

Pages Missing

The Canadian Horticulturist

Vol. XXXII

MAY, 1909

No. 5

The Proper Cultivation of Strawberries

G. LeRoy Oliphant, Clarkson, Ontario

THE ground on which strawberries are to be planted should be prepared for them by manuring well after the preceding crop is taken off. A good coat of horse manure is preferable to any other manure as it seems to add to the ground that which is most necessary for the growing of strawberries. Potatoes or corn are recommended as good crops to precede strawberries as they need hoeing, thus keeping down small weeds. If these weeds are kept down and not allowed to go to seed, there will not be any seeding of the ground to spring up in the early spring when the young strawberry plants are shooting their first runners; if there are a lot of weeds around a plant one often cuts off the plant in trying to get close to it with the hoe.

After getting the ground well worked (that is, to have about six inches of loose soil on top) a roller should be run over it. This is to level it and also to break up any large or hard lumps that may be on the field. A field is not considered ready until all the ground is as smooth as possible and devoid of all sticks, stones or sods.

PLANTING

Planting should be done as soon as the plants can be secured. Good healthy plants should always be selected and especially if the soil is light, for in case of a drought or short dry spell just after planting, a small plant would wither and die while a large plant, being sturdier, is not so easily killed. This is one reason why the Williams and Glen Mary are so popular. They are large plants and generally have good long roots.

When planting a line is used so as to have the rows straight. Care must be taken to keep the line tight, and always plant on the same side of it. The plants should be put from eighteen to twenty-four inches apart. The smaller the plants are the closer they should be planted. The holes are always made with a spade and wedge-shaped. This is done by moving the spade back and forth after sticking it in the ground. The plant is then placed in the hole, the roots being kept perfectly straight, and then the earth is pushed back, filling in the hole. A practised man can do this handily with one foot. The most important thing in planting is not to cover the heart of

the plant with earth when filling in the hole. The rows should be three and a half feet apart.

Before planting, all plants should be looked over and all the dead leaves and runners cut off. This must be done and the plants then placed in good order with the roots out straight, so that they can be easily picked up and dipped in water. This serves to keep them moist and also to keep the roots straight.

After the plants have a good start, they should be hoed once a week during the whole summer, to keep the weeds down and also to keep the runners trained. All blossoms should be pulled off the first year.

CARE IN FALL.

In the fall, after the plants have stopped growing, yet before the ground

Unequaled

I do not think that THE CANADIAN HORTICULTURIST is equalled by any publication on the continent.—W. J. Brandrith, Secretary, British Columbia Fruit Growers' Association, Ladner, B. C.

freezes, a wide shoe is put on the back of the cultivator to throw out a deep furrow. This allows any water that may collect on the ground to run off.

As soon as the ground freezes in the late fall, the vines should be covered with long straw horse manure. This covering is left on until spring and, as soon as the vines begin to shoot up and there is no danger of frosts, this may be shaken up loosely and left for about a week. Then it is all raked off the vines and left between the rows. This keeps the weeds down and also keeps the ground moist. The manure should never be taken from between the rows as it keeps the berries on the edge of the row from getting sandy after a rain. The berries on the edge of the row are always the best. No weeds should be allowed to go to seed.

TREATMENT OF FRUITING PATCH

After the fruit is all taken off, the mower is run over the patch and the tops of the vines are cut off. This is done so as to start a new growth when the

vines start growing again. The rows, which are now about two feet wide, should be plowed down to about one foot, that is to take some off each side of the row. Do not plow too deeply, then go along the row with a cultivator to shake out the dirt from the roots of the plants that have been plowed out. If once is not sufficient, go through a second time. Let a man go through now with a fork to shake out the loose vines and throw them in heaps. The usual plan is to throw five rows into one. This refuse is all hauled off, and dumped out of the way; if there is not too much earth in it, it could be mixed with manure and rotted. Everything being out of the way now, the cultivator is applied once a week until it freezes up. They should of course be kept free from all weeds as much as possible. Another covering of manure is put on in the fall, and dealt with as in the preceding year.

Strawberry beds are seldom kept over two seasons. It is not policy to do so, as the beetle that attacks the blossoms most severely breeds in the old beds. Some prominent fruit growers prophesy that the time is not far off when a bed will be plowed up after one season of bearing.

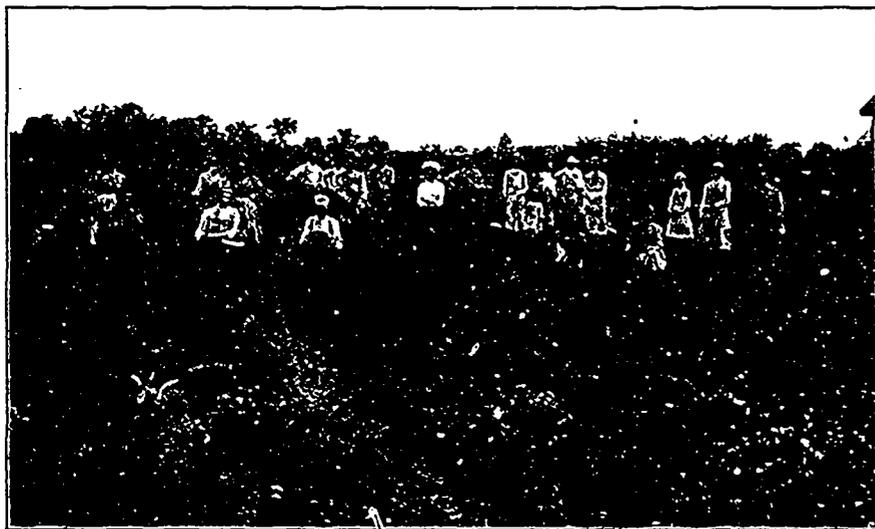
[Note.—The majority of our commercial growers already follow the practice of cropping a strawberry plantation only once.—Editor.]

Fruits For British Columbia

As soil and climatic conditions vary widely in British Columbia, it is difficult to recommend a list of varieties of fruits that would be suitable for planting in all parts of the province. This fact is pointed out in a letter that was received by THE CANADIAN HORTICULTURIST from Mr. Maxwell Smith, Dominion Fruit Inspector, Vancouver, which is as follows:

"It is quite impossible for me or anybody else to answer your question directly as to the best standard varieties of fruits to plant in British Columbia. Our climatic and soil conditions are so diversified, that the same varieties which might be a success (and also have market value) in one locality, might not be the varieties to recommend for another, and I therefore hesitate to give my opinion unless it were in answer to a direct ques-

tion as to the varieties which I might deem the best for some specific locality. There are also many varieties which do well, but which I should not recommend for planting in a commercial orchard. Some of the varieties of apples which will be regarded as a success and profitable to the growers of British Columbia in the near future, are the Grime's Golden, McIntosh Red, Wealthy, Cox's Orange Pippin, Yellow Newtown Pippin, Northern



Strawberry Picking Scene on Farm of Mr Jas. E. Johnson, Simcoe, Ontario

Spy, Ribston Pippin, Gravenstein, Esopus Spitzenburg and Jonathan. The Italian Prune is the one member of the plum family that may be relied upon in any of the fruit growing districts of the province."

Mr. W. J. Brandrith, Ladner, secretary-treasurer of the British Columbia Fruit Growers' Association, writes as follows: "With regard to standard varieties, it is doubtful if two men in a neighborhood would agree. After twenty-two years' experience in the Lower Fraser Valley, my choice for commercial purposes would be: Apples,—Yellow Transparent, Duchess, Wealthy, King, Jonathan, Northern Spy and Salome; pears,—Bartlett, Boussock, Sheldon; plums,—Bradshaw, Italian Prune; sweet cherries,—Windsor, Lambert; sour cherries,—Olivet, English Morrello; raspberries,—Cuthbert; blackberry,—Lawton.

In the article on "Raspberry Culture" by Mr. N. E. Mallory in the April CANADIAN HORTICULTURIST, it was stated that laterals should be cut back in early spring to about three inches. It should have read "fourteen inches."

The usual distances apart for planting tree fruits are: Apples, 30 to 40 feet each way; apples, dwarf, 10 to 15; pears, 20 to 30; pears, dwarf, 10 to 15; plums, 16 to 20; peaches, 16 to 20; cherries, 16 to 25; apricots, 16 to 20; quinces, 8 to 14. Grapes are planted 8 to 12 feet apart each way.

Peach Yellows*

M. B. Waite, Pathologist in Charge, Investigations of Diseases of Fruits, U.S. Department of Agriculture

IN the early discussion of peach yellows around Philadelphia mention was frequently made of destroying the diseased trees. It seemed to have occurred quite frequently to orchardists that this was the proper thing to do. In the outbreak at Benton Harbor, Michigan, in

of Mr. Jesse Lockwood and of Dr. C. A. Ring, both of Olcott, New York, as excellent examples, also the orchard of Mr. Willard Hopkins of Youngstown, New York. In these cases, several near-by orchards less carefully handled have had serious destruction from the yellows and little peach.

ERADICATION TESTS

About six years ago, when the writer's investigations led him to the conclusion that little peach belonged to the yellows group, an eradication test was started in a definite area in Saugatuck township, Michigan. This area contained about seven square miles, was thickly planted to peach orchards and had about 140,000 peach trees. There were some 4,000 or 5,000 trees diseased that were found the first season. A small proportion of these, however, were affected with yellows. Three inspections were made and the diseased trees were removed with a fair degree of promptness after each inspection. The next year only between 400 and 500 diseased trees were found, being only a small fraction of one per cent. A slight increase of somewhat over a thousand trees were found the third season, evidently due to a local outbreak in the neighborhood, but the total number of diseased trees in this area was less than one per cent. Only about one-fifth of these were affected with yellows, the remaining four-fifths being little peach. Similar results were obtained by the local yellows commissioners in the fourth season, which was 1906, and the orchards in this area are still standing in good condition as far as the yellows and little peach are concerned.

A similar eradication test was started by the United States Department of Agriculture in 1906 in an area of some six or seven square miles around Youngstown, New York, in co-operation with the Cornell State Experiment Station, through arrangements with Professors Bailey and Craig. In general, it may be stated that from the eradication tests where careful records have been made over a considerable area and from the experience of the best worked orchards, of which there are a large number in Michigan and a good many in New York, it is considered that when ordinary conditions obtain, the annual loss from the yellows should be reduced to less than one per cent. per annum where prompt and careful eradication is done.

Produce the best that can be grown.

The land on which an orchard is to be planted should be in good condition. It should be under cultivation at least two years before setting the trees.

*The sixth instalment of a paper read at the convention of the Ontario Fruit Growers' Association, held in Toronto last November.

An Earth Mulch For Root Protection

J. A. Johnson, Grimsby, Ontario

IN the peach orchards of Mr. Hamilton Fleming, Grimsby, a corner of which is shown in the accompanying illustration, fall plowing is practised previous to the time of freezing with the object of leaving a loose mulch of earth to prevent the frost taking too severe a hold on the fibrous roots of the trees. The depth of plowing is only three inches, no deeper. Thus, there are three inches of non-frost conducting earth to act as a protection in winter.

Last year we tried as an experiment a cover crop of clover growing side by side with a patch that had been fall-plowed as has been already described. In the clover-sown portion, the frost penetrated more quickly and more deeply and remained considerably longer than in the fall-plowed portion. This showed the value of loose earth in resisting the inroads of frost, in comparison with the tightly packed and more solid form incidental to a cover crop. Besides, the solidity imparted to the ground by a cover crop, the packing of the ground during the picking season also affords reason for fall plowing.

I do not approve of an annual cover crop, believing that it collects the moisture that is essential to the full development of tree and fruit. On land that is deficient in humus, however, a cover crop sown once in, say, every three years may be beneficial.

As evidence of the success of the foregoing method, my experience of the past

condition, producing poor fruit and little of that. Owing to the practice of the method mentioned, improvement is so marked that the orchard now yields large crops of fruits that can truly be stamped "Fancy."

As soon as the land permits in spring, plowing is commenced. The soil is plowed away from the trees and at a depth of about three inches, no more. Immediately following the plowing, the cultivator and harrow are brought into use. At least once a week and, in dry seasons,

twice a week, the orchard is gone through. This is continued until the middle of September. The land is then given a short period of rest. This allows chickweed and other light weeds time to grow until time for fall plowing.

NOTE.—Mr. Johnson's theory in respect to fall plowing is interesting. Expressions of opinion in regard to it from those who have followed the practice and from others, will be welcomed for publication in THE CANADIAN HORTICULTURIST.—Editor.

Why We Prune

Prof. J. C. Whitten, College of Agriculture, Columbia, Missouri

(Continued from last issue)

IN recent years an investigation of the dormant period of trees and of problems relating to their hardness is throwing much light upon the subject of pruning. This applies with particular force to pruning the peach.

For better understanding, let us adopt a somewhat technical conception of what is meant by the dormant period. Ordinarily we speak of the dormant period of a tree as being that period between the shedding of its leaves in autumn and its starting into new growth in spring.

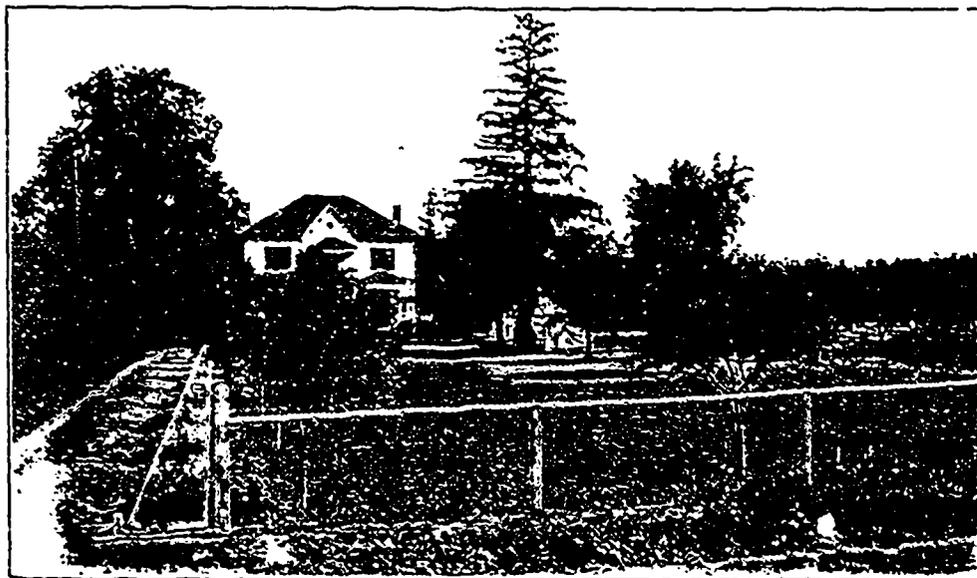
Investigation has recently shown that during the first half of this winter-rest, our fruit trees are in a deep sleep, from which they cannot easily be awakened, but that during the last half of it they

planted in the greenhouse during the first half of winter, it will lie dormant until about midwinter. If it is brought to the greenhouse in midwinter or later, it will promptly begin to grow. The same thing may be shown by bringing in peach twigs and putting them in a vase of water in a warm room. During the first half of winter they remain dormant, but they are ready to begin growth any time after midwinter.

Much of the winter killing of peach buds is due to the fact that they start into slight growth on warm, sunny days during late winter, and this growth renders them too tender to endure subsequent cold. Much of this injury may be avoided by inducing their true dormant period (that deep sleep from which they are not easily awakened) to continue until later in the winter. The earlier a peach tree sheds its leaves or stops growing, the earlier its dormant period begins and the earlier may the buds become ready to grow if warm, sunny, winter days prevail. The later growth is kept up in autumn, the later will the trees shed their leaves and the longer will their dormant period continue.

If peach trees in this climate are cut back severely enough in winter so they grow late the following summer and shed their leaves after cold weather comes on, their buds are not likely to awaken into growth until danger of winter-killing is past. This may not apply in colder climates than ours, in which tender, late growth may be killed by excessively low temperatures, even though dormant.

Finally, the man who prunes should understand the habit of each kind of tree with which he works. He should be able to tell the age of the tree by the character of the limbs. It is desirable to be able to observe how much length growth has occurred during each year of the tree's history. The difference between fruit buds and wood buds should be dis-



A Beautiful Lawn and Home in the Famous Niagara Peninsula

Residence of Mr. Hamilton Fleming, Grimsby. A corner of the Peach orchard is shown. This is managed by Mr. J. A. Johnson.

ten years with all kinds of fruit and with various soils is that I have never lost a tree by winter killing. In 1905, Mr. A. Burland purchased this farm and placed me in charge. It was then in bad

(particularly the peach) may easily be forced into growth, providing warmth and moisture are supplied.

One may easily test this point. If a peach tree is taken from the open and

tinguished. The pruner should be able to tell from the fruit scars and blossom scars on what years the trees have blossomed, when fruit set, and whether the fruit properly matured, as indicated by the character of the fruit scar. By comparing these evidences of fruitful and non-fruitful years with the amount of growth made each year and with the

kind and degree of pruning which was done in any season, he may reason out for himself the proper pruning to pursue in order to secure a given result. In other words, the best book on pruning is to learn to read the life history of the tree, during all its past, by the characters which are plainly written on its twigs and limbs.

Prune back the remaining ones to within a few inches of the old wood. The shoots from the base of the bush may be cut back to about fifteen inches from the ground. Shoots that spring from points below this should be removed. Climbing roses may be cut back as desired. If pruned regularly, they will become more compact and will bloom more profusely.

Plants that have been started from seed in the house should be hardened-off before transplanting to the open. Expose them for a few hours a day to outside influences.

Sow seeds of nasturtiums, balsam and portulaca after the middle of the month. The latter is an excellent hot weather plant. Sow sweet peas. There is more danger of being too late with these than too early.

Corms of gladioli may be planted towards the end of the month or early in June. Plant them three or four inches deep and about six or eight inches apart.

Secure and plant some new perennials

Lawn and Garden Hints for May

THE busiest month of the year for gardening is May. Plants that have been started earlier in the season must be watched carefully and there are scores of different kinds of plants and seeds that should go in the ground now. Sow your plants in straight lines so that cultivation may be performed easily and to have neatness and order. If you have not yet purchased all the

the following day, the plants may have to be shaded.

Sow radish seed in good soil. To have them crisp and tender, apply a little commercial fertilizer to make them grow rapidly. To have a continuous crop, sow the seeds every ten days or two weeks. A good variety is Scarlet White-topped Turnip.

Among the best varieties of lettuce are Big Boston and Black-seeded Simpson. For parsley, sow Double Curled. There are many good varieties of peas, including Gradus, Heroine and Stratagem. An excellent carrot is Chantenay. Two of the best onions are Yellow Globe Danvers and Large Red Wethersfield. One of the best parsnips is Hollow Crown. The best early beet is the dark Egyptian.

Keep the surface soil of the vegetable garden well stirred and cultivated. Do not allow the weeds to get a start.

WITH THE FRUITS

Every home garden should have a few strawberry plants. Choose varieties that have perfect blossoms. If an imperfect flowering variety is preferred, there must be planted near it some plants with perfect flowers to fertilize the others. There are many excellent varieties. Those that do well in some localities often are failures in others. Ask a neighbor who has been successful with strawberries for the names of kinds that have done well with him. The blossoms should be removed from the plants during the first season of growth.

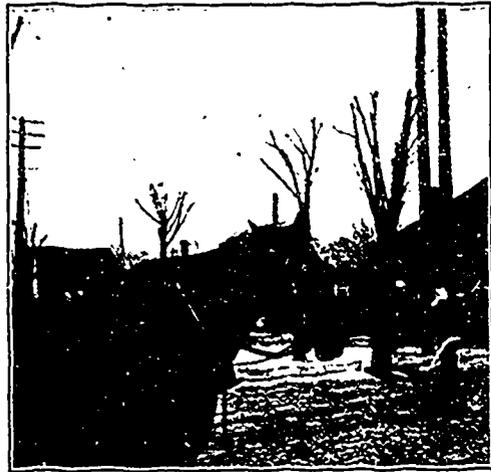
Remove the mulch from the old strawberry bed and leave it between the rows. It will help to save the moisture, to prevent the fruit being splashed with earth during rains and to make the work of picking cleaner for yourself.

If the garden is large enough, it should contain a few bushes of gooseberries, currants, raspberries and blackberries. Plant them now.

Watch the currant and gooseberry bushes for worms. Dust the plants with powdered Hellebore or spray with one ounce of Paris green to about ten pounds of water.

THE FLOWER GARDEN

If your rose bushes have not yet been pruned, do it now. The best time is just as the buds are starting into growth. Cut out the dead and weak branches.



Maple Trees Butchered to "Clear" Wires Overhead

The beauty and usefulness of street trees in our towns and cities are being destroyed by telephone and traction companies. This reckless destruction should be stopped.

seeds that you require, be sure to get only the best. A difference of a few cents or dollars in cost now will make a great difference in results.

THE KITCHEN GARDEN

The soil for vegetables should be dug deeply, and made as fine as possible for the reception of the seeds. When digging, work in plenty of well-rotted stable manure. If wood ashes are available, give an application of them also. The hardy varieties and kinds of vegetable seeds should be sown now. Sow in freshly stirred soil. Seeds require less depth of covering in spring than in summer. Seeds of beets, carrots, parsnips, and beans will germinate more quickly if they are soaked over night. Cucumber, squash, melon and corn should not be planted until all danger of frost is past.

The best time for transplanting is on a cloudy day or late in the afternoon or evening of hot days. If the sun is hot



A Hedge of Spiraea Van Houttei
Residence of Mr. Richard Devlin, Ottawa

in the herbaceous border. This class of plants are always interesting.

ON THE LAWN

Repair the bare patches on the lawn by seeding or sodding. If sods are to be used, cut a square area about the injured patch, and remove the old sod surface and soil from within this square to the depth of a sod. Roughen the surface of the soil with a rake. Lay the sods in strips closely together. Pound firmly with the back of a spade, water immediately and continue the watering until the new sod has made a union with the soil beneath.

For seeding a lawn a good mixture is Kentucky blue grass, Red Top and White Dutch clover, equal parts by weight. Sow at the rate of one quart to the square rod.

Trim the evergreen hedge just before growth starts. Never prune back of the growing twigs. A hedge must be clipped regularly each year.

To be satisfied with our work in transplanting, it is not sufficient to make a tree live, but it must grow.

A Season's Experience in Alberta

D. W. Spice, Lacombe

FOR my first season with flowers in Alberta, I chose only those annuals whose culture I was familiar with, such as asters, sweet peas, stocks, *Phlox*

long days of July and August, the growth and wealth of bloom was really wonderful.

I have also tried dahlias, German iris,

real hard frosts came. I tried also larkspurs, sweet william, pinks, columbines, and found them to do splendidly. Last July, I sowed seeds of over twenty different perennials as an experiment. They went into their winter quarters strong, husky plants.

Buying vs. Saving Aster Seeds

Charles James Fox, South London, Ont.

The article in the March issue of THE CANADIAN HORTICULTURIST, entitled "How an Amateur Grows Asters," by W. Norman, of Elmira, will be read by many thousands. I think that the latter part of the article, if carried out, would prove a failure. For over sixty years I have grown asters, and if I want to "own the best in my neighborhood" I should not grow them from seed of my own saving. How many amateur growers are there who do not begin to pick the first and best flowers for their own use, also for the benefit of their neighbors who have no gardens?

Last year I bought seven packets in seven different colors, and each packet produced eighty per cent. of plants true to the color named on the packet. Mr. Norman must know that the seeds in those packets that could not be grown "by the acre like flax." It is only by a large amount of labor and great care in selection that such are produced. Each color is grown separately. Every plant showing the slightest signs of a wrong color is destroyed.

Such seed demands a fair price. It is far better to buy fifty seeds for twenty-five cents and grow, say, forty first-class aster plants, than to pay five cents for a packet containing 200 seeds and, after all the labor in transplanting two or three times, to find hardly a decent aster in the whole lot.

Five years ago a friend sent me a few seeds that he had raised from a plant of a lovely light shade of lavender. He picked off all side shoots, and saved the seed from four perfect flowers. I raised eighteen plants, ten of which gave white flowers, five red and pink shades, and the balance dark shades of lavender. My friend grew about sixty plants with about the same results, not one plant of the color from which the seed was produced. Why? Because alongside of the parent plant there was a bed of white ones, and the bees did the trick for him.

If good asters are wanted, buy the best seed from good and reliable seedsmen, and such seed cannot be sold at five cents a packet. It is those men who have for years made a study of the growing of seeds, that we have to thank for the great improvement of our asters during the last twenty years.

For the edges of borders, walks and drives, use an edging knife. Seedsmen sell them.



A Western Home that Has Flowers in Abundance

Residence of Mr. D. W. Spice, Lacombe, Alta. Flower beds on each side of lawn and on three sides of house containing dahlias, phlox, bleeding heart, iris, poppies, asters, stocks and nasturtiums.

Drummondii, Shirley poppies, lupines, candytuft, alyssum, nasturtiums, godetias, and so forth. The results were a very pleasant surprise to me, as so many wise ones had told me how foolish I was to try to grow flowers in Alberta. Friends from Ontario who visited as were greatly surprised at the wonderful growth and profusion of bloom, especially so with the asters, phlox, sweet peas and stocks.

Owing to our short summer season, I found it much better to start most of my annuals in a hotbed early in April, and transplant the first week of June, just in time to catch the rains. During the

bleeding heart, gladioli, hollyhocks and paeonies with splendid success. The hollyhocks and gladioli I started in the hotbed in empty fruit baskets, the kind we get plums and peaches in. They were soon up and doing. I gradually hardened them off. When they were ready for their permanent bed, I sunk box and all in the bed; by this means the roots were not disturbed and soon the plants were in full bloom, the wonder of many who had tried these without success.

In perennials, pansies head the list. Alberta's climate just suits them. My sixty-five-foot bed was a bewildering mass of blossoms from May until the



Vegetable and Small Fruit Garden in Alberta, One Year from Unbroken Prairie

At rear of house shown in companion illustration. Around the lot are two rows of Manitoba Maples that made from four to seven feet of growth in two summers.

A Few Wild Flowers Suitable for Cultivation

E. Byfield, Toronto

OUR woods, fields and waysides furnish an abundance of humble, though none the less true, friends—flowers in their natural state, to whose simple, delicate beauty the flower lover may turn with pleasure from the wonderful creations of the plant wizard. In a short article like this, I must, of necessity, omit mention of all but a very few, and of these I shall speak only of those that will with a little care readily adapt themselves, if we choose to adopt them in our gardens.

I shall begin with that bright, little, early spring firstling, the hepatica. Running from white through every shade of pink into blue and purple, these dainty little star-shaped flowers completely carpet the ground where they are permitted to grow and propagate themselves. Flowering at the same time comes the merten-sia, though not nearly so well known. It grows about a foot high, sending up a loose spike of pinkish buds that open out into bells of the most exquisite purplish blue, changing later to light blue. The owner of any garden might well be proud of these spring beauties that will run a race with his snowdrops and crocuses to see which will be out first.

Before these have entirely disappeared, the trillium, the bloodroot and the claytonia are well in bloom. The first is so well known as to need no description. The second is so beautiful that it is a great pity it is not better known. A pure white, poppy-like flower, an inch to an inch and a half across, with a rich golden centre, it is one of our loveliest flowers. The claytonia sends up a spike of about six inches crowned with several white or pinkish little bells. When I was a boy the woods in May were so covered with these dainty little clusters that you could not place your foot on the ground without crushing several. Now, only here and there in the settled part of the province, can these be found.

With the exit of these, come the late May and June flowers, taller and decidedly showy. Among these I would place first our own wild phlox; where allowed to colonize, it literally overshadows everything else in color. The eye seems to take in nothing but the lilac-blue that is everywhere present, while the air is filled with its fragrance. At the same time we have our wild columbine, fortunately so well known as to need no description, as no description could do it justice. If you want to see it send up a strong stalk three feet high and covered with great bunches of drooping ruby flowers, just plant a root in a moderately rich corner of your garden.

Two of our three Canadian lilies bloom in June—the red, or flame lily, and the meadow or field lily, which is yellow.

The third, the turk's cap, blooms in July, and is of various hues of red and orange. In the wild state it grows four to five feet high, but under cultivation it will grow much taller. I have had one in my garden to send up, year after year, two stalks from the same bulb over eight feet high and crowned with forty lilies, all looking down apparently in silent wonder at the strange beings beneath who were looking up in wonder, not so silent, into their faces.

In July, also, we have those two gorgeous scarlet or vermilion flowers, the cardinal flower and bergamot, the bright, flame-like colors of which nothing can surpass. We have also the solomon seals, true and false, with dainty white flowers, the former at the tips of the stem, the latter in the axils of the leaves. Although the flowers are unpretentious, the deep bright green of the graceful foliage amply compensates. About this time also comes the butterfly weed or orange milk-weed, the most beautiful of all the family.

August ushers in the sunflowers and rudbeckias, filling the fields and woods with golden yellow, while September brings us the bright golden rod and the more sombre aster. Of the latter, the varieties would seem to be almost endless from the dainty little star-like clusters of white and pink to the gorgeous purples and reds of the New England varieties. I have sent to four distant places for much advertised rare novelties of hardy asters only to find when they bloomed, that we had the identical plants growing wild in our neighborhood.

Have you a shady corner in your garden where on account of insufficient sunlight you have not been able to get anything to grow satisfactorily? Well, try a few of these wild denizens of the wood and include with them a liberal supply of ferns also from the wood, and your shady corner will soon be considered the cosy corner of the garden.

The Best Twenty-four Annuals*

A. W. Annandale, Toronto

My selection of the best twenty-four annuals for this district, is as follows: Asters, stocks, verbena, balsams, phlox, convolvulus, sweet peas, candytuft, dianthus, salpiglossis, mignonette, nasturtium, sweet alyssum, marigold, antirrhinum, scabiosa, eschscholtzia, nicotiana, petunia, poppy, zinnia, centaurea, calliopsis (or coreopsis), sun flower chrysanthemum.

There are a large number of hardy annuals that are not included in this list, which are well worthy of mention and are perfectly hardy. They are not

*Extract from a paper read at a meeting of the Toronto Horticultural Society.

grown to any extent here, as they are so little known. The following are a few of them: Adonis, clarkia, godetia, nigella, lavatera, hibiscus, *Amaranthus splendens* and gypsophila, which is a grand thing for cutting and mixes splendidly in bouquets.

All hardy annuals are easily cultivated. For early flowering, sow about March 20th in boxes two inches deep. If sown too early the plants usually grow spindly, and one can never get as good results. Sow in a greenhouse or a hotbed in a temperature of fifty to sixty degrees, and cover the seeds about three times their own depth with fine soil. Large seeds, such as balsam, sunflower and zinnia should be covered half an inch deep, while small seeds such as salpiglossis, petunia and nicotiana need not be covered at all, just pressed into the soil with a piece of glass. A common mistake in sowing flower, as well as other seeds, is covering too deeply. Press the surface firmly with a piece of board or glass, water with a fine spray and do not allow the soil to dry out.

The most suitable soil in which to sow seeds of the smaller kinds is a fine, rich, sandy loam, made up of well-rotted sods from an old pasture, thoroughly decomposed barnyard manure and sand. After the seeds are up, care must be taken to give them plenty of air and moisture, and yet not too much water, as they will be liable to damp off.

Centaurea, candytuft and poppy succeed best if sown where they are to remain and the same applies to convolvulus. These varieties, being of the tap-rooted nature, are somewhat hard to transplant.

Mignonette succeeds best in a semi-shaded position. Once it comes into flower, be sure and keep picking, or it will run to seed and lose its usefulness.

As soon as the seedlings are large enough, transplant into larger pots or boxes, one inch apart each way, and when the weather permits (usually about May 24th) plant outside in the open ground.

Seed can also be sown out-of-doors when danger from frost is over. The soil should be well pulverized and the seed covered lightly. Thin out to one foot apart as soon as the plants are large enough to be handled, and cultivate often. Cultivation is half the battle. Water occasionally if the season be dry, but by more cultivation and less use of the hose, one will have better success. Most people use the hose too liberally.

The lawn should be mowed often to get a body in the turf.

For use in a small garden, it is not necessary to have a great stock of tools. Have a good spading fork and a spade. Three other important tools are a rake, a hoe and a trowel.

Planning and Planting a Water Garden

J. McPherson Ross, Toronto

THE cultivation of aquatic plants is a delightful and interesting diversion from ordinary ornamental gardening. It is quite a novelty to many people whose experience with aquatics has been confined mainly to gazing over some marshy expanse filled with bulrushes or cat-tails, the banks fringed with arrow-head, wild rice and duckweed, or to gathering pond lilies (*Nymphaea odorata*), or perhaps they have seen ponds filled with lilies at some public institute, without even dreaming of growing any themselves.

START WITH A TUB

The cultivation of this class of plants is simple and inexpensive. Beginners

umbos may be procured from neighboring ponds or bays, also roots of the cat-tail (*Typha palifolia*), marsh marigold (*Caltha palustris*), Indian rice (*Zizania aquatica*), umbrella plant (*Cyperus*), and water hyacinth. The beginner should not start with too many kinds.

When danger of frost appears let the water dry down to the soil and take the tub and set away in a cool, dark place, cold enough not to freeze, and the plants will keep well through the winter.

A friend of mine succeeds admirably with a tub of aquatic plants which he sinks into the ground in a corner of his garden where there is no danger of any-

sluggish stream. This method applies to the nymphæas of all sorts and nelumbos.

The seeds of some of the nelumbos are very hard and need to be carefully filed or bored before planting. The nelumbos are valuable and desirable plants and suitable for tub culture. The new kinds are usually expensive. The hardy nymphæas are to be purchased quite cheaply and in a great variety of beautiful colors. There is quite a variety of other plants suitable for cultivation in large ponds or fountains also in aquariums. They may be purchased from seedsmen.

Annuals in the Hotbed

W. H. C. Nicholson, St. Catharines, Ont.

To grow asters, stocks and other annuals, by starting them in a hotbed, I first get shallow trays three inches deep which I fill level with rich, screened soil. I place the trays in the stove oven and heat the soil hot, so that the soil cannot be held in the hand, then let it cool off before planting the seed. Heating the soil kills all grubs and weed seeds. I sow the seed on top of the soil, thinly, then shake a thin coat of soil over them and press down firmly. I moisten the soil before I sow the seed. As soon as four leaves appear, I transplant into other trays, three inches apart. When about three inches high, I transplant again into strawberry boxes, four in a box. As soon as all danger of frost is over, I set them out in the bed where they are to stay. In this way I have sturdy plants and I never have one to miss. I follow this method only for early stocks and asters.

I do not agree with Mr. Norman of Elmira, Ont., (see March issue of THE CANADIAN HORTICULTURIST) in regard to watering asters unless his soil is different to mine. My soil being a light sandy soil and asters being shallow-rooted plants, I have to soak them every other day or they will wilt down. After my asters are planted, I go through them both ways two or three times a week and keep down the weeds and also keep a dust mulch around them all the time. (I have a Buco hand cultivator, which is the best garden tool that I ever handled). When I cannot get through them any more with the cultivator, the plants shade the soil sufficiently to keep the soil moist and cool so that they do not need so much water. I quite agree with Mr. Norman in regard to saving your own seed, which I always try to do unless I wish a change of seed.

Be sure and attend to the ventilation of the hotbed.



A Water Garden that Was Made and Planted Three Years Ago
At "Altadore," Woodstock, Ontario—A. H. Ewing, Chief Gardener.

can start in a modest way by taking a discarded tub; a barrel sawn in halves would answer though not so convenient to handle as a tub. Half fill this receptacle with rich garden soil and imbed your root of water lily of whatever variety that you may procure. Fill the balance of the tub carefully with rain water and set it upon some bricks or stones. An appropriate place for it would be on a corner of a rockery. Some duckweed will keep the water fresh or a few minnows, taken from a nearby creek. Be careful to fill in more water as it evaporates, and your labors will be rewarded by the flowers of the lily; that is, the *Nymphaea odorata*. These flowers open and bloom for three successive mornings when they sink below the surface to ripen their seeds. The plant is quite a free bloomer and remains in flower from June to September.

Roots of this species and of the nel-

one stepping into it inadvertently. Here he has a semi-circular piece of rockery in which he grows quite a variety of flowers and about four feet from the bottom margin of his rockery, he grows his lilies.

USE OF CONCRETE BASIN

For those who have not convenient ponds and wish to grow more lilies in variety than the limits of a tub will afford them, it will be necessary to have a basin scooped out deep enough for the water and soil. This basin must be concreted to retain the water and should be arranged so as to drain off the water in winter.

STARTING THE SEEDS

The tender lilies (of whatever species) can be started in pots and small tubs in the greenhouse and placed in the pond when summer weather is assured or, if seeds are procured, they may be started in shallow pans of water or rolled in balls of clay and dropped in the pond or a

Roses

A. H. Ewing, Woodstock, Ontario

THE roses in the accompanying illustration were planted three years ago and came from Dickson's, of Belfast. They are mostly budded on the seedling briar but some on the Manetti stock. Very few have had to be replaced. Her Majesty grew very vigorously the first year and gave a few beautiful blooms, but the three plants have since all died. Other kinds—hybrid tea and hybrid perpetual, including Frau Carl Druschki—have done very well, last year (1908) being the best year so far.

The bed in which they are planted was dug out to a depth of about two feet and filled in with good heavy clay loam with plenty of old barnyard manure and some coarse bone meal. It has had heavy coats of manure spread over late

done as the weak wood is always cut out and the strong wood cut down to two, three or four eyes at the most.

Whilst on the subject of roses, let me recommend *Rosa rugosa* as a shrub for

everybody's garden, large or small (there are two or three back of the rose bed illustrated, one only being visible). It makes a beautiful well-shaped bush, is in flower nearly the whole summer, and is free from insect attacks. The bright red haws are also very pretty in the fall and early winter.

The Gladiolus: Its Care and Usefulness

James E. Orr, Tempo, Ontario

PLANT gladiolus bulbs or corms in the warm earth the first of May, placing them in a trench six inches deep where they will be exposed to plenty of sun, rain and others of nature's benefactors. Ten inches apart is the proper distance. Cover over firmly and keep well hoed and weeded, which is not

Gladioli are the only things that grow in the vegetable kingdom, that I know of, that have not got an enemy in some fly, bug or worm to destroy them, they alone appearing to grow unharmed by anything.

The gladiolus should be extensively grown. No flower as easily managed will repay so abundantly in blooms. Among all the flowers none is so appropriate for the sick room. Their bright and cheerful colors help wonderfully to refresh the wearied invalid, and as the gladiolus has no perfume they never become oppressive to the most sensitive as many fragrant flowers do.

The bloom on a spike of gladiolus never becomes detached, and so does not litter up the most expensive carpet, as many other flowers when in bouquets do.

If spikes of the gladiolus are cut when the lower blooms are opening, all the upper ones will come to perfection. They will remain in bloom longer than any other summer flowers,—three weeks or more, and still they are presentable, only growing a trifle lighter in color as they remain longer indoors.

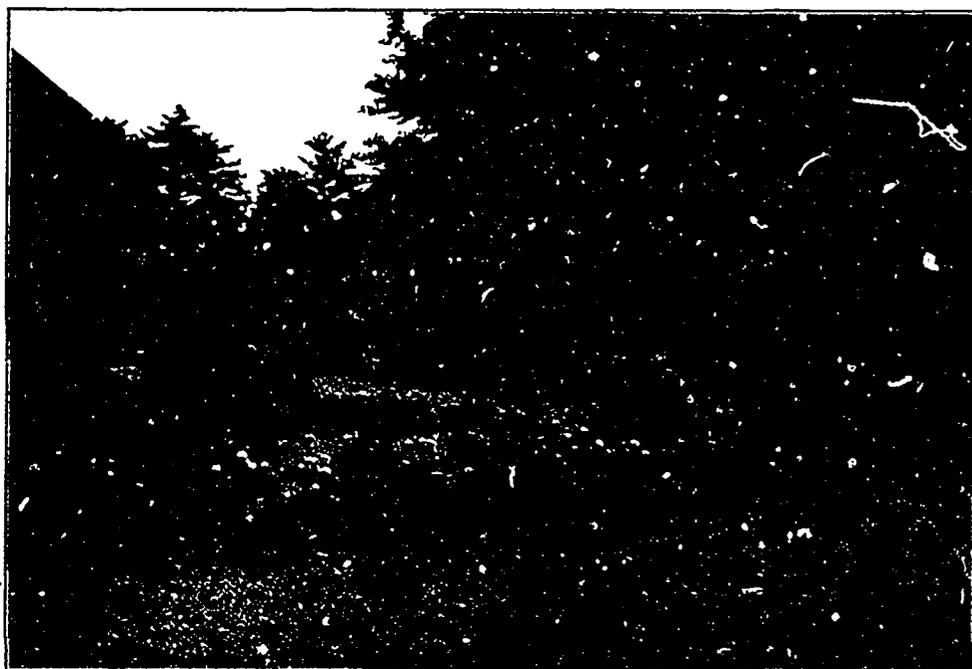
In making bouquets let each spike be fully seen. Use some light growing foliage at the bottom of the bouquet, as it adds to the appearance, and harmonizes nicely with the brighter colors. Such a bouquet will produce a smile on the most careless face, and sparkle the eye of the dullest observer, and bring a "thank you" from the most callous soul.

Trouble with Callas

My calla leaves are withering at the tips. The plants are potted in good soil, and get plenty of moisture. They are potted in six and seven-inch pots; were bulbs last fall.—B. K. R., Berlin, Ont.

The dry atmosphere of the house or gas fumes is probably the cause of the calla leaves withering at the tips. The best preventive is to sponge the leaves with tepid water occasionally, about once a week. Keep the roots well moistened, but not soddened. If, as you say, they are in good soil, the dry atmosphere of the house or gas fumes is in all probability the cause of the trouble, and sponging with water will prevent this to a certain extent.

Watch the weeds or they will beat you.



A Bed of Roses at "Altadore," Woodstock, Ontario

in every fall since, which has been left on the surface during the next summer. By May or June, the manure is quite friable and the bed can be kept quite tidy and not at all unsightly or unpleasant. My experience in this place is that roses do better that way, producing stronger growth and better and more bloom. This bed is in the full sun and fortunately close to a hydrant where it can easily get frequent strong hoseings. Insecticides have never been used on it.

As a winter protection, brush—evergreens and otherwise—has been put between and over the bushes, bending them down. In former years, when the winters have been much colder than this last one, this covering has answered the purpose well, but this spring on taking off the brush I noticed that the growth of the roses was black much farther down than usual. However, I do not anticipate that any real harm has been

a difficult matter to do, as they will soon shoot up fast growing spikes, which are easily distinguished from weeds.

For many years I have opened two furrows with the plow and here placed the bulbs and, with little care, have gathered in July, August, September and October armsful of bloom, gorgeous in color, lasting in endurance, cleanest of all flowers, treasured by the sick and admired by everybody. Every year I add a few of the newer sorts to my collection, so that new interest is added to "Gladiolus Avenue" during the blooming season.

The bulbs of the gladiolus increase rapidly. On an average they will double yearly, so that a new beginner soon has a supply on hand. A few newer varieties may be added as one's fancy dictates. In November, the bulbs should be harvested and left exposed to the sun until somewhat dried, then stored beyond frost for the winter.

The Long Cucumber in the Cold Greenhouse

W. H. Edwards, Brockville, Ontario

FOR years past I have been growing the long cucumber in a cold greenhouse after the geraniums and other bedding plants have been cleared out. The plants are not grown for commercial purposes but to supply the home table. The method of growing, however, may be interesting to the commercial grower as well.

The *modus operandi* is one of the most simple character. The house used was erected to give room for spring stock, sales of which generally commence about the first or second week in May, so that some room is obtained on the benches by, say, May 24th. The seed is sown the third week in April in a cool house (lowest night temperature forty-five degrees) in ordinary berry boxes, four or five seeds in a box, filled with a material composed of about two-thirds of decayed manure (the bottom of last season's hot bed preferred) and one-third of ordinary garden soil. The boxes are thoroughly watered, covered with glass to prevent evaporation, and kept dark till the first break is apparent. The boxes are uncovered, placed on a shelf close to the glass, kept moderately wet and sprayed regularly on bright days.

By the second week in May the plants ought to have the rough leaf well developed. The boxes are gone over and all excepting the strongest plant in each pulled up, and the boxes replaced as close to the glass as possible to await convenience for setting out. It should be remembered that the glass has received the usual summer clouding and the house in which the plants are grown is kept lightly shaded all the time the plants occupy it.

The hills are prepared in the following manner. Four pieces of rough board (anything will do that will hold a nail), three feet long, ten inches wide, are nailed together, making a bottomless box. This is set four feet apart on the empty spaces on the bench, on the east or north side of the house. A little material, similar to that used in the seed boxes, is placed on the bench and three of the boxes (now containing one plant each) are placed close together, and more of the material is added so as to quite bury the three boxes, and watered.

In about a week, the fine roots will show through the soil and then a good liberal shovelful of the same kind is added, and this repeated about every ten days throughout the growing season, or in all about a wheelbarrowful. This soil after the cucumbers are over will be very useful for various purposes.

After the plants have commenced to grow, a strong wire is pushed into the soil and fastened to the sash bar, one wire to each plant. The plant is trained up this till it reaches the glass, say,

three feet from the bench, and is then stopped by nipping. In a few days the plants will send out strong lateral shoots. The best of these are selected and carried up to the wires suspended from the roof, and kept regularly tied with raffia but not tightly; but no more pinching is done. The plants are watered daily (make sure the water reaches the bottom of the hill) and sprayed twice daily in bright weather getting well under the leaves. The squash bug is the only thing that I have known to injure the plants, and that only in its early stages. The plants generally commence to bear in about five weeks from the time of planting, and continue to do so until fall.

The kind grown is a cross between the common Long Green American variety and Rollinson's Telegraph, re-crossed with Lion House, a very fine English variety. Last year some of the fruits measured twenty-six inches in length, good and solid, of fine flavor, free from all



Greenhouse-Grown Cucumbers

bitterness, almost seedless, and will keep a long time after being cut. The plants require no fertilization except the natural.

Other kinds that I have been successful with are Tender and True, Telegraph, Blue Gown, Cardiff Castle and Lion House. From the time the plants are planted out on the benches, they have no artificial heat but all the ventilation possible, avoiding strong draughts.

Forcing Green Onions

Wm. Her, Berlin, Ont.

The old method of forcing bulb onions for bunching is a very uncertain way, and does not prove at all profitable compared with the new method. Plant winter onions or Egyptian tree onions in the spring or, better still, immediately after ripening in August, in drills one foot apart in well prepared soil. Make the drill with a marker or other convenient tool. I use a hand cultivator putting the right and left plows close together to

open the drill and reversing them to cover the onions. Drop the onions an inch or two apart just as you would beans or corn and cover an inch or two deep. Cultivate as other onions during the summer.

Before freezing weather dig what is wanted and store in a trench or other convenient place. Cover sufficiently to keep out severe frost. To force, plant as closely together as they will stand on the bench, and in three or four weeks they will be fit to bunch. To have a succession, plant every two weeks during the winter. I have tried this method with good results and would recommend it to any person that forces onions.

Fertilizers for Vegetables

At a meeting of the Toronto branch of the Ontario Vegetable Growers' Association, held in March, the address on fertilizers as related to vegetable growing, delivered by Professor Gamble, was very interesting. In it, he pointed out the value of the different fertilizers to the different kinds of soil, and dealt strongly with the use of barnyard manure. "Barnyard manure," said the speaker, "is the best general fertilizer known. It makes organic matter for the soil and improves its mechanical condition. Barnyard manure contains all the elements necessary to enrich the soil. In a ton of manure there are from 10 to 15 pounds of nitrogen; 5 to 9 pounds of phosphoric acid, and 10 to 18 pounds of potash." The speaker said that land used for vegetable growing required more fertilizing than that used for raising grain. In this connection, he pointed out that in one year, a yield of 30 bushels of wheat per acre would take from the soil 34 pounds of nitrogen, 14.2 pounds of phosphoric acid, and 9.3 pounds of potash. A yield of 15 to 30 tons of cabbage per acre, on the other hand, would take from the soil in one year, 100 to 200 pounds of nitrogen, 35 to 70 pounds of phosphoric acid, and 135 to 270 pounds of potash. A crop of potatoes, of from 100 to 200 bushels per acre, would take from the soil 10½ to 33 pounds of nitrogen; 10 to 20 pounds of phosphoric acid, and 31 to 62 pounds of potash. A crop of tomatoes, 5 to 10 tons per acre, takes from 16 to 32 pounds of nitrogen, 10 to 20 pounds of phosphoric acid, and 27 to 54 pounds of potash. This shows the need of fertilizers. The speaker pointed out that the nitrogen in barnyard manure is not as available as that in some of the so-called chemical fertilizers. It is slower in its action, because the nitrogen in farm yard manure must undergo certain changes before it becomes soluble. These changes take place more rapidly in a warm soil, and, as a result, the early crop taken from the land the year the manure is applied will not be as large as a late crop, (e. g., early and late cab-

hages) If manure is put on the year previous crop year, the plants will get a much earlier start, and a better crop will result, but there is danger of some loss through leaching.

"If large quantities of nitrate of soda are used," said the professor, "there is a danger of the soil becoming sticky. As a means of counteracting this, I should advise the use of acid phosphate. Superphosphate is recommended for all soils except acid soils. In soils of this nature, the Thomas phosphate is recommended."

The speaker advocated the use of potash for all crops. Muriate of potash, however, should not be used for potatoes, beets or tobacco. Chlorine prevents the sugar in the beets from crystallizing and makes potatoes more waxy. Use the sulphate of potash.

Anthracnose of Beans

Prof. W. Lockhead, Macdonald College, Que.

Wherever beans are grown a disease called "Anthracnose" usually appears as large dark brown spots on the pods. Occasionally the damage is considerable, on account of the injury to the seeds within the pods, and the rapid spread of the disease to healthy plants.

The cause of the disease is a fungus which lives in the tissues of the bean and sends out slender threads among the cells for the purpose of getting food for its own growth. It also produces spores on the surface of the "spot", by means of which the disease spreads from plant to plant during the growing season. This fungus winters over in the bean seed. This fact accounts for the early appearance of the disease on the stems and leaves of young seedlings which are often killed. From the leaves and stems of the seedling plants the fungus threads make their way to the large leaves and to the pods.

For many years the only treatment consisted in spraying the plants at intervals with Bordeaux mixture. It was admitted, however, that this treatment was unsatisfactory, for the disease appeared in spite of careful spraying. Later it was thought that spraying of the seeds before planting, with formalin solution or other fungicide, would be effective in preventing this disease, but this treatment also was not successful.

Later still several growers hand-picked the beans that showed no signs of "spot" for planting, hoping thereby to get plants free from disease, but this method like the others did not keep away the Anthracnose.

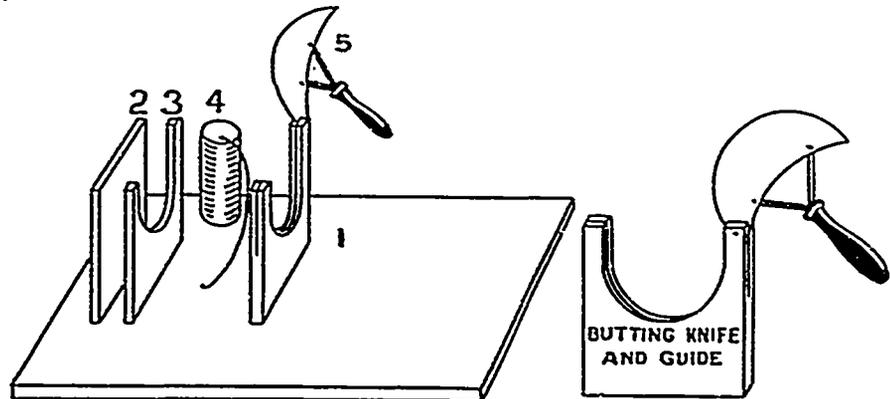
As a result of these failures, and of a microscopical study of diseased pods and seeds, it was concluded that diseased pods contained diseased beans, whether the disease was visible or not, and that the fungus rested within the seed at time of planting. Thereupon, experiments were conducted at Cornell University by

Prof. Whetzel to test if beans taken from clean pods would develop healthy plants. So far as the experiments have gone, very satisfactory results have been secured, but it is necessary to spray with Bordeaux during the season to prevent infection from spores blown into the garden or field from adjoining infected areas.

The best method, therefore, of growing beans free from Anthracnose is to select the seed beans from pods that show no signs of disease, and to spray with Bordeaux at intervals during the growing season.

How to Grow Spinach

One of the most popular greens for table use in spring and early summer is spinach. It is easily grown and should be found in every farm garden. The seed may be sown in hotbeds or cold frames early in spring or outdoors as soon as the ground can be worked. It is also a profitable crop to grow for market. The earliest spinach of all may be had by sowing the seed in the fall. A market gardener near Peterboro, Mr. Charles Kitney, who grows about half an acre of this crop each year, and who recently called on THE CANADIAN HORTI-



An Asparagus Buncher That May Be Made Easily at Home

This illustrates a handy device. Both hands may be used to arrange the Asparagus quickly. Any sized bunch may be tied. The cutting knife never has to be looked for and the twine always is at hand. The diagram was furnished by Mr. W. J. Jansler, Harrie, Ont., who describes it as follows: 1. Base board, 1 1/2 inches thick, 11 x 18 inches square. 2. Head board or header, 1/2 inch thick, 5 x 7 inches square. 3. Receiver, same size as header, hollowed well to hold Asparagus. 4. Twine holder, (empty baking powder can) fastened to base by screw through bottom. 5. Butting knife, second-hand hatch knife, well sharpened. 6. Butting knife, guide and receiver, 1 inch thick, 6 by 7 inches, with slot ripped to receive and guide butting knife. Butting knife is placed 6 inches from header. Nos. 2, 3 and 4 are mortised into base board. Buncher may be placed on table or bench when in use and hung on wall when not.

CULTURIST, gives his experience with spinach as follows:

"I sow the seed broadcast about the last week in August. The best variety is Large Flanders. The ground should be mulched with straw or coarse manure. This helps to protect the plants and to drain off the surface water. In spring it is not necessary to weed or cultivate this crop. It grows rapidly. The first lot for market usually is cut about the first of May. The crop will last about one month. Spring-sown spinach comes in when this is done and lasts until early cabbage. The early spinach sells from seventy-five cents to one dollar a bushel. The spring-sown crop brings less money but is more plentiful.

"To grow spinach successfully," concluded Mr. Kitney, "a suitable location

must be chosen. It will grow best on the southern side of a hedge or fence where it will be protected. The snow should drift and lie on it. Spinach will stand about the same extremes of temperature as fall wheat."

Separating Seed from Tomatoes

A. McMeans, Ontario Agricultural College

The usual method of separating seeds from the pulp of tomatoes, where good sized or large quantities are to be done, is to place the tomatoes in a water-tight barrel and cover them with water. In a few days, it will ferment and the pulp will come to the top, and the seeds go to the bottom. If it is stirred thoroughly, it will assist materially in separating the seeds.

Some growers prefer to squeeze the seeds and seed pulp in the barrel, throwing away the skin and outside flesh of the tomato. This seems a desirable way as, in washing the seed after the separation has been made, the seed pulp will all pass through the screen. The screen for washing the seed can be made from ordinary window wire screen, by making a box with sides, four or five inches high,

and using the wire for the bottom. If you have a hose and force pump or other water supply, place the pulp and seeds in the screen, use the hose, and it will wash the seeds thoroughly clean. After cleaning, they should be dried promptly and thoroughly, and stood in a cool dry place.

A little nitrate of soda will stimulate vegetable crops into rapid growth in short time. It is available for absorption as soon as it comes in contact with the roots.

While sandy soils produce the earliest and smoothest vegetables, and are easily tilled, they are extremely leachy and require liberal applications of manure to maintain fertility.

QUESTION AND ANSWER DEPARTMENT

Roses for Northern Ontario

What roses would you suggest for conservatory culture in this part of Ontario? In the list, include some good climbers.—E. R. W., Fort William, Ont.

Bush roses:—Bride, white; Kaiserina Augusta Victoria, ivory white; Killarney, silvery pink; Bridesmaid, rose pink; Richmond, crimson scarlet; General McArthur, crimson scarlet. The first four are tea or everblooming roses and the last two named are hybrid tea roses.

Climbing roses:—Marechal Neil, yellow; Gloire de Dijon, creamy yellow; Lamarque, very pale yellow, almost white; Chromatella (cloth of gold). The first two named are the best kinds of climbing roses for a conservatory. The two last named are very strong growers and suitable specially for budding other varieties on. Niphetos, a white bush variety, and other varieties succeed splendidly when budded on these roses.—Wm. Hunt, Ontario Agricultural College.

Lily of the Valley

What should be done for a bed of lily of the valley which has been neglected and has almost stopped blossoming?—E. R., Ontario Co., Ont.

If the bed of lily-of-the-valley mentioned is very much crowded, I should advise taking out, here and there all over the bed, clumps about six to eight inches in diameter, removing from one-third to half of the entire clump. Fill the spots from where the roots have been taken with good soil. Plant the clumps removed in another suitable position. Light soil and partially shaded position is best for lily-of-the-valley. This thinning out and transplanting is best done in August when the roots are resting. A good watering once or twice during the growth of the plants this spring with a solution of liquid cow manure would possibly help the plants temporarily. By removing a portion of the plants as mentioned, it does not risk the whole of the bed at one time.—Wm. Hunt, Ontario Agricultural College.

Starting Flowers in Hotbed

1. Can cinorarias, calceolarias, cyclamen and *Primula sinensis* be grown in a hotbed?
2. Do wallflowers come single in the perennial varieties? Should the buds be pinched off when they are beginning to bloom in the house?—Mrs. H. N., St. Catharines, Ont.

1. The plants mentioned could be grown in a hotbed, but it would be advisable to sow the seeds in flower pots sunk in the hotbed; for, as the seeds are very small, it is difficult to manage them in a bed. The seeds are sown on the sur-

face of the soil in pots and merely pressed in. The pots should then be kept covered with blotting paper until the seeds germinate. Care should be taken in giving the bed good ventilation as soon as the seed germinates as the tiny plants are very delicate. If the seedlings are started in the spring they may be transplanted to pots later on and kept in a cold frame all summer and should be in good condition for blooming in autumn or early winter. If the plants are started in summer they can be brought on so that there will be good strong plants to bring into the house by winter, but these plants would not bloom till towards spring.

2. Flowers come both single and double in the perennials varieties. It is not necessary to nip the buds when they are beginning to bloom if the plants are well grown.—W. T. Macoun, Central Experimental Farm, Ottawa.

Heating a Greenhouse

What would be the best method of heating a greenhouse sixty by twenty feet which has a bench down the middle and one on each side? To obtain the best results, should the pipes be placed under the benches or along side of the walls? Should hot water or steam be used? What size of pipe would be the best? I want to grow a general collection of greenhouse plants and to propagate bedding plants from seeds and cuttings in the same house.—A. S., Orillia, Ont.

Estimate the area of glass; count side walls of wood as one-third or one-half glass. For steam in the neighborhood of Orillia for rose temperature, allow heating surface equal to one linear foot of one and a quarter-inch pipe to two square feet of glass; for carnations, three-quarters of that amount; for violets, one-half of that amount.

For hot water, substitute two inch pipe for one and a quarter-inch and use same proportion, giving a circulating head from highest point above the boiler from which the water commences to cool, to the surface of the grate, of six feet for a run of 100 feet and return. Steam is best for long houses. Water may be best for small houses not over 100 feet long, but that is a question.

Heating pipes should be both on the walls and around the benches and proportionately distributed with the glass to be heated. This is a very important point to be observed, as much of the success in growing depends on the proper distribution of the heating pipes. One-inch steam pipe is all right for houses up to, say, 300 feet in length, but for longer houses use one and a quarter-inch pipe

up to, say, 600 feet in length. There should be either a walk between the side benches and the walls or an open space of not less than four to six inches; the walk is preferred.

The proper temperature to be carried for different plants or flowers, or what can be successfully grown in the same temperature is a question for gardeners to answer. It would be a difficult matter to give in full the best method of heating a greenhouse unless the individual conditions and requirements are known and it will well repay one requiring to heat a greenhouse, who does not understand it personally, to engage some one who does to advise him in the matter. The subject as to the best way to heat a greenhouse has been pretty well discussed already in the trade papers but what may have been considered correct yesterday may in the more recent experiences be all wrong to-day.—R. W. King, Toronto, Ont.

Cellar-wintered Plants

W. Norman, Elmira, Ont.

As the days of spring become warmer, we will be bringing our plants up from the cellar. At this time, considerable care is necessary; for, as they have been enjoying a long period of rest, they are comparatively dormant. Place them in a north or east window for a start and water very sparingly for a time or the soil will become sour and the roots rot. Do not re-pot until growth starts; in fact, it is quite unnecessary to do so at all if you use the commercial fertilizers procurable at all florists for the purpose.

Do not cut down or trim your plants until new leaves begin to form, otherwise they will start to rot from the top. Try the following treatment if you wish to have strong sturdy plants that will give a wealth of bloom: Get some good bones, smash these with a hammer, and put a layer in the bottom of your pots. This will give first class drainage, and also give all the fertilizer necessary for a year or two.

When vigorous growth has once started, move to the sunny windows of your house. Spray the leaves occasionally, and when necessary to water immerse in a pail until the water covers the soil to the depth of an inch or two. Leave them in this till all bubbling ceases. The soil will then be thoroughly soaked to the centre, and the plant will derive much more benefit than by many waterings given in the old way from the top of the pot.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited
PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

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

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor
W. G. ROOK, Advertising Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription price in Canada and Great Britain, 60 cents a year; two years, \$1.00. For United States and local subscriptions in Peterboro, (not called for at the Post Office) 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
5. Advertising Rates quoted on application. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, 72 Queen street west, Toronto.
6. Articles and Illustrations for publication will be thankfully received by the editor.

CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1908. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1908	7,650	January, 1909	9,156
February, 1908	7,821	February, 1909	9,310
March, 1908	8,486	March, 1909	9,465
April, 1908	8,250	April, 1909	9,182
May, 1908	8,573		
June, 1908	8,810		
July, 1908	9,015		
August, 1908	9,070		
September, 1908	9,121		
October, 1908	9,215		
November, 1908	9,323		
December, 1908	9,400		
Total for the year	101,337		

Average each issue in 1907, 6,627

Average each issue in 1908, 8,695

(Increased circulation in one year 2,068)

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 benefits of this Protective Policy is that you include 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,

Toronto Office: PETERBORO, ONTARIO.
72 Queen street west.

EDITORIAL

IMPERIAL TRAINING IN HORTICULTURE

A recent issue of *The Gardeners' Chronicle*, London, England, has an able editorial on "Imperial Training in Horticulture." It advocates the establishment in England of an Imperial Institute of Horticulture at which men, who intend to emigrate to one or other part of the Empire in order to till the soil, may be trained in the science and practise of horticulture. It points out that "it would be a good thing if the men going out from these shores to grow fruit in British Columbia, rubber in Malays, or tea in Ceylon, were men trained in the general, universal principles of horticulture, and not men trained or untrained, selected haphazard by the careless hand of chance." Again: "It would be well for the Empire if the home country were engaged in preparing and sending out year by year colonists who had a knowledge of the methods of horticulture already implanted in them." While this knowledge may not be sufficient to cope with the diverse conditions which the emigrant is likely to encounter in the colonies, it is contended that it would be of practical value, in that the successful horticulturist knows, consciously or unconsciously, the ideal conditions for certain plants, and proceeds sagaciously to provide the closest approximation to those conditions. "He learns by experience to control, in as large a measure as is humanly possible, the conditions under which his plants are growing." The editorial suggests also that an Imperial Institute of Horticulture would not only train men to go abroad and train men for home horticulture, but also it would attract men from the colonies themselves, men who wish to learn the latest word of horticultural wisdom.

In most respects, the proposal of *The Gardeners' Chronicle* is an excellent one. Among our leading horticulturists can be named scores of men who came from the British Isles, men who were trained at Kew and elsewhere in the old land and who have become in Canada authorities on horticulture in one or more of its branches. These men have done much to advance the horticultural interests of our great Dominion. On the other hand, many emigrants to Canada have no knowledge of horticulture whatever. Many of them attempt the practice of fruit growing, floriculture or vegetable gardening and fail. Not only because of their lack of knowledge of the principles of horticulture are they unsuccessful, but also on account of the changed conditions of climate and custom. A course of training at home would mean much to men like these when abroad. It would aid them in overcoming the special difficulties that would confront them in a new country.

There is another class of Old Country emigrants to Canada that apparently would be benefitted by some "coaching" in the study of climates and how those of the different parts of Canada differ from that of Great Britain. In this class we refer to men who have learned the art of horticulture at home, but who, in this country, fail to realize or to recognize the fact that all "home" methods and practices will not be successful here. They tell of their skill and success in the old land and they attempt to operate similarly here but they do not "make good." Before they are in Canada two months they are writing articles for the agricultural press, often well prepared and written, but which must be rejected because of their utter

impracticability for performance under Canadian conditions.

Horticulturists from Great Britain and Ireland and men who purpose becoming horticulturists are welcome immigrants. Had they the advantage of training in an Imperial Institute of Horticulture, such as is proposed, they would be doubly welcome. There is room for such men in Canada and the other colonies and we want them to succeed. To make the proposition more certain, however, we would suggest that one horticultural expert from each of the leading colonies be appointed to the staff of the proposed Imperial Institute. In addition to the general course of study, these men could teach horticulturally-inclined emigrants those facts that are just as important as principles, the actual condition of things and the climate with which they will have to contend in the country of their choice.

UNIFORM JUDGING OF FRUITS

There is a difference of opinion in regard to the manner in which fruits should be judged at our fairs and exhibitions. A number of letters have been received by THE CANADIAN HORTICULTURIST, expressing a desire to have some uniform system adopted. While attending the annual meetings of the provincial fruit growers' associations in the maritime provinces during the past winter, Mr. W. T. Macoun suggested that a circular be issued that would give some general information to the judge as to what maritime fruit growers consider to be the important points in judging, this circular to be available to the exhibitor and to the judges. Committees were appointed for this purpose.

This question of uniformity in judging is well worth discussion. It would be desirable to have, not only a uniform system adopted in the maritime provinces, but one that would be equally acceptable in Quebec, Ontario, British Columbia and the other provinces. The provinces should co-operate in the movement. Each province should adopt a plan and then arrange for a national understanding. This is one of the many national questions that could be discussed at another Dominion Fruit Conference.

FRUIT PEST LEGISLATION

It is to be regretted that the Ontario Legislature saw fit to shelve for another year the request of the Ontario Fruit Growers' Association that certain other injurious orchard pests and diseases be incorporated in the Act to Prevent the Spread of the San Jose Scale. The codling moth, crown gall and other orchard troubles should be controlled by the law. The codling moth played havoc with many orchards last year. The damage from these pests increases as the years go by and will become a permanent menace to fruit growing until their control, so far as is practicable, is made compulsory.

We are informed that the Department of Agriculture intends to distribute copies of the proposed Act throughout the province for consideration by Ontario fruit growers and that unless objection is raised to it the Act will be passed at the next session. Fruit growers who do not receive a copy may obtain one by applying to Mr. P. W. Hodgetts, Parliament Buildings, Toronto. The proposed Act should have the support of all persons interested in the advancement of the fruit industry of Ontario.

Tell your friends about our big premium this month. They may take advantage of it even if they are not subscribers to THE CANADIAN HORTICULTURIST.

The Tussock Moth in Orchards

Prof. W. Lochhead, Macdonald College

At the last meeting of the Ontario Fruit Growers' Association in Toronto several fruit growers made enquiries about the habits of the tussock moth which had made its appearance in considerable numbers in some orchards during the past season. While this pest usually confines its ravages to shade trees in towns and cities, occasionally it does considerable damage to the foliage and the young fruits of apples and pears. As far back as 1871, Rev. Dr. Bethune reported the tussock moth as a serious enemy to apple trees, attacking both the leaves and the fruit.

A recent bulletin from the New York Agricultural Experiment Station, Geneva, (Bulletin 312, "The Tussock Moth in Orchards," by W. J. Schoene) gives a clear account of the life history and habits of this insect for the benefit of the orchardists of New York, where it had done much damage in 1908.

The life-history of the tussock moth is already fairly well known. (See the diagram.) The winter is passed in the egg state; the eggs hatch in the latter half of May; the caterpillars continue feeding for about a month; the pupa state lasts about two weeks; and the moths emerge in the latter part of July and early August to mate, and the females deposit their eggs in masses of 100-500 on the empty cocoons in a white foam-like substance. These egg-masses are quite conspicuous objects, and hence can be readily collected and destroyed.

The caterpillars are beautiful creatures, being adorned with two long black pencils on hairs at head end and one at the tail end. Four tufts or tussocks of whitish hairs ornament the back on the fore part of the body. The head and two small tubercles on the back are bright red, while along the back runs a broad velvety stripe.

The male pupa is smaller than the female pupa; and the male moth has brown wings with delicate gray markings, while the female moth is wingless and gray.

There is but one brood a year in Canada, but farther south there may be two or even three broods.

Among the natural enemies of the tussock moth are some of our native birds which feed upon the caterpillars in the younger stages, and parasitic insects such as *Pimpla* and *Tachina*.

The best measures for the control of this insect are: 1. To collect and destroy the conspicuous frothy egg-masses that are to be found attached to leaves and rubbish, by scraping them with a hoo from the trunks and branches.

2. When egg-mass collecting has been neglected the young caterpillars can be destroyed by arsenical sprays. When the caterpillars are nearing maturity, it is necessary to increase the amount of arsenic.

3. Tussock caterpillars have a habit of migrating from the tree upon which they have been feeding to neighboring trees to

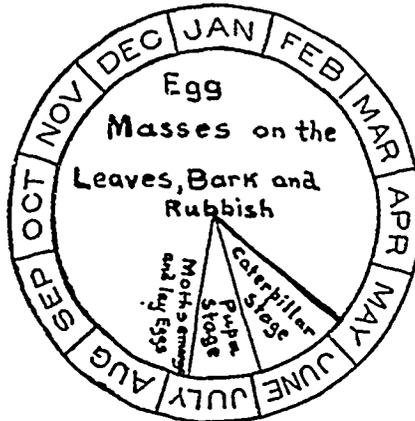


Diagram Showing Life Cycle of Tussock Moth

spin their cocoons. A band of cotton about the trunk, tied tightly about the middle so that it is loose above and below, acts as an efficient barrier.

most part clear of underbrush but scattered over with fir trees ranging from three to seven and eight inches at the butt. These trees, however, are very easily taken off the land and have been found to be more of an assistance than a disadvantage to the new settler.

As yet the fashionable prices are not obtained here as in West Kootenay but are within reach of all and the country is much more suitable for fruit growing than many districts more extensively advertised.

This difference in price is entirely due to the lack of good transportation facilities. It is 80 miles from the nearest railway station. This disadvantage has been the main reason for this district being so slow in coming to the front and becoming a popular fruit growing locality as no good markets for profitably disposing of the fruit were available to the grower. However, of late years so many have planted trees for their own use (in small numbers) and the ventures have proven so successful, that it has created an interest and desire for orchards that never before existed. The interest has become general and there are now a number of fairly large orchards bearing a firm and hardy fruit. Hundreds of trees are now being planted every year and it is only a question of a very few years before the Wilmer and Windermere district will be one of the very best apple, plum, cherry and small fruit growing districts in the province.

Realizing the future of this valley and the advantage of opening up a district so rich in mineral and agricultural as well as horticultural possibilities, the Kootenay Central Railway Company have obtained a charter for the construction of a railway from Golden, B. C., south to Cranbrook, B. C., and this road is now under course of construction. This line will open up the prairie and eastern markets to the rancher and fruit grower and thereby eliminate the greatest difficulty in the valley's endeavor to become one of the best fruit growing districts of British Columbia.

Advice To Fruit Exporters

J.S. Lark, Canadian Trade Commissioner, Australia

A representative of an English Fruit firm has visited Australia and in speaking of the export of fruit he says:

"I would advise packers to place their fruit in cold stores for at least four days before it goes into the hold of a ship, in order that the fruit may give off the carbonic acid gas which is generated in it. Then, when the fruit is placed in the cold storage chamber on the boat, it does not generate anything like the gas of the first few days in the cold store on land. If the fruit is put straight in to the ship's hold, the carbonic acid gas eats into it, and when it arrives at its destination it is 'spent' and lifeless. Last year, Australian pears and apples did not come to hand in good order, chiefly owing to the intensely hot weather at the time the fruit was packed, and because the greater portion of it was not placed in cold storage for a few days before being shipped."

This advice is not new and is not unknown in Canada, and it is possible that the Canadian Department of Agriculture has tested it. If not, it might be well for shippers of fruit from British Columbia to Australia to follow it, as the fruit from British Columbia is shipped in fairly warm weather, warmer than when the fruit is shipped from the eastern provinces to Great Britain, and has to meet much severer weather conditions than the eastern fruit experiences. Anything that would tend to preserve the flavor of the fruit would certainly be financially advantageous to the shippers.

The Columbia River Valley

Montford A. Kelly, Wilmer, British Columbia

The continually increasing inclination among professional and business men of giving up their line of business in the large cities and towns and returning to some agricultural pursuit, has done much to stimulate the interesting and pleasant occupation of raising and growing of fruit. Many who would never have turned their minds and talents to these lines have been influenced by just such people to take up this class of work. Much benefit has been the result to the fruit growing industry as well as great profit to the grower himself.

At one time it was thought that certain parts of Ontario would never become good fruit growing districts but which have finally become the choicest and very best portions of that province for fruit to-day. This was also the verdict of most of the inhabitants of the Wilmer and Windermere district of the Columbia River Valley, in view of the fact that there were ranchers and neighbors, who had demonstrated the feasibility of this industry by successfully raising apples, plums, cherries and every variety of small fruits.

The Wilmer and Windermere district of British Columbia is at an elevation of 2,569 feet above sea level, with the wooded sides,

bald peaks of many varying colors of the Rocky Mountains on the one side and the magnificent Selkirk Range of mountains on the other. The valley ranges from three to seven and, in some places, as wide as eight miles in width and near the center of the valley runs the picturesque Columbia River.

The clear and invigorating mountain air makes the valley an enjoyable place for either summer or winter tourists. The temperature seldom drops to more than 15 degrees below zero and the snow rarely exceeds from five to six inches in depth.

Ranching has been carried on most successfully for more than 20 years and the occasions of real necessity of putting up hay for cattle during that time have been few and far between. Cattle as well as horses safely range the whole of the winter months and come through looking healthy and fit.

The autumn season is long enough to allow for a thorough ripening of the wood in fruit trees and the mild winters permit of grafts being left in the ground all winter so that they may be dug in the spring and transplanted in a fresh and healthy condition.

The land of this district is of a rolling nature and of park-like appearance, for the

NOTES FROM THE PROVINCES

British Columbia

W. J. Brandrith

The regular quarterly meeting of the British Columbia Fruit Growers' Association was held in Chilliwack on April 3. The attendance was large and a good deal of interest was manifested in the proceedings. After routine, Mr. W. J. Brandrith was unanimously elected delegate to the American Pomological Society's annual meeting. A resolution, calling for local inspection of fruit and orchards by the provincial board of horticulture, was also passed. The first secretary of the association, Mr. A. H. B. Magowan, was voted a life membership in view of his services at the inception of the association 20 years ago.

Mr. Tom Wilson read a paper on "Polonization." President Puckle gave a short address on "Co-operation." Mr. J. C. Metcalfe, one of the old war horses of the association, gave an excellent address on "The Cultivation of Small Fruits." Mr. Maxwell Smith, Dominion Fruit Inspector, gave a rousing address on "The Commercial Aspect of Fruit Growing." The next quarterly meeting place was fixed for Kelowna and the October quarterly for Creston.

British Columbia Legislation

Edgar W. Dynes

The session of the British Columbia Legislature which closed a few weeks ago has been very fruitful of legislation benefitting the horticultural and agricultural interests of the province. Two very important measures were put through,—one known as the Fruit Depots Act, and the other, some very important amendments to the Water Clauses Act.

In respect of the latter the government sought to eliminate some of the existing abuses in the matter of water rights. It was found that many individuals had staked large quantities of water for speculative purposes and which they could not use. This had the effect of retarding the progress of districts where irrigation is absolutely necessary. To illustrate, in a certain district there might be 3,000 acres of land, arid or semi-arid, and wholly dependent on water from a certain creek. But, supposing that some enterprising individual, who owned not more than 1,000 acres of land, had located all the water in the creek. The other owners would either have to do without water or be at his mercy.

Under the new law, all this water becomes the common property of the land owners in the immediate vicinity who need this water. A man can no longer hold water for speculative purposes. The province has been divided into six districts for the purpose of the Act and in each district a commissioner will be appointed with full power to act in the matter of the adjustment of the water rights. It is a statesman-like piece of legislation and will be of immediate and untold benefit to the sections in the province where irrigation is necessary.

The Fruit Depots Act provides for aid to depots or stations to be established for the sorting, cooling and packing of fruit, and the government to assist the building of

such in much the same manner as aid is granted to creameries and cheese factories. The Act gives power to the provincial board of horticulture to license depots or warehouses for the purpose named upon conditions whereby the licensee is eligible to apply for a loan of not exceeding three-fifths of the value of the plant and not more than \$3,000 in any one instance. The second clause of the Act provides that such license may be granted to anybody, corporation or association legally instituted to establish, maintain and operate a fruit depot, equipped with appliances for the sorting and cooling of fruits and packing them for shipment. The application for license must be accompanied by proper plans and specification, including information as to the number of orchards tributary to the proposed depot.

The fourth clause of the Act provides that such license shall be subject to the conditions that the facilities of the depot shall be without discrimination and at uniform rates and charges to be open to the use of

From All Over Canada

Editor, THE CANADIAN HORTICULTURIST:—We take pleasure in again complimenting you on the general excellence of THE CANADIAN HORTICULTURIST, and more particularly on its merits as an advertising medium. From almost every part of this wide Dominion, between the Atlantic and Pacific, we receive enquiries as a result of our advertisement in THE CANADIAN HORTICULTURIST, to which most of the correspondents refer. Every succeeding year brings noticeably greater results, which proves that your paper is progressive in every sense of the word. We think a statement of these facts is due to you, believing that the success of your advertisers is equally encouraging to yourselves.—The Dominion Offices of the Potash Syndicate, B. Leslie Emslie, Manager, Toronto.

all members of any corporation or association so licensed and that all rates and charges made, taken and collected by the licensee, in, about and in connection with the depot, shall at all times be subject to the control and regulations of the provincial board of horticulture. The license is liable to cancellation for any breach of the Act, in which case all money loaned becomes immediately due and payable. The loan is secured by a first mortgage on the depot and lands connected therewith and interest is payable at the rate of five per cent. The immediate plans of the government are understood to include the erection of several of these depots at some of the more important fruit shipping points in the province.

Some concessions have been obtained from the railroad and express companies in the matter of shipping regulations. The minimum weight for carload shipments of fruit has been lowered from 30,000 to 24,000 pounds. It was represented by the growers at a meeting at Victoria that they could not compete with Ontario unless they were given the same rates to Winnipeg as the Ontario growers enjoyed but this was

turned down. Mr. Lanigan, of the C. P. R., made the statement that he had personally canvassed all prominent fruit dealers in Winnipeg and said that he found the main reason why more British Columbia fruit was not marketed on the prairie was that so much second grade fruit was dumped in from Washington and Oregon at tempting prices. This being the case, he concluded that the reduction asked for in this instance would not be of any assistance.

New Brunswick

A. E. McGinley.

The government of New Brunswick is preparing to devote special attention to advertising the advantages of this province in the way of general agriculture and small fruit culture with a view to repopulating the vacant farms and untenanted orchards of the province which, unhappily, are far too numerous. For this purpose, a special official will be appointed to the staff in the person of Mr. A. Duff-Miller, and it will be his duty to circulate literature and otherwise inform the members of Great Britain's farming community what advantages this province offers. Already there is a government agent in St. John who has a list of all farms for sale in the province and has done good work on a small scale. With the appointment of another official in England, who will work in conjunction with the St. John agent, the scope of the work will be very largely increased and good results are expected.

This season has been a particularly good one for the export of Canadian apples to Europe, via the port of St. John. The season will close about May 10, but already the returns show that 38,276 barrels and 3,730 boxes of apples have been sent forward. Most of these have come from Ontario points as the Ontario apple is more popular in the European market than the New Brunswick product. Nova Scotia apples which are also very popular in the Old Country, are principally shipped from Halifax. Facilities at St. John have been vastly improved by the erection here of a large cold storage plant which is expected to prove a great factor in the development of the trade.

Annapolis Valley West, N. S.

R. J. Messenger

The active part of marketing is about over for this year. A few apples are going to our local markets, good apples on the St. John or Halifax markets bringing as high as \$4 and \$5 a barrel. Everybody seems to be happy, the speculator because he has made in most cases enough on this year's operations to more than compensate for his losses last year and the producer is happy because he got his money without being asked for rebates. This reminds me of a case where a pious speculator last year asked for and obtained a rebate of \$200 from a farmer. This year he bought the same farmer's apples when they were 1-4 and after many strong hints generously allowed the farmer a gift of \$200, when he probably made enough to more than replace the \$600.

Orchard work has fairly begun again. Pruning is about all done, except where some have left the work to be done in June. It is unfortunate that we see all kind of mal-practice in this operation. Every farmer has his own ideas as to how, when and where to cut, and surely there is no one system that approximates the best.

Early spring spraying is being practised

HA! HA! HA!

"Well, I'm blest! So this is one of those so-called metal roofing guarantees I've read about," laughs the Wise Man of Metal Town.

"It certainly is a good joke, for it doesn't really guarantee anything to anybody, and isn't legally binding. Ask your own lawyer and you'll find I'm right."

"Stripped of all its exceptions and provisions I don't see how anyone could be serious about it."

"I go by what I know has been done, not by what is promised. For instance, I know that 'Eastlake' Metallic shingles have been in use for twenty-five years right here in Toronto, where they're made, and that those same shingles are in perfect condition now."

"Just listen here a minute. I'm getting serious now. The Metallic Roofing Company began to make metallic shingles years before anyone else in Canada. They were made right when they were first made. The Metallic Roofing Company have been continually making new designs for ceilings and walls, fronts and cornices, but as for shingles they have never seen an improvement on the 'Eastlake' steel shingles which have been made, laid and proven for twenty-five years."

"I've noticed that most metal shingle manufacturers change their pattern so frequently that I'm led to believe they, themselves, haven't much confidence in their own goods. Yes, they even change the name to cover up some weakness in a previous product."



"I'm prejudiced, you say? Of course I'm prejudiced, but it's a prejudice founded on years of active use of the metallic goods made by The Metallic Roofing Company. It's an old man's prejudice based on a long experience."

"Write for booklet which tells more about 'Eastlake' Metallic Shingles. They are sure proof against fire, lightning, rust or weather in all climates. They are the easiest and quickest to put in place and the most durable when laid. If you send the measurement of any roof an accurate estimate of cost will be sent free."

--The Philosopher of Metal Town

"TWO OTHER PERSONS' SAY-SO'S"

The Metallic Roofing Co., Limited.
Toronto.

Simcoe, Ont., April 9th, 1908.

Dear Sirs.—"We have handled your Eastlake Shingles for nearly a quarter of a century. They have been on the Court House, Free Library and other public buildings in this town for 18 years. We have used very large quantities during the past 25 years and they have always given first class satisfaction, and have never required any repairs."

(Signed) MADDEN BROS.,
Tinsmiths and Hardware Merchants.

The Metallic Roofing Co., Limited.
Toronto.

Lucknow, Ont., April 9th, 1908.

Dear Sirs.—"I take great pleasure in testifying to the good qualities of your 'Eastlake' Shingles. We put your painted shingles on our town hall here in 1885, 23 years ago, and a though they have only been painted twice since that time they are in good condition yet. I consider the lock on the 'Eastlake' the very best, and believe that a roof covered with the galvanized 'Eastlake' will last for ever."

(Signed) THOS. LAWRENCE,
Hardware Merchant.

THE METALLIC ROOFING CO.

LIMITED

Toronto and Winnipeg

Agents Wanted in Some Sections. Write for details, mentioning this paper.

more this year than ever before. Some are using lime-sulphur and others proprietary preparations. The worst evil of the latter is that they cost much more and are generally not as effective. The weather was very cold up to April 13. Since then the buds have been swelling and grass becoming green. We have had very little rain this spring.

Annapolis Valley East, N. S.

Eunice Watts

There is a very great demand for nursery stock, of which there are not sufficient trees to supply the call. An interest is being taken in dwarf apple trees, and a few plantations of this form are being set out; these small trees are also being used as fillies, the advantages being that they come into bearing earlier than standard forms, are easier to spray, prune and gather, and more trees can be grown on the acre.

Much interest has been taken in lectures given by Mr. F. W. Chute who has just returned from England where he inspected the apple markets of London and Liverpool. Mr. Chute described the methods of the auctioneers in the various salesrooms, where only ticket holders were allowed to enter; he also compared the English and Nova Scotian fruit growers, and came to the conclusion that people in the Old Country had many lessons to learn from us in spraying, especially if they wished to grow clean apples.

The orchardists of the Annapolis valley are very keen on starting co-operative fruit packing companies. They claim that if the farmers will work together, that there will be a saving of about 30 cents a barrel; the fruit will be packed uniformly, and English apple buyers might give a special commission.

Send notices of exhibitions and conventions for publication.

The Best Annuals

In commenting on the list of annuals recommended by Mr. Armandale at the meeting referred to on page 102, Mr R. Cameron, park superintendent, Toronto, advised growing antirrhinums from cuttings as the blooms are then larger and better. Eschscholtzias must be grown from seed in the open, as they cannot be transplanted. He recommended the carnation poppy, sown at intervals the first year, once sown, they reproduce themselves. He questioned the inclusion of verbenas, dianthus and sweet alyssum in a list of annuals, the first and last being perennials and the dianthus, a biennial.

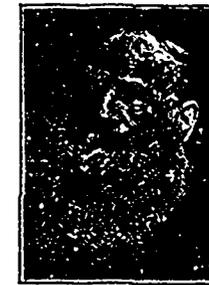
Mr. Cameron also gave the meeting a list of 24 of his own selection as follows: 1, Aspers. 2, Sweet peas. 3, *Linum grandiflorum rubrum*, a grand blooming plant, which grows one foot high, with red and scarlet flowers. It is not good for cutting. Sow it twice successively and in bunches. 4, Mignonette "Machet." 5, *Chrysanthemum odoratum*, new, a pure white and blooms all season. Seed must be sown in a hot bed. 6, *Gaillardia Lorenziana* (double flowers). 7, Ten-week stocks. 8, *Torenia Fournieri*, (6 to 12 inches high). Good for pots, hanging baskets and windows. 9, *Celaria plumosa*. Sow indoors in tiny pots, and put in large box with sand between pots, which will hold moisture. Should be sown in March. Most delicate plants of these generally give the best bloom. 10, Sweet Scabiosa. 11, Antirrhinum, yellow, crimson and pure white. Best blooms and earliest are from cuttings. 12, Nasturiums tall or dwarf. 13, *Lobelia cardinalis*, (12 to 15 inches high). 14, *Phlox Drummondii*. 15, Candytuft, in colors. 16, Annual Larkspur, in colors, sown in open. 17, Coreopsis sown in open. 18 *Statice Suworowi* (lilac color), hardy. 19, Zinnias. 20, *Salspiglossis* (in colors), giant strain. In conjunction with this, sow seeds of *Asperula azurea-scitosa* in the fall as a border plant for edging and plant in the same row, a foot

apart, *Torenia Fournieri*, the seeds of these to be sown early indoors. The asperula will be the first to bloom in the spring to be succeeded by the torenia. 21, *Eschscholtzia* (California Poppy). Cannot be transplanted. 22 *Centaurea cyanus*. 23, *Linaria lupartita*, violet purple, 12 to 15 inches high. There is also a beautiful white variety. 24, Verbena, which should not be really called an annual.

The following were recommended as climbers: Tall nasturiums, *Humulus Japonicus variegatus*, gourds, hyacinth bean, morning glory and ipomaeas.—G.

A Reader for Many Years

Among the readers of THE CANADIAN HORTICULTURIST who have been subscribers for many years is Mr. Charles James Fox,



of South London, Ontario. In a letter received from him recently, he states, "I became a subscriber to THE CANADIAN HORTICULTURIST in Mr. Beadles' time. As an amateur, I have always taken a great interest in the growing of vegetables and flowers. My love for flowers dates back to the year 1838. I came to Canada in 1856 and settled in Delaware, Ontario."

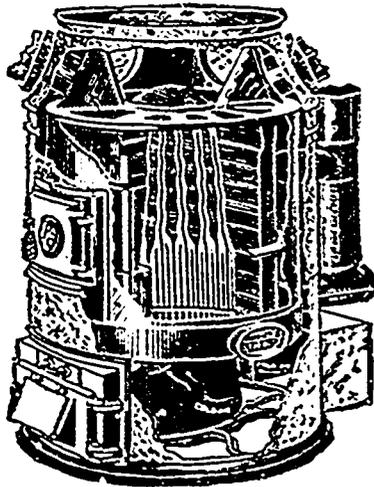
For many years Mr. Fox was the secretary and treasurer of the Delaware Township Agricultural Society. During that time he introduced among the farmers many new varieties of early and late potatoes.

"It is very pleasing to me," he writes, "to see the great improvement that has been made in THE CANADIAN HORTICULTURIST. I trust that in another year or two the list of subscribers will be more than double what it is now. I wish the publication every success."

About Dahlias For years, the show of H. P. Van Wagner's dahlias has been one of the features of local exhibitions. In order that lovers of this flower, who have not attended these exhibitions, might have an accurate description of the best and newer varieties, Mr. Van Wagner has made an arrangement with the largest commercial grower of dahlias in the United States, by which he is enabled to give their description and illustrations of the dahlias found best after being tested over a wide range of territory. In his catalogue will be found choice dahlias priced from 16 for \$1 to the sensational "Jack Rose" at 75 cents a plant. A dahlia root should last a life-time, making it the most inexpensive of flowers.

China Aster Plants
FROM BEST SEED
Queen of the Market.--white, early
Queen of the Market.--pink, early
15 cents per dozen, 40 cents per hundred, postpaid
Early Wonder.--white and pink
Lavender Gem.--early
Royal Purple.--medium early
Vick's Branching.--white, medium early
Vick's Branching.--white and pink, late
15 cents per dozen, 50 cents per hundred, postpaid
Packed to go anywhere by mail.
May be planted with good results until 15th June.
Not less than 25 of one variety at 100 rates
Orders received now will be filled in latter part of May and in early June.
Please send postal note with order.

John Cavers, Oakville, Ont.



THE KELSEY WARM AIR GENERATOR

is THE LAST WORD in the methods of heating.

It is an easy matter to make a fire and create heat, but to create the greatest amount of heat, to use the least amount of fuel, to send the heat to its proper place in proper quantities is the problem that has been solved most effectively by

THE KELSEY

The
Jas. Smart Mfg. Co.
Limited
Brockville, Ontario

Write for Illustrated Booklets, etc.

Churches, Schools, Halls Dwellings, etc. can be heated by the Kelsey System with a supply of coal which with any other system would be wholly inadequate.

DIRECT from FACTORY to KITCHEN



SAVES all MIDDLEMENS PROFITS

The "Dominion Pride" Range

is placed on the market in response to a demand for a Range combining the sterling qualities of Malleable Iron and Steel, practically indestructible, air-tight without cementing, perfect cookers and bakers, most economical on fuel, design attractive, artistic finish, and the best modern improvements. Will last a lifetime with proper care.

THE "DOMINION PRIDE" RANGE

is made of the best Blue Polished Steel and Malleable Iron. Polished Steel requires no black lead or Japan, and has the best finish, appearance, and easiest to keep clean. The occasional application of a cloth to the polished steel causes it to appear clean and bright and retains all of its original blue lustre. Malleable Iron will not warp, crack or break like cast iron. Malleable Iron has been universally adopted by railroads for car castings, by agricultural implement manufacturers for machines, on account of its great strength and durability, and is surely and rapidly growing in favor for range construction. This is most natural, as it is the only material of which a perfect cooking apparatus can be made. The time is coming when the public will have nothing else. It is inevitable, as this construction is the most practicable and enduring.

PRICE

Why not buy direct from the Manufacturer and save the Middlemen and Retailer's profit? "DOMINION'S PRIDE" Range, if sold through the retailer or travelling salesman, would have to be sold for \$69.00 cash. Our price direct to the consumer as follows "DOMINION PRIDE" Range 818 or 918 with high closet shelf and elevated tank, with piece of Zinc to go underneath range, 8 joints of blue polished steel pipe and two elbows, delivered to any railway station in Ontario, Quebec, New Brunswick, Prince Edward Island and Nova Scotia for \$39.00 cash. We pay the freight, \$5.00 to accompany order, balance to be paid when range is delivered to you. Range without the elevated tank, \$5.00 less; Waterfronts for pressure boiler, \$3.50

GUARANTEE

"DOMINION PRIDE" Ranges are sold on the following Guarantee: If any casting prove defective in twelve months from date of purchase, we will furnish same free of charge. The above Guarantee is very broad no "ifs" or "ands," and any casting that would have a flaw in it that we failed to see in the course of construction, such flaw would show long before the twelve months have transpired when fire is put in range.

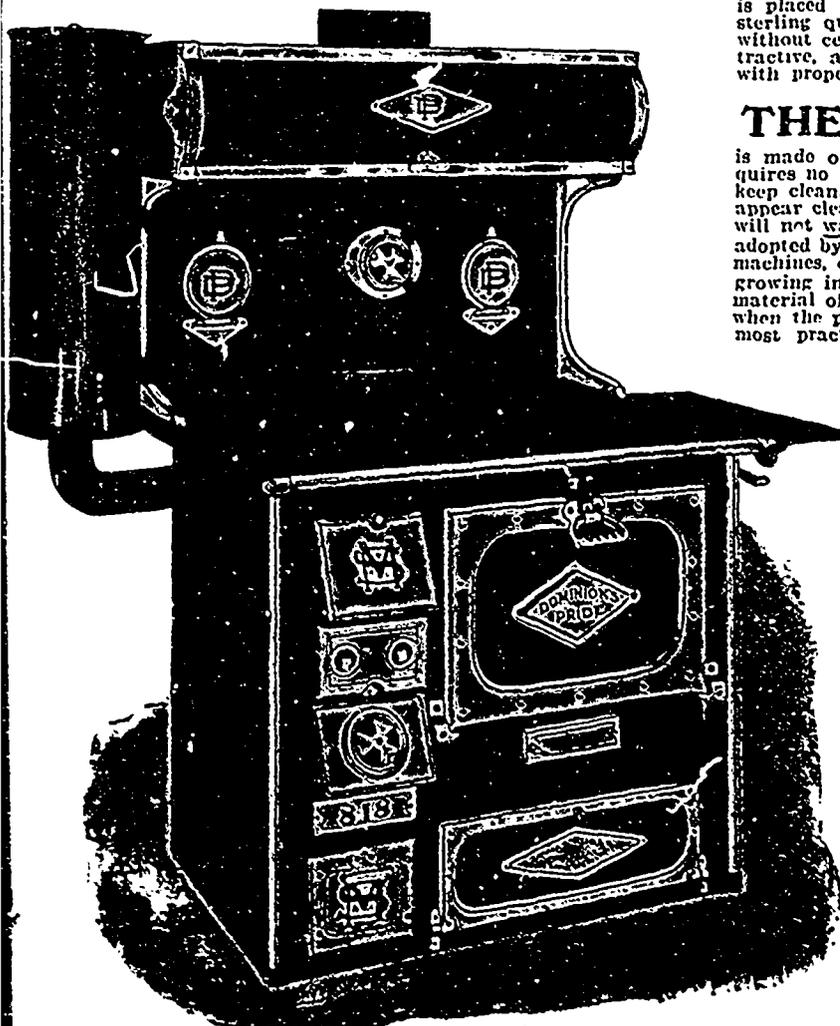
INCOMPARABLE OFFER

Our placing direct to the consumer our High Grade "DOMINION PRIDE" Malleable and Polished Steel Range, as fully described in our descriptive circular and guaranteed for less than you can buy a cast iron range. We are enabled to make this extraordinary offer by our DIRECT from FACTORY to KITCHEN PLAN which saves the jobbers, retailers, travelling salesman and their expenses, giving the consumer the benefit of these savings, which in reality enables the consumer to buy as cheap as the wholesale jobber.

OVER 5,000 OF OUR RANGES IN USE IN TORONTO ALONE

Write for our descriptive Circular.

Manufactured and Sold ONLY by the



818 or 918—ELEVATED TANK FOR COAL AND WOOD

Made of the best Blue Polished Steel and Malleable Iron.

PRICE CASH **\$39**

Delivered to any Railway Station in Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island. We pay the freight.

CANADA MALLEABLE AND STEEL RANGE MFG CO., LIMITED, 1240 Dundas Street TORONTO, Canada

A Great Offer

Do you like reading? Do you like to save money? THE CANADIAN HORTICULTURIST has made arrangements whereby its readers can secure a complete farm and home library of the best kind of reading, and secure it at an exceptionally low price. You can secure three other leading publications in

addition to THE CANADIAN HORTICULTURIST at little more than what you sometimes pay for a single publication. The four papers included in our special offer are as follows:

Farm and Dairy (formerly The Canadian Dairyman and Farming World), a weekly farm and dairy paper, including a strong household department that contains matters of special interest to the farm home.

The Home Journal, a Canadian monthly paper, devoted to Canadian home life. A paper that you will want regularly when you see a copy.

The Canadian Poultry Review, a monthly paper for all persons interested in poultry and poultry raising. One of the best of its kind.

THE CANADIAN HORTICULTURIST, which is well known and which needs nothing to commend it to its readers.

These four Canadian papers may be secured for one year for the small sum of \$2.00, by sending this amount to the publishers of THE CANADIAN HORTICULTURIST, Peterboro. A large advertisement giving fuller details appears elsewhere in this issue. When renewing your subscription, do not forget this offer.



Harry Lauder
Makes Records for

The EDISON PHONOGRAPH

No vaudeville entertainer has made a bigger hit in this country in recent years than this clever Scotch comedian. On his last tour he received five thousand dollars a week and delighted crowded houses night after night.

Harry Lauder has made twelve of his best selections into Records for the Edison Phonograph.

You can hear them at your dealer's any time, and you can hear them in your own home if you wish. The best songs of the best entertainers everywhere, as well as the world's best music, played or sung by trained musicians, are all at the command of one who owns an Edison Phonograph and Edison Records.

FREE. Ask your dealer or write to us for illustrated catalogue of Edison Phonographs, also catalogue containing complete lists of Edison Records, old and new.

We Want Good Live Dealers to sell Edison Phonographs in every town where we are not now well represented. Dealers having established stores should write at once to



National Phonograph Company, 121 Lakeside Avenue, Orange, N.J., U.S.A.

Lake Erie Apples in England

Editor, THE CANADIAN HORTICULTURIST:— Since returning from a three months' visit to Great Britain I have read an article in a well-known agricultural paper in Western Ontario that referred very disparagingly to our Lake Erie apples. For this reason I write to defend Elgin county apples.

To refute the article referred to which coincides also with Chief McNeill's settled idea. I would like to give a history of my apple crop of 1908. Last September I packed 200 boxes, wrapped and tiered, of fall apples and shipped them with a car of barrelled apples to Liverpool. These went in refrigerator car and refrigerator chambers in boat all the way from St. Thomas.

My apples are packed in the orchard into orchard boxes, which were before evening piled in my store house where they remained for a day or so before I could get them sorted, wrapped in tissue and tiered in the shipping boxes. They were hauled by me 12 miles to St. Thomas on a hot a day as we had last September, on a broad, low-platform spring waggon, (size 7 ft x 14 ft.), three boxes deep, piled on their sides, the load covered with a sheet of heavy canvas. At St. Thomas, they were put at once into the refrigerator car, the icing charges being paid by our government. The barrelled apples in the same car, about 200 barrels, were put up by another shipper in the usual way. I was told afterwards by this shipper that my 200 boxes netted as much as his 200 barrels, both lots being sold by the same broker at the

Does Twice the Work of a Hoe —10 Days Trial

"Buco" Hand Cultivator does twice the work of Hoe in less time, less labor, trouble; more thoroughness. Digs deeply, extracting weeds by roots. Adjusted to any width for working around vegetables, etc. 4 1/2 ft. hard-wood handle; thoroughly tempered best steel Teeth. Simple, durable; lasts a lifetime; saves its own price many times first season. Sold by Hardware and Seed Stores. If dealer cannot supply you, send regular price, \$1.50, and "Buco" will be promptly sent you, express prepaid. Money refunded after 10 days trial if it is not satisfactory.



"Buco"
Hand
Cultivator.

Bailey-Underwood Company, Ltd.
New Glasgow, N.S., Canada.

same time in Liverpool. You will remember that last September most of the apples picked and shipped landed in England in poor, wasty condition. These barrelled apples were no better than the usual shipments while my boxes landed in good condition and brought—King, 8s. 3d.; Ribston, 7s. 9d.; Fallawator, 7s. 6d.; Stark, 6s. 6d. (These Starks were too green.) This proves that papered apples in boxes will carry better than barrelled apples.

Now as to winter apples,—Baldwins, Greenings and Ben. Davis. These were packed and piled in my storehouse in boxes in the same way and sorted, wrapped and tiered in boxes several days afterwards and shipped in ordinary cars to St. John, N.B., and placed there in cold storage on dates Oct. 22, Nov. 5 and Nov. 9, '08. I went to St. John in the beginning of December and saw that cold storage filled with barrelled apples from cellar to roof, several floors, with about 40,000 barrels and a few boxes besides mine. The temperature was kept at about freezing point. I then went to Liverpool on the Empress of Ireland.

With the exception of a few boxes sold in London I sold my whole crop in Liverpool at auction by a well-known firm. They received as high as 8s. 6d for Baldwins, 7s. 3d. for R. I. Greenings and 7s. for Ben Davis a box. These apples were shipped from St. John in small lots on Jan. 14 and 28 and Feb. 19 and 26. The last of them were sold in Liverpool on March 24, all Baldwins, at 8s. 6d. a box.

These apples topped the market for same variety and opened up as good as those from anywhere else. My boxes contained 40 pounds of apples as against 140 to 150 pounds in Canadian barrels.

The only other apples selling at a higher price were the Oregon Newtowns. Most of the California and Oregon boxes were bet-

ter packed than mine. I hope they will not be so next year for I shall endeavor to equal their packing.

The point I want to make here is that my Elgin apples reached that market in as good condition as any apples offered there for sale and brought as high a price as anything of the same variety sold there in March. They were sold in their original wrapping and package, as packed at my orchard and not repacked in the cold storage as is usual with barrelled apples.

This does not bear out Chief McNeill's contentions in regard to the inferiority of Lake Erie apples. I can emphatically back J. E. Johnson, of Simcoe, in his claim that there are no better apples raised anywhere in the world than right here on Lake Erie. We have high colored apples and the British prefer high color. We have as good flavor as anywhere and cold storage will keep our apples as good as those from anywhere else. I must therefore take exception to the article that appeared in that Western Ontario paper.

The Oregon Newtowns sold at 12s. a box and upwards for their larger sizes. We grow apples here fully equal to that apple but we have not delivered them to that market with the same care that the Oregon people do. It is up to our Ontario growers to pack and deliver their fruit to the British markets in as good condition as the Hood River growers do.

It will not do to pack equally as well and send there on consignment to be sold to the highest bidder. I have discovered a better plan than that. In that case, you have to accept what they choose to give but can not control the price. The better plan is to be there and set your price. In the next issue of THE CANADIAN HORTICULTURIST I shall refer to this plan at further length.—J. A. Webster, Sparta, Ont.

Pear and Apple Blight

We have positively
Demonstrated that

WE CAN CURE THIS DISEASE

Write us for particulars

Pear Blight Remedy Co.

Vacaville - California

Feed Your Land

WITH GOOD MANURE AND GET
GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
— IS THE BEST —

Supplied to the Largest Nurserymen
and Fruit Growers in Ontario

S. W. MARCHMENT

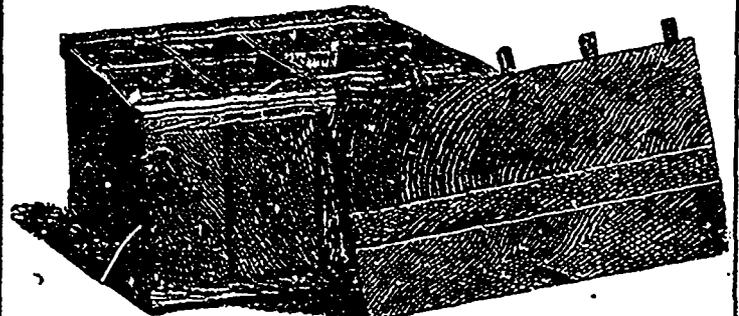
133 VICTORIA ST., TORONTO

Telephones: Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

BASKETS

We are Headquarters for
all kinds of Splint Baskets



Vegetables supplied for the protection of trees from mice
during winter

FRUIT PACKAGES A SPECIALITY

SEND FOR OUR PRICES

The Oakville Basket Co., Oakville, Ont.

Mention The Canadian Horticulturist when writing

TO GROW A GOOD GARDEN

good cultivation is absolutely necessary, but it can't be done with poor tools. Here's an Iron Age Tool—perfectly made for garden work. It not only does good work, but it is easy to operate. The boys and girls can do the gardening and produce big crops. If you'll equip them with Iron Age Tools. Send today for our free catalog.

IRON AGE

SAVE HIRED HELP

Only the Iron Age Tools

No. 1 Donkin or Wheel Hoe

BATEMAN MFG. CO., Box 516 Q GREENLOCH, N. J.

A Comparison

H. W. Power, Kaslo, B.C.

Last September, I had the privilege of examining some of the fruit ranches around North Yakima, in the neighboring state of Washington. This is considered one of the banner fruit growing sections of the northwestern states, and proved interesting for purposes of comparison. Like everything else western, the fruit industry is not very old here, but is considerably advanced alongside that of most of British Columbia. Twenty years ago, North Yakima, which is a town with a population of about 15,000, was the centre of a few square miles of hop yards. These have now given place to orchards, peach, apple and pear principally. The big red apple has become a standard of wealth and in certain favored localities horticulturists are refusing \$3,000 an acre

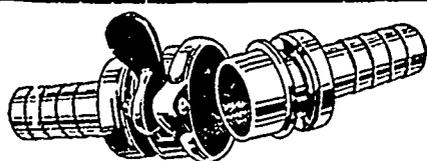
for their land. This may sound like an exaggeration but it is not. Every foot of land that is brought under cultivation requires irrigation. Thirty years ago the whole country was a desert but where water is applied, horticultural results are wonderful. In peaches, watermelons and many citrus fruits, North Yakima can surpass any portion of British Columbia. In apples, pears, plums and cherries many sections of the Canadian province are superior, this being more noticeable in the case of the non-irrigated districts.

Around North Yakima the grading and packing of fruit has been made a science, the result of 10 or 12 years of hard earned experience. Hundreds of growers are now reaping the reward of years of patient work. The farmers are the aristocracy and the merchants and bankers take to the background. What has been accomplished in North Yakima within the past 20 years will be duplicated in many parts of British Columbia before another 20 goes by.

Four Canadian farm and home publications for \$2.00. Read our "Big Four," offer on another page of this issue.

Send us two new subscriptions to THE CANADIAN HORTICULTURIST and secure a 11-kt. Gold Fountain Pen, guaranteed, as a premium.

We want more subscribers. New subscriptions for THE CANADIAN HORTICULTURIST are coming in as fast as we can attend to them, but we want them to come faster still. We will work faster. We want to make THE CANADIAN HORTICULTURIST the best horticultural journal in America. The more subscribers we have, the better paper we will be able to publish. Our friends can help us.



The "T-S" COUPLING

is instantaneous. No fumbling with worn or broken threads. The washer is in a recessed seat; you can't lose it.

Our tap-adjuster will adapt it to fit any tap

HOSE JOINTS DON'T LEAK

The New "T-S" Niagara Spray Nozzle gives a 15-foot spray.

WRITE US NOW

THE TIME-SAVING COUPLER CO.

Limited

166 Bay Street, TORONTO



Spray for Gain



BY USING
GRASSELLI'S ARSENATE OF LEAD

DESTROYS ALL LEAF-EATING INSECTS

To destroy SAN JOSE SCALE and all scale insects, use GRASSELLI'S LIME-SULPHUR SOLUTION.

To control FUNGOUS DISEASES use GRASSELLI'S BORDEAUX MIXTURE.

If interested in an insecticide and fungicide combined in one article, use GRASSELLI'S BORDEAUX-LEAD ARSENATE MIXTURE.

Prices and information gladly furnished. Send orders to Robert Thompson, President St. Catharines Cold Storage Company, St. Catharines, Ont., who will make prompt shipment.

THE GRASSELLI CHEMICAL CO.

MAIN OFFICE - CLEVELAND, O.
NEW YORK, N.Y. BOSTON, MASS.
60 Wall Street 90 Commercial Wharf
DETROIT, MICH.

CHICAGO, ILL. ST. LOUIS, MO.
117 Michigan Street 112 Ferry Street
AND IN OTHER PRINCIPAL CITIES

PROTECT YOUR CROPS BY SPRAYING

VREELAND'S ELECTRO ARSENATE OF LEAD

HAS NO EQUAL

Spray your Orchard and Field Crops with the Strongest and Safest Arsenical Insecticide

25% STRONGER

Than the Best Other Makes. It won't burn.

The average per cent. of Arsenic and Water is printed on the Label—20% As₂O₅ 40% Water

RECOMMENDED BY THE BEST AUTHORITIES

Kills Potato Bugs, Codling Moth, Tussock Moth, Canker Worm, Elm Leaf Beetle, Tobacco Worm, and all other Leaf Eating Insects

The Vreeland Chemical Co.

LITTLE FALLS - NEW JERSEY

NATIONAL DRUG AND CHEMICAL CO.
CANADIAN AGENTS, TORONTO

POULTRY DEPT.
 Conducted by S. Short, Ottawa

The season is now sufficiently advanced to be able definitely to decide to what extent hatching operations shall take place. Nothing will be gained by postponing the decision. Good hatches should be obtained without difficulty; in fact, the best results should be obtained now with the least trouble. Conditions are perfect for everything that makes for a high percentage of fertility. The breeding stock are on the grass runs, getting the necessary exercise for laying eggs containing healthy, strong germs which develop into vigorous chickens. The most enthusiastic, but strictly amateur beginner is the suburbanite who has just moved into his summer home. He usually has the chicken fever and has it bad.

It may be worth while to offer a few suggestions as to the easiest way to begin the foundation for a flock of poultry that will not only be useful but ornamental. Of course, the initial cost has to be considered. At the beginning, we will discard any idea of keeping mongrels. No sensible person will go to the expense of building a beautiful summer home properly designed, painted and with neat grounds and then, for the difference of a few dollars, introduce or install mongrel fowls in his poultry quarters. So, we will discuss pure bred fowls and how to obtain them.

In the first place, there is the question of breed and then which variety or color of that breed. Every one has a preference or leaning towards a certain breed, and if so, by all means get it. Don't let any one

dissuade you from getting whichever you want unless the arguments advanced show that you had through inexperience decided to do something foolish, such as, to intend to buy Black Spanish instead of Black Minorca or something equally unwise.

A beginning may be made, a simple one it is true, by buying one setting of eggs and a clucking hen. This may be done at a nominal cost and a very good start made for say \$3; that is, \$2 for the eggs and \$1 for the broody hen. The hen should be procured, if possible, in the evening about dusk. Make the nest in a box about nine inches deep and about two feet square. Fill the box with hay or straw nearly full and round out the centre in nest shape and give the hen one or two dummy eggs until sure that she will sit in her new quarters. It is better and necessary to shut the hen in a closed pen or else next morning she will likely have disappeared. If she is sitting all right next day lift her off the nest and give her food and water as close to the nest box as convenient so that when she is through feeding she can see the eggs. If she goes back of her own accord she may safely be given the eggs she is required to hatch.

If more than one hen is set in the same room, treat each hen the same way. Give the same number of eggs to each, judging by the number the smallest hen will cover, usually either eleven or thirteen; then, it doesn't matter if the hens exchange nests at any time for good hatches have been obtained from eggs that three different hens had assisted to incubate.

After the chicks are hatched the first requisite is that they shall have, before food, access to fine grit or coarse sand, usually given by scattering on the floor of the coop, or near to where the chicks are having their first run. After the first day

feed a variety of food, such as oatmeal, hard-boiled eggs, bread and milk and the prepared chick foods. Always feed as great a variety as possible, but best of all let the hen have full range in fine weather and no difficulty will be experienced in raising healthy fowl.

It must not be forgotten that the hen re-

FARMERS, AND FRUIT, AND VEGETABLE GROWERS



WHY ARE YOU IMPORTING PHOSPHATE AND AMMONIA WHICH IS A BY-PRODUCT OF 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.



Peerless Jr. Poultry Fence

will turn large animals as well as small poultry. The top and bottom wires are No. 9 hard steel wire—heavily galvanized—to prevent rusting. No top or bottom boards necessary because the heavy wires take the place. PEERLESS JUNIOR Poultry Fence almost pays for itself in the saving made on fence posts alone. Only half the posts are required, as compared with most other makes of poultry fencing. Peerless Junior Poultry Fence is

Close enough for Poultry
Strong enough for Stock

Don't let your chickens eat your hog feed nor permit your hogs to tramp all over the garden. The same fence serves both purposes. PEERLESS JUNIOR Poultry Fence can be used as an all around General Purpose Fence. The wires are held together by the famous PEERLESS lock that cannot be slipped. PEERLESS JUNIOR Poultry Fence adds greatly to the appearance and value of the property it encloses. Write today for Free Fence Book which tells all about Fences—and how to choose fencing.

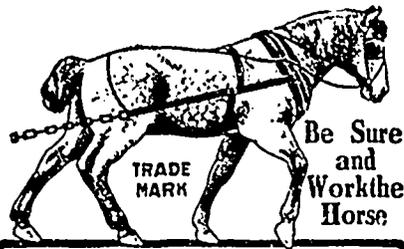
THE BANWELL HOXIE WIRE FENCE CO. Ltd.,
 Bo. 18
 Hamilton, Ont. or
 Winnipeg,
 Man.

The Fence That Saves Expense

quires to be dusted with insect powder at least twice during the hatching period. It is safest to dust the chickens also three or four days after they are hatched and again

at intervals during the development. Inspection of the chicks will indicate when necessary.

In the March issue, an error occurred in the poultry department that changed the meaning of an important point. The word "exporters" should have read "exports." See third line from bottom of second column on page XVII.



HE CAN WORK EVERY DAY

If you use Bickmore's Gall Cure your teams can work right at the and be cured of Saddle and Harness Galls, Chafes, Rope Burns, Cuts, Scratches, Grease Heel, etc. while in harness. The more work the quicker the cure.

BICKMORE'S GALL CURE

Is the standard Remedy for all these and similar troubles. Is excellent for Mangos and Sore Teats in cows. Also a trade mark on every box. For sale by dealers. Money refunded if it fails. Sample and Horse Book every farmer should read.

WINGATE CHEMICAL CO. LTD., Canadian Dist'rs, 645 NOTRE DAME ST., W. MONTREAL, CANADA

Electricity of Fruit

The Canadian Grocer.

Some experiments were made in vicinity of Bristol, England, to decide whether or not electricity has any influence in forcing the growth of fruits, wheat and vegetables. In order that the effect might be correctly estimated, two crops were grown under similar conditions, one with and the other without the help of electricity. Surprising results have been obtained. In the case of strawberries, on the first pickings 40 per cent. more fruit was gathered in the electrified than in the unelectrified area, which proved also on analysis to contain nearly twice as much sugar. With regard to tomatoes grown out of doors, the early ripening was remarkable, and the yield was 30 per cent. better on the electrified than on

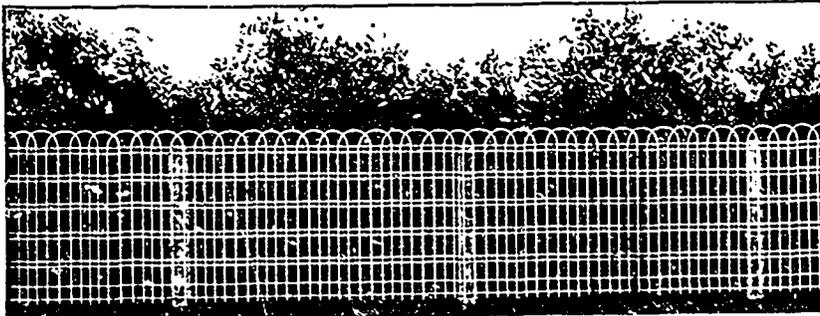
the check plot. Wheat in an electrified area of 7,675 acres yielded 32.5 bushels per acre, as compared with 26.15 bushels per acre in the area not so treated.

Some experiments have been carried out in greenhouses also, chiefly devoted to cucumbers, with which the first results of electrifying was earlier bearing, the first month's picking having been found to yield double the quantity obtained from the check plot. This great acceleration, however, did not seem to exhaust the plants, which not only began earlier, but also continued to bear much later than those grown under normal conditions.

It will be seen that if growers can, by means of electricity, place their goods on the market early before a possible glut takes place, much better prices will be obtained than in the ordinary way. It may be asked whether or not the increased outlay on the apparatus is justified by the returns, but at Evesham, where extensive experiments have been carried on during two or three seasons, the growers are more than satisfied.

Notes and articles of interest to vegetable growers are requested for publication.

We like THE CANADIAN HORTICULTURIST very much. The only fault we have to find with it is that it does not come oftener. The month seems so long between its visits.—Mrs. L. Cavena, Simcoe Co., Ont.



PAGE WHITE FENCES Got the Best. Styles for Lawns, Farms and Ranches. Made of high carbon wire, galvanized and then painted white. Tougher and stronger wire than goes into any other fence. Get 1909 prices and illustrated booklet.

THE PAGE WIRE FENCE CO., LIMITED Largest fence and gate manufacturers in Canada.

WALKERVILLE TORONTO MONTREAL ST. JOHN VANCOUVER VICTORIA 229

SUPERIOR RUBBER & STEEL MFG. CO. LIMITED

STAMPS
STENCILS
SEALS &c

93 CHURCH ST. TORONTO

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR \$65

GILSON GASOLINE ENGINE

For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL

Ask for catalog all sizes

GILSON MFG. Co. 104 York St. QUELPH, ONT

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. Your 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 prices and have them call and see your machine work, and for every Fitz-All sprayer you 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 \$1.50 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 to us **NOW.**

Ontario Seed Company, Ltd., 138 King St., Waterloo, Ont.

COUPON—Fill out and send today. This Coupon will not appear again.

ONTARIO SEED CO., Ltd., 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.....

Similkameen Valley, B. C.

J. D. Harkness

The Keremeos irrigation canal, which has been under construction for two years, is now completed, and water was let in for the first time about the middle of April. The canal, which is more than eight miles long, is an interesting piece of engineering. The water of the Ashnola river is led from its bed and flows by its own gravity across the Similkameen river through a 40 inch pipe which is carried on a bridge 400 feet long. Its course down the north side of the valley is partly through open ditch and partly through continuous stave piping, built up on the spot. Of the piping, many thousands of feet were required (diam. 40, 38 and 36 in.) not only as inverted siphons for crossing deep gullies, but along the steep mountain sides where ditching would be difficult and where an open cutting would be liable to interruption from land slides. The total fall to the Keremeos bench is about 26 feet, and it is estimated that the water will take about six hours to travel the whole distance when carrying the designed capacity. This slow flow will temper the water from its cold state in the Ashnola and bring it to the orchards at a suitable temperature for irrigation. The canal carries 1000 miner's inches and will serve at present, 2,000 acres, but will probably be extended later.

The lands served by the canal—all rich level bench land, clear except for a little sage bush—are being rapidly taken up by settlers, mostly in 10-acre plots. That seems to be generally considered the proper size for a fruit farm, and people more often undertake less than more. The settlers are mostly from Alberta, Saskatchewan and Manitoba—many of them grain farmers who seek a milder climate and less

stronuous employment. Next to apples, peaches—which reach great size and perfection here—are most planted; the early time of ripening—fully as early as in the fruit districts of Washington state—making them a valuable crop.

A good deal of dissatisfaction is felt with the provincial governments inspection service for imported nursery stock. At present every lot imported has to pass through the office at Victoria, often causing serious loss through delay and injury in transit, as well as extra expense. Even then it is claimed that the volume of business at the office is so large that its work of inspection and fumigation is not always done thoroughly. Sub-offices at convenient points are urgently needed.

Montreal

E. H. Wartman, Dominion Fruit Inspector

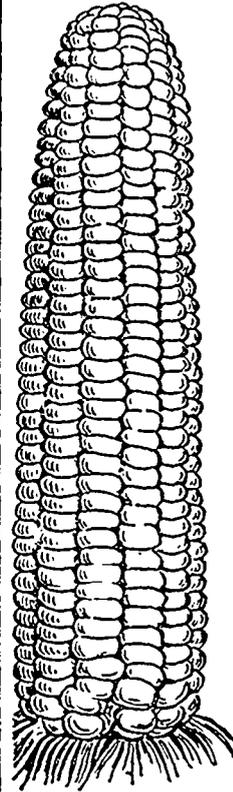
This is the earliest opening of navigation to the ocean in my eight years' stay in Montreal. Soon we shall see our ocean liners plowing their way to our port. One of the first to arrive as usual will be from the Mediterranean with a full cargo of oranges and lemons. When we see 75,000 cases of fruit piled 10 to 12 tiers high in our sheds, we will be led to say that the volcanoes haven't swallowed them all. Grape fruit is selling lower than for years and is gaining its ground in common family use. A friend of mine said he used 20 cases of this fruit in his family last winter. This fruit is very nutritious and it should be generally used, for health's sake, before meals.

As apples are very high, trade is slow, bananas and oranges taking their place. Maple syrup at this time of the year fills a place in family diet. It is made in very large quantities on the Island of Montreal

CANADIAN GROWN SEEDS

FOR

FARMERS & MARKET GARDENERS



Devitt's Early Sugar Corn

Originated by Ben. Devitt, Esq., of Waterloo, about 30 years ago and steadily improved by him.

It is the table corn par excellence—just what you gardeners want for your select trade, the sweetest of all, very early—white kernels and good size ears.

We are the only seed men in Canada growing on their own fields, vegetable, flower and Field Seeds. It is of vital interest to you.

Free Package

Write for complete catalogue and free package of Devitt's Early Sugar Corn, also give names of your neighbors.

ONTARIO SEED CO.

PIONEER CANADIAN SEED GROWERS
38 King St., Waterloo, Ont.



Typewriters

At this season we have a clearance sale of rebuilt and slightly used typewriters. We have a number of Remingtons, Smith Premiers, Monarchs, L. C. Smiths and others at very low prices for quick disposal.

Write for particulars and prices.

United Typewriter Co., Ltd.

Adelaide Street East
TORONTO

TAKE YOUR CHOICE

Secure one of these splendid premiums in return for sending us only One New Subscription to The Canadian Horticulturist at 60c a year

FIVE BEAUTIFUL DAHLIAS

Retail value, 70c. (For One New Subscription).

These Dahlia Bulbs are all of the best named varieties (no two alike). They will add greatly to the beauty of your flower garden. Or

ONE CRIMSON RAMBLER ROSE BUSH

Retail value, 50c. (For One New Subscription).

These are extra heavy bushes, Three Years Old. This variety is hardy and vigorous and has a wonderful profusion of bright crimson bloom.

Send us only One New Subscription to The Canadian Horticulturist at 60c a year and we will send you, Free of Cost, your choice of the above. Both will be sent you for Two New Subscriptions. It is easy to get your friends to subscribe. Try it. The time of planting will soon be past, so Do It To-Day. Address:—

The Horticultural Publishing Co., Ltd.
PETERBORO - - ONT.

and in the eastern townships. The law governing this product, making it either pure, or compound, is a good one if strictly carried out.

Our large steel sheds to accommodate the

freight of our ocean steamers, now completed, at a cost of millions of dollars, may well be put on the sight seeing list of Montreal, and, it is here that the visitor can form a conception of our commercial wealth by the watching of hundreds of cars unloading into the massive sheds the products of our country, and also thousands of tons of incoming freights to meet our wants.

One of the most complete reports on agriculture that has been received at this office is the annual report for 1908 of Prof. M. Cumming, Secretary for Agriculture for Nova Scotia and Principal of the Nova

Scotia Agricultural College. It contains a wealth of valuable information for the agriculturist and stockman. The sub-report of Prof. P. J. Shaw, of the Agricultural College, Truro, deals with the progress of horticulture in that province. Reference is made to the canker worm and the hard knot disease of pears, two orchard troubles that caused considerable loss last year. The work of the model orchards is mentioned and a list of them is given. The report indicates that the future for horticulture in Nova Scotia is bright.

There are evidences of a very large movement of manufactured goods this year, especially in lines purchased by farmers. The Page Ware Ice Company, Limited, report March sales as showing an increase of over 40 per cent. more than in same month of last year.

Mr. J. H. Wismer of the Port Elgin Nurseries, writes us that he has still a good stock of fruit and ornamental trees, flowering shrubs, Norway spruce, Austrian and Scotch pines, etc., etc. His ad. is in this issue, and he is anxious to send you his catalogue if you are interested and will apply.

A copy of the seed, bulb, plant and fruit catalogue of L. L. May & Co., St. Paul, Minn., has been received. In it are listed all the leading varieties of these horticultural products that are grown in the temperate zone as well as many novelties. The catalogue is replete with descriptive matter and cultural directions. A copy may be had on application to the firm.

Some changes have been made in the Ontario Horticultural Society's Act. The limit of the grant to new societies in future will be \$75 instead of \$100. After January, 1910, no society shall be entitled to receive an annual grant of more than \$800. The request of the provincial association that the total grant to the societies of the province be increased from \$8,000 to \$10,000 was not granted.

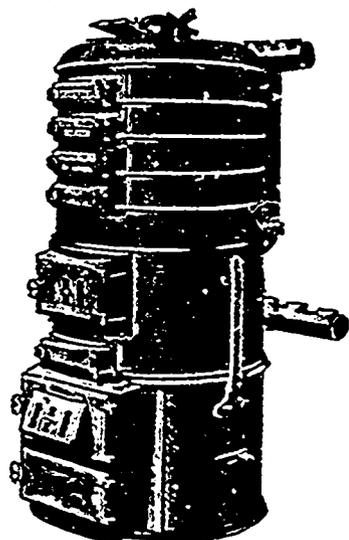
Get one of our three-year old Crimson Rambler rose bushes free of cost. See our premium offer on another page of this issue.

YOU CAN MAKE MONEY

Canvassing for subscriptions to The Canadian Horticulturist. Write for sample copies and our terms to agents. Address—

Circulation Department
THE CANADIAN HORTICULTURIST
PETERBORO, ONT.

WHEN the weather is beginning to turn mild, and there remains just enough chill and uncertainty in the air to demand extra care in the management of a hot house, then is the time the



“SOVEREIGN”

HOT WATER

OR

LOW PRESSURE STEAM BOILER

may be relied upon to keep the plants in a uniformly healthful temperature at a small expense of coal.

Write for Booklet

TAYLOR-FORBES COMPANY, LIMITED, Guelph

Agents and depots in all the principal towns and cities of Canada.

BRUCE'S FLOWERING BULBS

GLADIOLUS

Choice Mixed, 10 for 30c; 25 for 60c; \$2.00 per 100, post paid.
Groff's Hybrid Seedlings, mixed, 10 for 40c; 25 for 75c; \$2.50 per 100, post paid.
Bruce's White and Light Shades, 10 for 30c; 25 for 55c; \$2.00 per 100, post paid.
Childs, mixed, 10 for 60c; 25 for \$1.25; \$4.00 per 100, post paid.
Bruce's Superb, mixed, made up by ourselves from all varieties, the best, 10 for 65c; 25 for \$1.25; \$4.50 per 100, post paid.
Groff's World's Fair Collection. Novelties in all colors, grand, 15c each; 10 for \$1.20; 25 for \$2.50, post paid.
New Grand Named Varieties, almost 200 colors, 14 each; 14 for \$2.50, post paid.

DAHLIAS

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

TUBEROSE

The Pearl, double white flowers, each 5c; per doz. 40c; per 100 \$2.50, post paid.
Single Orange Scented, beautiful orange-like blossoms, each 5c; doz. 50c; 100 \$5.50, post paid.

LILIES

Auratum, Lancif, Album and Rubrum, Elegans, Pardalimum, Tigrinum, Umbellatum, Tenuifolium and Wallacei, each 20c; per doz. \$1.50, post paid.

Write for our handsomely illustrated 100 page Catalogue of Vegetable, Farm and Flower Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc. FREE.

JOHN A. BRUCE & CO., Seed Merchants, **HAMILTON, ONT.** Established 1850

