five feet. At the end of the second year there has been a vigorous growth of say, three or four feet. Unfortunately, this growth is above three or four feet of naked wood. An example of this is seen in figure one. The suckers should have been cut back when they were one year old, leaving not more than five or six buds. This would have taken probably three-quarters of the length from the suckers.

If all the suckers had been pruned in this way, then the second year the same growth would have been made as was made without the pruning, but it would have been located low upon the framework of the tree. During the growing season it might have been necessary to have cut out some of the twigs not needed to form the framework of the new head, leaving three, or perhaps four, good branches growing in different directions.

THE SECOND PRUNING

At the end of the second year the pruning should not be quite so severe. Probably not more than half the growth should be cut back, and during the following season some attention should be given to the branches to give those that were growing in the right direction a chance to fill the whole space about the body of the tree.

At the end of the third year the head should be fairly well formed. In all probability a few fruit spurs will have formed upon the second year wood, and the wood growth not be so great as to require much cutting back. Usually no cutting back is required, simply a little thinning of superfluous branches. After the third year the pruning should not be different from that of the ordinary apple tree and fruit might be expected upon all the previous year's wood.

THE CARE OF GRAFTS

The same treatment should be given to grafts. Nine out of ten of the trees that are renewed by top-grafting, have been distorted in shape by not cutting back severely the strong growth usually

made the first year. Of course, where two grafts grow in one limb, one should be cut out after the first year's growth.

Figure two shows an old orchard which is exceedingly picturesque, but sadly in need of bearing wood coming out from the large limbs within a few feet of the ground. There would be little difficulty in getting a new growth, even in an old orchard such as this is, if the tops were cut back, encouraging the suckers to develop.

The skilful orchardist is always on the lookout for good new wood towards the

so that in practice the older limbs are constantly being deprived of the fruit spurs which once grew upon them, and the bearing wood is being pushed out farther and farther from the trunk and from the centre of the tree. The apple grower noticing this, is constantly on the lookout to renew these fruit spurs by means of new wood growing near the trunk and towards the centre of the tree.

Experience in Spraying

At the short course in fruit growing held at the Ontario Agricultural College at Guelph, Mr. Robert Thompson, of St. Catharines, and Mr. L. Caesar, of the Agricultural College, Guelph, gave their



An Example of the Neglect to Prune Dehorned Trees.—Fig. 1.

The suckers should have been cut back severely when one year old. Neglect to do this results in a tall, straggly top.

centre and lower part of his trees. Those who are familiar with grape pruning know that, in order to have a crop of grapes, a growth of ten or twelve feet must be cut off, leaving a spur of four or five inches, with only two or three buds. In this way the vine is kept within reasonable bounds and large crops of good fruit are produced.

Exactly the same principle should be applied to apple trees, with this difference: If the grape grower looks for fruit upon the wood which he leaves of last year's growth, the apple grower looks only for the formation of fruit spurs on one year old wood and blossoms and fruit the year after. The orchardist has thus to look three years ahead at least. But once formed the fruit spur continues to give blossoms and perhaps fruit for three, four or perhaps five years.

Fruit spurs, however, are exposed to many accidents, the pruner and picker break them; wind and sleet have their effects; and they deteriorate with age;

experience in spraying orchards last season.

The start in spraying, Mr. Thompson said, should be made at the trunk, and that it was better to waste some of the spray material than not to use enough. The majority of people put on too little material. If the lime-sulphur is self boiled or has sediment in it use a large nozzle; if commercial lime-sulphur or clear home-made is used, two smaller nozzles would give better results. Give the first spray early for fear that press of work or an early spring would prevent the application. He would commence spraying any time from February twentieth with the strong solution for San Jose and Oyster Shell scale and blister mite.

HOME BOILED OR COMMERCIAL

He would use the concentrated in all cases as there is economy in manufacture, fuel and labor. He advised those having orchards of under ten acres to buy commercial lime-sulphur and those over that quantity to make their own. At the

Rochester meeting, Prof. Van Slyke advised eighty pounds sulphur, forty pounds of lime, forty-two gallons water as being better than the formula which is generally used, of one hundred and twelve pounds sulphur, sixty pounds lime and forty-two gallons of water. Then dilute the above to six barrels for the dormant spray.

FOR SUMMER SPRAY

Use at a strength of one and a half gallons to a barrel, practically one to thirty of water. He had seen no burning in using fifty-three barrels on two and a half acre orchard, except in the case of one barrel which the men had forgotten to stir.

In the yard where one tree was not sprayed there were no Nos 1 or 2 apples. One Gravenstein tree had sixteen boxes on the sprayed side and none on the side not sprayed. Under one Snow apple tree on the side that was not sprayed the ground was covered with apples, while on the sprayed side the apples all hung on.

Mr. Thompson is greatly in favor of lime and sulphur, being satisfied that it will replace the Bordeaux as being more satisfactory, more economical and more uniform in quality.

HOME BOILED CHEAPER

The cost of the home-boiled solution is about as follows:

112 pounds sulphur	\$1.68
60 pounds lime	25
Fuel	10
Labor, at \$2.50 per day	50
	<hr/>
	\$2.53

This cost of two dollars and fifty cents for what will make six barrels, is forty-two cents a barrel.

The commercial brand will cost from eight dollars to eight dollars and fifty cents a barrel; taking off the value of the barrel at seventy-five cents, leaves it at seven dollars and twenty-five cents to seven dollars and seventy-five cents, say seven dollars and a half a barrel, which will make eight barrels, and costs ninety-four cents a barrel, or more than double the cost of the home-boiled material. It is not safe to use commercial lime-sulphur weaker than one to eight for San Jose scale. He advised using home-made concentrated lime-sulphur and putting plenty on. A few cents saved in material is nothing considering the risk taken in not using a sufficient quantity. The solution can be boiled in barrels by steam. He had boiled the solution in twenty minutes, but advised one hour. Many people think that the material is boiling when it is really not. A thermometer should be used in order to test the heat.

Poor results in spraying are frequently due to not having kept the material at the boiling point sufficiently long. Boil one hour after the water boils. If using steam have it at a high pressure. In order to spray his trees thoroughly he



An Old Orchard in Need of Bearing Wood Lower Down. Fig. No. 2

The tops should be cut back to encourage suckers to develop. Old orchards can be renewed in this way. See preceding page for description.

pruned severely, bringing trees fifty years old down to within ten to twelve feet of the ground; in a number of cases the limbs where cut were six inches in diameter.

OTHER VIEWS

Mr. L. Caesar, B.L.A., of the Department of Biology, Ontario Agricultural College, gave as his opinion that there was no doubt that dilute lime-sulphur, either commercial or home-boiled, or Bordeaux, will give equally good results as a summer wash. The weakness of Bordeaux is that for some unknown reason, especially in some seasons, it will rust the fruit. One advantage is that either Paris green or arsenite of lime can be used, while with lime-sulphur the only safe poison is arsenate of lead, which has been proven to increase the efficiency of the lime-sulphur fifty per cent. The lime-sulphur will give a better color to the fruit. Thorough spraying gives the best results.

The old formula of twenty pounds lime, fifteen pounds sulphur and forty gallons of water, boiling one hour, gave good results, but the concentrated is more economical and convenient, and will save fuel, labor, time and money.

BUY OR MAKE CONCENTRATED

A co-operative company can save money for its members by boiling for the society. An individual with not more than three hundred trees had better buy it, while if the man has a large number of trees he can make it much cheaper than he can buy the solution; but if he has only a few trees, or is commencing to spray, he had much better buy a commercial brand.

There are a number of different formulæ, all very similar. As every pound of

good lime will unite with two pounds of sulphur, he preferred the following, which he uses himself: One hundred pounds sulphur; fifty pounds lime, and forty gallons water.

Bring the forty gallons of water nearly to boil, put in the lime, stirring it well,, then put in the sulphur, working it up with the hands, or working through a sieve. It is not necessary to mix it up in a paste, as is frequently advised. Boil about an hour, stirring with a hoe, when it will be found to have boiled down to about two-thirds of the original amount, and will read about 1.305 specific gravity, of .33 Baume, on the hydrometer. If the above is diluted to forty gallons it will be found to read about 1.275 on the hydrometer. If the mixture is boiled by steam there will be no reduction in volume, and it will read 1.275 specific gravity. To test, let it settle and cool.

To dilute it for San Jose scale requires a specific gravity of 1.035 for good results. To find the dilution, divide thirty-five into two hundred and seventy-five, which will give 7.8, which means that every gallon should be diluted to 7.8, or that 6 4-5 gallons should be added to each gallon of the mixture. The summer wash is most successfully used at a specific gravity of 1.009, when by the same process we find that it will need to be diluted to thirty and one-half gallons, or that twenty-nine and one-half gallons of water should be added to every gallon of the mixture. As a rule, the manufacturers of the commercial brands claim a specific gravity of 1.300, and advise a dilution of one to eleven and one to thirty-five, which is usually somewhat weak to give good results. The commercial mix-

ture will do the work equally as well as the home-boiled if it is used at the same strength. Lime-sulphur is cheaper than Bordeaux.

SPRAY CALENDAR

1. Before or as buds are bursting spray with lime-sulphur without poison at about one to nine or ten; hydrometer test of specific gravity, 1.030 to 1.035, for scale, blister, mite, canker, scab, and destroying the eggs or young larvæ of leaf-eating insects.

2. Just before the blossoms burst, lime-sulphur, one to thirty-two, hydrometer test 1.009 specific gravity, add two pounds arsenate of lead to each forty gallons of the mixture.

Bordeaux, four, four, forty, with four ounces of Paris green or two pounds of lead arsenate, may be used. This application is to kill all leaf-eating insects just hatching, as caterpillars, case bearers, canker worms, bud moths and cankers, and to ensure the setting of fruit by warding off the scab.

3. As soon as ninety per cent. of the blossoms have fallen, use same as number two, or slightly weaker. Lime-sulphur, specific gravity 1.008, or Bordeaux three, three, forty, but the amount of poison should be the same. This is the most important spray for codling moth, and also destroys leaf eating insects and prevents scab and canker.

Spray thoroughly, forcing the liquid into the calyx of the blossoms. The arsenate of lead doubles the efficiency of lime-sulphur as a fungicide.

A fourth application of number three is frequently necessary in about three weeks to check the codling moth and scab.

For curl leaf of the peach, spray with the strong lime-sulphur solution. For the peach rot, spray with the self boiled lime-sulphur and arsenate of lead at intervals of ten days or two weeks.

Buy a pump of adequate capacity. It should have sufficient power to go over the orchard in three or four days. There is only a week at most when the trees can be sprayed for codling moth, and bad weather or unavoidable delays will probably reduce this to three or four days. Use a Friend style of nozzle for dormant spray and force it into the calyx of the blossoms.

Be sure and have good hose, as there is much inferior hose on the market, and a power outfit will give a pressure of two hundred pounds. The higher the pressure, the more material used and the faster the trees will be sprayed. For twenty acres or over use a power plant. If the spraying is to be done at all, it must be done quickly.

It is a mistake to neglect an orchard when it is not producing a crop of fruit. An orchard neglected for a year virtually puts it back three years.

Starting an Orchard*

Fr. M. Leopold, O.C.R., La Trappe, Que.

The first thing to do about starting an orchard, is to plan for it. A slow start is much better than a poor start. The ideal spot for a proposed orchard is gently sloping land, somewhat higher than its surroundings. When a frost or a deluge comes it quickly runs off on to the lower lands. Proper frost drainage is just as important as good water drainage, even more so. Because water can be tiled away; frost cannot. Some growers prefer a north or some other slope; but, says "Biggle," height of land is of more importance than direction of slope.

SELECT PROPER SOIL

Carefully study the question of soil in its relation to the variety of fruit to be grown. Some kinds of fruit do best on light soil, some do best on heavy soils. The difference between a sandy or a clayey location may mean the difference between success and failure.

Apples will do well on almost any soil, provided that it be somewhat elevated and sufficiently well drained. Very high sand or swampy muck, would be least desirable; a loamy, clay soil most desirable.

Cherry trees do best in a light soil, well drained, but not too dry; sandy, loamy or gravelly soil will do.

The ideal pear soil is a rather heavy clay loam with a well drained subsoil. Heavy clay does well if the under-drainage is sufficient. Light or sandy soils are not so good for this fruit.

*Extract from an address delivered at the annual meeting of the Quebec Pomological Society held in St. Hyacinthe, Que.

Plums do well almost anywhere, if the ground is not too wet. This fruit, however, will stand much more moisture than the cherry. A clay-loam, rather moist, but without stagnant sub-soil water, would be ideal for the European and native varieties. The Japanese plum does better on a light soil.

SETTING TREES

In the province of Quebec early spring is the best season to set an orchard. The farther north the safer it is to practise spring planting and after all that may be said about fall planting, the best rule that can be given to a planter who is not an expert, is to stick to spring planting.

Most planters make the mistake of setting their trees too closely together. It seems to them no better than an extravagant waste of ground to set little spindling trees so many feet apart, and it requires some imagination to think that the trees will ever completely occupy the ground. As the man stands off to survey his newly-set orchard, it actually seems as if there were nothing there, but if he could see that same orchard a few years hence, in his mind's eye, he would surely see the wisdom of giving each tree plenty of "elbow-room".

On the other hand, I do not believe that in Quebec, where our winters are severe and trees do not profit comparatively as fast as in Ontario, in planting trees too far away.

Never cut a limb from a tree unless you know just why you do it.



A Horse Power Sprayer (Hurst) in Operation

Planting a Peach Orchard

H. St. Clare Fisher, Queenston, Ont.

THIS is a subject upon which there is a diversity of opinion, but in treating it I simply relate my own experience, which covers a period of about twenty years. During the past ten or twelve years I have been endeavoring to find out by practice the best way to plant a young peach tree, and I feel that I have had a fair measure of success. At the very beginning is where the majority of orchardists fail, for on the proper placing in the



Fig. 1.—Three Year Old Peach Tree Unpruned

The property of Mr. H. St. Clare Fisher, Queenston, Ont.

soil of a young tree depends the future of that tree.

There are four essentials in the planting of a peach orchard:

1. Preparation of the soil.
2. Selection of the trees, being careful to select the proper varieties for your particular locality.
3. Placing the tree in the ground in the proper manner.
4. Fertilization and cultivation the first season.

SOIL

The best soil in which to plant a peach tree is a deep sandy loam with a gravelly subsoil and a rock bottom, probably four to five feet from the surface. I would suggest that the ground be plowed in small lands and well drained in the fall of the year. Do not attempt to plant a peach orchard in a field unless it can be well drained with surface drains or has a good system of under-draining. Work the land very thoroughly in the spring, levelling the field as well as you can. Stake the field, using a triangle; never plow furrows in which to set the trees. Set your stakes eighteen feet apart, north and south, and twenty feet apart east and west, which is close enough to set your trees. Have your holes dug with a long handled pointed shovel and large enough so as not to cramp the roots of the tree. Trim your tree to a whip, place it in the hole with the point of the bud towards the south-west, and have the tree leaning at quite an angle in that direction, or in

the direction from which the prevailing wind comes. Be sure to put surface earth around the roots of the tree, and tramp it as hard as you can, gradually filling the hole until it is about two-thirds full. Having the earth well packed or tramped hard around the tree is very important. As soon as possible after your orchard is planted take a truck load of fine ground bone and sprinkle about a quart around each tree on the outside of the hole. Have men follow up with shovels mixing the bone with the soil, at the same time filling up the other third of the hole, being careful not to pack the earth on the surface around the tree. I use a grade of bone with an analysis of three per cent. ammonia and twenty-three per cent. phosphoric acid. Do not put green manure around a newly set peach tree, or in other words, do not mulch it.

CULTIVATION

As soon as an orchard is set and fertilized start cultivating around the trees with a one-horse cultivator or use a drag cultivator with shoes on so that it will not jump and touch the trees. Do not attempt to get closer than six inches to the tree for fear of striking it, as great care must be exercised at this time not to dislodge the trees. Use a hoe to stir the earth immediately around the trees. Never use a disk harrow in a peach orchard if you can avoid it and do not cultivate deeper than three inches. After your trees have nicely started or about the middle of August place carefully around each tree three or four forkfuls of well-rotted compost manure. By this



Fig. 2.—The same tree as represented in Fig. 1 properly pruned. There are eighteen hundred in the orchard just like this one.

time cultivation should cease, but it must be thorough up to this time, being careful after every rain to go over your orchard with the cultivator and hoe, and regularly, in any case, once every week.

In order to have your trees a uniform size the following suggestions, if carefully carried out, will insure success. Immediately after the trees are planted take a stick thirty inches long, place

beside each tree, and cut tree off, leaving each one in the orchard just thirty inches high. During the season keep all shoots rubbed so that the trunk of each tree will be about fifteen inches high. This, in my opinion, is low enough for a low-headed peach tree.

Fertilizers for Fruit Growers

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

(Continued from last issue)

From a German source we take the following results of a long continued experiment of fertilizers on plums: The value of the fertilizers during the experimental period of thirteen consecutive crops was \$193.50; increased yield of crop worth \$1,709.05. Profit, \$1,515.45. When potash was left out the profit was reduced to \$140; without the phosphoric acid there was \$108.57 profit, which was still further reduced to \$69.03 when nitrogen was the constituent left out in the experiment. In this particular case it is evident that the lack of nitrogen influenced the results more than the lack of either potash or phosphoric acid.

Quoting again from German investigations on gooseberries, the following results are also very interesting: The total value of the fertilizers used through thirteen continuous years of cropping was worth \$203.50; total value of the crop due to the fertilizers, \$2,035. It is apparent that this would leave a profit of \$1,831.50. When any one constituent was omitted the profit was very much reduced. With most of the varieties used in the experiment potash had the greatest influence, phosphoric acid next and the nitrogen least. Evidence goes to show that different varieties of the same kind of fruit make use of the various mineral constituents in different proportions.

Strawberries have been found to respond very readily to the application of commercial fertilizers. A study of the requirements of this crop is not so difficult as that of the other fruits in as much as the strawberry crop does not occupy the ground for so long a time, and therefore experiments do not have to be continued for such long periods. Experiments seem to show that the complete mixture of the fertilizers will give the largest yields, but that on ground in good condition the plot receiving no nitrogen gave nearly as good results as where this constituent was added, while if potash or phosphoric acid were omitted the yield seriously diminished.

EFFECTS OF NITROGEN

One point particularly demonstrated in all experiments with soft fruits is that an excessive amount of nitrogen seems to produce soft fruit which will not ship well and which decays early. This is particularly true in wet seasons and with the strawberry.

(To be Continued)

The Cannas

Dr. J. Wycliffe Marshall

The canna is strictly a tropical plant. There are over one hundred species, all from the hottest climates, but as far as I know America has contributed but one. This one, *Canna flaccida*, is a native of the swamps of Florida.

All cannas are aquatic or semi-aquatic, growing in wild, wet, swampy places. It is well for those growing cannas to bear this in mind if they want good cannas, as they have never left off their original habits. They need heat, sun, moisture, and a place as rich as their old rich mud beds in their first homes. All cannas in their natural state are showy on account of their broad and long smooth leaves.

The flowers of all cannas originally did not amount to much with the exception of the *flaccida*, which is said to brighten up its dreary home with a profusion of light yellow flowers resembling tissue paper flowers and equally as frail. The bloom is of short duration and is soiled by the slightest touch. For these reasons it is not a desirable species to cultivate alone. It was not the flowers of any of the species, but the foliage that first attracted attention.

But note the change which cultivation and hybridization has worked with these tall, stalky plants, with spare spikes of dull red or yellow flowers to the beautiful brilliant constant succession of blooming cannas of to-day, before which all other flowers (not excepting the gladiolas or geraniums) have to step aside.

CROZY HYBRIDS

In the Crozy hybrids we have the finest strain of all the cannas. A Frenchman named Antoine Crozy hybridized them into existence about the year 1884. The Crozy kept improving until 1890, when the Crozy hybrids were known everywhere, and instead of one stalk with flowers that wilted by the sun or were injured by the rain, there were stalk after stalk of big, full, bright flowers that would

“Turn on her god when he sets,
The same look which she turned when
he rose.”

From June until the frost cuts them down in November, the Crozy hybrids are a flame of those bright, big flowers. At the end of the stalk the flowers will come and when those are through a second and often a third big cob will open. When these are through another stalk is up to take its place, and would do so the whole year round were it not for the frost. Where is there another bedding plant that has so many good qualities? Stately, beautiful foliage, a perpetual bloomer, untroubled by disease or insect pest, and easy to grow. Break a stalk off a little below the ground, stick it in the ground and give it water. It will live and flower. Nearly



A Bed of Cannas at Elmcroft, the residence of Senator F. T. Frost, Smiths Falls, Ontario

The Bed of Cannas shown in the illustration of Elmcroft is really very effective. It forms a turn in the roadway in size, twenty-seven by fifteen feet. The shape is a pointed oval or egg shape. The outside row is composed of Dwarf Gloriso, two and one half feet, the next Souvenir de Antoine Crozy, three feet, with the centre of Dark Leaf David Harum, Green foliage, President McKinley, Queen Charlotte, Dark Leaf Deep Red Mewoasal. The border is of Caladium and the Dusty Millar. The bed has been planted for several years with similar arrangement and been both a pride and a pleasure.

all the cannas advertised are the Crozy hybrids.

In 1896 Springer of Italy succeeded in crossing the Madam Crozy and *Flaccida*. The two were named respectively Austria and Italia. The former was canary yellow, with crimson spots, with no resemblance to the Crozy. The flowers were very large, resembling the *Flaccida*. Italia was a curiously blotched yellow and red. Neither were very desirable for bedding.

I have seen some fine hybrids by American florists. One I have, Madam Haskins, I think was produced by a Buffalo florist. I have not yet run across a pure white, pink, or rose, but the scarlet, yellow, and crimson are all fine varieties.

Timely Work for Flower Growers

Many of the winter bloomers have a tendency to become root or perhaps pot bound. The quantities of small rootlets pressing against the sides of the pot become baked and injured by the heat of the rooms or hot sun. They should have a covering of cardboard or paper or simply a thin board nailed to the outer edges of the plant shelves which will keep the sun from shining directly on the pots and scorching the roots.

You can gain a great deal of time by starting nearly all the common flowering plants now. If you have no greenhouse or hot bed, a seed box can be arranged in the window, or in the cellar. The plants can be removed to the garden as soon as danger from frost is over, and you will have flowers in the garden a month ahead of your neighbors.

Begonias, Gloxinias, and Achimenes are among the best house plants. They

are easy to raise and can be grown successfully in the windows of any dwelling. The temperature should be about sixty degrees and the plants shaded from the bright sun. After the first of June they can be successfully handled out of doors in a sheltered and shady position.

Cannas should be started into life this month either in the greenhouse or in boxes indoors, otherwise there will be no flowers until late in the season.

Hyacinths and other bulbs that were potted in the fall can be brought into full light in a cool place either in the greenhouse or window garden.

For a shady corner in the garden the surest plant, and also one very effective, is the tuberous begonia. Get dormant plants during March, placing them in pots where it is warm enough to start them growing. The growth will be well started when spring opens and a month will be gained in obtaining flowers.

You may now sow seeds of the very earliest hardy annuals such as Alyssum, in boxes ready to be transplanted when spring comes.

A few tuberous begonias may be put in moss or sand to start them off before potting.

To propagate Dahlias by cuttings, it will be necessary to bring the dormant plants up to the light now. Plant in a few inches of sandy soil and they will soon furnish choice cuttings which will root in a few days.

Cut a few twigs of Japanese quince, lilac, dogwood, maple, elm, willow, alder and various fruits. Place them in water, in a sunny window; change the water every three or four days, when you will be rewarded by their bursting into bloom.

Some Gardens and Gardeners in the Old Land

Miss M. E. Blacklock, Toronto, Ont.

THE Royal Horticultural Society's July Show is held at Holland House, an historic old place, the grounds of which are even now being cut up into building lots, the land being too valuable to be allowed to lie unused any longer. Indeed, it is wonderful to think it has escaped this fate for so many years — a bit of beautifully wooded country right in the midst of London's rush and whirl. Those attending the show are permitted, by paying a fee of a shilling or two, which is given to some charity, to go over the grounds.

This was a chance not to be missed, despite a drenching rain, as the gardens are quite celebrated. A large stretch of lawn, with flower beds here and there, occupied one side of the house, the end of which opened on a walled-in, formal garden, good, of its kind. The wall on one side formed a back to several glass-houses or conservatories, and by mounting a stairway in the one farthest from the house, one came out on the roof, which formed a wide promenade all along, overlooking the formal garden as well as the grounds in general. This promenade ended in a flight of wide steps down to the other side of the house, not far from the front door. The walks in the grounds were so arranged that they seemed endlessly long—and rather tedious, to be truthful—branch paths leading here and there to various points of interest, such as the rock garden, the rose garden, the Japanese garden, and others. The last was pitifully artificial and the whole effect very poor. In fact, taken as a whole, the grounds were badly laid out and nothing like as beautiful as they might easily have been, with such magnificent opportunities. The trees and shrubs were lovely, and of course no place could be ugly with them for a background, but the garden itself was a hopeless jumble of beautiful things, with no repose about it.

PROFESSIONAL GARDENS

Delightful visits were paid to Messrs. Barr & Sons' Nurseries at Surbiton, where one could wander around for hours at one's own sweet will amongst all their lovely things, getting valuable information all the time. To the Messrs. Perry at Enfield—Mr. Perry, Junior, with a wide knowledge apparently of the flora of the whole world, went around their grounds with me and showed me his best beloved treasures, specimens no money could buy, as well as the grand collection of herbaceous plants that they have for sale. Their collection of delphiniums is superb and won the gold medal at the Holland House Show. And to Backhouse & Sons at York, whose stock of Alpines of all kinds is wonder-

fully complete. Their place is beautifully laid out, and their herbaceous borders and rock gardens are extremely interesting.

MALVERN GARDENS

The gardens at Maddersfield Court, Earl Beauchamp's place near Malvern, are very quaint and the trees magnificent. A beautiful stream runs through a ravine in the grounds and full advantage has been taken of it to plant waterside things. A little island in it was devoted to primulas of all kinds, some of which were in bloom in August. The somewhat steep banks were clothed with many beautiful things. There was quite an imposing rock garden in which ferns grew in riotous profusion, but, though beautiful, it did not give you the idea that Nature had had a hand in the making of it.

A rose garden, enclosed with a hedge cut into divisions with arms to them like those of a bench, had a quaint effect, like so many stalls. A moat surrounded the mansion, the walls of which, on the house side, were covered with roses which were smothered in bloom. There was a maze and also a small enclosed garden, with a sundial at one end of it, which was very pretty.

A SCOTCH GARDEN

A charming garden up in Duns, Scotland, was as interesting as its owner, a doctor, who is as great an enthusiast as our president. His two special favorites were primulas, of which he has all the rarest varieties, and delphiniums. Of the latter, Mr. Quick, of "The Garden Magazine," spoke in most unstinted praise, saying they were the finest he ever saw, and he has ample opportunity for judging. They were so nearly over when I got there that it was unfair to compare them with others seen in the height of the delphinium season, but even they were very fine. The doctor was awarded a bronze medal at the great Edinburgh Flower Show in September for a stand of primulas he exhibited, at which he would doubtless be much elated.

The lovely Penstemon, "Newbury Gem," made a wonderfully vivid bit of color in this garden and the Shasta Daisy, "Edward the Seventh," which is not specially tall here, grew at least four feet high there. He had a little bit of his border devoted to the various varieties of heather, and a very interesting and beautiful group of plants they were. He is a clever gardener, for his borders were full of bloom, though it was September, and we all know how hard it is to plan for succession of bloom, when the season is nearly over.

The two Japanese gardens at the

Japan-British Exhibition were perhaps the most satisfying of any, despite the fact that they contained very few flowers. Their very names suggested beauty and were not misleading, "The Garden of the Floating Island" and "The Garden of Peace." Anything more artistic and beautiful than these two gardens it would be difficult to conceive. You left the noise and glitter and jostling crowds of the great Exhibition behind you, and, the moment you entered their precincts, the spell of their loveliness fell upon you and you lost all sense of weariness and just allowed the peace and the quiet and the perfection of it all to sink gradually into your soul. Grass, rocks, a little bridge, a pagoda-like summerhouse, a shimmering pool, a stone lantern or two, some of the crimson-leaved dwarf Japanese maples and a few small trees, mostly evergreen and of



Cattleya Labiata

A variety of ornamental orchids, which are natives of tropical America.

tapering shape, these were the material used, but an artist combined them. Verily the Japanese are a wonderful little nation

Insect Pests

Fir-tree oil soap is destructive to the apples. Dissolve an ounce of it in warm water and syringe or wash the plant with it.

Red spider is readily routed by plain water. The pest cannot endure moisture. Its appearance is an indication of too dry air.

The blue aphid, which works at the roots of roses and other plants, and the mealy bug, a small downy creature, gray-white in color, thrives in a high temperature, and sorely troubles plants in an ordinary living room. For the former, pour liquid tobacco, strong and black, about the roots. For the mealy bugs, use fir-tree oil soap.

Mildew on leaves will yield if dusted with flowers of sulphur or sprayed with kerosene emulsion.

Azaleas will grow and flower for years, if proper care is taken of the plants during the summer. The pots should be placed in partial shade and sprinkled every clear day with water.

The Cultivation of the Dahlia*

J. McPherson Ross, Toronto, Ont.

THIS handsome garden flower was first introduced from Central America over a century and a half ago, and was named in honor of Dahl, a Swedish naturalist.

Speaking locally, the dahlia was the most popular flower in Toronto forty years ago, a popularity it enjoyed in Scotland and England, and I have no doubt in Ireland. For myself I have kept the same love for the flower that was first implanted and absorbed into my system I am almost ashamed to tell you how many years ago, and also let me say that there were just as fine varieties, just as distinct and glowing colors, as large, perfect blooms in the show kinds and just as diminutive perfect flowers of the Pompom or dwarf types as any of to-day. The same extensive range of color prevailed then as now, from purest white to purplish black, the same fiery crimson and golden yellows, the same shades of lilac, lavender and rose, but no florist has as yet ever frightened the flower into blue.

The fact that we have a great range of color in this flower and that its culture is of the easiest character may account for its popularity, but it lacks one grace, though it possesses many a grace. It lacks one charm that many fine flowers also lack, and one in which the rose stands pre-eminent, that is perfume. If the dahlia possessed this quality the rose would have to look to its laurels.

The dahlia is eminently a fall flower for it is generally September that we have it in all its glory, and it is always a source of regret to see it destroyed just at its best, when the fall frosts come, and to which it is particularly sensitive and tender. To-day you may see a green column of thick strong stems and opulent leaves crowned with gorgeous prim flowers and to-morrow see a black, dishevelled limped mass shorn of all its glory. For this reason it is particularly necessary to forward its growth as early in summer as possible, but again we are met with limitations as we cannot plant out until the frosts are over unless we cover it over with an upturned pot or other protection.

PROPAGATING

The dahlia is one of the easiest to propagate from cuttings, and in order to have them the old tubers may be started in a box in the house anywhere near heat or sun, or in default of a greenhouse a hotbed is the next best. By starting them in March you will have plenty of shoots to make cuttings from. When two or more inches high cut them off just below

the leaf bud or eyes at the base, cut leaves close to the stalk, leaving the top leaves, and these may be nipped back one half. Place them in moist sand, water and shade for a day or so, and they will soon root. If they have a little bottom heat they will root much sooner. Leave the cuttings in sand till well rooted when they may be potted in inch pots. Many put them in the pots at first in good soil. Make a hole with the finger or dibble, fill in a little clean sand then insert the cutting, water and shade. These cuttings form nice tubers in the pots and they may be left here till planting time. In fact many growers prefer the pot grown cuttings to bed tubers for bloom. After propagating all you wish you may divide the old tubers into as many plants as will have good eyes or that you may wish to preserve or plant. When making cuttings be particular to make the cut below two leaf buds in order that the tubers will have eyes or buds at base of stock for next year. If that is not done the tubers will be blank.

SOIL

Dahlias thrive in any soil, whether sandy, loamy or clay, if you will only dig plenty of manure into the soil and give plenty of water during hot weather. The dahlia is a lusty growing plant and requires a strong feed and plenty to drink. Dahlias do better in rows by themselves than mixed with other plants. They may be employed to advantage with shrubbery, which they serve to light up, as the shrubbery is usually without flowers when the dahlia is in bloom. The yellow and white sorts are best for this purpose.

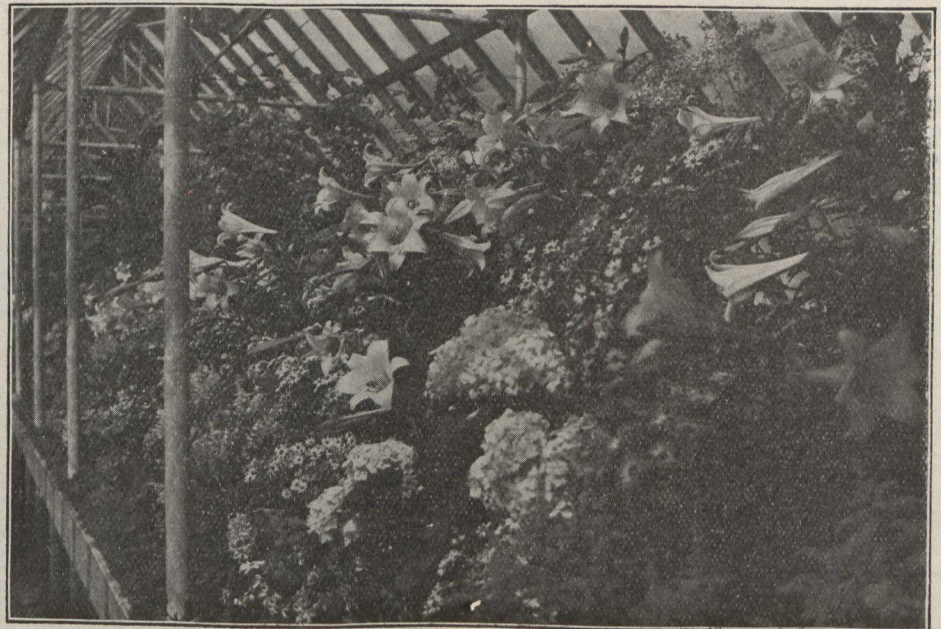
In the border or row intended for the

dahlia after being thoroughly enriched and dug up—good drainage, of course, is supposed to exist, if not, it must be provided—holes are dug eighteen inches to two feet deep four feet apart for tall varieties, and three feet for dwarf. Fill these holes with one foot of manure; tramp down well, then cover with three to four inches of soil on which place your potted plant or tuber. Cover above root top with two or three inches of soil, and press firmly. Place good stakes two inches square and four feet above the surface. This is necessary to prevent disturbance from wind, as the dahlia when fully grown makes a large plant, some five to six feet high, and presents a bulky surface to the wind, so that the staking is absolutely necessary.

When plants start pinch off all shoots but two and when an assured leader is growing, leave but one. I prefer to allow but one shoot, and this soon throws out side shoots which can be kept in order by pinching. Keep the soil loose by constant hoeing and stirring, but as soon as the top roots are thrown out by the plant cultivation may be stopped. A good plan is to have a shallow basin of soil around the base of plant to save the water, also to stimulate the plant when blooming by a pinch of well rotted, rich manure.

(To be Continued)

For gardening give me a spade that I can easily drive through the hard clod and tough sod and a trowel that will not break at the shank. Add to this a rake and a hoe, with a good reach and rigid handle, and I feel equipped for most of my garden work.—Dr. H. M. Speechly, Pilot Mound, Man.



A Corner in the Government Hill Greenhouse, Ottawa

Easter Lilies, Azaleas, and a grand collection of winter blooming plants suitable for conservatory decorations. Photograph furnished by Thos. Davis, Government Florist, Ottawa.

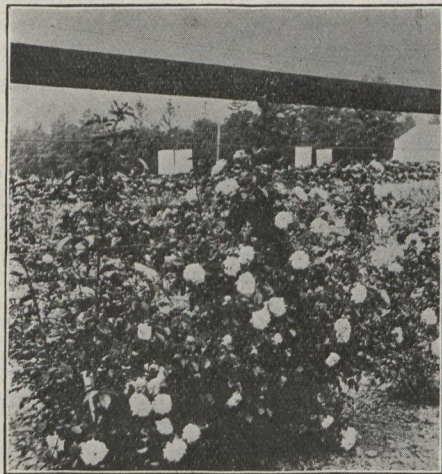
*A paper read before the Toronto Horticultural Society.

Climbing Roses

William Hunt, O.A.C., Guelph

AMONG the newer climbing or rambler roses recently introduced there are several that appear to be worthy of a place among the older and better known varieties, such as the Crimson Rambler, Queen of the Prairies, Baltimore Belle, and so forth. Indeed, it is questionable if some of these older varieties will not be altogether superseded by some of the newer kinds, although the Crimson Rambler will doubtless continue popular on account of the profusion of its glowing crimson flowers and its comparative hardiness. The tenderness of the Baltimore Belle, except in the southern parts of the province, detracts from the value of this otherwise beautiful rose that is so well adapted for a pillar or climbing rose.

Among about twenty varieties tested here during the past two years, there



Hardy Climbing Rose Queen Alexandra—Fig. 1

are only three or four varieties that have proved to be really hardy. The "Queen Alexandra," (Fig. 1) has proved to be one of the hardiest. It is a strong grower, and a very profuse bloomer. Its huge panicles of small pink, or pink and white single flowers, are very showy. The flowers are a little stiff in texture, not quite as dainty as the Dorothy Perkins. Its hardiness and profuse flowering habit will, however, ensure it a place among our best climbing roses. The Dorothy Perkins, while not quite as hardy as the rose in question, is one of the daintiest and prettiest climbers we have.

Another useful and hardy climber is the May Queen. It is very similar in habit and growth to the old Setina rose, known around Toronto some years ago as Mansfield's Seedling. It is, however, much more profuse in flowering than that variety; the foliage is of a very bright green, the leaves being large and dense. The flowers are large, double and of a bright rose pink color, and have a delicious rose perfume. The foliage is freer from the attacks of the small white fly

or rose thrip than most varieties. The Philadelphia Rambler also proved fairly hardy without protection. The flowers of this variety are of a lighter and brighter shade of crimson than the Crimson Rambler.

Another good rose is the Wm. C. Egan (Fig. 2). It cannot be classed strictly as a climber or rambler rose, its habits of growth making it more suitable for a pillar rose, as the growth seldom exceeds five or six feet in height. The foliage is very pretty and attractive. The flowers are of a delicate flesh pink, almost white, double and quite large, often nearly four inches in diameter, with a rich rose perfume. The following varieties did not prove as hardy as those before named: American Pillar, Ards Rover, The Farquhar, Carmine Pillar, *Mme. Albert Carriere, Debutante, Glory of Waltham, *Prof. C. Sargeant, Hiawatha, *Madalina Scalarinus. The new rose Tausendschon has not yet been sufficiently tested to report on.

The roses named had no protection whatever during the three winters they have been tested, the growth being left upon the trellises. The varieties marked with an asterisk were killed out entirely. A test will be made of most of these varieties with winter protection, when doubtless many of them will give better results.

You can secure a choice climbing rose bush free in return for sending one new subscription to The Canadian Horticulturist. See the offer on the inside back cover of this issue.

The nasturtiums are the easiest annuals that can be grown. They are adapted to all kinds of situations and suitable for both foliage and flower effects. Both the seeds and young plants are sufficiently hardy so that planting can be made early in the spring, as soon as the soil can be properly prepared.



Hardy Pillar Rose Wm. C. Egan—Fig. 2



An Artistic and Easily Made Rockery

An Old Fashioned Rockery

A rockery such as is shown in the accompanying illustration is an addition to any garden, however modern and ornamental it may be. It is very easily made and is a source of pleasure the whole season. The child pictured in the foreground is Miss Betty Howell, the youngest member of the Galt, Ontario, Horticultural Society.

This rockery is composed of split blue granite boulders heaped up almost indiscriminately. There is a hollow in the centre which extends nearly to the ground. This space is filled with earth which is renewed with fresh soil every spring. In the centre of this earth, a round stick is driven which extends several feet above the pile. A broomstick will answer for this purpose very well. From the top of the stick stout cords are run to the outer edge of the earth surface, where they are pegged down with little iron rods with hooks on the upper ends.

In the centre around the small pole nasturtiums are planted. Around the outside where each string comes down morning glory seeds are sown and the plants trained up these cords. In the interstices between the pieces of rock are planted sempervivum tectorum, popularly known as hen-and-chickens in old-fashioned gardens of fifty years ago. The whole has a very pleasing effect, for when in bloom the nasturtium blossoms peek out here and there amid the dense mass of morning glory vines and flowers.

If Cinerarias are troubled with thrips, dust with insect powder, or tobacco dust, or spray with oil, soap or tobacco spray. One pound of whaleoil soap to six or eight gallons of water will kill all that it comes in contact with, but as it is impossible to kill them all with one application, it will be necessary to spray several times before the thrips will be all destroyed.

Intensive Gardening on a Small Plot

H. F. Kennedy, Lyons, Ont.

QUITE often enquiries are made by amateurs and inexperienced gardeners as to how to manage a small garden. I am writing this article principally for this class of people, giving them the benefit of my own experience during the last six years. Many people with ambition and a love for gardening are placed in a condition similar to myself, that is, they have but a limited amount of land to exercise their gifts upon, and to such some information in regard to intensive gardening or intensive cultivation would be of great importance, for it is only by such a system that a good supply of all standard vegetables can be raised on a small garden plot.

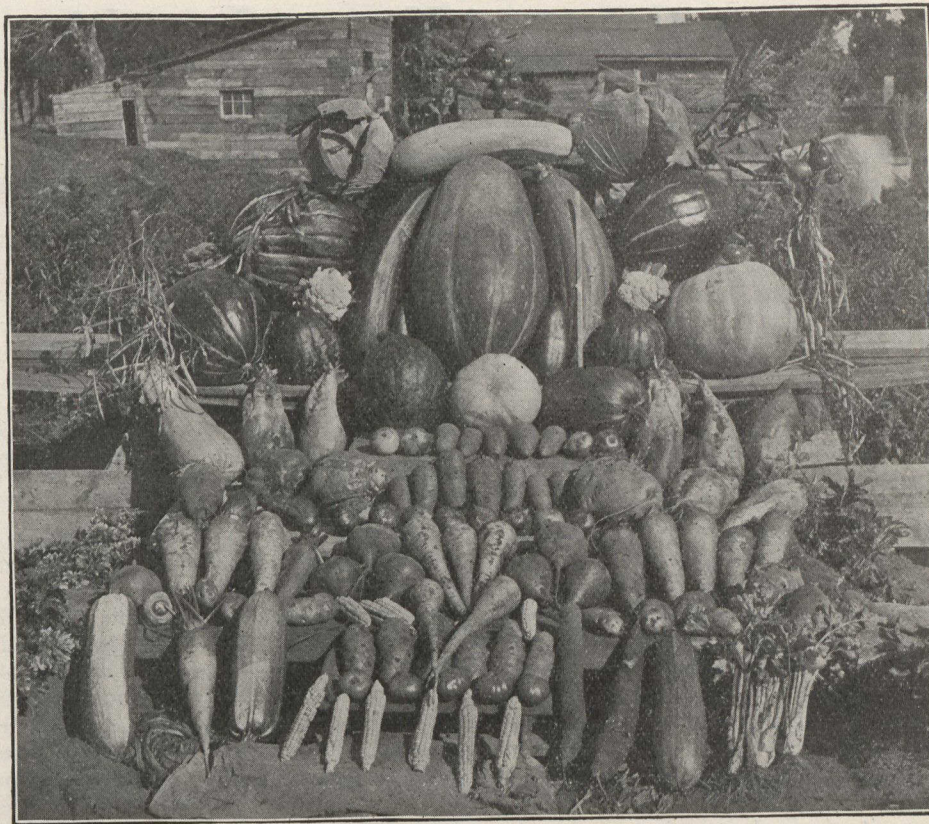
By intensive gardening, I mean such a preparation and cultivation of soil and arrangement of plants and successive plantings as will ensure the maximum amount of vegetables. Last year on a very small plot of rich clay loam I grew an abundance of nearly every kind of vegetables and flowers, which were of an excellent quality, taking several first prizes at the county fair. I believe that by a better preparation of soil and cultivation it is possible to improve upon last year's results, providing the weather conditions are favorable. The soil is in better condition because of last year's cultivation.

TILLAGE

Garden soil should be plowed deeply or spaded up as deep as possible in the fall, as soon as the vegetables are all gathered in. Good rich stable or poultry manure to the depth of three or four inches, should be worked well into the soil. I find that plowing two furrows together, having the earth in high ridges over winter, is an excellent plan. This allows the water to drain off freely in the spring and gives the frost a better chance to pulverize the soil.

In the spring, as soon as the land is in a fit condition, I plow it or dig it again quite deeply and work it up as fine as possible. There are many ways this soil may still be improved for vegetable growing. Last fall I sent teams to the woods and hauled a quantity of black mould and sand loam. This I intend mixing with the garden soil. There are other materials, such as ashes, lime and soot, which will prove beneficial to the soil. If these are not available, some good fertilizer, such as potash, would do, or better still, bone meal, muriate of potash and nitrate of soda mixed into the soil at different stages of the vegetable growth, the two former before planting, and the latter at intervals while plants are growing.

The first point I want to emphasize is



Prize Vegetables Grown at Dauphin, Manitoba

Mr. E. A. Sanderson, a progressive gardener was successful in obtaining sixty-one first prizes and twenty-one second prizes with vegetables grown in his garden at Dauphin, Man.

that you can scarcely get your ground in too good a condition for growing vegetables. The next thing of importance is what to plant and how to obtain your seeds and plants. I find it pays to patronize good reliable seedsmen. The best seeds are none too good. I have a hobby along that line. At present I patronize three seedsmen, one in Ontario, one in England, and one in the United States. The whole three send out good reliable seed. Our Ontario firm is as good as any. It also pays to raise your own plants. Any person who has a good sunny window in his house can grow a few plants, which, as a rule, give better results than greenhouse plants. At present I have in my windows three or four boxes containing about six hundred onion seeds, which I expect by the first of May will produce fine stalky plants for setting out in the garden. Later on, about the end of March, I will make a hotbed for sowing tomatoes, cabbage and other vegetables.

For growing plants in window boxes or hot beds, a good rich soil or compost is necessary. I use a mixture of good rich garden soil, well rotted manure broken up finely, and a small quantity of black bush soil and sand loam. A little lime, wood ashes and soot mixed with this completes a compost which I find to give excellent results in forcing along good healthy plants, with plenty of sunlight, moisture and a temperature of about fifty degrees. Have your compost in the cellar where you can easily get it

when the right time comes in the spring for sowing the seed.

HEALTHY PLANTS

The second point to emphasize is that it is very important to have good healthy plants ready to set out as soon as the ground is fit and the weather conditions are favorable. It is not enough simply to have ground in good condition and leave it to the sun, showers and Providence to do the rest.

If you want good large vegetables of an excellent quality and early in the season, you must do more than prepare the ground and sow the seed. The hoe must be constantly in use, to keep the weeds down and the surface soil stirred up. As soon as the seed shows itself above the ground, or as soon as the plants are set out, cultivation should commence and should be continued until plants fill up the row. Occasionally it may be wise to water the plants or to add a little mulch or fertilizer around the plants. All this keeps the ground moist and forces the plants along, and makes them strong to withstand the ravages of the blight, beetle or fly.

(To be continued).

An occasional stirring of the surface soil in flower pots will give the plants new life and increase their growth.

Fourteen packets of flower and garden seeds in return for one new subscription to The Canadian Horticulturist. See our inside back cover.

What to Grow and How to Grow It*

A. G. Wolley Dod, Calgary

THE first work to be done in the spring is to make up a hotbed, although seeding plants of all kinds can be procured very cheaply from the florists. It is better to have your own frame, as it can be utilized not only for growing cauliflowers, cabbages, and bedding out plants, but also for raising a few early radishes and lettuces, and after the plants and flowers so grown are all planted out, a few cucumber seeds should be sown, which, with proper care, will give the grower all the cucumbers he will require until late in the fall.

The hotbed should be started about the 20th of March. Those who have a stable will probably have enough manure of their own, but it will well repay those who have not, to procure a few loads and make up a hotbed, which will take up very little room, and the frame can be made quite cheaply with a few boards and storm sashes. The size required is the next consideration. It costs very little more to make a frame of moderate size than a small one; and I find that one with three windows a very convenient size, as it gives plenty of room for the seedlings, and also when the time comes for the cucumber plants, as these require a good deal of room. A frame of this size will require from eight to ten loads of manure.

In choosing the manure for your bed, be careful to choose good, fresh horse dung, which has not too much litter mixed with it. If there is a small percentage of cow dung mixed with it, it will do no harm, but for choice, horse dung alone is preferable.

CHOOSING THE SITE

In choosing the site for the frame, if possible pick one so that you can have the slope of the glass either to the west or north, as then rays of the sun will not strike directly on the glass, and also leave room to turn your pile of manure over. Having now chosen your site, have your manure piled loosely in a conical heap, and leave it for a week or ten days.

If you find in hauling this manure that it is very dry, wet it is you pile it, about an ordinary sized water can of water to a load of manure will be quite enough: this can be applied to the top of the pile after each load has been put on. It is not often necessary to add any water, for, as a rule, there is sufficient snow mixed with the manure to make it moist enough. If, however, it is too dry, it will not only not heat properly, but will not retain the heat as long as it would if it were damp.

After about ten days this pile should be turned over, making a second pile besides the first. In making up this second pile, shake it up well and leave it

loose. It is during the process of turning and shaking up that you will find whether water must be added. If it is too dry the inside of the pile will have a white appearance and will feel dry to the touch. If this is the case add water as before stated. This pile must remain another week or ten days, when it should have heated sufficiently to make up a bed. Measure the length and width of your frame and put some small pegs in the ground where your frame is to be built a foot bigger than the frame each way. For instance, if the frame is six feet by ten feet, your foundation must be eight feet by twelve feet.

Now turn your pile back to where it originally stood; but this time, instead of making a loose conical heap, make it the size required for the frame and stamp it down as firmly as possible, taking care to keep the sides as square as possible, or you will find that the top will be too small for the frame. In finally building this up, add a little more water if necessary, as before. Having made this bed up, you can now put the frame in position, but do not put your lights on yet, as it will have to be left some days yet for the heat to cool off—probably another week or ten days. After this lapse of time put about six inches of soil inside and tread it down firmly. If your manure has heated nicely and has not been left too long between the turnings, your frame will be ready for seeding about the 20th of April, which is about the right time for sowing, as then your seedlings will not be too big for transplanting when the time comes, which will be from the 24th of May to the 15th of June.

BUILDING THE FRAME

Those who are handy with a hammer and saw can make their own frames, but those who are unfortunate enough not to be able to make their own, will find any carpenter will make them one very cheaply. For the information of those who have never had a frame, let me state that care should be taken to have the frame deep enough, and deeper at the back than at the front, so as to let the water drain off the lights. Eighteen inches is not too high for the front end, as you should have six inches of soil and at least a foot between the soil and the glass.

The frame is best made so that it can screw together. It can then be taken to pieces in the fall and stored away until the following spring. Having prepared your frame, the next question is what to sow.

This will depend a good deal on the size of the garden, and whether the grower requires flowers as well as vegetables. I will assume, however, that he or she is going to grow both. It is always advisable to procure all your seeds

from some reliable seed merchant early in the year, as if left too late one will have to buy from the nearest store; and this often leads to disappointment, as the sort required may not be obtainable, and one has either to wait till one can get what one wants, or else take some inferior variety. Every garden, no matter how small, should contain a few cauliflowers and cabbage, and a few tomatoes will always help to make a good salad. But as one must be guided by the size of the garden in what to grow, I will give details for a large family garden, and those who have a small one must be guided by circumstances; and if space will not permit their growing a large selection, they must be content with a few of the choicest kinds.

For cauliflower, I would choose Early Snowball and an extra early Eurfurt. A small packet of each of these varieties can be obtained for about twenty-five cents, which will be more than most people will require; but it is quite easy for one or two friends to club together and divide the seeds when they arrive.

For cabbage, Early Jersey, Wakefield and Flat Dutch are good, the former for summer use and the latter for winter use, as it is a good keeper.

A pinch of celery sown very thin will give enough plants for most growers. Paris Golden Yellow will be found a very excellent variety.

For radish, French Breakfast is about as good as any for sowing in a frame, and a pinch of lettuce will give an early salad, before anything in the open is fit for use.

METHOD OF SOWING

Having obtained your seed, the next question is the method of sowing. Do not have the soil in your frame too moist. It must be pulverized and packed tight. Put on your biggest boots and tramp the soil down thoroughly in the frame. Then get a short piece of stick or a piece of shingle and smooth it over again. Then with the end of the stick draw parallel lines down the length of the frame, about eight inches apart and half an inch deep, for the bigger seeds, but only just a scratch for fine seeds, such as celery. Then take a saucer and empty what seeds you are about to sow into it, and take a small pinch between your thumb and finger, and sow thinly in the rows according to the amount required; rake your soil lightly over the seeds with the stick you used to make your rows, and pat them down with the flat of the hand, and then give a good watering with the sprinkler and put on your lights, but open a little in the daytime according to the temperature. If your frame is at the right heat most of the seeds will germinate in a few days, but the celery will take from two to three weeks. As

(To be Continued)

Do not buy seeds because they happen to be cheap. Get the best,

*Extract from a paper read before the Calgary Horticultural Society.

Experiments with Cabbage and Tomatoes*

Prof. C. E. Myers, State College, Pa.

THE department of horticulture of the Pennsylvania State College and Experiment Station is making an exhaustive study of the two leading truck crops, cabbage and tomatoes. Several acres of ground are devoted to this work, which includes seed selection, methods of culture, fertilization, variety and strain tests. Of these the strain tests are considered the most important.

In the spring of 1908 seed of Jersey Wakefield and Danish Ballhead cabbage was secured from twenty-five seedsmen located at various places throughout the United States and Canada, and of twelve strains of tomatoes, including the varieties Earliana, Chalk's Jewel and Matchless. In 1909 a new lot of seed of eight varieties of cabbage, including the varieties Jersey Wakefield, Charleston Wakefield, Early Spring, Early Summer, Succession, Premium Flat Dutch, Surehead and Volga, and six varieties of tomatoes, including Earliana, Chalk's Jewel, Beauty, Globe, Matchless and Stone were secured from fourteen to twenty-nine different seedsmen, and are now being tested along with the seed secured the previous year.

Permit me to say that in general I believe seedsmen and seed growers to be a reliable class of business men. In most instances they have shown an appreciative interest in the work we are doing. I feel sure that in the majority of cases they are using their best efforts to supply their customers with goods that will be satisfactory. A few are indifferent, while for unknown reasons some of the seed secured from other seedsmen, who appear to exercise great care, does not produce satisfactory results. Why this is the case we are unable to definitely explain, but it

is with the hope of solving the problem, in an endeavor to secure seed which will yield the most satisfactory returns, and the Pennsylvania Station is studying the problem.

The grower, who uses only one strain of seed for his plantings, may be unaware of the fact that there is a difference between strains. If he has been fortunate in securing a good strain, and growing conditions are satisfactory, he may secure a good crop. On the other hand, the crop may be a partial or a complete failure, and he may ascribe the cause to unfavorable soil or climatic conditions, insects, or disease, and overlook the fact that the trouble may be with the seed.

Ordinarily we are too ready to accept seed for what it appears to be, not for what it may be, forgetting the statement that Dr. Tracy has well made, that "the seed is the future plant packed for transportation." We do not realize that upon it fully ninety per cent. of our success in securing a satisfactory crop depends.

TESTING SEED

Sometime previous to the planting of the seed a germination test is made. This is important from the fact that it serves as a guide to the thickness of sowing. The test is comparatively simple and may be made in several ways. One way is to place the seed between pieces of blotting paper kept moist on a saucer nearly filled with moist sand, an inverted saucer serving as a cover to prevent evaporation. Or the test may be made under normal conditions in the seed bed. Either of these methods are satisfactory: In tests which we have made we have found the germination range from nothing to ninety-nine per cent. within the same variety purchased the same year. If the percentage does not fall below sixty or seventy-five per cent., the result is not so serious, so long as the facts are

known, but if it falls below this, and the fact is not known, disappointment may be the result.

In conducting the experimental work, every effort is made to have conditions as uniform as possible. The seed of the early cabbage and tomatoes is sown in flats in the greenhouse. Later the plants are transplanted and placed in the cold frames, where they are grown and hardened until they are ready for the field.

Soon after the seeds have germinated notable differences may be seen between the strains. In some instances the stand will be even and vigorous, while in other cases it will be uneven and weak. An interesting feature noted is that in several instances those strains which made the best appearance in the seed bed later proved to be the least desirable.

When the field planting was made of the Wakefield varieties one hundred of the best plants were taken of each strain and planted in rows which were a uniform distance apart, and at a uniform distance in the row. For the test of each of the other varieties fifty of the best plants of each strain were used. The plantings were made on fertile ground and were given good care throughout the season.

MARKED DIFFERENCES

The most interesting differences are not noticeable until the plants are nearly mature. As the season advances the plants of one strain will be notably uniform, while probably those of the adjoining row are decidedly irregular in type and time of maturing, and in some instances prove to be a variety other than what is expected, or possibly a mixture of several varieties. At this time the plants of each strain are carefully studied and the important points concerning each strain are noted and placed on record. In this way we secure definite knowledge of the relative earliness and yield of each strain.

(To be Continued)

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



Part of the Delegation of Fruit and Vegetable Growers' at Ottawa February 10th, 1911

This deputation was sent by the tender fruit and vegetable growers of Ontario and Quebec to protest against the proposed tariff agreement with the United States.

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512

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3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.

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

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

6. Advertising Rates quoted on application. Copy received up to the 15th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

7. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1910. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1910	8,925
February, 1910	8,967
March, 1910	9,178
April, 1910	9,410
May, 1910	9,505
June, 1910	9,723
July, 1910	9,500
August, 1910	8,832
September, 1910	8,776
October, 1910	8,784
November, 1910	8,747
December, 1910	8,662

108,809

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

Sworn detailed statements will be mailed upon application.

OUR PROTECTIVE POLICY.

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

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
PETERBORO, ONTARIO

EDITORIAL

BUYING TREES

The comparatively few unprincipled agents who make a practice of buying job lots of nursery trees and then peddling them out to the public under any name that they think will suit the fancy of the purchasers, have caused nursery men frequently to be looked upon as an unprincipled lot. Nursery men, as a rule, are as honest as any other class of business men, but owing to a great number of factors that enter into the case which are beyond their control, they cannot guarantee their stock true to name without being forced to charge prices that would be practically prohibitive.

It would be to the advantage of every fruit grower if he would order his stock early in the season. There would then be plenty of time for the nurseryman to sort the stock carefully, see that the trees are true to name and free from disease. Later in the season, when everything is in a rush, it is not likely that so much care will be taken in sorting the stock, and the varieties are more liable to become mixed.

Do not buy from any other than an authorized agent of a reliable nursery. It is wiser to buy direct, for even if an agent is honest he is likely to become confused in making delivery at some country hotel. There is also great danger that with a number of farmers pulling the bunches of trees over in search of their own that the different lots will become mixed, the labels torn off or the bundles broken. Under these circumstances there is a great temptation for the agent to save himself by counting out the right number of trees, even if he knows that they are not of the varieties ordered.

If the order is sent direct to the nursery, there is a separate bill made out giving the number and names of all the trees sent in each shipment. A nurseryman is only human, and it can be easily understood that when a separate bill is made up, which some time in the future may be shown to him by an irate customer who claims that his trees did not come true to name, that the nurseryman will be more particular in sending out good stock and true to name than he would be in making up a job lot to be divided up by some agent. Moral—Order early and only from well established and reliable nurserymen.

PLANT EARLY APPLES

The market for early apples is increasing steadily, and unless all signs fail it will continue to do so. Our old orchards of early apples have nearly all either been grafted to later varieties or have died from neglect. Our population is increasing rapidly, and until the last year or two no one had planted early apples.

In early days, owing to poor market facilities and lack of refrigerator cars, prices were so low that early fruit was a drug on the market. Conditions have changed since then and our most prosperous apple growers are planting largely of early varieties. What is the reason for this change? Of late years out cities have increased wonderfully in size, both from the influx from the country and by immigration, and at the same time the country population has decreased so that there a less number to grow the apples and more to consume

them. A few years ago most city dwellers had relatives who would send them in a few early apples. In the mad rush for the city these home ties have been broken or else the whole connection has moved to the city, and in many cases the early apple trees have been cut down.

The people are using more apples of all varieties than they did in the past. The settling of the great northwest and the improved shipping facilities opens up an almost unlimited market from the prairie district and also from the northern parts of Ontario and Quebec.

Our improved methods of spraying will control the scab, which is usually worse on early fruit than winter varieties. We would advise a fruit grower to plant early apples only where there was a good local market or where there was a good, strong cooperative association or in a heavy producing district which would insure the necessary refrigerator cars and proper handling of the apples.

One of the chief advantages of the growing of early apples is that by planting a proper rotation a succession may be had from the early part of August through until the late winter varieties are ready to pick. By this means the picking season is extended from a rush of a few weeks to a period of from three to four months.

As soon as the work of spraying and cultivating is over and the cover crops sown, the help may be steadily employed in picking and marketing the apples. Under such conditions the work will be more cheaply and more thoroughly done than is possible when extra hands, many of them entirely inexperienced, must be employed to rush the work through before frost comes.

RENOVATE THE ORCHARDS

No one has as yet figured out the great loss to Canada through neglect of her orchards. We hear and read much about the conservation of our natural resources. Here is a natural resource which is one of the easiest to protect. Yet, but little has been done in this direction.

Old orchards that had not produced profitable crops for years were taken over last season in Ontario as demonstration orchards. In the one season, with proper care, they were made to yield from one hundred to three hundred dollars, net profit, per acre. This means a rate of interest of from ten to thirty per cent. on a valuation of a thousand dollars per acre. The gain to our fruit growers would be enormous if every acre of orchard would produce on an average only one hundred dollars per acre per year.

How can this be done? By spraying, pruning, and cultivating, but the most important of these is spraying. The trees should be thoroughly pruned. If they are high cut the tops down even if the limbs are six inches across when sawn off. It will not injure the tree if care is taken to keep them painted. Where the varieties are unsuitable for market they should be top grafted by the ordinary method of cleft grafting.

The trees should be sprayed while dormant with a strong solution of lime-sulphur either home boiled or one of the commercial brands which give equally as good results and are much more convenient. Two later sprayings at least should be given, with either dilute lime-sulphur or the ordinary Bordeaux mixed with a poison.

The first thing to do is to buy a pump of a good, reliable make. Get one larger than you will need to go over your orchard

in three or four days, then if for any reason you are delayed put on more power, when the work will be done in less time. There are only a few days when the spray for the codling moth is effective. If the work is to be done on time you must have plenty of power. Have the working parts all brass. A few cents saved in buying a well made pump is poor economy. See that the hose is strong and that there are no worn or weak spots. Neglect to look after these simple details may cause delay through breakage that may result in the loss of practically the entire crop of apples.

THE OTTAWA DEPUTATION

The growers of vegetables and tender fruits in Ontario and Quebec, who to the number of twelve hundred waited on Sir Wilfred Laurier and his Cabinet, February tenth, to protest against the proposed reciprocal tariff agreement with the United States, have a very real grievance. While it has been proposed to remove the protection of the duty from the Canadian producer, this same agreement protects the United States grower by the duty, averaging about thirty per cent., which the Canadian producer will still have to pay for his supplies. The unkindest cut of all is that the United States grower can ship his boxes and baskets in free of duty when filled with vegetables or fruit, but the Canadian producer cannot import these same containers empty without paying a high duty. The protection on the finished product, fruit and vegetables, has been removed, but it has been left on the raw materials such as coal, spray pumps, spray chemicals, wagons, implements, boxes and baskets. This will place our growers at a great disadvantage.

The injustice of this proposal is readily apparent. The government, when deciding to remove the protection on fruit, should have removed the duties on the materials which the fruit and vegetable men have to buy. The proposed arrangement will place our growers under a serious handicap. It should be amended immediately accordingly.

APPLE PROSPECTS IMPROVING

In order to learn if the yield of apple trees had decreased in North Eastern United States as it has in Ontario, and to find out what methods had been taken to counteract this decline, we addressed letters to the horticulturists at the different experimental stations, and the answers were practically the same from all. They showed that owing to neglect, increase of insects, San Jose scale, and fungus diseases the orchard interests had been declining for fifteen or twenty years. In fact, many orchards had been dug out and the land used for other crops.

All the stations report that there has been a great awakening during the past three or four years, and that a large acreage is being planted to apple trees. More attention is being paid to the cultivating, spraying and pruning of the old orchards. The outlook for the future is bright, as the men who are taking up the apple business at this time know the difficulties in the way and how to overcome them.

This better care of old orchards and the planting of new ones will lead to a great increase of choice fruit on the markets, which at the present time are forced to depend upon the western states for their supply. Among the agencies mentioned as helpful in increasing an interest in the

campaign for better fruit are apple shows, field demonstrations in planting, cultivation, pruning and spraying, extension school and class room work in the agricultural colleges.

Prof. Paddeck, of Ohio, says that a large Apple Show is the best single means of arousing interest in orchards that has yet been evolved. Prof. Pickett, New Hampshire, puts his faith in demonstration work, as means of improving the apple business. Prof. Cumming believes in extension work and farmers' week meetings. Prof. Jarvis, Connecticut, reports that the New England fruit show has a great influence and marks the beginning of a new era in apple production.



PUBLISHER'S DESK

Persons desiring to secure a copy of the Index for Volume 33 of THE CANADIAN HORTICULTURIST may secure same on application to the publishers.

The April issue of THE CANADIAN HORTICULTURIST will be the Garden Annual and will contain articles by experts on the planning of gardens, their cultivation, the plants to grow and how to grow them, also photographs of vegetable and flower gardens.

We would appreciate it greatly if any of our readers who have photographs of their gardens or those illustrating any operation connected with their garden would send them to THE CANADIAN HORTICULTURIST, also if possible a short descriptive article explaining the same.

Arrangements have been made whereby readers of THE CANADIAN HORTICULTURIST may secure, without cost, a supply of seeds, plants and bulbs sufficient to plant out an entire garden. The various collections include new varieties of climbing roses (Lau-sendschon and Veilchenblau), fourteen packets of flower and vegetable seeds, dahlias, gladioli, begonias, cannas, caladiums and tiger lilies. These are being offered as premiums to those of our readers who secure new subscriptions for THE CANADIAN HORTICULTURIST from among their friends. There are many people who are sure to be interested in THE CANADIAN HORTICULTURIST if they were to see a copy. We do not know their names though, and so cannot

The Fruit and Vegetable Growers at Ottawa

The tender fruit and vegetable growers journeyed to Ottawa, Feb. 10, in three special trains to protest against the proposed tariff agreement with the United States. A preliminary meeting was held in the Russel Opera House, at which the memorial to the Government was read and passed unanimously, after which the deputation marched over to the Parliament Building and presented their claims for consideration to Sir Wilfrid Laurier and the members of Parliament.

Mr. D. Johnson, of Forest, president of the Ontario Fruit Growers' Association, read the memorial, which described the great prosperity of districts represented, and the rapid extension of the orchard, vineyard, and vegetable growing business under the present tariff conditions, and stated in part: Whereas the Government proposes to admit American tender fruits and vegetables free of duty, of the varieties grown in Canada.

And whereas, we believe that such ac-

send them a copy. Will you show them your copy and offer to forward us their subscription. They will be pleased to get the paper, and you will receive your choice of a number of fine premiums. Why not secure several of these premiums for your 1911 garden? You will be pleased with them. Fuller particulars are given on the inside back cover of this issue.

Farmers Willing to Help

In an interview with THE CANADIAN HORTICULTURIST, Mr. E. C. Drury, B.S.A., Crown Hill, Ontario, Secretary of the National Council of Agriculture, said that he felt that the fruit and vegetable growers have been placed at somewhat of a disadvantage with the growers of the United States by the proposed Reciprocity Agreement, as the entire program of the farmers composing the National Council of Agriculture had not been carried out. The demands in their program included free spray materials, free fertilizers, free implements, etc.

He stated that the National Council of Agriculture would join with the fruit and vegetable growers to impress the injustice of this matter upon the Dominion Government. They were willing to urge the Government to an agreement that would place these supplies on the free list.

Fruit Growing at the O.A.C

The short course in fruit growing held at the Ontario Agricultural College, Guelph, from January 24 to February 3, was an unqualified success. The class rooms were so crowded that seats were at a premium, as all available space was occupied by enthusiastic fruit growers who were interested in obtaining the greatest possible amount of knowledge in the shortest possible time.

The various problems of the fruit growers were dealt with by the professors of the college and also such well known authorities as Robert Thompson, sec. of the St. Catharines Cold Storage Co., D. Johnson Forest, President of the Ontario Fruit Growers' Association; P. W. Hodgerts, Director of the Ontario Fruit Branch; and C. C. James, Deputy Minister of Agriculture.

There was also a special class in box packing under the charge of Mr. A. B. Campbell, an expert box packer from the State of Oregon.

tion will most seriously upset present conditions and compel Canadian growers to seek other markets, to their great detriment and financial loss.

NO COMBINES

And whereas, there never has been, nor from the conditions surrounding the industry, are likely to be any combines of the scattered interests of these fruit growers to advance prices, situated as they are over a wide extent of territory, and numbering many tens of thousands of people.

And whereas, many millions of dollars have been invested in this industry, in the firm belief that the present or equally satisfactory duties would continue to be charged upon imported fruits and vegetables.

ASK RECONSIDERATION

We would, therefore, most earnestly and respectfully request that your Government may after due consideration of the points we have ventured to bring to your notice, and after full inquiry into all the condi-

tions, reconsider the clauses referring to the interchange of fresh fruits and vegetables and that you may then be enabled to place our industry on a footing commensurate with its great importance to the development of this country.

Mr. W. H. Bunting, of St. Catharines, one of the largest fruit growers of the Niagara district, followed Mr. Johnson in an address, in which he showed the importance of the tender fruit and vegetable interests in Ontario, by relating that there were two hundred thousand acres of land devoted to this purpose, at least fifty thousand persons were engaged in the business, and forty millions of capital were invested in the business. Under the proposed tariff agreement, he believed that this great industry would be paralyzed without greatly benefiting the Canadian consumer, for instead of enjoying a regular and rapidly increasing supply of Canadian fruits and vegetables produced in his own country, he will be to a great extent dependent on the over production of Southern centres, which cannot be counted upon for a regular supply.

Mr. Thos. Delworth, Western, secretary of the Ontario Vegetable Growers' Association, showed what a serious handicap would be placed upon the early vegetable growers, for while they had been placed upon an equality with the United States as regards tariff on vegetables they would still have to pay a heavy duty on coal, glass, greenhouse construction material, boilers, and supplies. Mr. J. McEvoy, of Montreal, upheld the claims of the Quebec Vegetable Growers, while other speakers were A. W. Peart, Burlington, E. D. Smith, Winona, and Thos. Rowley, Leamington.

Sir Wilfred Laurier, in his reply, gave

the fruit growers very little encouragement of a favorable decision.

He told them that they were too late in coming, and reminded them of the difficulties of legislating for a country of such diverse interests. He quoted the words of a number who were with the other delegations and who wished reciprocity in fruits. Even if the United States fruit was earlier, he believed that serious competition was impossible, from the superiority of the Canadian product when it did come. My last word to you, he said, is that it is impossible that any tariff can in the face of conflicting demands be made acceptable to all, but all must be prepared to make some concessions for the common good.

Prices of Fruit and Fruit Land in Niagara Co., N.Y.

H. St. Clare Fisher, Queenston, Ont.

The fruit growers of western New York are progressive—and by-the-way, are exceedingly hospitable, and do things on a large scale. They state that the markets over there are always well supplied, and hail with delight the proposed trade agreement with Canada, as it just gives them that much larger market for their product. Our markets have in the past been a dumping ground for their fruits such as peaches, pears, plums, etc., much to the detriment of the Canadian fruit grower.

They do things on a much larger scale than we do simply because the area of fruit land is very much greater. Their farms are from fifty acres to five hundred acres in extent, while the farms here are from ten acres to one hundred acres. First class peach land can be bought over there at seventy-five to one hundred and twenty-

five dollars per acre not planted. One farm I saw of ninety-five acres, on which there are sixty-five acres in peaches, over nine thousand trees, and the owner values this farm at only two hundred dollars per acre. The same farm placed in the Grimsby or Niagara districts would have sold for at least one thousand dollars per acre, and would be worth the price, too. The owner of the above mentioned farm sold his entire peach crop in 1910 for two cents per lb., or about thirty cents per eleven quart basket, while peaches here sold for three cents per lb., and are worth that price.

Being a grower to some extent I know what it costs to produce peaches in this country. The fruit grower in this country cannot afford to sacrifice that one cent a pound on peaches, which he will be forced to do if the present duty is eliminated. Plums sold over there in 1910 at an average of one cent a lb., over here at two cents a pound. Bartlett pears at two cents, over here at two and a half to three cents a lb.; cherries three and a half to four cents, over here at five to six cents a lb., and so on. One prominent grower voluntarily stated that the early vegetables from the south always glut their markets. If the present duty on vegetables is eliminated the same state of affairs must obtain here. The producer in this country must live as well as the consumer, and when both are prosperous why disturb them?

Just a word about apples. One prominent commission man in the city of Toronto bought about twelve hundred barrels of apples from one grower in Niagara County, Western N.Y., at \$2.50 per bbl. Why didn't he buy them in Ontario? He bought them where he could buy them the cheapest. Our Northwest market will be

APPLE TREES

Hardy, Northern Grown Stock

We have still a good stock of apple trees—well rooted, clean, hardy, true to name—just the kind you want to plant in your orchard this spring. All the leading varieties. An especially good stock of **DUCHESS** and **WEALTHY**.

Our **NORTHERN CROWN** Nursery Stock gives best results under a wide range of climatic conditions. It is very hardy, being grown on our own nurseries, near Montreal. It will prove successful in your locality. Let us know the varieties you intend planting. Write us to-day before the stock is depleted. Our catalogue mailed free for the asking.

ORNAMENTAL STOCK

We have a very complete stock of Ornamental Trees, Evergreens, Flowering Shrubs, Hedge Plants, Roses and Vines. Also a choice assortment of Paeonies, Irises, Phlox and other Hardy Perennials. Our illustrated catalogue tells all about our ornamental stock. Write for it Now. A post card will bring it.

Are you interested in beautifying your home surroundings? Our booklet, "More Beautiful Homes and How to Get Them," contains some valuable suggestions. It is free.

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LANG'S WEEDER

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Any of the following specialties by post:

- Witham Fireball Beet oz. 20c, pkt., 5c
- Hodson Long Pod Wax Bush Bean lb. 30c
- Copenhagen Market Cabbage oz. 50c, pkt. 10c
- High Grade Erfurt Cauliflower oz. \$1.50, pkt. 25c
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- May King Lettuce oz. 20c, pkt. 5c
- Graham's Royal Exhibition Asters oz. \$2.00, pkt. 10c
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- Graham's Mixture of New Spencer Sweet Peas ¼ lb. 50c, oz. 20c, pkt. 10c
- Graham's Central Farm Lawn Grass, composed of only the highest grade grasses lb. 30c
- Elvetham Giant Mangel, great cropper, very nutritive lb. 30c, 4 lbs. \$1.25
- Magnum Bonum Swede, the best purple topleb. 30c, 4 lbs. \$1.25

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P.S.—Royal Canadian Chick Feed the best dry feed on the market; makes strong healthy chicks, 100 lbs., \$3.50, by freight.

lost to Ontario and British Columbia growers if the agreement becomes law. A great injustice will be done if our market

is sacrificed to the United States growers, as it most certainly will be if the trade agreement becomes law.

NOTES FROM THE PROVINCES

Nova Scotia

A. Kelsall, Wilmot

(Continued from last issue)

One or more years should be spent in preparing the land for the young trees, in order that they may make a rapid growth from the start. A root crop may be grown and the land receive a liberal application of barn manure or green manuring may be practised. Any treatment which will rot the sod and which will add humus is excellent. It will probably pay the orchardist to grow his own stock while he is preparing his land for the young trees. If he is unable to do this, it is best to secure his stock from a nursery in his locality. The advantages of home grown over imported trees are: (1) The stock can be inspected before buying; (2) the trees are obtained with less exposure to the roots; (3) there is less liability of the introduction of insect pests.

A GOOD TREE

A first class tree is one which is straight, healthy, clean, and well balanced, having a good top and a good root system. The diameter at the butt should be about three-quarters of an inch, and the tree should have plenty of vigor, which will be denoted by the amount of growth made during the preceding season. Most of the

orchards of Nova Scotia have been planted as three-year-old stock, though it is thought that two-year-old stock is superior. The trees should be planted in the early spring, so that the roots can commence growth before the foliage opens. The method of pruning necessarily depends upon your ideal tree. Not more than four or five good stems should be left on, and these should be cut back to one half or one third of their original length, in order to prevent the tree from having too much foliage for the new roots. After planting the land should be cultivated every ten days or so until July, when a cover crop should be sown.

PRUNING

Mr. Johnson outlined his method of orcharding in a brief, pithy manner. With regard to pruning he cut out all dead wood, removed crossing branches, and thinned the tree to a certain extent. He recommended that coal tar instead of paint be used to cover the wounds made by removing large limbs. Cultivation was commenced as early in the spring as possible and kept up until early in July, when a cover crop was sown.

No stable manure was used. The speaker recommended the following mixture as giving excellent results: Acid phosphate, four hundred pounds; muriate of

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QUEEN OF MARKET, white, pink early, 40c per 100.
LAVENDER GEM, pale lavender, early.
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CREGO, shell pink, late, 10 for 12c; 100 for 50c, postpaid.
List of Balsams, Salvia, Stocks and other Bedding plants will be sent free on request.

Early orders, with postal note, are solicited. All plants offered are grown from the best seeds obtainable.

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For
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Arsenate of Lead is being used more and more in the fruit centres of the province of Ontario. The question that interests every fruit grower is this:

Is there Difference in Arsenates of Lead?

Yes. There is a big difference.

Let us suggest some points which we believe every grower should consider before placing an order for Arsenate of Lead:

1st. You wish an Arsenate of Lead that will not burn the foliage

2nd. It is desirable that an Arsenate of Lead mix readily, yet retain its adhesive qualities.

3rd. An Arsenate of Lead should contain the proper killing power.

Grasselli Arsenate of Lead contains no free acids or adulterant ingredients, contains a very low per cent. soluble Arsenic, and we have yet to learn of a case where it has burned the foliage, even though it may have been used double strength. It will mix readily and has a reputation for **adhesiveness** and **high killing power**.

Grasselli Arsenate of Lead has been used in the Niagara District for the past two seasons, and with every success.

Write us for prices.

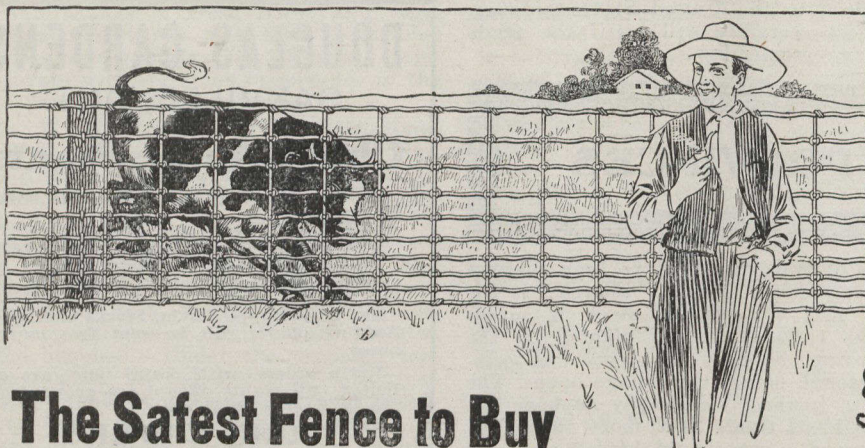
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NOW
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The Sramotor is made for 1 or 2 horses. Fitted for Orchard, Vineyard and Grain Crops. Can be operated by hand. The Sramotor saves enough money in time and labor to pay for itself in 1 year on 20 acres of potatoes. Don't be content with moderate results when you can increase per crop 3 or 4 times. Send for free Treatise on Crop Diseases. Agents Wanted.

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The knife that makes pruning easy. It is automatic. No levers to work by hand. Just put the hook over the limb and pull on the handle and off comes the limb. Will do heavy work and do it fast. People using the Kansas Knife say it will pay for itself every two or three days used, so it costs you nothing to own one. Circulars and price for the asking—a free "hand-out."

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49-51 PORTER STREET
DETROIT, MICH.

potash, three hundred pounds; nitrate of soda, one hundred pounds per acre. Mr. Johnson prefers lime-sulphur as a fungicidal spray to bordeaux, his reasons for so doing being (1) the greater efficiency of lime-sulphur, (2) the absence of bordeaux injury, (3) its greater convenience. No poison except arsenate of lead can be used with absolute safety with lime-sulphur. The speaker had great faith in the keeping of bees as a means of obtaining a maximum set of fruit. The blossoms are pollinated either by insects or by the wind. It is a noticeable fact that bees and wild insects seem to be particularly scarce at the present time. The introduction of bees in Mr. Johnson's orchard was followed by an increase of apples. The question of the thinning of apples was also dealt with, Mr. Johnson considering it one of the best financial propositions in connection with orcharding.

TREE SURGERY

Mr. Messenger gave an excellent lecture on tree surgery. He dealt to a large extent with the top working of old trees, a method whereby desirable varieties may be substituted for undesirable ones, either by grafting or by budding. He described how by severe pruning suckers could be made to start from around the main trunk which could be grafted to a desirable variety, and at a later period the old limbs removed, thus making a new and low head on an old and previously high tree. Cankers should be cut off with either a hatchet or chisel until sound white tissue is reached, in order to effectively exterminate them.

Mr. McNeil dealt in a masterly manner with several orchard topics connected with the pruning of trees. He advocated a system of repressive pruning in order to keep the fruit spurs at a low elevation, and to have the least possible amount of bare limb. His practical demonstrations of pruning were both interesting and instructive.

SPRAYING

The subject of spraying was dealt with in a thorough manner. Recent and experimental work has shown that lime-sulphur is the equal, if not the superior, of bordeaux as a fungicidal spray. The correct method of making both these sprays was described and the importance of mixing the copper sulphate and lime in a dilute form, in making bordeaux, was forcibly illustrated. Two mixtures of bordeaux were made, the one from dilute solutions and the other from concentrated solutions. The solid matter in the bordeaux made from the concentrated solutions settled to the bottom in a very short time, while the other remained in suspension for an almost indefinite period. Any arsenical poison can be used with bordeaux mixture, but arsenate of lead is the only one recommended for lime-sulphur. On account of the difficulty in making lime-sulphur of a known strength, it was thought best to use the commercial product for summer spraying.

Dahlias, begonias, gladioli, cannas, etc., free in return for new subscriptions to THE CANADIAN HORTICULTURIST. Particulars on our inside back cover.

Superintendent of Institute G. A. Putnam, of Toronto, Ont., has arranged for a demonstration train of seven cars over the Michigan Central Railway. One car will be devoted to the fruit interest, in charge of P. W. Hodgetts, Secretary of Ontario Fruit Growers' Association. In this car will be shown apples suited to the districts covered, and there will be demonstrations in packing, spraying, etc.

KEITH'S SEEDS

SPRING MAGIC

is in the air. The wise are planning their gardens. Geo. Keith & Sons have undertaken the task of making the season doubly attractive and productive to all those fortunate people whose pulse quickens at the idea of spring in the country—for instance our seed book for 1911 is ready to stand at your elbow to tell you what, when and where about seeds. We want you to have a copy.

Keith's Selected Vegetable and Flower Seeds

PRICES QUOTED ARE POST PAID

Containing what we consider the cream of their respective classes, made up for the purpose of those who are in doubt as to what to order, and are specially recommended to holders of small gardens. These varieties will supply the family with fresh vegetables from early Spring till the snow flies, and with plenty left over for the Winter months.

VEGETABLES: Pkt.

Keith's Selected Wax Beans	5c, lb.	25c
" " Green Beans	5c "	25c
" " Early Beet	5c, oz.	15c
" " Late Beet	5c "	15c
" " Early Cabbage	5c "	20c
" " Late Cabbage	5c "	25c
" " Carrot	5c "	15c
" " Cauliflower	25c	\$3.00
" " Celery	10c "	50c
" " Early Corn	5c, oz.	20c
" " Late Corn	5c "	20c
" " Cucumber	5c, oz.	15c
" " Cress	5c "	15c
" " Egg Plant	5c "	30c
" " Endive	5c "	25c
" " Corn Salad	5c "	15c
" " Kale	5c "	15c
" " Kohl rabi	5c "	20c
" " Leek	5c "	25c
" " Lettuce (curled)	5c "	15c
" " Lettuce (head)	5c "	15c
" " Musk Melon	5c "	25c
" " Onion, yellow	5c "	25c
" " Onion, pickling	5c "	20c
" " Early Peas	5c, lb.	30c
" " Medium Peas	5c "	30c
" " Late Peas	5c "	30c
" " Parsley	5c, oz.	15c
" " Pepper	5c "	50c
" " Parsnip	5c "	15c
" " Radish (round red)	5c "	15c
" " Radish (long white)	5c "	15c
" " Salsify	5c "	25c
" " Spinach	5c, lb.	60c
" " Squash (for Winter)	5c, oz.	20c
" " Squash (for Summer)	5c "	20c
" " Early Tomato	5c "	25c
" " Turnip	5c "	10c
Herbs, Dill, Thyme, Marjoram, Sage, Summer Savory,	pkt.	5c
Dutch Set Onions		20c lb.

FLOWERS:

Keith's Selected Victoria **ASTERS**, pure White, Deep Pink, Light Blue and Scarlet; Choice Mixed Sorts, 10c per pkt. Set of 5 for 30c.
Keith's **ANNUAL HOLLYHOCK**pkt. 10c

Keith's Selected Dwarf Mixed **NASTURTIUMS**..... Oz. 10c, ¼ lb. 20c, lb. 75c
Keith's Selected Tall Mixed **NASTURTIUMS** Oz. 10c, ¼ lb. 20c, lb. 75c
Keith's Selected Single **POPPY**, mixed colorsPkt. 5c, oz. 35c
Keith's Selected Double **POPPY**, mixed colorsPkt. 5c, oz. 35c
Keith's Selected Mixed **PANSY**, mixed colorsPkt. 25c
Keith's Selected Giant Flowering **SWEET PEAS**, pure White, Pink and Rose, Variegated, Scarlet and Crimson, Blues, or choice Mixed Sorts . .10c per oz., lb. 65c
CANNA ROOTS—Crimson, Pink, Cream, Yellow, Red.Each 10c, per doz. \$1.00
TUBEROUS ROOTED BECONIAS—Single, Yellow, Rose, Scarlet, Crimson, White and Orange Each 5c, doz. 50c, 50 for \$1.75
TUBEROUS ROOTED BECONIAS—Double (in separate colors as above) . .each 10c, doz. 85c, 50 for \$3.00
CALADIUM—Large Bulbs15c each, \$1.50 per doz.
GLADIOLI—Keith's Choice Mixture Doz. 35c, per 100 \$2.50
GLADIOLI—Keith's Fine Mixture, Doz. 25c, per 100. \$1.50
DAHLIA — **Blanche Keith**, Pure Yellow Cactus; **Gates Ajar**, Crimson; **Keynes White**, Progenitor, Carmine; **Strathlen Krone**, Cardinal Red; **Countess of Lonsdale**, Salmon Pink or Amber. 20c each, or set of 6 for \$1.25

Select from the Following List of Flower Seeds, 3 pkts., 15c.; 12 for 50c. Postpaid.

Aster (Red, White, Blue or Mixed)	Petunia
Alyssum	Larkspur
Balsam	Morning Glory
Carnation	Marigold
Candytuff	Mignonette
Cosmos	Nicotiana
Daisy	Poppy
Hollyhock	Pansy
	Portulacca
	Pink
	Sweet Peas
	Summer Cypres
	Salvia
	Verbena
	Zinnia

Oz. pkts. any of the following, 15c. each. Postpaid.

Morning Glory, Scarlet Runner Beans, Sweet Peas, Nasturtiums Tall, Nasturtiums Dwarf.

Oz. pkts. any of the following, 35c. each.

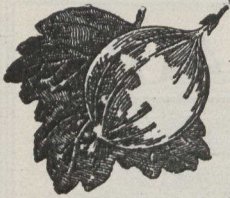
Aster, Alyssum, Candytuff, Poppy, Mignonette. Lawn Grasses, 30c. per lb. Postpaid.

KEITH'S SELECTED SEEDS ARE SOLD DIRECT ONLY

GEO. KEITH & SONS

SEED MERCHANTS SINCE 1866

124 King Street, East, Toronto, Ontario



SMALL FRUIT PLANTS

Gooseberries, Josselyn, Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection, Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Victoria.—Raspberries, Herbert, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb, Perennial Celery, Write for Catalogue.

WM. FLEMING, Nurseryman, Box 54, Owen Sound, Ontario

Get 98% or Better Perfect Fruit

There will be no "off year" for your trees if you cultivate them right and protect them against all insect enemies with

ELECTRO Arsenate of Lead

(in Powdered Form)

It is certain death to all leaf-eating insects. You can depend absolutely on dry Electro Arsenate of Lead because it is the only one in amorphous (non-crystalline) form. Mixes instantly with water and stays long in suspension—or can be used as a dust. Rain cannot wash it off. We guarantee it to contain 32½-33% arsenic oxide—twice the strength of other brands—yet it will not harm the tenderest foliage because it contains less than ½ of 1% water-soluble arsenic. Prove it from tests at Conn. and N. J. Agri. Exper. Stations. Write us for them.

Send for folder on Electro, interesting to all fruit growers. Folder on Electro Lime Sulphur tells how to use this solution which is certain death to San Jose Scale and sucking insects and the best fungicide for summer treatment.

Buy Electro brands from your dealer, but if he cannot supply, send to us for prices and proofs and name of nearest distributor.

THE VR ELAND CHEMICAL CO.

46 Church Street, New York

British Columbia

The Grand Forks Fruit Growers' Association got a car load of lime-sulphur early last winter and sold it to growers out of the Association at a price just slightly above cost. This enabled our orchardists to secure the material for spraying at a reasonable price in spite of high freight rates. A very large percentage of them made purchases, and spraying throughout the district was general. One gallon of the concentrated sulphur was used to ten gallons of water.

During November a number of the orchardists sprayed with bordeaux mixture, using eight pounds bluestone, eight pounds lime to fifty gallons of water, a few using as high as twelve pounds bluestone, twelve pounds of lime to fifty gallons water; for contrary to the conclusions of some experts, the fungus known here as apple anthracnose has made its appearance. It has usually been considered that in this dry climate anthracnose, even if it made its appearance, would not live, but it does. THE CANADIAN HORTICULTURIST should be in all orchardists' hands.—Cooper Bros., Grand Forks, B.C.

W. S. Johnson, wholesale fruit merchant of Brisbane, Australia, has written for prices of apples and pears in the province and for facts concerning the freight rates and shipment. He states that he became interested in British Columbia fruit resources through reading accounts of the recent Canadian apple show and believes a good trade can be worked up with Brisbane merchants. He states he will probably come personally to look over the field during the year.

Alberta

A. G. Bennett, Edmonton District, Alberta

Will fruit of any kind grow in Northern Alberta? This is the question a new settler asks when he lands in the vicinity of Edmonton. It is 100 chances to one that the answer is "No," especially if the one he asks is an "Old Timer," as we class our earliest settlers. Why is he so sure that fruit will not grow in Alberta? Simply because he has not had the time or is too much taken up in growing grain to pay any attention to his surroundings.

Take a look in our upland pastures. What do we find? Strawberries everywhere. Wander into our burnt timber regions: Raspberries, blue-berries, saskatocns, pin-cherries, red and black currants, mountain-ash and so forth—all growing and ripening profusely. This was what struck me the first summer after I arrived from Denver, Colorado. Surely, if such wild fruit will grow to perfection without cultivation, why not try the cultivated kinds under thorough cultivation?

PRODUCE HARDY VARIETIES

Then came my first difficulty. To produce fruit one must bring his stock from some district in the same latitude or better still, from further north, to be successful. This was impossible. The only alternative was to get stock from the south, and by careful nursing over the first winter, cross-fertilize the blossoms the following summer with the native strawberry, and thereby produce a plant to stand our climate. The result has been a complete success. The first northern grown strawberries were sold in commercial quantities in Edmonton this summer.

The same course will answer with raspberries, gooseberries and currants. It would seem, therefore, that before many years the district between Edmonton and



RENNIE'S SEEDS

IF YOU WANT THE SEEDS
GET THE CATALOG

DEALERS EVERYWHERE SELL RENNIE'S SEEDS

THE FINEST IN THE LAND.
WRITE NEAREST ADDRESS FOR CATALOG.

WM. RENNIE CO. LIMITED, TORONTO, MONTREAL, WINNIPEG, VANCOUVER.



Pinkerton's SWEET PEAS HAVE NO EQUAL

If You Want Success Plant Early

Specialty Mixture—Contains only the best of the Orchid Flowered Spencer Sorts, which are all grown separately. 1-4 lb. **\$1.00**; Oz., **30c.**; Packet **10c.**

Monarch Mixture—Made up exclusively from the best in the general list. 1 lb. **\$1.00**; 1-4 lb. **30c.**; Packet **10c.**

One customer who has been growing Sweet Peas for years, not only in Canada but in England and has had seed from all sources, writes the following:—"The blooms produced from the Sweet Pea Seed you sent to Mrs. Gibbs of Como, were the **Finest, Largest and Strongest** we have ever had."

Signed, Lachlan Gibb.

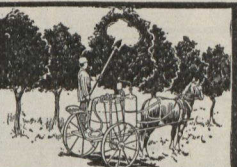
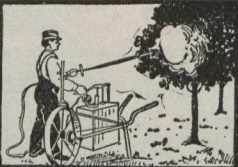
If you want really good **Vegetables and Flowers** this year, send for my catalogue. Prices right and your success assured.

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MONTREAL

HURST SPRAYERS ON FREE TRIAL

NO-MONEY-IN-ADVANCE.
PAY AFTER IT HAS PAID
FOR ITSELF.

LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." We pay freight. Wholesale dealers' prices.



Man-Power Potato & Orchard Sprayer.
Sprays "anything"—potatoes or truck, 4 rows at a time. Also first-class tree sprayer. Vapor spray prevents blight, bugs, scab and rot from cutting your crop in half. High pressure from big wheel. Pushes easy. Spray arms adjust to any width or height of row. Cheap in price, light, strong and durable. **GUARANTEED FOR 5 FULL YEARS.** Needn't send-a-cent to get it "on trial." You can get one free if you are first in your locality. Write now.

Horse-Power Potato & Orchard Sprayer.
For big growers. Most powerful machine made. 60 to 100 gallon tank for one or two horses. Steel axle. One-piece-heavy-angle-iron frame, cypress wood tank with adjustable round iron hoops. Metal wheels. "Adjustable" spray arms and nozzles. Brass ball-valves, plunger, strainer, etc. Big pump gives vapor spray. **Warranted for 5 years.** Try this machine at our expense with "your money in your pocket." See free offer below. Write today.

Fitz-All Barrel Sprayer.
Fits any barrel or tank. High pressure, perfect agitation, easy to operate. Brass ball-valves, plunger, strainer, etc. Automatic strainer. No "cup leathers or rubber" about any of our sprayers. Furnished plain, mount on barrel, or on wheels as shown, 5 year guarantee. It don't cost you "a cent" to try it in your orchard. Get one free. See below. Write today.

FREE—Get a sprayer FREE.—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your Neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with \$2.00 or send you check if you have paid cash.
For every Man-Power Potato & Orchard Sprayer we sell we will credit you with \$3.50 or send check.
For every Horse-Power Potato & Orchard Sprayer we sell we will credit you \$3.50 or send check.
We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.
Ontario Seed Coy., Successors, 138 King St., Waterloo, Ont.

COUPON—Fill out and send today. This Coupon will be used to pay for your sprayer again.
ONTARIO SEED CO., SUCCESSORS 138 King St. Waterloo, Ont.
Send me your Catalog, Spraying Guide, and "special offer" on the sprayer marked with an X below.
Man-Power Potato & Orchard Sprayer.
Horse-Power Potato & Orchard Sprayer.
Fitz-All Barrel Sprayer.

NAME.....
ADDRESS.....

Our Price List of Home Crown Seeds will be Sent you on Request.

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This is exactly what a Planet Jr gardener says. And he says what over a million farmers and gardeners think. They know the time and labor their Planet Jrs save. Aren't you ready to give up the drudgery of farm and garden? Planet Jr implements are ready to lighten your labor, enlarge and better your crops, and increase your profits. Made by a practical farmer and manufacturer with over 35 years' experience. **Fully guaranteed.**

No. 25 Planet Jr Combined Hill and Drill Seeder, Double-Wheel Hoe, Cultivator and Plow opens the furrow, sows seed in drills or hills, covers rolls and marks out next row in one operation; and it has perfect cultivating attachments besides.

No. 8 Planet Jr Horse-Hoe and Cultivator will do more things in more ways than any other horse-hoe made. Plows to or from the row. A splendid furrower, coverer, hiller, and horse-hoe; unequaled as a cultivator.

The 1911 Planet Jr illustrated catalogue is invaluable to every progressive farmer and gardener.

56 pages brimful of helpful hints on labor-saving. **Free and postpaid.**

Write for it today.

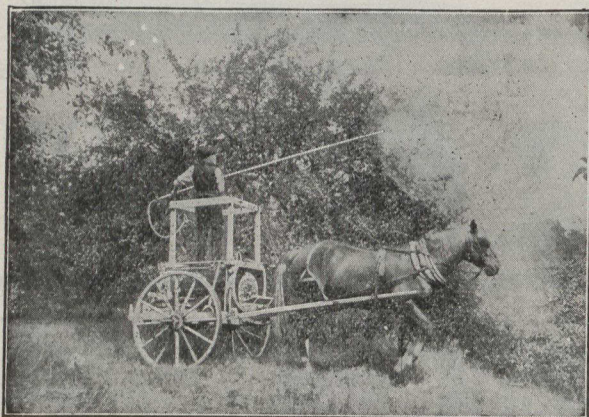
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Write for the name of our Nearest Agency



The horse does all the work, except holding the pole, with the **H. P. Sramotor**. It can be operated by either horse or hand. Has 8 nozzles at 175 lbs. pressure, which practically smoke the tree with spray. All automatic. The number of nozzles can be arranged to suit size of trees. The largest tree may be sprayed. Same price for 1 or 2 horses.

The **H. P. Sramotor**

can be arranged for

vineyards, row crops, strawberries or grain crops. The nozzles will not clog.

Agents Wanted. Get our Free Treatise on Crop Diseases.

HEARD SPRAMOTOR CO.

1388 KING STREET, LONDON, ONT.

The True Test of Fertilizer is the Crop Test

Crops often double their yield when they have the nitrogen they need.

NITRATE of SODA

Cheap Clean
Easy to Apply

We recommend Nitrate of Soda because its nitrogen is all available, that is 100 per cent. of it, and at once. You don't buy filler and it acts instantly. See us for prices.

CHEMICAL LABORATORIES, Ltd.

148 VAN HORN STREET

TORONTO, CANADA

the Rocky Mountains will be as good a fruit producing country as that east of the Rockies in Colorado, and with this advantage—we do not need irrigation—have more hours of sunshine and as long a growing season. Our soil or all locations are not suitable to fruit growing. The same may be said of the settlers; one man will succeed where ten will fail on account of neglect and incompetence.

Compulsory Spraying

I think probably the present condition of the apple industry will be sooner rectified by the farmers who own orchards and who make them a secondary consideration on the farm, turning them over into the hands of the interested apple men, either by lease or purchase.

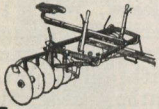
I would also suggest bringing into effect compulsory measures and compel careless growers to give proper treatment to at least control destructive insects and diseases, for instance, the codling moth larva and many others. We are taught that the law is a school master, and so it will be in this case. It will cause men "to sit up and think" when nothing else will. Men who will not try to learn for their own personal profit, could in this way be interested to attend the public demonstrations and discussions re apple culture and care, if for no other reason than to get posted on how to evade the law, and once within the charmed circle would be led to a better knowledge of the subject and thus have their interest awakened.

I have little hope of otherwise helping men who are only breeders of pests and troubles for their neighbors. They have no regard for their neighbors' welfare, and the sooner we compel them to get interested or get out of the industry, the better for themselves and all concerned.—Joseph Tweddle.

Mr. W. Armstrong, Queenston, writes us that he would like to be one of a party of Canadian fruit growers to visit the chief ports and markets of Great Britain, as suggested in THE CANADIAN HORTICULTURIST last year in order to become familiar with conditions there and boom the export trade in Canadian fruits. His opinion is that eight or more leading fruit growers with this object in view would be of immense value to the fruit industry of Canada, besides a most valuable medium of advertising the Dominion from a horticultural point of view. We already know that the various organizations in Great Britain who are interested in the handling of fruit would give such a party a warm welcome. Could not the Dominion Fruit Division organize and make the necessary arrangements for such a deputation?

Mr. Robert Thompson, vice-president of the Niagara Peninsula Fruit Growers' Association in commenting on the proposed tariff changes pointed out the fact that while all the duty on fruits had been removed, there had been no corresponding reduction of the tariff on manufactured articles, such as baskets, pumps, fertilizers, and spraying mixtures. That question, he said, will be brought to the Government's attention. Mr. Thompson pointed out that growers of cherries, raspberries and other late berries will gain as much as they will lose, but that the principal sufferers will be the early peach and vegetable growers. He added that in case the growers can get no better terms the only chance of competition will be to grow a variety of later fruits to sell after the United States fruit season is finished.

The Bissell



With wings attached Bissell Orchard Disc Harrow extends over 12 feet wide. Detached it is compact, regular-size Harrow. You can regulate gangs to follow any slope of

ground. You can throw weight on outer ends of gangs so that they will run even and cut tough sod away from trees or vines. It's reversible—Out-Throw to In-Throw. Write Dept. N for catalog or consult local dealer.

T. E. Bissell Co. Ltd. Elora, Ont.

FARMERS, FRUIT, AND VEGETABLE GROWERS



WHY ARE YOU IMPORTING PHOSPHATE AND AMMONIA WHICH IS A BY-PRODUCT OFF YOUR FARMS OF WHICH YOU ARE EXPORTING MANY THOUSAND TONS ANNUALLY, BONES AND WHICH CONTAIN LARGE QUANTITIES OF PHOSPHORIC ACID AND AMMONIA.

KINDLY ANSWER THE ABOVE

PURE BONE MEAL IS THE CHEAPEST FERTILIZER.

THIS PLANT FOOD IS ALL FROM OUR CANADIAN SOILS AND SHOULD ALL GO BACK. SEND FOR PRICES, ETC.

THE W.A. FREEMAN CO. LIMITED HAMILTON, CANADA.

WHICH WAY ARE YOU PAYING FOR AN IHC GASOLINE ENGINE?

THERE are two ways—a quick, easy way and a long, costly way.

The first way is to go to the I H C local dealer, pick out the style and size suited to your needs—pay for it—take it home and set it to work. It will operate your cream separator, feed grinder, thresher, fanning mill, turn your grindstone, saw wood, etc.

The other way is to get along as best you can without it, and pay for it over and over again in the time and money you lose by not having it.

"Procrastination is the thief of time," and time is money. An I H C Engine saves time—saves money. It's an investment that pays big dividends, day after day, year in and year out, through its capacity for doing work at less cost than any other power.

I H C Gasoline Engines

are made in all styles and sizes, 1 to 45-H. P., vertical and horizontal—stationary, portable, and tractor. Their efficiency, economy, and dependability have been proved by years of service. Thousands of owners consider an I H C Gasoline Engine one of the best paying investments they ever made.

If you want to know more about what an I H C Gasoline Engine will do for you, and why it is that I H C construction insures more power on less gasoline consumption than any other engine, you should call at once on the I H C local dealer, or, write for a copy of the I H C Gasoline Engine catalogue.

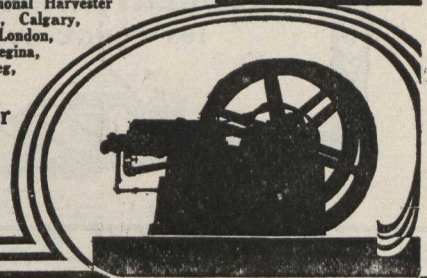
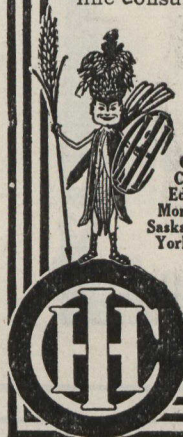
While you're delaying you are paying, so why not have what you're paying for.

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

International Harvester Company of America (Incorporated) Chicago U S A

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What is it? A clearing house of agricultural data. What does it do? Helps farmers to help themselves. How can it be used? By sending your farm problems and puzzling questions to the Bureau. We are co-operating with the highest agricultural authorities and every source of information will be made available to solve your difficulties. We shall be pleased to have an opportunity to assist you. Write the I H C Service Bureau.



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EATS IT EVERY DAY

3 FEEDS FOR ONE CENT

MAILED FREE BEAUTIFUL SIX COLOR PICTURE OF DAN PATCH 1:55

(SIZE 16x22 INCHES) AS LIFELIKE AS IF YOU SAW HIM ON THE TRACK HITCHED TO SULKY AND READY FOR A MILE IN 1:54

You must name This Paper and state how much Live Stock you own. WRITE TO US FOR THIS PICTURE INTERNATIONAL STOCK FOOD CO., LTD., Toronto, Can. CASH CAPITAL \$2,000,000 LARGEST IN THE WORLD

M. W. Savage, sole owner of "International Stock Food," and also of "International Stock Food Farm," positively Guarantees that His World Famous Champion Stallions, Dan Patch 1:55, Cresceus 2:02 1/4, Minor Heir and Arion 2:07 3/4 and his brood mares and colts eat it every day. You are specially invited to visit this Great Harness Horse Breeding Farm ten miles from Minneapolis, and see the practical results of the every day use of the greatest purely vegetable animal tonic ever used on a farm. It is constantly used and strongly endorsed by over Two Million of the most up-to-date Stockmen and Horse Breeders of the world.



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Is sold by over 100,000 dealers on a spot cash guarantee that the use of one ton will make you a net profit of \$368 over its cost, or that 100 pounds will make you \$18 net profit. If it ever fails your money will be promptly refunded. International Stock Food is a strongly concentrated medicinal preparation composed of roots, herbs, seeds, barks, etc., and is equally good for horses, colts, cows, calves, hogs, pigs, sheep, goats, etc. It is fed in small amounts mixed with grain and purifies the blood, tones up and strengthens the system and greatly aids digestion and assimilation, so that each animal obtains more nutrition from all food taken. It is not the amount of grain fed but the amount assimilated or taken into the system that fattens or keeps your stock in good condition, and as International Stock Food increases assimilation it will save you money. It will make you more money than you can possibly make without its use. It also cures and prevents many forms of disease, and is absolutely harmless, even if taken into the human system. International Stock Food is endorsed by over two million farmers who have used it for years. The editor of your farm paper will tell you that we do exactly as we agree, and as reference we give you the Traders Bank of Canada.

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Book Review

"Catacombs of Worldly Success," or "History of Coarsellor Dell," is the title of a book issued by the Metropolitan Church Association of Waukesha, Wis. It gives a glimpse of the interior workings of a large industrial concern, showing its social and business sides with relation to its business policies. The author is F. M. Messenger, who claims that the incidents described are drawn from real life.

Floriculture at the Ontario Agricultural College

A pleasant call was made recently by a representative of THE CANADIAN HORTICULTURIST to the College greenhouses. Under the fostering care of Mr. Hunt, we found everything in good shape. Our first visit was to the large greenhouse laboratory, where could be seen the work of about 130 students in plant propagation from seeds and cuttings, transplanting, and the pot culture of bulbs. Each student has a small flat or box, in which were three or four dozen cuttings of different varieties of plants suitable for window or garden culture, as well as a box for seeds of hardy border plants. In addition to these each student had a pot of hyacinth and narcissus bulbs. These last were in full flower, giving an additional attractiveness to this interesting work. The cuttings were evidently well rooted and ready for transferring to small pots; very few failures were to be seen. The uniform success of each student's work was very noticeable, testifying to the individual interest shown in the work. The classes under Mr. Hunt's tuition are the second year students, the fourth year graduating class in Horticulture, and a class of twenty young ladies from the Macdonald Institute. Outdoor floriculture especially suited for home surroundings also receives considerable attention, even more so than the subjects mentioned. This is a most important work, and one which should prove to be a great factor in the beautifying of farm home surroundings throughout our country.

The various collections of plants in the greenhouses were mostly geraniums, callas, begonias, palms, primulas, fuchsias, hyacinths, and narcissus and similar kinds suitable for window culture. One batch of a new Chinese primrose, "The Duchess," was particularly noticeable. The foliage of this variety is of a rich bronzy green color and of a vigorous habit. The trusses of bloom, as well as the individual flowers, were very large and conspicuous. The centre of the flower was of a greenish yellow, heavily suffused around with rich carmine, the margin of the flowers being pure white. The plants were raised from a complimentary packet of seeds from Sutton & Sons, Reading, England, the originators of the new variety. Some fine plants of giant primulas and a batch of showy cinerarias, with the callas, begonias, freesias, and other plants, made these houses look very bright and attractive. All of the plants looked clean, healthy and thrifty.

Our visit to this department was of necessity a very brief one. Sufficient, however, was seen to show that good work is being done, work that is deserving of the heartiest support possible.

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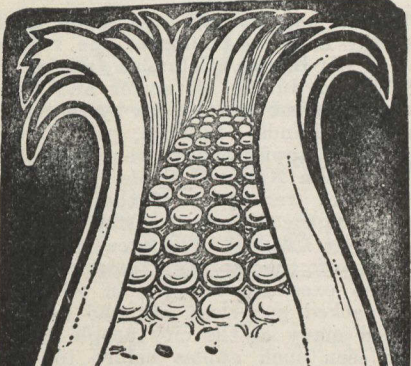
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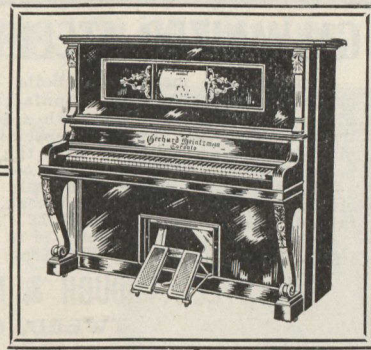
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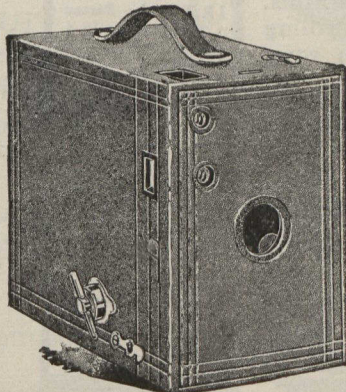
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Items of Interest

Mention has already been made in THE CANADIAN HORTICULTURIST of the very fine exhibit of British Columbia apples that were shown during November and December in Montreal and Ottawa by the Central Okanagan Lands, Limited, of Kelowna, B.C.. The apples shown were direct from the Canadian National Apple show at Vancouver and were part of the famous exhibit from the Kelowna District that won the highest awards. The exceptionally fine coloring of the apples, their uniformity and the excellent manner in which they were packed surprised all who saw them and led many of the city people who had never seen such apples before to return, bringing friends with them. The varieties shown included: Hublardston Nonsuch, R. I. Greening, Ontario, Spitzenburg, Haas, Canada Red, White Winter Pearmain, Ribston Pippin, Black Twig, Belle de Boskop, McIntosh Red, Akins Red, Baldwin, Paragon, Lady Apple, Yellow Newtown, Gano, Wagener, Grimes Golden, King David, Sutton Beauty, Stark, Rome Beauty, Winter Banana, Salome, King of Tompkins, Black Ben Davis, Talman Sweet, Northern Spy, Snow, Delicious, Jonathan, Black Detroit, Ben Davis, Kelowna Seedling, and Rawle's Janet. The Central Okanagan Lands Limited has met with great success in its sale of land, having sold over \$300,000 worth of British Columbia land to parties in Ontario and Quebec since about the first of September.

Prof. Wallace, the Cornell University expert on lime-sulphur, makes the following summary of the results of his investigations last year on lime-sulphur injury:

First, that heavy drenching is a common cause of foliage injury. Second, that much of the burning of apple foliage last year following the application just after the blossoms fell was due to previcus scab infection of the leaves. Third, that arsenate of lead is the only insecticide that we yet know which may be used in the lime-sulphur with safety. It not only decreases the burning but actually increases the fungicidal value of the mixture by fifty per cent. Fourth, that injury to the fruit and foliage by lime-sulphur is much less serious than that caused by bordeaux under the same conditions. Fifth, that the addition of lime or the presence of sediment does not materially affect the burning qualities of the lime-sulphur one way or the other. Sixth, that cultivated, vigorous trees will withstand foliage injury better than trees in neglected orchards.

A meeting was held in Rochester, recently, in connection with the New York Fruit Growers' Association and approved by the Pennsylvania Horticultural Society, Michigan Pomological Society, New Jersey State Horticultural Society, Adams County, Pa., Pomological Fruit Growers' Association and the Western New York Horticultural Association to secure legislation, both state and national tending to raise the grades and standards and improve the methods of packing all fruits and to secure uniform state legislation with regard to size of packages.

I am very much impressed with THE CANADIAN HORTICULTURIST as I find some very interesting information therein.—Leonard Crooks, 68 Kenwood Ave., Wychwood Park, Ont.

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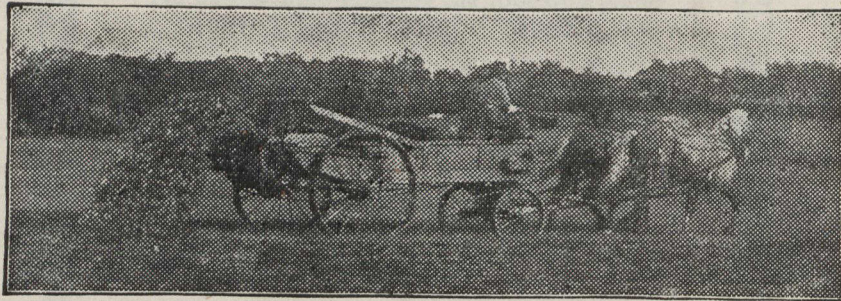
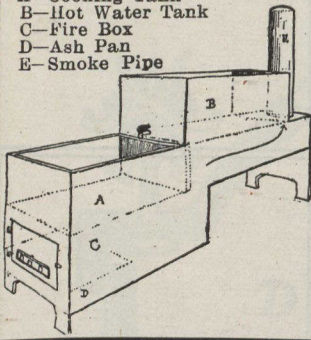
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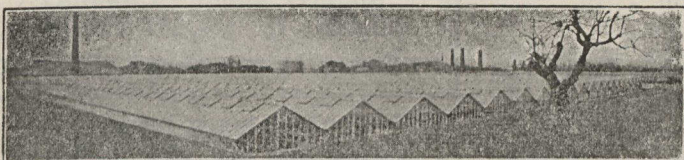
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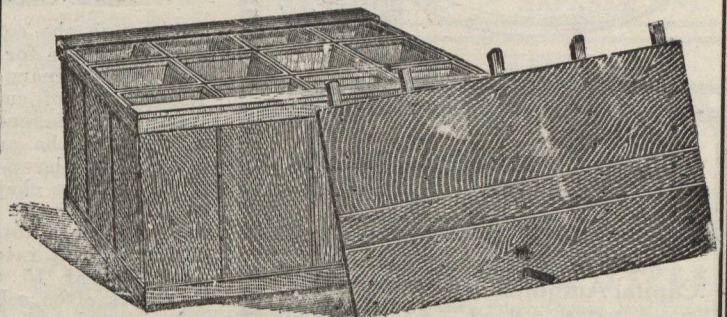
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Necessity of Spraying

There is no longer any certainty of a crop without spraying with both insecticides and fungicides, no matter how favorable the season or how fertile the soil. In fact, there is a certainty of ultimate loss. How great this may be was demonstrated all over Canada the past year by the almost total failure of fruit in unsprayed orchards, while sprayed orchards have given bountiful crops.

Farmers complain that there is no money in fruit growing. It is small wonder when one cannot go into a fruit store and buy a few apples that are fit to eat. They will be either wormy or covered with scab. If a man will not spray he might better dig out the trees by the roots and grow some crop that will make money, as an unsprayed and uncared for orchard is simply occupying good land and giving no interest on the investment, as hundreds of acres of orchards all over the country testify. Many farmers think that good apples cannot be grown on old trees. This is unfortunate, as this erroneous opinion prevents the spraying of unproductive orchards all over the county which could easily be made dividend payers.

The barrel of Northern Spies which won the first prize at the New England Fruit Show was grown in an orchard forty years old that previous to eight years ago was neglected and had produced practically nothing. Since that time it had been properly plowed, pruned, sprayed and cultivated, with the result that it grew the best barrel of apples in New England. Nor need we go to New England for examples of what can be done, as a number of the prizes won at the recent Ontario Horticultural Exhibition were from orchards that had been neglected for years and only given proper care during the past year.

This only illustrates what can be done with the old orchards scattered all over Canada. With a little care these would produce high grade apples. Fertilize, prune, cultivate, and spray thoroughly. The old trees will then pay you well for your efforts on their behalf.

Profits from Vegetable Growing

Wm. Clements, Clarkson, Ont.

Although the consumer generally pays a very fair price for fruit, it does not realize any extraordinary profits to the producer. A basketful of cucumbers may sell for 25 cents. More generally, however, 15 cents a basket is the average price to the producer. An eleven-quart basket costs three cents, express charges five cents, selling commission 10 per cent—2½ cents; cartage one cent, or a total of 11½ cents, leaving at the 25 cent rate 13⅓ cents for the producer—or at 15 cents, next to nothing. Tomatoes often sell for as low as 15 cents a basket. Last year, for the better part of the season, they averaged 20 cents a basket. The charges on tomatoes will figure approximately the same as in the case of the cucumbers.

The consumer pays at least 40 cents for this same basket for which the producer received 25 cents. The Express Company gets about one quarter of the gross returns received by the producer. It may therefore readily be seen that there is not so much money in the business even if the consumers do pay fair prices. Reasonable profits can be expected only where the produce is shipped in quantities; smaller shippers have little left after deducting charges.

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The Cooperative Movement in the Niagara District

The cooperative movement amongst fruit growers in Ontario is still pretty nearly a new thing. Commission men do all they can to cripple it; therefore it is not remarkable that some of the cooperative fruit growers' associations have not been all in the matter of success, that their promoters had anticipated. Recently, one of the editors of THE CANADIAN HORTICULTURIST devoted a considerable time to making a special study of the cooperative movement amongst fruit growers at Clarkson, Oakville, Winona, and Grimsby, Ont. The information gained is presented herewith:

The Clarkson growers are organized only for the purpose of buying supplies. At Oakville, the older cooperative organization, which has been in existence for five or six years, has had a somewhat checkered career, but in the main it has been a success and a marked advantage to the apple growers of the district. Recently, a new organization, called the Fruit Growers' Association, was started at Oakville. Grimsby numbers four cooperative organizations, which handle and deal in fruit; Winona has two organizations. Some of these cooperative concerns have only recently been organized.

A study of the success of the older organizations shows them to have been, for the most part, highly advantageous to their members and of considerable benefit to non-members, in the district, who have received prices much in advance of what would have been paid had the cooperative organizations not been in existence. Where any of these cooperative associations have not succeeded or have received a temporary set back, the members in most cases have not been broad-minded enough to see something beyond present advantage or the cooperators were not willing to employ business ability and to pay the market price for it.

MARKED SAVINGS

Clarkson growers have never attempted to sell their fruit cooperatively. They have organized merely for the advantage to be derived from buying their supplies in quantities from the lowest tender. In this they have saved much for their members. Berry boxes, which formerly cost \$3.50 a thousand, and which have since gone up in price, are now obtained for \$2.75. The organization has 78 members this year. Some growers, not in the organization, and who are inclined to knock it, do not seem to realize that the association is even of benefit to them, since local dealers, who are trying to break the association, sell their supplies at prices greatly reduced to what they would were it not for the cooperative association. A year ago there was a difference of \$1,260 between the first and second tender—the lower tender being accepted made quite a nice item for the association.

The whole business of buying the supplies is financed by the association. It pays the manufacturer 80 per cent. of the price as the supplies are delivered; 20 per cent. is held back until May, or until all supplies ordered are delivered. The association takes notes from its members in the fall at the time the supplies are order-

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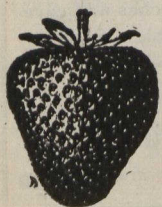
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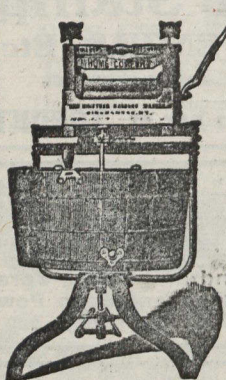
We have a grand assortment of No. One Stock. Well grown. Sure to please customers. Fruit, Ornamental and Shade Trees, Shrubs, Vines, Roses, Small Fruit Plants, Cal. Privet, etc For verity write to-day for new Price List.

Deal direct for Profit and Satisfaction. Can't beat our Montmorency Cherry Trees, at the CENTRAL NURSERIES.

A. G. Hull & Son - - St. Catharines, Ont.

You Can Do the Weekly Washing in Six Minutes

The 1900 GRAVITY WASHER cuts out labor and saves money. Does a big family washing—and wringing too—in short order. The Gravity washes a tubful spotlessly clean in six minutes. Prove it at our expense.



Any Woman Can Have a 1900 GRAVITY WASHER On 30 Days' Free Trial

Don't send one cent. Try it first at our expense—if you are responsible. We'll pay the freight. See the wonders it performs. Thousands are in use and every user

delighted. We are constantly receiving letters from hosts of satisfied customers. The 1900 Gravity is sold on small payments. Send for our fascinating FREE Book to-day. Write me personally C. H. C. BACH, Manager, The 1900 Washer Co., 357 Yonge Street Toronto, Ontario.

The above offer is not good in Toronto, Winnipeg or Montreal and suburbs. Special arrangements made for these districts.



The Real Canadian Girl

will never waste her money on imported table salt. She knows that right here in Canada, we have the best table salt in the world—

Windsor Table Salt

The real Canadian girl, and her mother and grandmother too, know that Windsor Salt is unequalled for purity, flavor and brilliant, sparkling appearance.

WINDSOR Table SALT

13

ed. These do not bear interest until the first of February. So far, the association has never lost a copper through these notes taken from its members and has been a great advantage to the growers in financing the purchase of their supplies as well as securing them at reduced prices.

The fruit growers at Oakville, some five or six years ago, organized in order that they might dispose of their apples to the best advantage. The first year the business went off with a swing and the members realized uncommonly well on their apples. It was not possible to keep this up although some members expected it to be equally as good each year. The following season, their expectations were not realized. Dissatisfaction crept in and there was a split. It was the old story of the members staying with the organization when it was a good thing and of dropping it immediately when it became in a bad way. Many of the members have dropped out. Several of the leading growers, however, are still carrying on the organization and they believe that they have a good thing. It has made apples worth from 35 to 40 cents a barrel better for the farmers of the district generally. The year before organizing, apples sold for 75 cents a barrel, and were culled badly. The first year the association was organized, the apples brought \$1.80 for firsts and \$1.70 for seconds. Last year, with a limited membership, after paying all expenses, members realized \$1.73 for firsts and seconds.

The new fruit growers' association at Oakville was started last May. It is a straight association, whereas the older association is a stock company. They hope ultimately to hire a manager by the year and to sell all their fruit at Oakville station.

A STOCK COMPANY

The Winona Fruit Growers Limited numbers eleven of the larger growers at Winona. Formerly three or four of the members were large individual shippers. Now the business of the eleven is carried on under the one head. The membership is strictly limited. The organization is a stock company. It hires a manager by the year. Its aim is to sell its produce direct to the dealer keeping as much of it as possible off the commission market. Although the organization was not started until August last year, it did exceptionally well and has bright prospects for the present season.

The Ontario and Western Cooperative Co., Limited, has one of its branches located at Winona. All business is conducted through the central station at Grimsby. The Winona branch numbers thirty members and includes perhaps the largest growers in the association.

AN OLD ASSOCIATION

The old Grimsby Cooperative Association, which numbered seven or eight members, owing to dissatisfaction on the part of some of its members disorganized and closed up business last spring. Three of the growers afterwards reorganized to carry it on knowing full well that it was a good thing. These growers have all their fruit packed at a central station, it being on Mr. A. G. Pettit's farm. The business of the association is managed by Mr. Harry Metcalf. Everything is running smoothly. The three growers are well satisfied, and the organization, furthermore, is handling considerable fruit from other growers and of course reaps its commission on their produce. This concern is the only firm that packs everything at a central packing house under one manager. The produce is sent out under an absolute

— TRY —

J. W. CROSS Old Grammar School WISBECH, ENGLAND

Wholesale Fruit, Bulb and Seed Potato Specialist

FOR

FRUIT TREES of all description, Gooseberry, Currants, Strawberries, Raspberry Canes, etc.

BULBS—Daffodils, Narcissus, Tulips, etc., English grown.

SEEDS of all descriptions, including all the best varieties in Potatoes.

NURSERY STOCK, such as Privet, Quick for hedges, Herbaceous Plants, etc., etc.

CHRYSANTHEMUMS, all best varieties in stock. State requirements, special quotation will be given

Send For List

1,000,000 PERENNIALS

One of the most complete collections in the world, suitable for all soils and climates.

DELPHINIUMS

9 Gold Medals in two years

SEED 25 cents per package. Nothing finer

CATALOGUES FREE

PERRY'S HARDY PLANT FARM
ENFIELD, England

ROSES

We have to offer for early spring delivery five thousand fine young dormant roses, in over 100 of the finest Hardy Everblooming and Hardy Climbing sorts which we offer while they last in

Special Dollar Collections

of 10 varieties, one of each. Each collection includes 2 Hardy Climbers and 8 Hardy Everblooming Roses.

Five Collections, 50 varieties, for \$4.50. These are too large to go by mail, but we can send smaller plants by mail prepaid if preferred. First come, first served.

W. McK. Ross' Sons
CHATHAM, ONT.

Groff Modern Gladioli

Groff's New Selections.

Groff's new named varieties, Peace, "LaLuna", Blue Jay, Empire, Dominion, War, Etc.

Special collections for Horticultural Societies, now largely called for.

Also Paeonies, Cannas, Dahlias and general nursery stock.

WRITE FOR CATALOGUE

G Campbell Bros. Simcoe, Ont.

Strawberry Plants

Fine stocky well rooted plants. All tested varieties. Neatly tied in bunches and carefully packed. Prices reasonable. Send for free catalogue and price list.

S. H. RITTENHOUSE
Jordan Harbor, - - Ontario

guarantee. Some of those on the outside evidently are sorry that they are not in. The dissatisfaction with the old organization was over personal matters, not matters of business.

The Grimsby Fruit Growers Limited is an organization of eleven local growers who have recently banded together to sell their fruit cooperatively. All fruit handled by the company is packed under the personal supervision of each stock holder. Like the other organizations, their aim is to put up an honest package, with a guarantee, and to sell it to dealers direct rather than have it go on to the commission market. The membership is restricted to the eleven growers. Others have signified their desire to join the organization, but they will not be taken in until the firm as it now stands has established itself as a success.

A BIG BUSINESS

The Canada Fruit Company is one of the fruit organizations of the district with headquarters at Grimsby. The company is made up of dealers, who are also producers, and does a wholesale business. It, too, aims to keep its stuff off of the commission market. Last year, the company shipped its first car of fruit on the 19th of August. After that date forty-five cars were sent to the west and ten to the east. This concern has been of no little benefit to the local growers in doing a large business, shipping to distant markets, and thereby avoiding what would otherwise result in a glut on local and nearby markets.

The Ontario and Western Cooperative Fruit Co., Limited, with headquarters at Grimsby, has local organizations, in addition to the one at Winona, at Grimsby Park, Beamsville, St. Catharines, and Port Dalhousie. It is organized on a large scale and its members are cooperating in order that they may ship in bulk. Car loads of fruit are to be their specialty.

The sales are all managed from the head office at Grimsby. Each day, orders as they are received, are phoned out to the various branches. Car loads, when they cannot be secured at any one branch are loaded in part at one station and taken on to other branches to secure the remainder of the load. The company handles all kinds of domestic fruit from berries to apples. A regular representative of the company, located in the west, looks after that end of the business.

Each basket is labelled with the name of the grower. It is sold under a guarantee, and if any of it proves bad or not up to the standard, it can be traced back direct to the grower. Peaches and pears are to be handled and packed at central packing houses. Six of these have been established. Each station is in charge of a capable man and six are under the direct supervision of an expert who has been secured from Georgia.

As may be seen, this cooperative concern is operating on a very big scale. It is aiming to run the business on a ten per cent. commission. A penalty clause in the agreement was signed by all members of the association for the year whereby they agreed to pay the company a commission of fifty per cent. of the value of any merchantable fruit which they might sell other than through the company.

What is claimed to be the biggest apple ever grown in England was sold at Covent Garden recently to Messrs. Adams, of Bond St., West, for \$70.00. The height of the apple was five inches, its circumference sixteen inches and its weight twenty-seven ounces.

A Garden in the Far North

The illustration of the garden of Mr. A. E. Guay, of Ville Marie, Que., that was published on the front cover of THE CANADIAN HORTICULTURIST for July, proves that it is possible to grow many kinds of flowers and vegetables in the northern portions of Quebec, where at one time many people thought that little but snow and ice existed. Ville Marie is on the northern slope of the Laurentian mountains, the waters of which drain into the Hudson Bay. In a letter to THE CANADIAN HORTICULTURIST, Mr. Guay writes as follows:

"My success in the culture of fruits and of vegetables has far exceeded my expectations, considering that we are located so far north, and also the fact that the climate on the north side of the Laurentides is more dry than in the southern part of the province of Quebec. To obtain my present results, it has been necessary for me to go through numerous and varied experiences during the past 20 years, until at last I

A Wonderful Washer



Momentum Balance, Wheel working on ball bearing, keeps the "Champion" Washing going with very little effort.

A new idea in washing Machines. "Favorite" Churn means easy churning. 8 sizes.

If your dealer does not handle them, write us for booklets and name of dealer near you who does. 77

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

SPECIAL GUARANTEED LIME-SULPHUR HYDROMETER

Scale to 1400 Specific Gravity. Every man who sprays needs one. Price \$1.00 postpaid.

PARKE & PARKE, HAMILTON, ONT.

STRAWBERRY AND RASPBERRY PLANTS

We have a fine lot of the celebrated Williams Strawberry for spring planting. This berry is the standard commercial strawberry throughout this entire district, and will succeed almost anywhere. Blossom perfect, fruit large and of good quality. We make a specialty of this variety, but can supply other good sorts, both of Strawberries and Raspberries, Red and Black.

Correspondence solicited. Safe arrival guaranteed.

W. H. BUNTING, - St. Catharines, Ont.
The Carleton Fruit Farm

METALLIC CEILINGS

are everything that plaster, wood and wall paper are not.

Metallic Ceilings are fire-proof, absolutely.

Metallic Ceilings don't crack or crumble—don't get damp or mouldy—don't need repairs.

Metallic Ceilings are far-and-away the most economical building material you can put in a house.

You don't believe it? We can prove it. Write us for the facts.

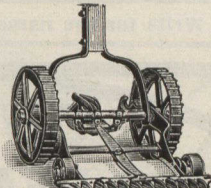
The Metallic Roofing Co. Limited
MANUFACTURERS
TORONTO AND WINNIPEG (50)

Agents Wanted in Some Sections

The Clipper

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

CLIPPER LAWN MOWER Co.
Dixon, Illin is



SUNLIGHT IN YOUR HOME

R-K Lighting Systems are the nearest rival to sunlight, 600 candle power costs only 1 cent per hour. Can be installed anywhere in the home-church-store etc. Easy to operate—always ready to use. Thousands in daily use. Write our nearest office for Booklet C.

RICE-KNIGHT, LTD., Toronto or Winnipeg

ARTICHOKES

For Sale, 1 to 300 Bushels

J.W. Rush, Humber Bay, Ont.

"FRIEND" NOZZLES
ANGLE AND REGULAR
SEE PAGE IX FEB. ISSUE

Worlds Best Hand and Power Sprayers. Special Concession on Power Outfits in New Territory.

EVERGREENS!

90,000 Norway Spruce, 1 to 6 feet.
10,000 Arbor Vitæ, 1 to 5 feet.

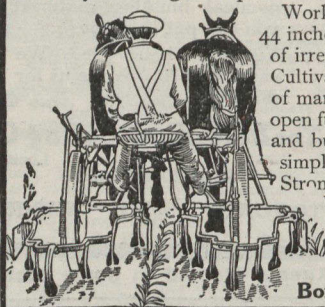
All home-grown, healthy, transplanted stock.

ALSO NUMEROUS VARIETIES OF EVERGREENS

THE POINTE CLAIRE NURSERY, George Milne, Manager, POINTE CLAIRE, or P.O.
Box 165, Montreal

Planet Jr. 2-row Cultivator

The Planet Jr No 72 two-row Pivot-Wheel Cultivator, Plow, Furrower and Ridger is the greatest implement ever invented for saving time and money on large crops.

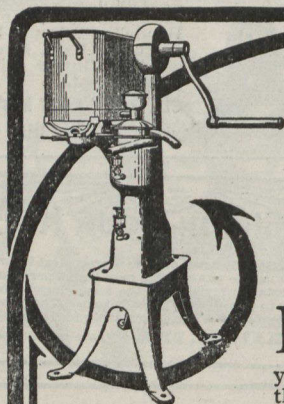


Works two rows at one passage, all widths from 28 to 44 inches,—and what's more, works crooked rows, and rows of irregular width; and surprises everyone in check-rows. Cultivates crops up to 5 feet high. Covers two furrows of manure, potatoes or seed at a time. Never leaves open furrows next to plants. The Planet Jr is designed and built by a practical farmer and manufacturer. It simplifies the work and prepares for big results.

Strong, compact and lasting. Fully guaranteed. Write today for 1917 illustrated catalogue of all Planet Jrs, including 55 kinds of horse and hand implements for every farm and garden need. Mailed free.

S L Allen & Co
Box 1106G Philadelphia Pa

Write for the name of our Nearest Agency



OWNERS KNOW THE REASONS WHY IHC CREAM HARVESTERS PAY BEST

LET IHC owners tell you about IHC Cream Harvesters. They know IHC superiority by actual experience. The local dealer will give you the names of some owners near you. Learn from them why IHC Cream Harvesters skim closest, are most durable, easiest to clean, and easiest running.

Let them tell you about the many profit-advantages of

IHC Cream Harvesters

Look over the IHC separators they are using every day. Then consider these facts:

The wearing out of parts and many other cream separator troubles are largely due to dust and milk getting into the gears. IHC Cream Harvesters are the only separators with dust and milk proof gears which are easily accessible. A glance at an IHC will show you this great feature. IHC Cream Harvesters are protected against wear at all points by phosphor bronze bushings—not cast iron or brass bushings. IHC Cream Harvesters are constructed with larger spindles, shafts and bearings than any other separator. The IHC bowl is free from slots or minute crevices, which make it remarkably easy to clean. There are many other advantages which any IHC owner or the local dealer will point out and prove to you. IHC Cream Harvesters are made in two styles—Dairymaid—a chain drive machine, and Bluebell—a gear drive separator—each in four sizes. In justice to yourself, see an IHC owner or the local dealer before you decide on any separator. If you prefer, write for catalogues and all information to nearest branch house.

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

INTERNATIONAL HARVESTER COMPANY OF AMERICA
Chicago (Incorporated) U S A

IHC Service Bureau

The bureau is a center, where the best ways of doing things on the farm, and data relating to its development, are collected and distributed free to everyone interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. If the questions are sent to the IHC Service Bureau, they will receive prompt attention.



have found the species or varieties that will grow the best in our climate.

"I have plum trees, gooseberries and currant bushes. You will not find better in all Canada. My apples are only fair. I am not yet satisfied with them, I have tried several varieties of cherries without success and as Mr. Saunders, of the Experimental Farm, has stated that they will not succeed in Ottawa, I am discontinuing them.

"We have succeeded in growing cabbages, carrots, turnips, tomatoes, mint, sweet corn, cucumbers, beans, etc. Owing to the dampness or moisture, my cabbages often weigh 20 to 25 lbs. each.

"I have not grown many ornamental shrubs, but I have had good success with lilacs, snowballs, honeysuckles, wistaria. Hydrangeas and roses need more protection. We have succeeded very well with the brighter flowers. I have around our home a fine Virginia creeper, which has done very well. Grains of all varieties have succeeded well."

Apple Shipments to Cuba

In reading the reports on shipments of Canadian fruit, and particularly apples, to the English market, writes Commissioner E. S. Kirkpatrick from Havana, in the weekly report of the Department of Trade and Commerce, there is given an impression of the great care which is taken in handling this fruit, and also of thorough inspection. These facts have caused wonder that in the export of fruit to Cuba such an utter lack of care and judgment should be shown. There is probably no place where good fruit is more in demand, or where better prices rule. Poor and inferior fruit can hardly be given away.

At the request of an importer, Commissioner Kirkpatrick recently inspected a shipment received from Nova Scotia. It was scarcely believable, he wrote, that these were exported with any hope of returns. He entered into correspondence with the shippers and they replied that while Nova Scotia apples were of the best, the farmers were very behind in packing, and that fruit of inferior quality should not be permitted to be exported.

Mr. A. McNeill, Chief of the Fruit Division, of the Department of Agriculture, stated that the trouble was due to the trade being carried on largely by a few indifferent and comparatively irresponsible schooner owners. While no really reputable apple dealer had seriously undertaken the trade, it was commencing to receive the attention it deserved. Steps were being taken by the Central Co-operative Association of Nova Scotia to place the trade on a proper footing.

Some idea of the immense crops of tomatoes grown in the Channel Islands for consumption in the markets of Great Britain is furnished by the following clipping from an English paper: "The Channel Islands tomato season is now in full swing, and some very large cargoes are daily being landed at Weymouth by the G.W.R. boats. Between twenty and thirty thousand packages in one day is a frequent occurrence. Up to the end of August nearly two million packages had been shipped from Guernsey for this season. Two or three special tomato trains with loads for all parts of the Kingdom leave the Quay each evening. So far the crops have suffered for want of sunshine, but with the advent of the recent fine weather some very heavy shipments are expected shortly. As usual, nearly all the tomatoes have been forwarded from Guernsey; but the Jersey crop, which is later, will soon be coming along in huge quantities."

POULTRY DEPT.

The Poultry Yard

If every poultry plant was a success the egg market would be well supplied, but many, very many, are failures so far as egg production is concerned. Among the chief causes is too much misdirected kindness. The hens are over fed, they are kept in warm, stuffy, air-tight houses. The old hens are kept from year to year, long after their usefulness has departed. Many a good flock has run out because of inbreeding and lack of exercise.

The poultry plants that are making money are not run in this way. These houses are open and afford plenty of pure fresh air and sunshine, even if the houses are cold. When the hens are well protected from draughts and dampness they will keep well and lay more eggs than when confined in a warm, unventilated house. The old hens should be killed off each fall

and their places taken with young pullets that will lay all winter.

The hens should be given a variety of feed, care being taken not to allow them to become too fat. Many successful egg producers feed large quantities of alfalfa either ground in the form of a meal or the hay cut up short with a cutting box. This alfalfa is soaked in hot water and mixed with the mash when it will have the same effect as a feed of fresh green grass. If possible, cover the floor of the houses with cut alfalfa. The hens will be kept busy all day picking it over. The results in the egg basket well justifies this expense. Many poultry men now say that they cannot keep fowl profitably unless they feed alfalfa liberally.

Neglect will spoil the best breed of fowl in the world. If it is worth spending time and money to build up a flock it is worth while to keep the birds in good condition afterwards.

Do not have the perches so high that the hens hurt their feet flying down. This is how they get bumble foot. A damp floor covering is unhealthy. It is no fun for the hens to scratch in litter after it gets damp and heavy.

Keep on the watch for lice and guard against them whether they are found or not. Have a good supply of road dust for the fowls to dust in. If road dust is not handy, wood ashes will do. Keep the house whitewashed inside and out. Give the perches an application of kerosene emulsion frequently and lice will be scarce.

Order pure bred roosters early to lead you flock. It needs new blood this spring.

If you are troubled by your hens picking cut and eating each others' feathers, it is probable that they have been idle too much and been given too much feed, but not enough animal food. Give them a variety of feed, including meat of some kind, coarse ground green bone, litter the floor with cut alfalfa, hay and straw, and throw the grain into this and make them scratch for their feed. If the hens are kept busy getting their living, they will not have time to pull the feathers out of each other. If any are confirmed in the habit either kill them or pare off upper and lower edges of their bills and nip off the hook. By the time the leaks have grown out again they will have forgotten the habit.

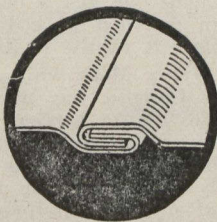
Why is a roof

to protect—

Unless it fully protects what it covers, a roof is not really a roof. And only a metal-shingled-roof can possibly really protect the contents of the building it covers. For no other roofing is proof against all the elements or nearly so long-lived—or so economical.

which metal shingle?

There are several makes of metal shingles to choose from. Any one is better than wood, slate, or ready roofing of any kind. Any one of them will outlast these roofing materials and give far better service. But—as with all things man makes—there is one better than the rest. We make it.



The principle of this side-lock makes a big difference in roofing. May we tell you about it by mail.

why Preston surpasses

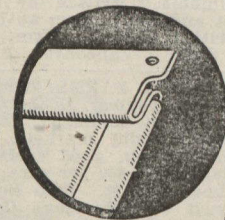
Preston Safe Lock Shingles will give you better roof-service, bigger value for your money, and complete satisfaction for two reasons. One is that these are the ONLY metal shingles so made that they pass the harsh (almost unreasonable) tests the British Government

exacts of galvanized sheet metal that it buys. One detail of these tests requires a coating of 98% pure zinc. Another, that the metal stand bending double without cracking the galvanizing a particle. A third, that the metal must stand FOUR dippings into acid without showing signs of corrosion. There are still other tests and ONLY the PRESTON SHINGLES, of them all, can pass these tests.

yet the cost is the same

You pay about the same price for the ordinary metal shingle as for ours. And it is a little price, considering the roof-service they give. But you, naturally, would prefer to get most-for-your-money—as we all do. Therefore, you should, before you roof at all, learn about all the other metal shingles—and about ours. The book that will inform you is ready to mail to you.

Just a post card from you will bring it.



The Preston top-lock—where the big strain comes on a metal shingle—is worth knowing about. Ask.

Metal Shingle & Siding Company, Limited

Olive St. Factory

PRESTON, ONTARIO, and MONTREAL, QUE.

G. Dalph
Manager

PRESTON SAFE-LOCK SHINGLES

FOR SALE AND WANTED

Advertisements in this department inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

CHARLES ERNEST WOOLVERTON, Landscape Gardener, Grimsby, Ont.

HARDWOOD ASHES—Best Fertilizer in use.—George Stevens, Peterborough, Ont.

STRAWBERRY, Red and Black Raspberry plants, Seed Potatoes.—R. C. Crisler, St. George, Ont.

100,000 RHUBARB ROOTS.—Best varieties grown. Price list, catalogue.—J. H. Lawrence, Hatzic, B.C.

GARDENER WANTED—Competent single man to work small market garden, also greenhouse.—Box 222, St. Thomas, Ont.

WILLIAM COLVIN, GALT, ONTARIO—Specialist choicest varieties Gladioli, Dahlias, Small Fruits, Grape Vines, Perennials, Tuberos Begonias, Ferns, Geraniums, etc.—Write for prices stating your wants.

WANTED—Persons to grow mushrooms for us in waste space in gardens, yards, sheds or cellars, \$15 to \$30 per week. Send for illustrated booklet and full particulars.—Montreal Supply Co'y, Montreal.

MONEY IN THE APPLE ORCHARD—How to make your apple orchard worth \$1,000 per acre is explained in the "Canadian Apple Grower's Guide" recently published by William Briggs, Toronto. Price \$2.00. For special rates write to Linus Woolverton, Grimsby, Ont.

GARDENER WANTS SITUATION about May 1st. Fourteen years' experience in the largest places in Scotland, for several years in Royal employment, including late Queen Victoria, late King Edward and foreman to the Princess Royal. Has had experience in laying out gardens. Age, 31, married, one child.—Write "Gardener" Canadian Horticulturist.

FRUIT LANDS

ONE HUNDRED FRUIT and Stock Farms, Grimsby and Niagara. Guaranteed as described. John Widdicombe, St. Catharines.

FRUIT FARMS sold and exchanged. List with us for quick sale. See us if you are thinking of buying a fruit farm.—F. J. Watson & Co., 1275 Queen Street W., Toronto, Ont.

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

BRITISH COLUMBIA fruit growing. Send one dollar for two hundred page beautifully illustrated cloth bound book, entitled "Fruit Ranching in British Columbia," written by T. J. Bealby, a competent and well known authority on the subject. British Columbia Fruit, Molson's Bank Bldgs., Suite 1 Vancouver, B.C.

BRITISH COLUMBIA FRUIT FARMS yield \$500 to \$1,000 per acre. Edgewood Orchards in Arrow Lake District, West Kootenay, require no irrigating; have splendid markets, ideal climate, good transportation, good social advantages. Choicest land only \$80 per acre; easy monthly terms without interest. Free Booklet "BW"—Investors Trust and Mortgage Corporation, Ltd., 134 Hastings St., West, Vancouver, B.C.

SALMON ARM, Shuswap 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.

IF YOU WOULD LIKE to purchase a site for a home and fruit farm on good, suitable soil situated in the most favorable and dependable climate in Canada, get Louth-Clinton Peach Area free information and ground floor prices for properties in the coming locality for most profitable fruit growing. Don't miss present bargains—forty thousand mansion and farm for only thirty thousand, a fifty acres for ten thousand; others large and small. Enquire about them. State what you want. Also agent for "Wallace" and "Hardie" Engine and Traction Power Sprayers of all sizes, for all uses. W. H. Brand, Jordan Station, Ont.

Oyster Shell Scale in N. S.

A. Kelsall, Willmot, N. S.

A large percentage of the orchards in the Annapolis Valley are infested with bark louse. This is particularly true of the elder orchards, probably on account of the greater protection offered the lice by the more rugged bark. How to effectively exterminate them is an important problem. It has been proven in various parts of the United States, and also in localities having a comparatively mild climate, that a strong solution of lime-sulphur applied in the dormant season will destroy the bark lice. Acting on the assumption that what is a fact elsewhere will be a fact here, several orchardists sprayed with lime-sulphur early last spring, and were surprised late in the season to find that the bark louse had not been killed. It is supposed that the bark louse in Nova Scotia has a considerably tougher shell than it has in localities having a milder winter, and consequently the lime-sulphur is not capable of penetrating that shell and reaching the insect itself.

The orchardist in Nova Scotia has to find some other method for attacking the louse.

WHITEWASH

In young trees where the lice are confined to the trunk, whitewash can be applied with a brush during the early spring. It is better to make more than one application in order to do the job thoroughly. The scales peel off in a very short period after this and the trunk is effectively cleaned. It may be possible to apply whitewash with the ordinary spray pump to both young and old trees, though it is doubtful if the usual nozzles will admit of the whitewash being made thick enough.

KEROSENE EMULSION

The most effective way of exterminating the louse is by means of kerosene emulsion. The young lice generally hatch about the beginning of June, and are at that time unprotected. They can be seen as small white spots with the naked eye, and as there is but one brood during the year the exact time to spray with kerosene emulsion is easily ascertained.

In view of the doubts which exist regarding lime-sulphur as a scalecide in Nova Scotia, June spraying with kerosene emulsion should take its place in the attack against the bark louse. If the aphid is present the emulsion will destroy them

For the third time in three years Andrew Carnegie has ordered Canadian apples through an Ottawa agency. He had twenty barrels expressed to various friends in Scotland for Christmas.

CONSULT ME if you want to buy or sell a fruit, stock, dairy or grain farm in Ontario, Manitoba, Saskatchewan or Alberta. I have some bargains on my list.—H. W. Dawson, 90 Colborne Street, Toronto.

Insect Ravages in the East

The ravages of the Brown Tail moth in the Annapolis Valley, Nova Scotia and the spread of the Tussock moth as well as the rapidity with which the Gypsy moth is approaching has caused the Halifax Civic Improvement League to start a campaign of education with the view of bringing to the attention of the public the necessity of immediately taking some steps to combat these pests before they gain too firm a foothold.

Dr. C. Gordon Hewitt, Dominion entomologist, in the course of an address before the League said recently that in Canada the loss of crops each year through such causes would be ten per cent. of the total value which would be about fifty million dollars. This would be to the crops alone the loss to the forests would be quite another item. In Eastern Canada all the larches had been destroyed by such pests, and now there was another sweeping over the Province of Quebec like a wave of fire.

In Nova Scotia the most dangerous fruit pest was the brown tail moth. In the city the danger was to the shade trees by the Tussock moth.

Dr. Hewitt, said that in combating the Tussock moths the best time is when they are in the egg state. Then collect the eggs and burn them or to paint the egg masses with creosote, one touch of which is sufficient to destroy the eggs. Then paint around the trunk of the tree about four feet from the ground, a band of tanglefoot about four inches wide. As the female moth cannot fly and the only way she can get into the tree is by climbing this will prevent that. Then in the summer sprinkle the trees with poison. The tanglefoot should be placed on the trees before the end of May.

The Tussock Moth was much easier to combat than the Brown Tail, which was an European pest that got into Massachusetts from France.

The Brown Tail moth not only destroys the trees but also renders some places uninhabitable. The caterpillar is covered with a quantity of little hairs that get into the skin and blood of people and cause what is known as the "brown tail rash." This rash is a serious one and a person thus afflicted is often confined to bed for several days. Sometimes it results in death.

The Gypsy Moth while it had not as yet reached Canada was now within seventy-five miles of the border. The Gypsy Moth is much easier to combat than the brown tail and its life cycle is like the tussock. It feeds on all vegetable matter even eating grass after it has stripped the trees. The female cannot fly, but will lay its eggs in almost any place. There are no parasites for this pest in this country and large sums of money are being spent to import them.

A GOOD ISSUE FOR ADVERTISERS

Advertisers are reminded that the next issue of The Canadian Horticulturist is the Garden Annual. All departments of the paper will be strong. Particular attention will be given to subjects relating to the planting and care of the flower and vegetable garden. It is an issue which readers will refer to frequently, and will preserve. The circulation will be greatly increased, and the issue will be the most valuable one of the year to advertisers. It will pay you to use large space in this number. Send copy by March 20th.

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In the December issue of The Canadian Horticulturist, Mr. W. G. MacKendrick, one of the best authorities on rose culture in Canada, places this rose at the head of the list of climbing roses. **Ahead of even the Great Crimson Rambler.** It blooms profusely from the beginning of June to the last of July. The flowers are borne in clusters of from ten to fifteen blooms each, and show tints of bright rose, carmine, white and yellow, all in the same cluster. It is a strong rapid grower and free from mildew or disease of any kind. It is pronounced one of the greatest roses ever introduced.

These Roses, were you to buy them, would cost from \$1.00 to \$1.50 each. But they are not for sale. The only way to secure them is to get one or more of your friends who are not now taking The Canadian Horticulturist, to subscribe each for one year at 60 cents. Send us their subscriptions and your name will be placed on our list to receive the roses at the proper planting season.

This is a very exceptional opportunity to secure one or more of these splendid new Roses. Take advantage of it promptly. We have a limited number only, and accordingly cannot hold this offer open indefinitely. See some of your friends and show them your copy of The Canadian Horticulturist to-day. Remember, all subscriptions must be **NEW**, and secured at our full subscription price of 60 cents a year.

VEILCHENBLAU. (Blue Rambler)

This new Rambler is a seedling of Crimson Rambler. The blossoms, massed in large umbels, are semi-double of medium size. The color on first unfolding is either reddish pink or purplish pink, then turns amethyst, and finally steel blue as the flower fades. The stamens are yellow and show up in sharp contrast to the blue petals. The plant is vigorous in growth, with shining green foliage and few but sharp thorns. So far it has not suffered from mildew and is considered one of our most hardy climbers.

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THE CANADIAN HORTICULTURIST

PETERBORO, ONTARIO

ings, as branch wires can be run from the main line to the buildings and thus save wire and simplify the construction. Reference to Fig. 4, in which c, e, etc., represent the buildings to be connected, m the main line and a and l the branch wires, will make this point clear.

POLES.

Poles twenty-two or twenty-five feet long of any good stock, cut when green, should be used. Cedar and chestnut are particularly desirable on account of their lasting qualities. The poles should be reasonably straight and well proportioned. The diameter

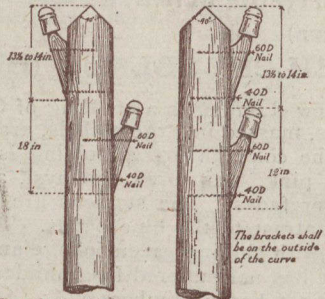


Fig. 5—Location of Brackets on Pole for Straight Lines. Fig. 6—Location of Brackets on Pole at Curves.

—40—

of the top of the pole should be about 5 or 6 inches. In order to prolong the life of the poles and add to their attractiveness, all the bark should be removed, knots trimmed close and the butt cut off square. The top of the poles should be roofed as shown in Fig. 4.

POLE FITTINGS.

Where only one or two line wires are to be mounted on the poles, oak brackets fitted with glass insulators are fastened to the pole as indicated in Fig. 5 for straight lines, or as shown in Fig. 6 at curves. The brackets should be attached to the pole before the poles are raised.



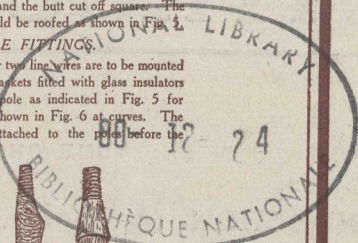
Fig. 7 Fig. 8 Fig. 9

BRACKETS.

Brackets Figs. 7 and 8 are usually made of oak and given two coats of metallic paint and have a thread on the upper end to which is fastened a glass insulator, a type, as used in telephone work, is shown in Fig. 32.

They should be about 18 inches apart. The upper bracket should be 8 inches from the top of the pole

—41—



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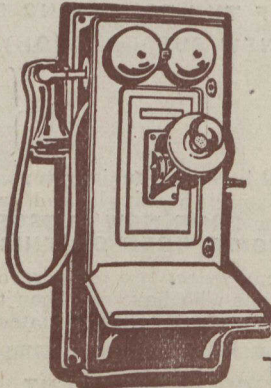
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