

The Canadian Horticulturist

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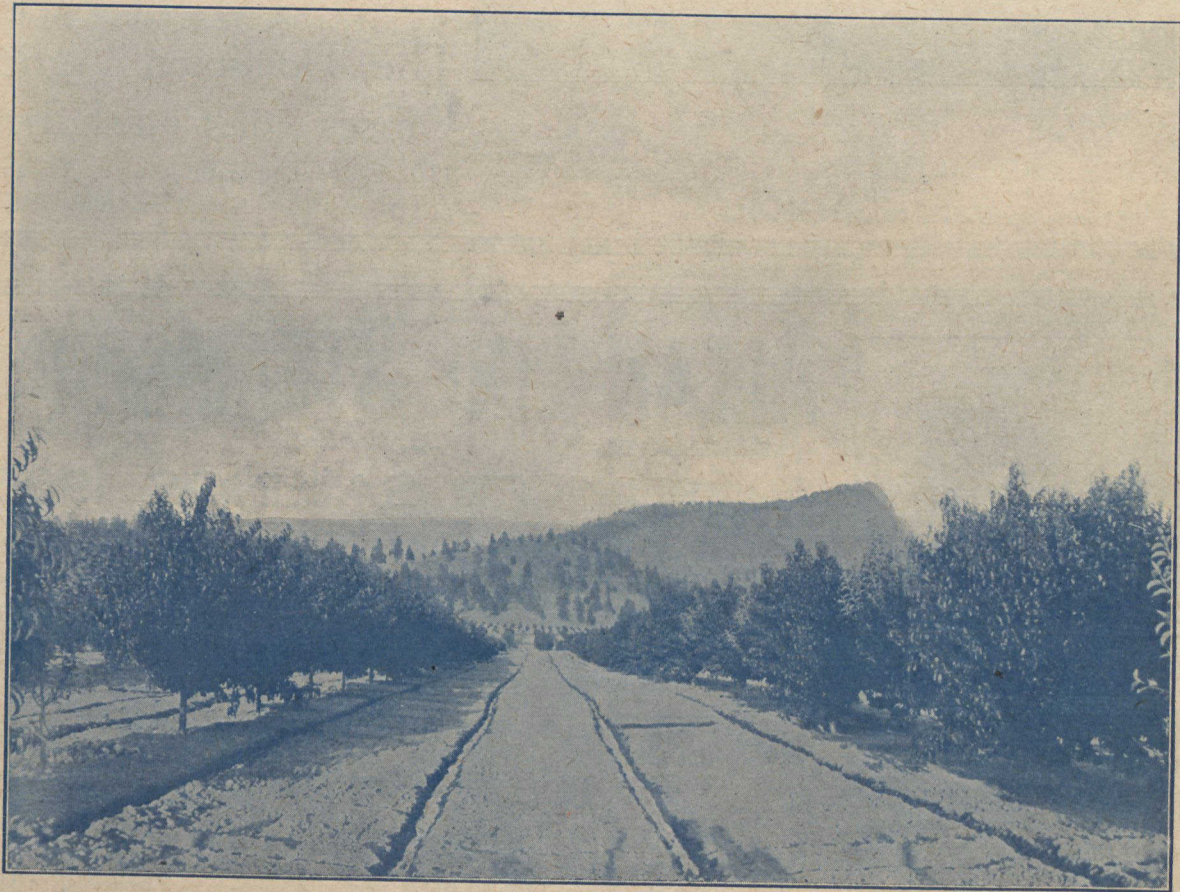
JUNE, 1908

Volume 31, No. 6

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The Canadian Horticulturist

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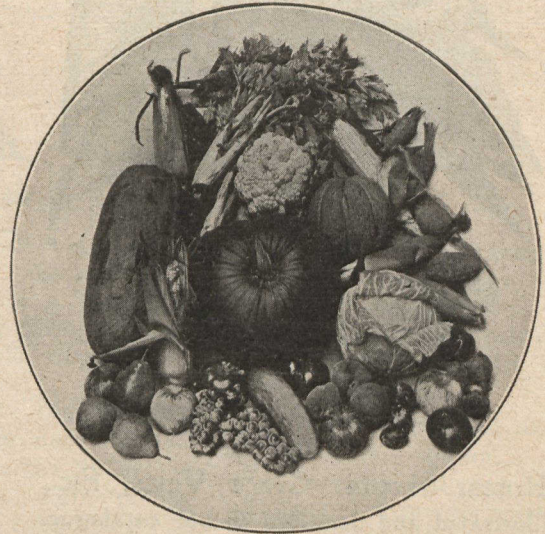
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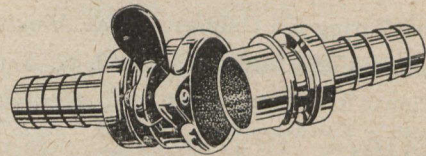


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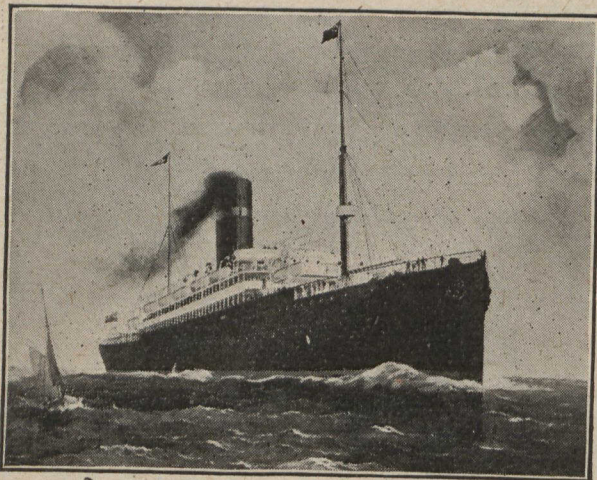
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The Canadian Horticulturist

Vol. XXXI

JUNE, 1908

No. 6

Irrigation in British Columbia

A. E. Meighen, Irrigation Engineer, Kamloops, British Columbia.

THE word "irrigation" ordinarily conveys to the mind the idea of an elaborate system of ditches—main canal, laterals with the accompanying sluices—water gates and measuring devices. As a matter of fact, irrigation is practiced where none of these works exist. All persons in all countries have brought the principle of irrigation into practice. All that is required is a favorite bed of flowers or patch of vegetables, a continued spell of dry weather, the watering can or the garden hose and we have irrigation pure and simple. Irrigation then is an aid to nature, a supplying of the need where she fails; a thorough grasp of this idea is of the utmost importance to the farmer when he comes to apply water to his land by the methods now employed in practical irrigation.

The only difference between this simple form of irrigation and that employed on large tracts in the dry belts is a matter of degree and methods. Given a large tract of arid land, the simple methods of the watering can and garden hose are out of the question. It then becomes a problem for the engineer. He either taps a supply distant from the land to be served and by the aid of gravity conveys it in a ditch to the spot, or, if a supply is at hand, but on a lower elevation than the land (a condition which is generally present in British Columbia), he installs a pumping plant and raises the water to the necessary height. The supply thus being available, he proceeds to lay out such a distributing system as the different conditions indicate as the wisest, his aim being to serve the land in the easiest, cheapest and most certain manner possible.

WHEN IRRIGATION IS NEEDED

In a general way it is considered that in regions where the average annual of rainfall is twenty or less inches, irrigation becomes necessary for the production of full crops. Of course, it is true that the necessity of irrigation depends on the distribution of the rainfall over the year. Thus it occurs that in some localities on the Pacific coast the rainfall is considerably over twenty in-

ches, but, as it occurs mostly in the winter, irrigation becomes necessary, while in other localities with a much smaller rainfall, but occurring during the growing months, irrigation is unnecessary.

Taking twenty inches as the minimum annual rainfall required to produce full crops, the extent of aridity on the North American continent is much greater than most people imagine, comprising in the United States two-fifths of the entire land area. In Mexico, the proportion of arid lands to the total land

2,800,000 acres, in France, 400,000 acres, in the United States, 11,000,000 acres. In our own country, when the C. P. R. project in the Northwest provinces is completed, there will be 3,500,000 acres under water.

ADVANTAGES OF THE NEED

The practice of irrigation is often considered a hardship and the necessity for it a misfortune. A greater mistake could not be made; for, as a matter of fact, the necessity for irrigation and the ability to irrigate make a fortunate combination of circumstances. They imply a warm, dry climate as that of the arid regions. This means that the crops are not liable to destruction by sudden violent storms, by lack of sufficient sunshine or by the failure of the water supply as often results from dependence on nature alone.

THE RETURNS FROM IRRIGATION

Obviously the returns from irrigation depend largely on the soil and climate which in turn determine the kind and value of the crops that can be produced. In the semi-arid regions irrigation is merely an insurance against failure of crops from lack of rainfall, in regions where the climatic conditions are such that only grain, potatoes, and so forth, can be successfully grown, the returns are not great, while in regions where fruit, deciduous and citrus trees can be grown, the returns from irrigation in crops and the increased value in land are enormous.

The following returns taken from the United States census of 1900 give a good idea of the increase in value of land and water, after an irrigation system has been provided, and the value of crops obtained from irrigated lands. While the average first cost of water, that is, the cost of construction of canal to bring water to the land, was \$7.80 an acre, the average value of water per acre to settlers, after they obtained it, was \$26, an increment of \$18.20, due to the mere fact of having the water available for irrigation. The average value of the land before irrigation was provided, was from \$2 to \$5 an acre, and after an irrigation system was pro-

One of the Best

THE CANADIAN HORTICULTURIST is one of the best edited, brightest, and most interesting of the many magazines and agricultural and horticultural papers which weekly and monthly come to my desk. May success ever be with you.—F. H. Reed, District Representative of Ontario Department of Agriculture, Lindsay.

surface, is probably equal to that in the United States, while in Canada the entire interior of British Columbia, from the Coast range to the Selkirks, and great tracts of Alberta and Saskatchewan, may be also classed as arid, or semi-arid, where, if irrigation is not absolutely necessary in all cases, it would be in the nature of an insurance against loss of crops from drought.

The fact is that the extent of aridity in North America is so great that it is estimated that there is only water enough available to supply 10 per cent. of the arid lands; for instance, in the state of California, with 100,000,000 acres of arid land, there is water enough for only 17,000,000 acres.

The area of land now under irrigation is enormous when we consider how recent is the practice and this area is being added to greatly every year. Today, there are under irrigation in India, 33,000,000 acres, in Egypt, 6,000,000 acres, in Italy, 4,700,000 acres, in Spain,

vided, \$42.53 per acre, and the average value of the products raised was \$14.87. These returns deal with ordinary farm products. In Arizona and California, where valuable citrus crops are grown, the land values increase after irrigation has been provided from \$20 to \$400 and \$500 an acre, and the crop returns average \$250 an acre.

In the interior of British Columbia, in the Thompson valley and in the Okanagon valley, the increase in land values due to irrigation is from \$10 to from \$100 to \$250 an acre, the value of crops \$150 an acre, while the orchards in full bearing are considered worth \$1,500 an acre.

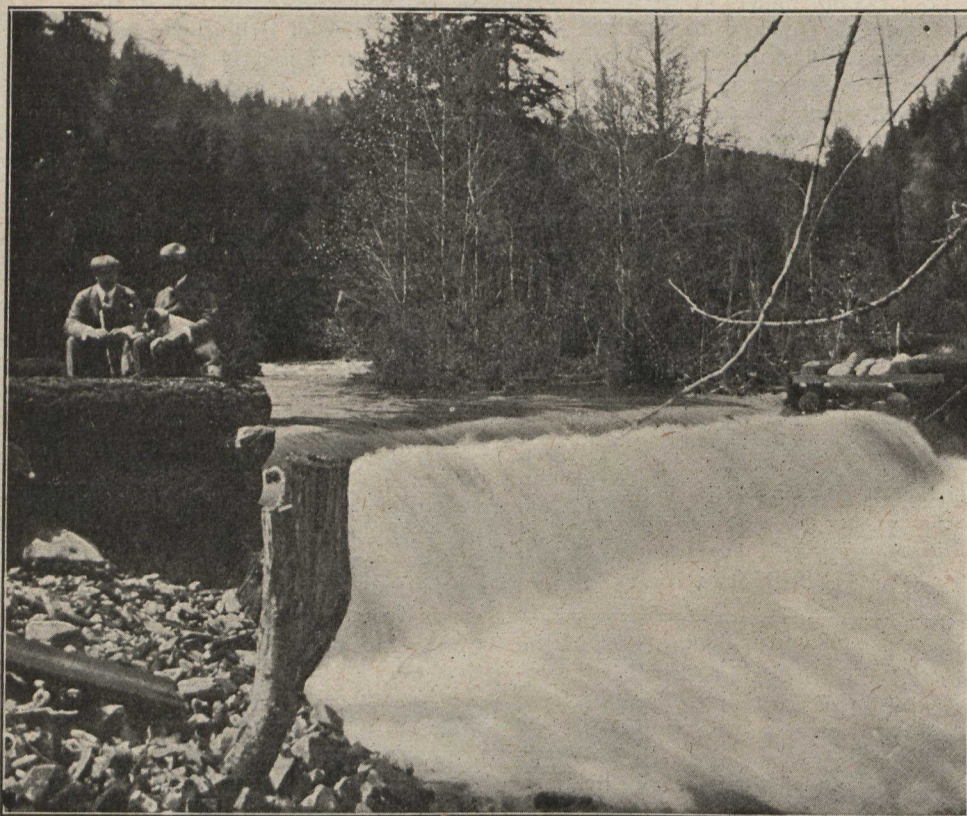
EARLY METHODS IN BRITISH COLUMBIA

Irrigation was first practiced in British Columbia in the early 60's. There are water records in the government of-

ing water nor of the amount that would be required to irrigate their land. They were usually very liberal to themselves, however, with the result that they almost invariably filed on more water than they could put to beneficial use, and, in many cases, their filings constituted more water than the entire flow of the creek during the irrigation period.

TROUBLE BETWEEN SETTLERS

New settlers came in and settled higher up the creeks. They also filed on water for their lands, built ditches and diverted water. In nearly every case there has arisen trouble between the old and new appropriator. As soon as the flow of the creek began to get low, and the old claimant near the mouth was not getting all the water he wanted by reason of the new settler diverting a part higher up trouble began. In some cases



Water Passing Over Weir on Jamieson Creek, British Columbia

At Canadian Real Properties Co's headgates—525 second feet.

fices dating back that far. Pioneers coming to the interior took up land near the mouths of the creeks and filed on the waters of the creeks to irrigate their lands. Fodder crops were the only crops raised. These pioneers almost without exception took up stock raising. Their herds grazed over the public range during the spring, summer and late fall, and, in fact, in many years, during the entire twelve months, and hay was grown to supplement the feed on the range in the hard winters.

Many of these old settlers had no idea of the standards of measurement of flow-

he took the law into his own hands and tore out his neighbor's dam and destroyed his headgates. To-day, all over the interior, there are water cases before the courts arising out of the confusion due to lack of proper government supervision over the appropriations of water from the creeks.

It is expected, however, that irrigation will soon be put on a sounder basis in British Columbia. The provincial government is holding a searching investigation into the subject with a view to amending the water clauses act to meet present conditions.

Fall Bearing Strawberries

E. B. Stevenson, Guelph

For some time there has been a good deal said about certain varieties that were claimed to bear a good crop in the fall season, and it was said they were as good as the spring varieties and were more profitable. The most lauded of these fall bearers is one called "Pan-American," a sport of the Bismark. Three years ago I sent for plants of the Pan-American. I have been growing it since. As the result of my experience, I would not advise anyone to go into the growing of the so-called fall-bearing strawberries for profit.

I have found that any of the old sorts will bear berries in the fall under certain conditions, which are: First, if the spring is cold and wet, and followed by a season of drought, then in the latter part of August or early September, if we have a good deal of rain and heat, you can look out for fall strawberries. But, what kind are they? Just like any berry or fruit out of its season. They have not the aroma or flavor of the spring grown strawberry. Sometimes they are of fair size, but they are sour or insipid, and you do not want to eat more than two or three.

Cultivating Currants

Wm. Fleming, Owen Sound, Ont.

For success with currants have the ground perfectly free from grass and weeds, and keep it clean. This will require cultivating about once every week or ten days according to the weather. The ground should never be cultivated when too wet or too damp.

This cultivation must be kept up, if a perfect state of good results are to be obtained; for once let the grass and the weeds get the control, the chances are ten to one that the plantation is ruined. When the grass and weeds become masters, there is no probability that the plantation can be properly restored to a first-class condition. The aim should be to destroy the weeds before they come above ground.

Larvae which live or feed in webs, like the tent-caterpillar and fall web-worm, may be burned with a torch.

Small fruit growers, who have tested the Loganberry, in Canada, are requested to tell their experience with it in a letter for publication in THE CANADIAN HORTICULTURIST.

If you have fillers that you plan to move next year, girdle the trees this month. This will cause them to bear extra heavy crops, and it will not matter whether the girdling injures the trees or not.

Blight on Pear and Apple

W. T. Macoun, Central Experimental Farm, Ottawa

SPRAYING with Bordeaux has no apparent effect upon blight, but it is believed that lime and sulphur, forming a coating over the bark prevents to some extent the entrance of the blight germ. The bacillus or germ of the pear or fire blight finds its way into the tree at the tenderest and least protected points, and it is believed by those who have made a careful study of it that practically all the infection is done by insects or birds, and that the disease is not carried to any extent by wind. Insects carrying infection travel to the tips of succulent shoots, and the germs find entrance through the buds at the axils of leaves, and at any point where the bark is broken. The chief sources of infection of bearing trees is through the flowers to which come insects bearing the disease.

The blight is usually first noticed in the spring on bearing trees when flowers and flower clusters which have been blighted wither and do not set fruit. Soon the fruit spurs are noticeably affected, and also the new wood. The disease starting at the tip of the shoots usually runs down, although it will run in every direction, sometimes passing on to the main branches and to the trunk of the tree. The disease varies in the way it spreads. Sometimes only the flowers are affected or the fruit spurs or smaller twigs, or patches about a place on the branches or trunk that have some physiological injury. The germs are found in a gummy substance or exudation, and this is carried by the insects from one flower or tree to another. These bacteria increase very rapidly by division, and once the tree is infected the disease may soon spread over a large area.

The best method of controlling this blight is by cutting out the diseased parts. To do this thoroughly it is necessary to begin in the winter, going over the orchard several times to be sure that all the diseased wood has been observed. This should be followed up in the spring and summer, and everything showing a sign of the blight should be cut out not less than six inches below the affected part or into healthy wood. Where possible it is wise to cut as much as a foot below where there is evidence of the disease. It has been proved by experiment that infection is carried on the knife or saw, especially in summer, hence after each branch is cut the knife should be disinfected. The disinfectant recommended by Prof. M. B. Waite, who has given this disease careful study and who is confident that it can be controlled by taking proper care in pruning and doing the work systematically and thoroughly,

is "a solution of corrosive sublimate in water, one part to one thousand." Tablets of convenient size for making the solution may be obtained from the drug store. A sponge is carried with which to apply the disinfectant. Corrosive sublimate is a deadly poison, hence should be labelled "Poison." It should not be carried in a metal receptacle. The objection to a carbolic acid solution in water is that it must be made very strong to be effective.

A systematic effort is now being made in California to stamp out this disease, which has recently gained a foothold there. The method adopted is to cut out affected branches and burn them. Where the body of the tree is affected it is rooted out and burned. Fruit-

"entertained" expresses the need more fully, in such a way as to hold them through good and evil report, and picking while the season lasts. Picking should be done with care and neatness. The berries must be pinched off with a short stem without bruising the fruit and the soft and smallest berries discarded or left on the vines. The boxes should be filled a little over level to allow for settling and packing; they must be full or nearly so on reaching destination. Pickers should not be allowed to take more than eight boxes to the patch at one time, so that the berries may come to the packing house fresh and cool. In order to carry out the outlined program it is sometimes necessary to pay a small premium to pickers who comply with the ideal requirements.

"Packages, both small and large, should be clean, neat, and attractive



A Field of Strawberries that Yielded Big Returns Last Season
Farm of Mr. Robt. C. Shook, Clarkson, Ont.

growers in the pear districts of Canada should combine in an endeavor to control the blight. Individual efforts are of little avail if neighboring orchards are neglected.

Harvesting Strawberries

This account of the methods practised by Mr. W. F. W. Fisher, of Burlington, Ontario, one of our most successful strawberry growers, is well worth careful reading: "The cultivation of strawberries on a large scale," writes Mr. Fisher, "involves a great amount of labor, expense and care through all its various phases—preparation of land, planting, keeping clean, protecting from frost, and so forth; but the climax of interest is reached when it comes to harvesting the crop. Having secured the necessary pickers (which sounds easy), they must be housed and—"treated" I was about to say—but

as possible. The packer should dump a few boxes occasionally from each picker to see the contents, and should see that berries and crates are kept in the shade until time for shipment.

"The most satisfactory market is at the home railway station or cannery. Distributing the crop can be done much more intelligently by large dealers than by individual growers, and the area of distribution be thereby largely increased. Varieties that are firm should be selected for long distance shipping, and in no case should berries of different varieties be packed in the same crate. The size of our boxes is fixed by law, and the popular crate appears to be one holding from twenty-four to thirty-six quarts. The large returnable crate is reg less used year by year."

There is no better mulch than thorough cultivation.

Planting and Caring for Dahlias

Max Moineau, Toronto

EXCEPT in heavy clay, dahlias will grow almost anywhere, but a sunny locality, with rich, mellow soil, that will grow potatoes, will give the best results. Fertilization should be done in the fall. Use well-rotted cow manure, and work it in thoroughly, turning the earth over many times before freezing weather, and again in the spring, before planting.

In Canada, planting time should never be earlier than May 20th, nor later than June 20th. Do not plant in soil that is wet or sour. If soil is heavy and soggy, add a goodly proportion of sand and air-slacked lime. This will lighten and sweeten it. Never plant when soil is wet, or your tubers may rot.

Do not plant when the soil is cold. Wait until the sun has warmed it. At an early period put your hand down into the soil, and feel how cold it is, then later test it in the same way for a higher temperature. A cold soil retards, while a warm soil hastens vegetation. Dahlias grow rapidly. You will not lose time by waiting.

If your dahlia bed was not fertilized in the fall, use only well rotted manure sparingly, as early in the spring as possible. One good method is to dig out the soil to the depth of ten inches, fill in with two inches of well-rotted manure, and stamp it down, then cover with an inch of soil well packed, upon which place your tuber; then cover but be careful not to over-fertilize at this period.

A WARM EXPOSURE NEEDED

Dahlias revel in the warm sunshine. If possible plant them so that they will be exposed to sunshine all day long. But if you have a small town or city lot with close board fences, good results can be obtained by planting on the northern or eastern sides, twenty-four inches from the fence. I have grown dahlias on all sides of my lot, and find the eastern and northern localities the best.

Remember, that the soil in the beds that are near the fence, should be much lighter than in the open, because the fence shadows it at one time of the day, while the heat reflecting from the fence at another time of the day will, if the soil is heavy, bake it to a crust. This baking, or incrustation, interferes considerably with what may be termed soil atmosphere, and necessitates a double amount of cultivation. My rule is that wherever there is much shadow, use the lighter soil. In the open sunlight, a mellow, medium heavy soil is preferable. A light soil requires more fertilizing

than a heavy, while, after planting, a heavy soil requires more cultivation than a light.

SELECTING DAHLIAS

There are nine distinct classes of dahlias, namely, show, fancy, decorative, cactus, single, ponpon, colorette, peony-flowering and scented—the latter being the newest thing on record. In each class, there are many varieties with individual characteristics. The best time to select a dahlia is when it is in bloom; therefore, visit dahlia farms, make a record of the varieties you best like, and send in your orders early in the spring, dealing always with reliable people. See that each tuber has a bud sprouted before planting, or you will be disappointed, when, after long anticipation, no plant appears. Bear in mind that there are blind tubers, and these produce nothing. Sometimes you may receive two or three tubers in a cluster, with but one eye appearing. This is a strong root, and should not be separated. Plant it as you receive it, and anticipate a better bush and bloom because of the cluster.

HOW TO PLANT

The ideal method of planting a dahlia tuber is well worth considering. Dig a hole eight inches deep. Place the tubers in the bottom horizontally, with the eye uppermost, then cover with about two inches of earth. As the sprout develops, fill in the soil until the level is reached.

I do not approve of pinching out the centre of the sprout, as some advise, but I do advocate staking. I would recommend setting the stake before planting. There will then be no danger of driving it through the tuber. Always place the eye, or bud end of the tuber, directly opposite the stake, and about four inches from it. Attach the label firmly to the stake the moment you remove it from the tuber. A dahlia without a name is of no interest, and while handling and planting, tabulating should be very carefully done.

When the plant is eighteen or twenty inches high, tie it to the stake with a strip of strong cloth, about an inch, or an inch and a half wide, being careful not to pull the stem from its natural direction, and keep elevating the bandage as the plant develops. I paint my stakes green, and use green-colored cloth for tying. This relieves the unsightliness of staking. Stakes should be at least three feet above ground, and, in some cases, two feet longer. Never plant closer than two and a half feet between each hill, and four feet between each row.

Do not water. Nature will do that in the best way possible. Artificial watering produces a rank growth of stalk at the expense of the bloom, with a tuber that will shrivel up and, perhaps, rot during the dormant period. Therefore, let me reiterate, *do not water*. If the season becomes excessively hot and dry, an occasional *soaking* may be advisable, but using the hose every evening is the greatest mistake you can possibly make, since it proves detrimental to the bloom.

Cultivation is the proper thing, and let me state just here, that any one who has an aversion to the use of the hoe, should never attempt to grow dahlias. Keeping a crust from forming on the soil about the stalk is absolutely imperative. The soil should be broken and mellowed, all weeds and suckers carefully removed, and not more than one shoot allowed to develop from a hill.

Your lawn clippings will make an excellent grass mulch, which will prevent the soil from baking and drying out. Hoeing twice a week, will improve the soil atmosphere. Always replace the mulch after hoeing. Fine, strawless, stable manure, or street sweepings, will also make a good mulch, but do not use manure until after the buds begin to form, nor cultivate so deeply as before. Buds, as a rule, begin to show when the plant is from eighteen to twenty inches high, and will be in bloom when the plant is about thirty inches high.

Later in the season, should the flowers diminish in size, use liquid manure once or twice a week, or a top dressing of fine bone meal, four parts, to nitrate of soda, one part, spread broadcast over the hill, and cover with a light sprinkling of soil, always replacing the mulch. A better bloom will be the result. If there is any sign of mildew, remove the mulch for a while, to let the earth dry out a little.

Disbudding throughout the bush and cutting back the lower branches will also enhance the bloom. I always trim out the lower flower shoots, as they never do well, and the strength expended upon them will be saved for the better part of the plant. The removal of all dead and faded flowers is necessary for the better appearance of the plant, and its further sustenance.

For decorative purposes, never cut a bloom in the heat of mid-day. The flowers are usually in a half-wilted condition then, and cannot be easily revived. Early in the evening is the best time for cutting, as it is cooler, and the flowers have a chance to harden during the night.

The Gloxinia and its Culture

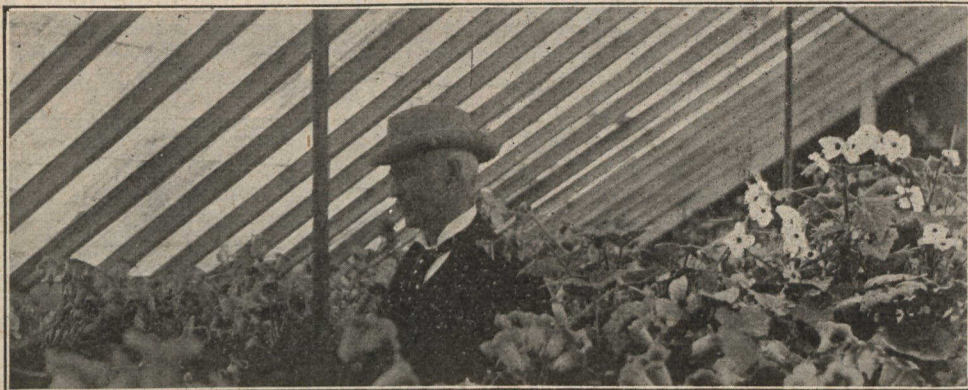
F. G. Keyes, Ottawa

FEW flowers equal gloxinias for conservatory decorations during the summer months. Their rare beauty, and the ease with which they

This takes a little time, but it pays, if the best flowers are desired.

GROWING FROM SEED

Some difficulty is frequently experi-



A Well-grown Lot of Gloxinias and other Greenhouse Plants

In conservatory of Mr. P. G. Keyes, Ottawa

can be grown, should make them even more popular than they are. They can be grown from seed, or from the leaves of the plant, or may be increased by cuttings taken from the bulbs after these have started into growth. Usually many more shoots appear than should be allowed to grow. All but one of these must be cut off close to the surface of the bulb, if the best results are to be obtained. These surplus shoots, if planted in small pots, in light soil, and kept shaded and fairly moist (not too wet) will soon form small bulbs, which, if kept growing until autumn, may then be dried off, and potted for blooming the following season.

DO NOT EXPOSE TO SUN

Gloxinias require, at all times, a moist, warm atmosphere. No direct sunlight should be permitted to fall on the plants either while growing or when in bloom.

Five-inch pots are the proper size for ordinary bulbs. It is as well to place them in these at the first potting, and thus save the trouble of repotting after the bulbs have made some growth. The soil should be very light and rich, and the drainage perfect.

WATER WITH CARE

Care should be taken to see that no water is allowed on the foliage, and that the plants are not over-watered. Nothing is more fatal to the gloxinia than over-watering. The plants should be watered individually, not collectively. They usually grow about 100 plants each season, and always before watering make it a point to lift each pot in order to make sure that fresh water is needed.

enced by amateurs in obtaining plants from seed, owing to its dust-like pro-

portions. This can be accomplished, however, by anyone who will take the trouble to purchase two of the ordinary earthen plant saucers, say eight and ten inches in diameter. Place the soil—which should consist of sifted leaf mould, mixed with about one-fifth sand—in the smaller saucer, and scatter the seeds very thinly on the surface. Sift over them a little fine leaf mould, then place the smaller saucer in the larger one, and cover with glass until the seedlings appear.

Water should be given when required, pouring it into the larger saucer. Enough will be absorbed by the saucer containing the soil to supply the proper moisture. Care must be taken at all times, not to disturb the soil, as to do so is to court failure. All fine seeds may be grown successfully in this way.

The gloxinia is rich in color and its color range is wide. From darkest scarlet, it runs through all the reds to palest rose, and from royal purple it shades off into lilac and mauve to purest white. Its great beauty makes it desirable in all conservatories.

Climbing Plants for the Greenhouse

A. Alexander, Hamilton, Ontario

A GREENHOUSE entirely without climbers, loses some of the most charming effects. No matter how small and unpretentious it may be, the judicious use of a few climbing plants, adds a charm which nothing else can supply. Not only so, but they may be made to serve as a natural shade in the summer time, instead

of the usual dirty, smearing of the glass with whiting, or the use of cheesecloth.

Some persons object to climbers because they are said to harbor and encourage insect life, especially mealy-bug. So they do, if allowed; so do other plants that are not climbers.

To have them in perfection they are



The Effect of Using Climbers in a Small Greenhouse

Streptosolen, Passion Flower, Solanum and other vines in greenhouse of Mr. A. Alexander, Hamilton, Ont.

better planted in a border, which could easily be formed at the sides or back of the house. They do better thus than when planted in pots.

THE CLIMBERS ILLUSTRATED

The illustration shows, though not very clearly, the appearance of a small greenhouse as seen from the door. The house was fifteen feet by twenty, and had a three foot bench on three sides, with a four foot bed in the centre. The climbers were grown in pots until tall enough to come above the benches when planted in the ground beneath. They were then trained up the rafters, until the whole were covered.

The ones used were *Passiflora Pfordtii* and *Constance Elliot*, the *Manettia bicolor*, *Solanum jasminoides*, *Abutilon megapotamicum* and *Streptosolin Jamesonii*. When all were in full bloom, they formed a sight never to be forgotten.

A plant which makes a fine and easily managed climber is *Plumbago Capensis*. Then there is the bougainvillea. Some of the clematis family can be used. It is necessary to train them carefully at first, giving them each their allotted space, and when done flowering, cutting back a little.

If the house is small, such a plant as the plumbago, with its numerous clusters of light blue flowers, would, in a short time, cover the whole house. The

Abutilon megapotamicum is never seen in catalogues now, but the variety "Eclipse," has the same habit, with

finer foliage. All of these climbers are easily managed, and cannot fail to give great pleasure.

How to Grow Tuberous Begonias

E. F. Collins, Allan Gardens, Toronto

TO grow tuberous begonias for bedding, they should be started about the first of April, in plots, or boxes. Place some well-rotted manure, or leaf mould, in the box, to the depth of two inches, and then slightly cover the same with a mixture of chopped sphagnum, or moss and sand. Place the tubers about three inches apart each way, slightly pressing them into the sand.

Be sure to place them right side up. The crown can always be known by being slightly depressed in the centre, while the bottom is rounded.

After placing the tubers, first cover the crown with the sphagnum and sand, give a good watering, and place in a warm greenhouse or hotbed. If they are darkened by being covered with paper for a couple of weeks it will hasten the rooting process.

In about four weeks they will be found to be just starting into growth, and will have a good bunch of roots in the moss and sand. Then is the time to lift them and carefully pot them into any light sandy soil. For the sizes of the pots one must be guided by the roots attached, placing all the sand and

moss which will cling to the roots, into the pots. Do not press them too firmly, as the roots like to be free. Give a good watering, and place in any bright



A Well-grown Bed of Tuberous Begonias

Planted on June 14th, 1907, on grounds of Parliament Buildings, Toronto, by Mr. F. Barker, gardener. They commenced to bloom one month later and continued until frost. Mr. Barker said:—"Tuberous begonias will stand all the sun they can get but they should not be watered when the sun is on them."

warm position, to harden them to the sun.

If it is intended to use them for bedding, give lots of air on bright warm days, and keep well watered, being careful not to wet the foliage, if they are wilted, as that will cause them to burn. To be safe, it is a good plan to give them a good spraying each evening; then the foliage will be dry by next morning.

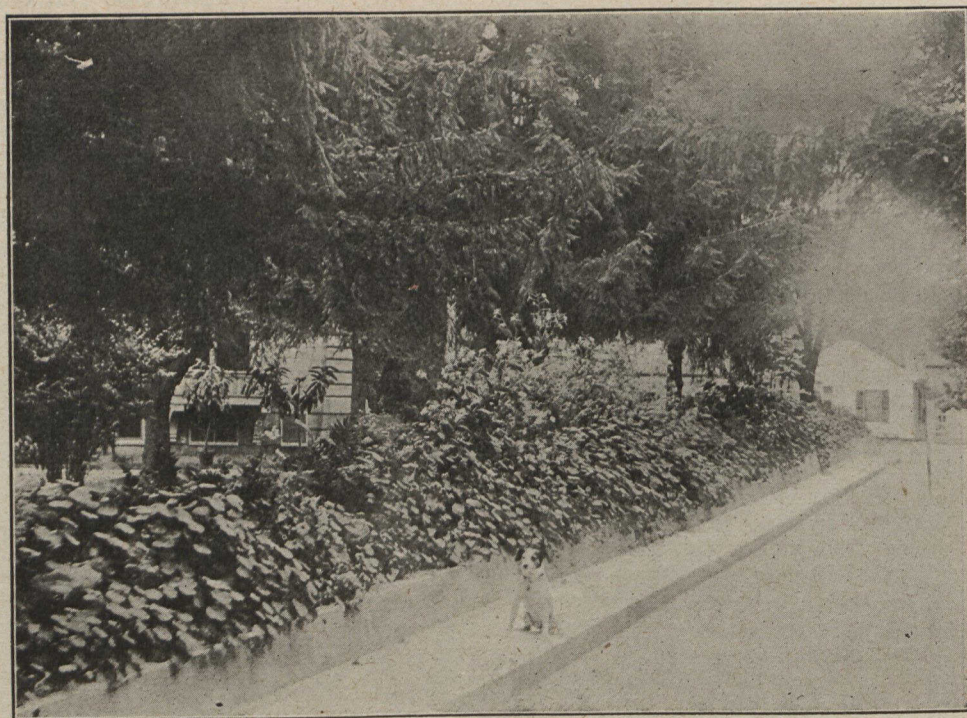
Do not plant out too early. The first week in June is soon enough in this vicinity.

After they are established and well-rooted in the bed, give a good mulch of well rotted manure. This will keep the surface cool, and will prevent them from drying out too rapidly during dry weather.

All begonias are moisture-loving plants. The reason for so many failures in their culture, is that water is not given often enough.

All kinds of fruit trees and bushes should be sprayed. Where the plot is not large, get some of your neighbors to co-operate with you in the purchase of a small spraying machine.

Have you a Rockery? What plants are there, and how do you care for them? Embody these points in a letter for publication in THE CANADIAN HORTICULTURIST, and send a photograph, if you have one. By so doing you will help many amateurs, who want to make rock gardens.



A Rockery is a Factor in Gardening that is both Useful and Ornamental

At the residence of Mr. W. A. Wood, Toronto. There were 800 plants--petunias, nasturtiums, caladiums, nicotiana and others--growing last season on this rockery 200 feet long. Photograph kindly furnished by Mr. Chas. Shearer, gardener.

Salads and Garnishes in the Amateur's Garden

A. McMeans, Ontario Agricultural College, Guelph.

OF all the plants employed as foods none are better adapted to the confined limits of the town or city back yard, than salad crops. They are of easy culture, simple preparation for the table, and of valuable dietary qualities.

Salads may be divided into three classes: Piquant or warm, neutral and bitter. The mustards and cresses are typical of the first group. Endive and chicory belong to the third. Lettuce properly belongs to the third group, but when well grown and not too old, it may be included in the neutral. In fact, the better the members of the bitter group are grown, the more delicate the bitter flavor, and the better will they be appreciated.

Salads will do well in any rich, fibrous loam, or good garden soil. For the early spring crop, choose the sunniest, driest place, because the quicker the growth, the more delicate the flavor. For late crops, partially shaded and moist spots should be selected, so that growth may be retarded, and moisture insured naturally. As soon as the ground is dry enough to break easily when dug, the bed may be prepared. Spread a good coating of manure upon the surface, and mix thoroughly with the soil when digging, breaking the clods well; rake the surface finely, and the garden is ready for planting.

LETTUCE

For lettuce, make the drills three-quarters of an inch deep and fifteen inches apart. Sow the seeds at the rate of twenty-five to the foot, and cover one-half inch deep, pressing down the soil firmly on the seeds with the flat side of the hoe or rake. Allow five or six feet of row for each person.

When the plants are about two weeks old, thin to two inches apart. When these commence to crowd, every alternate plant should be removed for use. When they crowd again, repeat the operation.

In order to obtain a supply during the whole season, plantings should be made every two or three weeks. The later sowings should be protected from the sun by a cloth or lattice shade.

MUSTARD

Mustard is sown rather thickly in drills three quarters of an inch deep, and about six inches apart. When about three inches in height, which should be in about four weeks from sowing, it should be thinned out one-half, and used for salad, the remainder being left to grow twice the height, for greens. No thinning of the plants is necessary. Allow about three feet of

row for each person. Sowings should be made at intervals of ten days until the approach of warm weather. Do not eat the plants after the flower buds appear, as they are then strongly flavored.

GARDEN CRESS

Garden cress may be treated like mustard. A good way of growing it for winter use, is to plant it in small boxes, filled nearly full with soil, and placed in a sunny window.

Water cress has been found to succeed upon very moist garden soil. To obtain it in perfection, it should be grown in running spring water. All that is necessary is to set a few slips of the stems along the wet margins of a brook.

ENDIVE

Endive can be sown the same as lettuce, but is generally grown to supply

treatment as carrots. In the fall the roots are dug. They are then planted in earth in a dark cool place in the cellar. In about a month's time, finely blanched crisp leaves are thrown out from the crowns, and, when cut, new leaves form. Should your cellar not be dark, the crowns can be covered loosely with some light litter, to the depth of a foot or so. The crown of leaves forming under the litter will resemble small heads of lettuce.

Successive plantings can be made, if some of the roots are stored in the same manner as carrots. By so doing, a supply of fresh and delicious salad may be had all winter. Witloof is the best variety to use.

PARSLEY

Parsley is the best known and most frequently used garnish. The leaves are



All kinds of Vegetables Growing on a City Lot.

the fall and early winter demand. For this purpose the seed is sown in June or July, in small beds, the plants transplanted while small to shaded cold frames, and set out in the garden the latter part of August. Hoe frequently to keep down weeds and loosen the surface.

When the plants are about a foot in diameter, their leaves are gathered up, and tied loosely to blanch. In two or three weeks they will be a beautiful white, and should be used at once, as they soon decay. For this reason the number of plants tied at any one time should be in proportion to the expected demand.

CHICORY

The tender, blanched leaves of chicory make excellent salads. The unblanched leaves are sometimes used for greens. The seed is sown in the open ground in May or June, and given the same

used also for salads and flavoring. Thirty or forty plants should furnish almost any family. The seed is very slow in germinating, and may be sown in a small box, and transplanted out in the garden when about an inch high. The Moss Curled will give the best satisfaction.

A few plants can be taken up in the fall, and planted in an eight-inch flower pot, or small box, and placed in a sunny window. The yield will astonish the amateur. When picking for use, always take the outside stems, leaving the central leaves of the crown to grow and furnish future pickings.

Attractive garnishes can also be made with lettuce, cress, endive and young mustard. The young leaves of fennel, dill and carrots are also useful, and the various colors of nasturtium flowers are very striking.

The China Aster

John Cavers, Oakville, Ontario

THE China Aster (*Callistephus hortensis*), is one of the best of the annual garden flowers. The plants are easily grown, the bloom is profuse, and the forms and colors are various and pleasing. It is comparatively free from disease and insect enemies. Its season of bloom is from the end of July until frost, the finest varieties being at their best in the latter part of August and in September. The plants are inexpensive. There is no flowering annual that will yield so much in pleasing bloom for its cost as the China Aster. It is worthy of a place in every farmer's garden as well as in village, town and city gardens.

The plant is a native of China, and was introduced into Europe nearly 200 years ago. It has been well known to American gardeners for a hundred years. The fine forms—variations of the Comet type—that are making this flower popular, have been introduced within twenty years.

Like the dahlia and chrysanthemum, the China aster is a late-flowering plant. It does not give satisfactory results from forcing or from too early planting, but this development has been at the expense of size and quality of bloom.

PLANTING AND CARE

A good, friable loam soil with moisture retaining quality is best for the China aster. If the soil be at all inclined to sourness, a light dressing of quick lime should be given, and well raked in before planting. In such soils, two or three light applications of wood ashes applied during the growing season and cultivated in will also be beneficial to the plants. It is not desirable to replant asters in the same ground year after year. Plant early varieties twelve by fifteen inches; late varieties, fifteen by eighteen inches.

In planting, firm the soil well around the roots; then cultivate often, and as soon as possible after a rain to preserve moisture. As the plant is shallow-rooted, cultivation near it should be light.

DIS-BUDDING

If the plant be grown simply as a bedding plant, no disbudding other than taking out the leader bud is necessary. If it is grown for cut flowers, the number of buds should be reduced to eight to twelve; if for exhibition purposes, two or three only should be allowed to develop. In any event, the leading bud should be removed.

The selection of plants for seed and the sowing of it is a business by itself. Much of the development of this flower

is owing to the production of its seed being specialized by a few men. In this connection the best known names are, in the United States, Vick and Semple; while in Ontario, we have Manton and Lock, who have done some good work on this line, but on a much smaller scale than that of the two former named.

The following are a few of the best known varieties: Early—Queen of the Market, in white and pink; Snow-drift, the best early white, and Lavender Gem, pale lavender; second early—Mikado, white; late—Miss Kate Lock, in white



Selecting Asters for Seed

Garden of Mr. W. Spendlow, Ottawa. See next page

and pink; Royal Purple, a rich color; Violet King, large and fine, and Branching, in white and pink.

Lilium Auratum

Frank Wise, Peterboro, Ont.

The queen of all lilies is *Lilium auratum*, "the gold-banded lily of Japan." In a partially shaded place, with good soil conditions, and proper treatment, this lily will thrive and grow, and will sometimes reach a height of six feet, bearing quite a number of very large handsomely marked flowers.

There are several well-defined varieties of this lily. In *L. a. rubro-vitatum*, the band running from the base to the tip of each petal is crimson, the petals being spotted with lake; this is the most gorgeous flower of them all. The largest is *L. a. platyphyllum*; this variety has a much wider leaf than the other three; the band in the flower is yellow, and the spots crimson. The other two varieties are *L. a. Wittei*, petals pure white, with the exception of a band of yellow in the centre or each; and *L. a. virginale*, a deep yellow band, with petals very sparingly spotted.

So much for the varieties; now for conditions of soil and treatment. In the first place, select a partially shaded, well-

drained aspect, sheltered from strong winds. Dig out the soil for a depth of from two to three feet, and fill in with a good fibrous loam mixed with about one third leaf mould which can be obtained from any hardwood bush. Plant the bulbs about six inches below the surface. Do not allow the bed to become dry and the soil baked. Water frequently and well; thoroughly soak the soil, not merely sprinkle.

Staking must be looked to as, owing to the great weight of the flowers, the slender stem is apt to break off at the bulb. Do not make the mistake of placing animal manure in your lily bed as lilies are seldom benefitted thereby, but more often damaged. This lily has been known to stand our winters in Peterboro with a protection of dry leaves placed on in the fall.

Calves in Orchard

I have a young orchard about ten or twelve years old. It has been plowed and manured for four successive years and is troubled with weeds. 1. Would it be profitable to sow rape on it for calves and how many calves would it pasture? 2. At what time would it be ready for pasture? Is rape sown early or late? 3. Could the whole piece be sown to oats, then fed to dairy cattle and afterwards sown to rape? 4. At what rate is rape sown, where could I get the seed and what is it worth a bushel? Is it a good nurse crop.—T. L. L., Leeds Co., Ont.

You might expect to be able to run four or five calves per acre. The number it will be possible to pasture, will be very materially influenced by the character of the season; that is, of the same area, in a wet season, there will be very much more feed than in a dry season. In any case it would prove profitable to cultivate the land, and sow rape thereon, for this purpose. 2. Rape may be expected to be ready to pasture anywhere from four to six weeks after sown. It may be sown as early as suits the convenience of the farmer, or anywhere up to the end of August. 3. The orchard might advantageously be sown to peas and oats early in the spring, the peas and oats cut for green feed, then the land worked up again, and sown down to rape in July. 4. When sown broadcast, it will be found necessary to sow from four to five pounds an acre. The seed may be procured from any reliable seedsman.—Answered by J. H. Grisdale, Ottawa.

A durable black ink for zinc labels, is made as follows: Verdigris, one ounce; sal-ammoniac, one ounce; lamp black half an ounce; rain water half a pint. Mix it in an earthen vessel. Keep in a bottle. Shake before using, and use a clean pen, (a quill pen is best), on bright zinc.

Lawn and Garden Hints for June

BY THIS time, the thin spots on the lawn, that were seeded early in the season, should show a good stand of green. If you do not possess a lawn roller to level uneven places, use a flat pounder about eight or ten inches square, made with a two-inch plank, and a long handle. Keep the rake and the spud in action.

In a newly-made lawn, keep a careful watch on the weeds. Do not allow them to get a start. Keep the turf thick and velvety, and the weeds will be in the minority. On many old lawns, dandelions are a nuisance. Use the spud, and immediately afterwards use the pounder to fill up the holes that otherwise would afford lodgment for seed that is blowing about freely.

Keep the mower going. Frequent mowings increase the body of the sward. Do not mow too closely, but often.

THE FLOWER GARDEN

Keep ahead of the insects on rose bushes. Give the leaves a good sprinkling of hellebore now, if this has not already been done. Sprinkling the bushes once a day with water alone will keep down many pests.

Plants for bedding may be placed in the open early this month. In color schemes, harmony should be the first consideration. Do not attempt too much.

Sub-tropical effects may be produced by the use of plants that are appropriate. An excellent centre plant for such beds is the ricinus, or castor oil plant. Other plants for beds of this kind are palms, caladiums, ficus, aspidistras and ornamental grasses.

The canna may be used with sub-tropical plants, or with those ordinarily seen in our gardens. It is excellent alone or in combination.

Plant some gladiolus bulbs, and plant some more two weeks later for a succession. If you want a dozen superior bulbs, read the premium offers on the inside back cover, and on page V. of this issue.

Sweet peas should be watered often. Never let the ground get thoroughly dry, and do not keep it too wet. An intermediate stage of moisture is just right.

Read the article on tuberous begonias that appears on page 126 of this issue. See, also, the premium offer on our inside back cover, and on page V., if you want a good rex begonia.

Old plants of geraniums, that have become tall and unsightly, can be made into nice bushy plants. Cut them back now to within a few inches of the old hard wood. Keep the soil only moist; not too wet. When growth starts, re-pot into a pot one or two sizes smaller, using soil composed of two parts of

loamy potting soil, and one part of fine, sharp sand. Water well, and let them grow.

Plant lilies. A good *Lilium auratum* is offered free elsewhere in this issue.

Pick off the faded blossoms from pansy beds. The size of pansy flowers can be kept up by watering occasionally with weak liquid cow manure.

Dahlias planted now usually will give better results than if planted earlier.

Plant all kinds of common annuals, such as mignonette, marigold, petunias, portulaca, calliopsis, eschscholtzia, salpiglossis, balsams, zinnias, poppies and so forth.

If you want best results in the flower

from your trees, such as plums and peaches, thin the fruit on the limbs soon after they are well set.

THE KITCHEN GARDEN

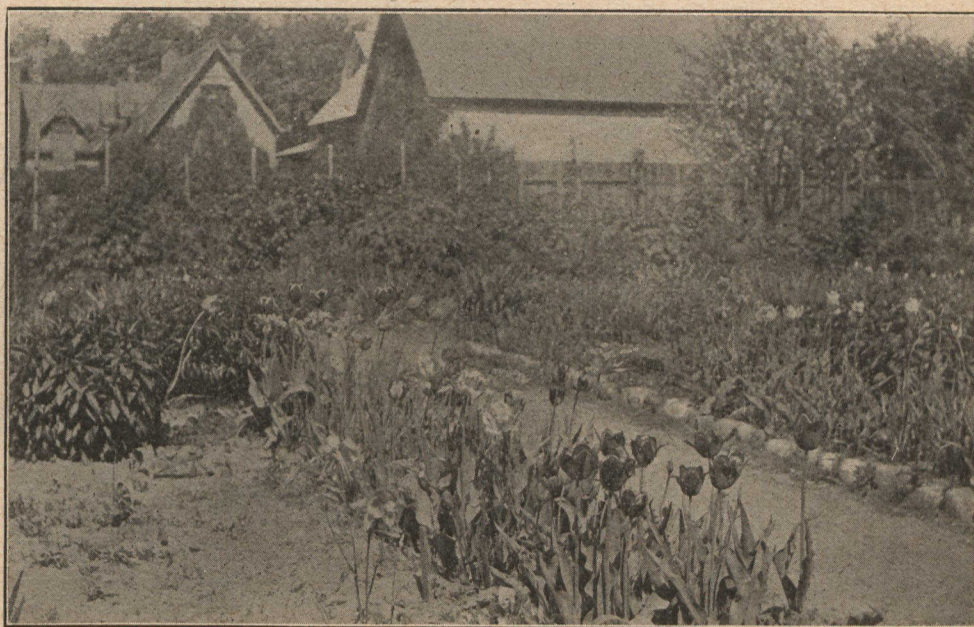
The vegetable garden should be cultivated often to keep down the weeds, and to prevent evaporation of moisture from the soil.

Plant sweet corn, cabbage and cauliflower.

Every amateur's garden should contain a number of salad crops and garnishes. Read the article on page 127.

When danger of frost is past, sow tender vegetables, such as cucumber, pumpkin, squash and melon.

The use of the water hose will give



Give Tulips the Foremost Place in the Garden of Spring.

A corner of garden at the residence of Mr. R. B. Whyte, Ottawa. In the foreground are Macrosiphon, followed by Rose Ponpons, Parisian Yellows and Goldflakes.

garden, do not neglect the four chief operations of the season, namely, thinning, weeding, cultivating and watering.

Get your window boxes ready. Put them in position as soon as danger of frost is past.

WITH THE FRUITS

Weed the new strawberry patch, and keep the surface soil well stirred. Remove all blossoms, so that the strength of the plant may go towards the production of an abundance of runners. If you are growing strawberries on the hill system, remove the runners. Larger and better strawberries may be secured by this system, but not so many of them.

When picking strawberries, do not leave the berries in the sun. Choice fruit should be picked by pinching off the stem, touching the berry as little as possible. Do not remove the hull until preparing for the table.

To have big, choice specimens of fruit

better results in the vegetable garden than if the weather alone is depended upon for moisture. The best time to apply water is in the evening, but water at any time rather than allow the garden to suffer from drought.

Home-Grown Seed

Editor, THE CANADIAN HORTICULTURIST:—We have raised our own aster, pansy and other flower seeds for the past 25 years, and our cabbage and corn for the last 20 years. This demonstrates the fact that good seed can be grown in this part of Canada.

There is no excuse for large sums of money being sent out of our country to purchase foreign seeds, such as is done every year. Good seeds can and should be grown in the Dominion. The plants that we grow for seeds are treated as a hoed crop.—W. Spendlow, Ottawa South, Ont.

The White Fly of Greenhouses

A. McMeans, Ontario Agricultural College, Guelph.

THE combatting of insect pests, is always a serious problem to the grower of greenhouse crops. One of the hardest of these pests to control, is the white fly or plant-house *Aleyrodes*. The chief vegetable crops injured by it are cucumbers, tomatoes, and sometimes lettuce, in flowers, pelargoniums, ageratum, and fuchsias, are the most susceptible to its attack.

Its presence can be detected by making an examination of the underside of the leaves of the plant. In the adult stage, the insects will fly around the plant when disturbed, generally returning to the same plant. In the egg and nymph stages they are attached to the under side of the leaf, and can hardly be distinguished with the naked eye.

According to observations made at the New Hampshire and Connecticut stations it takes about two weeks for the eggs to hatch into nymphs. These nymphs move about over the under surface of the leaf for a few hours, and then insert their tiny beak into the tissue of the leaf, taking on the appearance of a scale. These scales remain in position two weeks or more, until a T-shaped rupture appears in the back skin of the pupa case, and the adult white fly emerges—a small, little insect about one-twenty-fifth of an inch in length, with four white wings, from which it takes its name.

This insect has sucking mouth parts and cannot be controlled easily by the use of spray poisons. There is but one sure remedy, when once these pests make their appearance in a greenhouse. Prepare to give battle to them at once, and keep prepared for their return.

FUMIGATING THE REMEDY

Hydrocyanic acid gas is the only kind of fumigation that will clean them out, but on account of its dangerous character on human, as well as insect life, it makes people rather timid about using it. If ordinary precaution is observed there is not the slightest danger. We use it with good results in the College greenhouses, according to the following formula: One-fifth of an ounce of cyanide of potassium; two-fifths of an ounce (by measure) of commercial sulphuric acid; four-fifths of an ounce (by measure) of water, to each 1,000 cubic feet of space.

HOW TO DO THE WORK

Measure the cubic feet of each house carefully. See that all ventilators are closed, and all doors locked, except the ones through which you will make your exit. Heating pipes should be set for the night. The temperature of the house should not be over sixty degrees Fahr.

The foliage should be as dry as possible, as the presence of moisture increases the liability of injury to the foliage. Choose a still, dark night, sunlight or moonlight seem to have a damaging effect. Use glass or stone vessels, place them in the aisles as closely as needed, then go along and put the water in all your jars, next add the sulphuric acid to each vessel—always put in the water first, never the acid. Now, we are ready for the last act. Have your packages of cyanide carefully wrapped in paper. Take your baskets or tins—as many packages in each tin or basket as you have jars in each aisle, and as many tins or baskets as you have aisles. Let each man take a basket to the far end of each row of jars, each dropping in the first package at the same time. Then go quickly to the next jar, and so on, until you get to the end of the house, and out of the door, locking it without delay.

SOME DON'TS TO OBSERVE

Do not unwrap the packages, but drop them in with the paper securely wrapped around them, as the acid will quickly eat it off. Do not let the acid spatter on your hands, either in handling it, or when placing the cyanide in the jars. Above all things, *do not go back* past the jars after you have placed the cyanide in them. Remember this gas is as deadly to human life as it is to insects. Leave the gas in all night. It is perfectly safe to go into the house in the morning. Two jars will be found sufficient for 10,000 cubic feet of space.

Most authorities recommend one ounce of cyanide per 1,000 cubic feet of space, leaving the gas in for a space of twelve to twenty minutes; if left longer at this strength, it acts injuriously to the plants. We have been using one-fifth of an ounce per 1,000 cubic feet, and leaving it in all night, with perfect success in killing the fly. No injury is done, even to tomatoes, which are one of the most easily injured greenhouse crops.

Onion Culture

Herbert Hachborn, Echo Place, Ont.

Onion seed should be sown as early in the spring as possible, in drills fourteen inches apart, at the rate of about four pounds to the acre. When the onions are about two inches high, they should be weeded and thinned. If the seed is not sown too thickly, they do not require thinning. I generally weed them about twice in a season, and wheel-hoe them once every week, until they commence to form bottoms, then I go through them with the ordinary hand-hoe.

By the time that the tops commence

to die off, I roll a barrel over them, two rows at a time, to break down all the tops. When they are fairly well dried off, the onions should be pulled and topped into boxes and taken to the barn floor to dry.

Should it rain before they can be topped and taken in, it is best to wait a day or two, so as to give them a chance to dry again. The rain does not hurt them; in fact, two or three showers will do them good. They can stand, also, about three degrees of frost.

Wilt of Cucumber

I am sending you a cucumber plant, and should be greatly obliged if you will give me your opinion as to what disease it has, or the cause of its condition. I planted them in the usual way, and up to a certain stage they appeared healthy, and then gradually went wrong. I have lost my entire crop. I have had many year's experience in cucumber growing, but never met with this before.—W. P. J., B. C.

The stem and leaves of the cucumber sent with the above letter, showed that the plant was infected with some form of Bacterial Wilt. Microscopic examination from the interior of the stem and leaves, showed bacteria present in large numbers. Some of these were transferred to slices of healthy cucumbers, and the slices were quickly rotted in two days. The organism does not seem to be identical with the one usually associated with the Wilt disease of cucumber, melon and squash described by Erwin F. Smith, of the United States Department of Agriculture. The wilting of the plant is caused by the clogging of the water tubes, through the growth of bacteria in them. Spraying is useless and preventive measures suggest pulling up diseased vines and burning them. This disease is frequently carried by the cucumber beetle and squash bug, hence the necessity of destroying these insects. Fields in which the infection has taken place should be planted with some other crop, and succeeding crops of cucumbers should be planted on new land, which has not been used for the growing of cucumbers.—Prof. F. C. Harrison, Macdonald College.

Cut Worms

Nelson Carron, Riviere du Loup, Que.

The treatment for cut worms on cabbage, cauliflower and tomato plants, is quite simple. Wrap your plants in a little piece of paper, just above the fibres of the root, and high enough to keep the leaves upright. This prevents the cutting of worms, and the burning of plants in hot days. Some growers say that this takes too long to be done profitably.

It takes a little time, but it requires still more time to replant your field four or five times. Some times you come short of plants, which also is prevented, by adopting the method advised.

Commercial Fertilizers: Their Nature and Value

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms

COMMERCIAL fertilizers are materials, largely, but not altogether, of the nature of chemical compounds, that furnish nitrogen, phosphoric acid and potash in a more or less readily available form. Their value depends simply and solely on the percentages of these elements they contain, and the availability of this plant food. Nitrogen, phosphoric acid and potash are known as the *essential elements of plant food*, because it has been found that, of all the elements extracted, or absorbed from the soil by crops during their growth, these three only must be continually returned. Without this putting back of nitrogen, phosphoric acid and potash, a soil's productiveness must be seriously affected under any system of cropping when the produce is sold. Let us clearly understand, therefore, that the value, agriculturally and commercially, of a fertilizer is controlled by the amounts and availability of these forms of plant food that they contain. In this country, the term "phosphate" is applied by many people to all kinds of fertilizers, irrespective of their composition. This is not right; it should be restricted to those fertilizers which furnish phosphoric acid only, such as superphosphate and basic slag.

The term "artificial" fertilizer is objectionable, because it is misleading. The elements of plant food that fertilizers furnish, are identical with those of stable manures. The crops could not distinguish between them. Bread and pie and jelly are prepared foods, but not artificial foods, so likewise fertilizers may be prepared, but not artificial, in the sense of not being real and normal forms of plant food.

The term "stimulant," as applied to a fertilizer also is misleading. Fertilizers are not stimulants; they do not revive the plant, giving it temporary strength. They feed the plant and their elements are built up into the plant's tissue of root and branch and leaf and seed. If used rationally—that is, in conjunction with stable manures, to keep up the humus content of the soil—they cannot be likened to the whip on the tired horse. "But are they not exhaustive?" I hear some one ask. Sometimes they may be, but again the answer is that such will be due to irrational use.

The crop-producing power of a soil is measured by, or in proportion to, that element of plant food least abundant, and not by that in greatest abundance. This fact explains why it is that the continued use of some one fertilizer, or, rather, fertilizer-ingredient, has what ap-

pears to be an exhaustive effect. If, for instance, nitrogen only is supplied (as in nitrate of soda) the increased vigor and growth of the crop resulting will extract from the soil larger amounts of potash and phosphoric acid than would otherwise have been the case. The natural stores of available phosphoric acid and potash in the soil are thus depleted, the larger yields at first obtained, rapidly fall off, and the soil is poorer than at the start. This points to the necessity of a rational system in the use of fertilizers, and supplying all the necessary elements of plant growth. It is only by such practice, that a maximum yield can be obtained without depleting the

and every one about to purchase these ready-made, mixed fertilizers should consult that bulletin before buying. It will not be possible for me to say anything further regarding them, in case it might be construed into a special commendation. One hundred and seventy-three "standard" samples were analysed last year, and obviously to discuss the merits of all would be impossible.

FERTILIZER INGREDIENTS

There is no necessity to buy ready-mixed fertilizers. The various ingredients can be purchased and the mixing, when necessary or desirable, made without any expensive machinery or any special skill. By this home-mixing of fer-



Prepare now for Fairs and Exhibitions next Fall.

The illustration shows a tastefully arranged exhibit by the Chatham Vegetable Growers Association at an Agricultural Exhibition last year.

soil. The point to be remembered in this connection, is that the yield will be proportional to that element of plant food present in smallest amount. It is, therefore, neither wise nor safe to depend entirely on any one form of fertilizer.

READY MIXED FERTILIZERS

A very large number of "ready-made," that is, mixed fertilizers, may be found on the market. These are prepared simply by mixing and grinding certain ingredients that contain nitrogen, phosphoric acid and potash, with the addition of a "filler" to make weight. Their value is calculated from their composition, that is, from a knowledge of their percentages of nitrogen, phosphoric acid, and the relative availability of these elements. You will find this information given annually in a bulletin issued by the Dominion Government (Inland Revenue Department)

fertilizers, a saving of twenty-five to thirty-five per cent. could be easily effected. Further, it would allow of the making in small quantities of several mixtures, with varying proportions of nitrogen, phosphoric acid, and potash, for the trial or experimental work. This is an important matter; one that you cannot afford to ignore. There are direct and considerable advantages, therefore, in buying these ingredients, rather than the ready-made fertilizer. The composition and merits of some of the ingredients that may be used in compounding fertilizers will be discussed in the next issue of THE CANADIAN HORTICULTURIST.

Air-slaked lime will free the cabbage plants from worms and not injure the plants.

Abundant food within easy reach is what plants require in order to make their best growth.

The Canadian Horticulturist

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PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF BRITISH COLUMBIA, ONTARIO, QUE-
BEC, NEW BRUNSWICK AND PRINCE EDWARD ISLAND
FRUIT GROWERS' ASSOCIATIONS AND OF THE ONT-
ARIO VEGETABLE GROWERS' ASSOCIATION

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

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January 1907.....	4,947
February 1907.....	5,520
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April 1907.....	6,460
May 1907.....	6,620
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August 1907.....	6,880
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March 1908.....	8,056
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EDITORIAL

MORE ENTHUSIASM NEEDED

It is difficult to understand how it is that in the cities of Hamilton and Toronto it is so hard to arouse a deeper interest in the work of the horticultural societies. During the time that Mr. J. Horace McFarland addressed meetings of Ontario horticultural societies last month, the interest shown in his addresses at St. Catharines, Cobourg and Perth was great. In Hamilton and Toronto, the meetings were attended by only a comparatively few.

The societies in Hamilton and Toronto have a membership of about 300 each. The Hamilton society has materially increased its membership since last year. Both of these societies, however, have not nearly the number of members that they should have when compared with the societies of St. Catharines and Ottawa, the former of which has about 600 members and the latter, 800. Toronto should have a membership of at least 2,000. It is possible that the editors of the Toronto and Hamilton papers do not take enough interest in the work of the societies. Could the papers be interested, a marked increase in the membership of the societies would follow.

SPRAY THIS YEAR

In all probability, conditions with the apple growers will be altogether different this year from what they were last season. It is, of course, impossible to predict what the apple crop will be, but it is only a fair inference that, taking the whole apple-growing district of North America, the crop will be, at least, a normal one, if not a large one. The failure of last year in the middle western states, and the fact that we had only an average crop on the rest of the continent, makes even a large crop this year probable.

It is natural to suppose, therefore, that the prices will not be high. As a matter of fact, there are few years when the demand for the lower grades is anything but poor. It is quite possible that as far as shipping fruit is concerned, it will bring nothing next season. The man who will make most money out of his orchard this year, will spray, and reduce the quantity of inferior fruit.

The results of many experiments, conducted by the experimental stations, as well as by private individuals, have demonstrated that it is quite possible, with three or four applications of the Bordeaux mixture, to secure a crop eighty to ninety per cent. absolutely free from worm holes and fungous diseases. This can be done at a cost of about \$12.00 to \$16.00 an acre. Presuming that the trees would be equally healthy without spraying, which they will not be, and that the quantity of fruit would be as great without spraying, and this would not be the case either, the total expense of spraying would be made up, many times over, in the quality of the fruit alone.

An unsprayed orchard, we will presume, produces eighty barrels, ten of which will grade No. 1, and seventy No. 2, and this is the usual grading of unsprayed orchards. At the normal price of \$1.00 a barrel on the trees for No. 1, and fifty cents a barrel for No. 2, this crop would be worth \$45.00 an acre. If the same orchard had four sprayings at a cost of \$16.00 an acre, the conditions would be reversed. There would be

seventy barrels of No. 1 fruit, and ten of No. 2, making the crop worth \$75.00, or a gain of 100 per cent. on the cost of spraying. This is by no means an exaggerated statement. According to Mr. A. McNeill, chief of the Fruit Division, Ottawa, it has been verified dozens of times. But this is not the complete gain in spraying. The leaves of the trees are so much healthier, that the buds for a succeeding crop are perfected, and the chances for having a crop the following season are worth, perhaps, quite as much to the orchardist as the improvement in the grade of the fruit during the spraying year. Again, the quantity of fruit will be much larger. The specimens will not be dwarfed by fungi, nor will the number of the fruits be unduly lessened by the attacks of insects.

It would seem, therefore, that there is no operation in connection with an orchard that will yield such large returns as spraying. It is quite within bounds to say that for every dollar expended in spraying, the orchardist will get two dollars in the increased healthfulness of the trees, the increased quantity of apples, and in the better grade of the fruit.

A WARNING

It is an opportune time to give a word of warning to our British Columbia readers in respect to the importation of nursery stock infested with San Jose scale and other pests. Large quantities of nursery stock are imported into that province from the states of Idaho, Washington and Oregon, where the scale is quite prevalent in the leading fruit districts. An article in a recent issue of *The National Nurseryman* points out that this scale is particularly bad in some sections of Idaho.

During the past shipping season, thousands of trees from these states were condemned and destroyed by the inspectors at Vancouver while probably fifty trees would cover the amount thrown out from consignments sent from Ontario. We have been informed that the Ontario trees would not have been thrown out but for the blundering of the inspectors who threw out one lot of Cox's Orange Pippin because their appearance was unusual. This variety is a poor, scraggly grower and is top-worked and, therefore, does not appear to advantage.

It is strange that in spite of the prevalence of scale in the states named, the British Columbia Government still persists in discriminating against clean, healthy Eastern nursery stock in preference to United States concerns who are shipping in diseased trees by the thousand, which are being condemned and destroyed in wholesale quantities. The establishment of an inspection station at Revelstoke would not only be fair to Eastern nursery firms but it would allow the growers of British Columbia to secure the kind of nursery stock that they want.

CO-OPERATIVE SPRAYING

The work that the Ontario Department of Agriculture has done during the past year in the matter of offering a liberal grant for the purpose of encouraging spraying is to be commended. The formation of co-operative spraying associations, assisted by the Government grant, will do more than anything else to make the practice of spraying more popular and more general than it is now. A power spraying machine is a necessity in all orchards but, as it is rather expensive, many orchardists can-

not afford to purchase and operate one themselves. The offer of Government aid should make it possible for all growers to have the use of a power machine at small expense when operated co-operatively.

Last year and this season, many growers have taken advantage of the Government's proposition. As a result, it is reasonable to suppose that they will have more fruit of superior quality when harvest time comes than they have had before. The success of these applicants will advertise the scheme throughout the province. The work will do much to elevate the standard of the industry.

Many of our readers will notice that the number of pages in this issue of THE CANADIAN HORTICULTURIST is less than usual. While the size of the paper has been decreased for this month and probably will be the same for next, there is practically the same amount of reading matter as in our issue of standard size. The decrease is due chiefly to the falling off in the amount of advertising matter carried at this season of the year.

The annual meeting of The Co operative Fruit Growers of Ontario will be held in Toronto on June 9th. Representatives from all the local co-operative associations in the province are invited to be present.

Our Premium Offer.—Lovers of flowers will this month have an excellent opportunity of securing some choice material for their gardens by taking advantage of our premium offer in this issue. Full particulars are given on another page. Do not wait until the season for planting is past.

NOTES FROM THE PROVINCES

Winnipeg

Geo. Batho.

The season in the west so far seems to be a very promising one. Some winter killing of trees and shrubs has occurred, but the spring has been an unusually favorable one, opening out with but very few frosty nights and with just about enough rain to put the ground in good shape. In the Winnipeg district—and no doubt throughout the whole of the west—an unusually large amount of attention has been paid to gardening this spring. Large numbers of trees have been sold in Winnipeg by the nursery firms during the past winter, and reports show that tree planting has been undertaken on quite an extensive scale throughout the three prairie provinces.

The need for a fuller expansion in the market garden business about our cities came up recently in an interview between some of the Winnipeg city authorities and a delegation that waited upon them. It was claimed that Winnipeg alone imported about 500 carloads of vegetables each year from outside points. This is in spite of the fact that much land eminently suited for vegetable growing lies close about the city.

The Western Horticultural Society is proposing to the rural schools of Manitoba a series of competitions in the beautifying of school grounds. There is need in the

west for work along these particular lines.

Strawberries have been sold in considerable quantities here for about a month and a half past, and are retailing now for 25 cents a quart. A few lots of apples have been coming in up till this month, but have now ceased to arrive. There is always a good demand for fruits and vegetables here and tremendous quantities of both keep coming from the United States to supply the demand.

Montreal

E. H. Wartman, Dominion Fruit Inspector.

Fruit prospects on the Island of Montreal are promising. The crop is largely apples. The trees have wintered well; and fruit buds, which are numerous, are swelling fast. Still they are not beyond the danger point. If two or three days cold wind, from any point nearing freezing temperature, should prevail, especially when bloom is opening, it would have a marked effect; however, I will not predict any such disaster. Strawberry plants just uncovered are looking well.

We are reminded every day of the sunny south. North Carolina strawberries are arriving in good order and selling fairly well around 17 cents a quart box in crates containing 32 boxes. This is auction price at Montreal Fruit Auction Co. Geo. Vipond & Co. handled the first car of the

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been thoroughly tested and gave good satisfaction. Sent postpaid on receipt of 75c. Two for \$1.25. Money refunded if not satisfactory.

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season here, and continues having frequent cars forwarded to meet the demand. The weather being cool has a tendency to curtail trade.

Pine apples, arriving in car lots from Havana, are of superior quality. Each fruit is wrapped in tough soft paper, 18 to 36 in a crate. The cultivation of this fruit must have every attention, and the season as well must be favorable, as the fine specimens coming forward show. Bananas are arriving in large quantities and, of superior quality.

All these fruits, at moderate prices, have a tendency to keep low grade apples, which are much in evidence, at a price ruinous to shippers. Apples on hand now have been picked seven months. Their life is spent and they are fast showing signs of decay. Still, this fruit which was laid in in large quantities, is decreasing fast. Fortunately, we have so large a population in Montreal that with one apple of medium size per head, it takes 1,000 barrels to go the round.

Prince Edward Island

Rev. Dr. Burke.

To the query, "How does the show of fruit buds compare with other years in Prince Edward Island?" I can only say that the season is so backward here that I have not had much opportunity to judge. Looking over my own plantation to-day, I find no trace of awakening life; everything is still bound up in its winter lethargy. Whilst we have had the mildest of winters, the spring is anything but advanced. Usually plowing is in full swing by the 10th of May.

I was a little afraid that perhaps the

unusually changeable weather of the winter might have affected the trees. In early March the freshets were on; as a matter of fact we had thaws all through the winter and the trees standing in this tepid water with a hot sun and high temperature were liable to be subject to premature sap circulation such as might induce "sun-scald," so called, later. Of course, if there was any freezing in this process we will see the results only after the summer is entered upon. I am inclined to think, however, that things are all right in general. The trees which I examined look fine. They are clean and healthy looking and so far as I could judge, fairly well loaded with fruit buds.

Lasts year we had a great show of blossom and very little fruit. Nobody could tell just why not. The bareness of the orchards then should help the trees to a good crop this year. Nothing, without becoming outcast, can keep up barrenness long. The cursed fig-tree is an example to the ages of this. Even the inanimate things seem to detest barrenness, "Nature abhors a vacuum."

There was no snow to hurt in the past season; no mice attacks on the unprotected trees. They are ready to make wood and fruit and I am hopeful that this year of grace will brighten us with a full crop of apples, at least. We have had a few short years now and one misses the fruit immensely after a period of plenty. There is great fear of insect invasion, however. The mild winter will permit the eggs of orchard pests to come through unaffected, and if all that are deposited hatch out, we may have our hands full fighting them. It is well to plan the campaign early and deliberately.

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Annapolis Valley, N.S.

R. J. Messenger.

Our scientific horticulturist tells us that two important conditions for a good fruit crop are: First, the previous summer comparatively dry and warm—dry so that there will be little wood growth and consequently greater formation of fruit buds; and second, a mild winter and late spring—mild so as not to injure the buds and late in spring so that the buds may not get nipped by late frosts after opening on early warm days. Though our summer last year was not very dry, still we have had a mild winter and late spring. On May 1st the buds had hardly swelled to any extent. On May 14th only the earliest varieties had shown more than the small points of leaves. Though at this writing there has been very little development, still the signs are for a good show of blossoms.

I have spoken with several of our best orchardists, and the general opinion is that the trees here looked better since spraying has become more general, the trees are bright and healthier looking than formerly. Even with the present good prospects there may be many causes to lessen the crop. One grower said, "I am never sure of my apple crop until I get it in my pocket."

Trees are 10 days later than in average years and spraying for the first time was not generally begun before May 15th. It is a strange fact that even to-day there are many good business growers who still express doubt as to the efficiency of spraying. To these I always make the answer, "There are nine men who spray carelessly to one who sprays thoroughly and only thorough spraying pays."—May 15th.

No Duty on "Friend" Nozzles

The "Friend" Mfg Co., Gasport, N. Y., originators and owners of the "Friend" American and Canadian patents on spraying nozzles, have opened a Canadian branch for their manufacture at Niagara Falls, Ont. All communication with this company should be addressed to the home office at Gasport, N. Y.

By the establishment of this branch, which at present is for the manufacture of nozzles only, all duty on them is removed. The nozzles may now be obtained by remitting \$1.50. They may also be obtained from their Ontario representatives, Wood, Vallance & Co., Hamilton, Ont.; Alexander Hardware Co., Hamilton, Ont.; E. M. Smith, Winona, Ont.; and Joseph Tweddle, Fruitland, Ont.

If buying nozzles from other representatives than those above mentioned, be sure that the name "Friend" and the patent marks are stamped upon them. All large nozzles on the market to-day, doing away with the cluster, not so stamped, are infringements and will be prosecuted to the fullest extent of the law.

The manufacturers of the "Friend" hand and power spraying outfits and their accessories are aggressive, and are keeping a close watch on the trade. With the undivided attention which they give, their situation as it is in the heart of Niagara's Gardens, pioneers in the art as they are, building every part of their machines as they do, assures fruit growers of a better line of spraying apparatus than can be produced by any other manufacturer. Other agencies are now being established for these nozzles in all parts of the Dominion of Canada.

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TORONTO

Toronto Cartage Charges

On the first of May, the wholesale fruit and produce and commission merchants of Toronto, who have formed themselves into an association known as "The Toronto Fruit and Produce Association," issued a circular to all shippers of fruit and vegetables, advising them that, "owing to the high and increasing cost of handling goods and delivering them, a uniform cartage charge will be made to the shippers on all goods shipped on commission as follows: On 54 qt. cases, 5 cts. each; 36 qt. cases, 3 cts.; 27's and 24's, cases, 3 cts.; 11 qt. baskets, 1 ct.; all packages smaller than 11 qt. baskets, 1/2 ct.; bags or sacks, 5 cts.; barrels, 5c; carloads of potatoes excepted."

The fruit growers consider this schedule of charges another hold-up in their business. Between the commission men, the railways and the express companies, they will soon have a hard time to hold their

own. Indignation meetings have been held and expressions of feeling have been sent to the aforementioned association.

At a meeting of The Clarkson Fruit Growers' Association, a warm discussion took place on the action taken by the commission men. A resolution was passed unanimously refusing to ship fruit on the conditions mentioned in the circular and appointing a committee to make other arrangements to dispose of the produce of the section. The fruit growers of Bronte passed a resolution similar to the Clarkson one.

The following resolution was passed at a recent meeting of fruit growers in Oakville, Ont. Moved by P. A. Bath, seconded by W. R. Davis:

That the fruit growers of the Oakville District in meeting assembled, having considered the schedule of cartage charges of the Toronto Fruit and Produce Association, as set forth in the circular letter of the association dated May first instant, are resolved not to submit to the proposed extra charges on fruit and vegetables consigned to members of the said association for sale on commission:—

That the following fruit growers, viz:— E. A. Morden, Capt. Geo. Murchison and James Waldbrook be and are hereby appointed a committee to make arrangements for other markets for the fruit of this district in the event of the said association persisting in acting on the proposed schedule of cartage charges:—

And that the secretary be and is hereby instructed to send a copy of this resolution to the said association and to request a reply on or before the 18th instant.

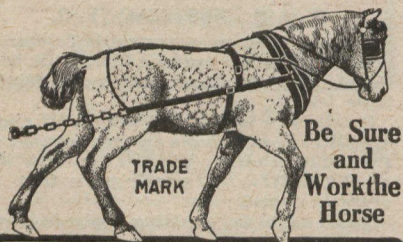
Carried unanimously. Certified to be a true copy.—J. Cavers, secretary, Oakville, May 14th.

runs, only such parts of the runs as the hens frequent most need to be dug over. No matter how large the runs are, there is usually a corner or portion near the gateway in each pen, where the attendant enters to feed, where the fowl will congregate and consequently that part becomes dirty and unhealthy.

In each pen there are also spots which are used by the fowl for dusting themselves. If there are places of this kind, the soil must either be too wet or too hard and sand or light soil should be supplied, otherwise the fowl will become infested with vermin, which lessens the egg supply from the layers and retards the growth of the stronger chicks and causes fatalities among the weaker ones. The addition of a few cents worth of powdered sulphur to the soil in the dust bath is very beneficial.

The hatching should now be finished for the season. It is of course a great temptation to set another hen or two or to run the incubator for another batch particularly if the one just out has been unusually successful. The tendency to hatch too many is very prevalent among beginners and is the cause of many failures. It is a sad sight to see 100 or more chicks brooded and penned in a space that is barely large enough for 50. Overcrowding must be avoided. The chicks should be graded also and the different sizes separated. Experience has taught the writer that 25 to 30 chicks are enough in one pen or in one house. When more than that number are together, the smaller chicks get in the middle and bottom of the bunch and the large ones scramble over them particularly on chilly nights. This dwarfs the small chick and prevents the feathers growing.

It is a sure indication that chicks are overcrowded when at two months old and over, only the wing feathers have grown, the rest of the body being perfectly bare, both of down and feathers, these having been rubbed off at night in the scramble to get the warmest place in the sleeping quarters. Chicks raised in dirty cramped pens will mature but very slowly. They are always undersized and totally unfit to stand the strain of heavy winter laying and in fact rarely do lay in winter and also are unfit for breeders. Weakly parents never beget vigorous progeny. Therefore it is far more profitable to raise 40 or 50 healthy chicks than 100 weak ones.



HE CAN WORK EVERY DAY

If you use Bickmore's Gall Cure your teams can work right along 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 Mange and Sore Teats in cows. Above trade mark is on every box. For sale by dealers. Money refunded if it fails. Sample and Horse Book every farmer should read 10c.

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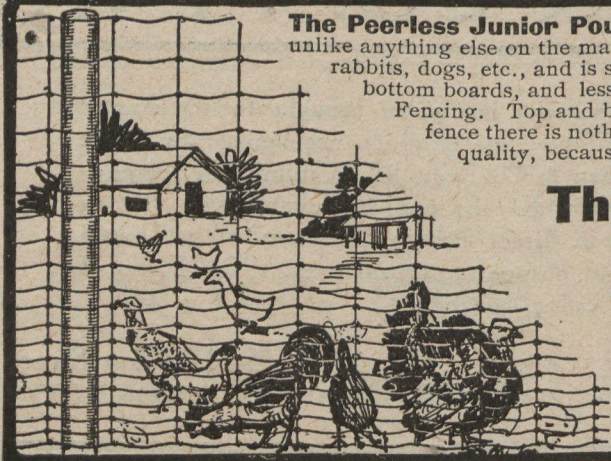
POULTRY DEPT.

Conducted by S. Short, Ottawa

Cleanliness is of prime importance at all times and in all seasons and especially so now with hot summer weather approaching. Small yards and pens should be spaded frequently to keep fresh the surface of the soil. If the pens are large, with grass

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THE FRUIT CROP PROSPECTS

OWING to the backwardness of the season in most fruit districts, the blooming period has been delayed and it is yet early to make predictions in regard to the coming crop. From present indications, however, most growers are anticipating a favorable season. Should the apple crop be medium to large, it is probable that prices will not be high, particularly for the lower grades. In view of this probability, growers should attend strictly to all orchard operations that will tend to decrease the percentage of inferior stock and to produce fruit that will command the best prices going. The following reports from correspondents of THE CANADIAN HORTICULTURIST point out the present condition of our orchards. Growers in all fruit districts of Canada are again requested to send monthly reports for publication.

PRINCE COUNTY, P.E.I.

Tignish.—The season is late. Fruit trees are still in the bud and growth is slow. It is too early to forecast prospects.—A. I. McFadyen, May 14.

QUEEN'S COUNTY, P.E.I.

West Cove Head.—The buds are not far enough advanced to indicate prospects for this year's crops.—Geo. Auld, May 15.

KING'S COUNTY, P.E.I.

Aitkin's Ferry.—Plums and apples probably will bloom well. Strawberries, on

high land and mulched, look well; on low land, winter killed.—D. J. Stewart.

KING'S COUNTY, N.S.

Cambridge.—All orchardists are spraying. Trees are budding well.—J. Howe Cox, May 17.

Berwick.—Prospects are excellent for a large crop. Trees that bore heavily last year are showing a fine lot of buds and as last season gave us plenty of moisture, I think the trees are in splendid condition to set full of fruit. Spraying is in full blast.—B. H. Lee, May 14.

HALIFAX COUNTY, N.S.

Gay's River.—Fruit trees have come through the winter well. Fruit buds are numerous and quite forward and indicate a fine showing of bloom. Should no late frosts appear, the crop will be a bumper one.—G. N. Gordon, May 15.

SUNBURY COUNTY, N.B.

Upper Sheffield.—Prospects are good for a large crop of fruits. Trees wintered well.—Isaac W. Stephenson.

CHARLOTTE COUNTY, N.B.

St. Andrews.—Apple trees stood the winter well and are just starting to bud.—Jules S. Thebaud, May 15.

CHATEAUGUAY COUNTY, QUE.

Chateauguay Basin.—Prospects for a large apple crop are bright as trees have come through the winter with but little



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HENRY'S NURSERIES VANCOUVER B.C.

CHOICE BEDDING PLANTS
BULBS
FOR FALL PLANTING.

Extra choice lot of
FRUIT AND ORNAMENTAL
TREES, for Fall Shipments

Have grown no Scale. No Fumigation.

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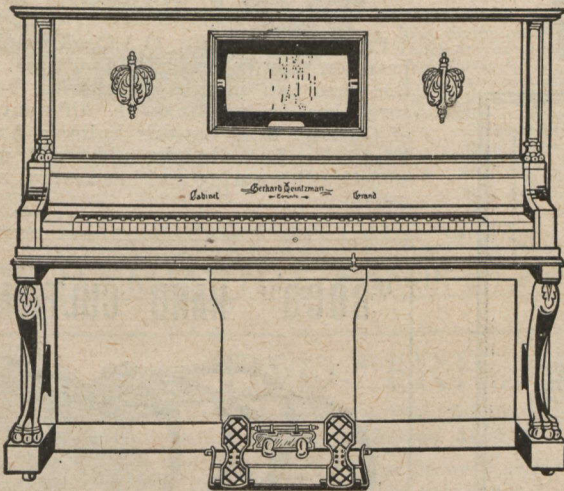
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The self-playing mechanism concealed within the piano represents the cleverest inventive genius the piano world has ever known.

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SPECIAL We have a slightly-used Player Piano—beautiful mahogany case—which can be purchased at a great reduction. The instrument cannot be told from new, has all the latest improvements, and is fully guaranteed. This is a rare opportunity to secure a bargain. **Write us at once.**

Your present instrument taken as part payment.

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127 KING ST. EAST

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TORONTO

damage. Trees are a little late in blossoming on account of the wet season. Plums indicate a heavy crop, strawberries wintered in splendid condition. Fewer raspberry bushes were winter-killed this year than for years. Gooseberries and currants are in excellent condition. Grapes show no damage from the cold so far. On the whole, the winter of 1908 was an ideal one for fruit trees.—R. Jack & Son.

ROUVILLE COUNTY, QUE.

Abbotsford.—All fruit trees and shrubs came through the winter in good shape. The present outlook for bloom is good but all depends on the weather during the next month. The tent caterpillar is more in evidence than last year but to no alarming extent.—J. M. Fisk.

MONTREAL DISTRICT

Westmount.—Prospects for small fruit are good. Apple trees are very slow in coming into leaf. On those trees that bore heavily last year, there are no signs of buds this spring. Prospects for Fameuse are not very promising. Early varieties of apples promise a good crop.—R. Brodie, May 12.

DURHAM COUNTY, ONT.

Newcastle.—Apple trees show an average amount of bloom. The following varieties are full of fruit buds: Stark, Baldwin, Ben Davis, Greenings and Blenheim. The

varieties that yielded heavily last year, namely, Spy, Golden Russet and King, will not give a full crop. Early kinds promise an average crop. Not so many young trees are being planted as in former seasons.—W. H. Gibson.

WENTWORTH COUNTY, ONT.

Winona.—Prospects never were better for full crops of all fruits, with the exception of Lombard plums and Baldwin apples in orchards that were heavily laden last year.—M. Pettit.

LINCOLN COUNTY, ONT.

Queenston.—Peaches give promise of an abundant crop. Even the shy-bearing varieties have enough bloom. It is now up to the forwarders and others interested to prepare to handle with satisfaction to all concerned.—Wm. Armstrong.

LAMBTON COUNTY, ONT.

Forest.—Blossoms on apple trees give promise of an average crop; pears, plums, peaches, cherries, and crab apples, full. Strawberries have wintered well and promise a fair crop.—D. Johnson.

YALE AND CARIBOO, B.C.

Peachland.—Prospects never seemed better. Present showing is for a full crop of peaches, apples, pears, plums and small fruits.—C. Aitkens.

Please send a report for next issue.

Peterboro Horticulture



Mr. H. L. BEAL.

The Peterboro and Ashburnham Horticultural Society is looking forward to one of the best years in its history. In addition to working to advance the interests of horticulture the society takes charge of two small parks, in the centre of the city, from which it receives a grant from the city and county councils, and expends the money in beautifying the parks

by planting flowers and shrubs, and keeping the grass cut and watered. The society has a local improvement committee, consisting of the president, the first vice-president, and the second vice-president, whose duty it is to report to the society anything they think should or could be done to improve the appearance of the city's streets, parks or gardens.

There are this year about 150 members. Each member receives THE CANADIAN HORTICULTURIST, and a spring and fall distribution of bulbs, roots and shrubs. This spring's distribution will consist of 12 gladiolus bulbs, which will be delivered in a few days.

The society gives prizes for the best kept lawns and gardens. There are four classes, three prizes in each class: 1st class, lawn kept by paid labor; 2nd class, lawn kept by one-half paid labor and one-half owner's labor; 3rd class, lawn kept by owner's labor alone; 4th class, best flower gardens.

Among the persons who are most enthusiastic in furthering the work of the society, is the secretary, Mr. H. L. Beal, whose portrait we publish. Mr. Beal tells us that the members of the society are much pleased with THE CANADIAN HORTICULTURIST, which is now published in Peterboro.

Prof. H. L. Hutt, O.A.C., Guelph, has been on the go most of the time during the past two months addressing horticultural society meetings in different parts of Ontario, from Smith's Falls to Amherstburg. He has already addressed over 30 societies this spring and has several more to attend.



THE NEVER-BARK WHIFFLE-TREE

The most successful Whiffle-Tree ever devised, overcoming the danger of barking or damaging trees, shrubs, vines, etc. Light and handy; simple of construction; the most careless driver may now be trusted in your orchard with impunity. Indispensable in all up-to-date orchards, vineyards, hop-yards, cornfields, nurseries, etc.

Agents wanted everywhere

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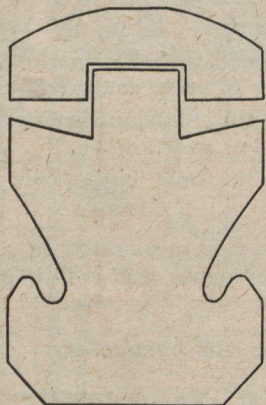
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Suitable for Conservatories and VEGETABLE FORCING HOUSES

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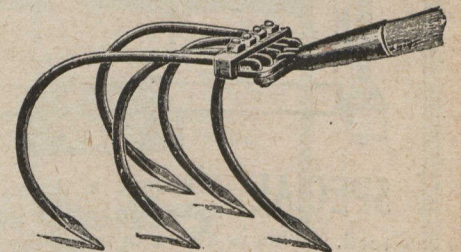
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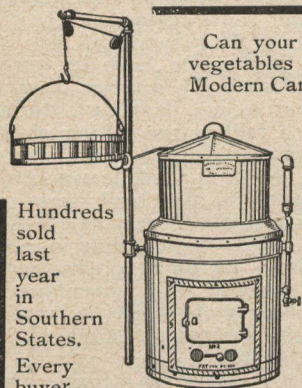


One man with a "Buco" is worth two with a hoe. Tines can be adjusted to width as required. Handle 4 1/2 feet long. It gets DOWN DEEP, loosens the soil thoroughly and cleans all the weeds out BY ROOT. Makes a clean healthy garden and saves a lot of work. Great around shrubs and trees.

Sold by hardware and seedsmen. If your dealer cannot supply you, we will send on receipt of price, \$1.50 each. Return after trial at our expense and money refunded if not satisfactory.

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Dandelions and other noxious weeds may be destroyed by chemical sprays. An excellent apparatus for the purpose is the Auto-Spray No. 1. Write to the E. C. Brown Co., Rochester, N. Y., for particulars.



Can your fruit and vegetables with the Modern Canner when fresh and ripe.

Your grocer will gladly give you same price as he pays for his

canned fruit. He saves freight—gets a superior article. By this method there are

Hundreds sold last year in Southern States. Every buyer enthusiastic.

Larger Profits For Fruit Growers

Are you getting these bigger profits? If not, write for our free CATALOGUE and learn how.

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Canadian Branch, St. Jacob's, Ont.

Horticultural Meetings

About the first of May, meetings of horticultural societies in Toronto, Hamilton, St. Catharines, Cobourg and Perth were addressed by Mr. J. Horace McFarland of Harrisburg, Penn., who is noted for his work as a civic improver and reformer. The meetings were fairly well attended except at Hamilton and Toronto. Several other speakers took part in the programs. The following is a brief report of the meetings that were held in Hamilton:

Mr. McFarland's address was a descriptive one of improvement and reform work in the different cities of the United States and entitled "A Crusade Against Ugliness." It was illustrated with 120 colored views. The views were run in contrast to each other, some showing the most beautiful spots in the States, while others showed the most deplorable public places and how little beauty some people will put up with.

He told briefly of his travels and said he had not visited any city which had so many natural advantages as Hamilton. "The home," he said, "should be the unit for the street and the street should not be the place for poles of any kind." He referred to Hamilton's waterfront and said he knew of no place which could have a more beautiful water front than Hamilton might have. That might be accomplished by keeping the water pure and free from germs, which would mean fewer mosquitoes and less malaria.

He had also something to say about the monstrous billboards which adorn the shore of the bay, advertising a Toronto playhouse. He said that billboards should be more closely watched and that they

should be licensed. They are not a very good advertisement for the city, as far as beauty was concerned, and in the country, they are blots on the landscape. The smoke nuisance should also be regulated and that would mean purer air.

There were evidences of lack of treatment of the streets to make them most useful and beneficial for the beauty of the city. Other points touched on, in brief,

FOR SALE AND WANT ADVERTISEMENTS

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

GARDENER, GOOD REFERENCES.—Life experience in all branches, English, age 40, seeks situation with gentleman. Apply Box W, Canadian Horticulturist, Peterboro.

MR. CHARLES ERNEST WOOLVERTON, Grimsby, Ontario, landscape architect, parks, cemeteries, pleasure, school and home grounds laid out, surveys made. Working drawings to a scale so that any gardener can work them out. Terms very reasonable.

GREENHOUSE FOR SALE—Length, 42 ft.; width, 18 ft.; hinged double glass windows on each side, 5 top ventilators with floor stand and gear, equipped with a No. 3 Daisy boiler, and 6 run of 4-inch pipe on each side. Apply Box G, Canadian Horticulturist.

\$4,300 WORTH OF STRAWBERRIES were sold off four acres in Kootenay last year. What others can do, you can do. For bargain list of fruit lands on easy terms write.—V. Dynes & Son, Ward St., Nelson, B. C.



SLUG-SHOT

Used from Ocean to Ocean for 20 Years. SOME SEEDSMEN WHO FOR UPWARD OF 20 YEARS HAVE SOLD SLUG SHOT IN CANADA:

- J. A. Simmers, Seedsman, 143-145 King St. East, Toronto, Ont.
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- Patrick Bros., Market Square, Woodstock, Ont.
- Geo. Keith, 124 King St. East, Toronto, Ont.
- Graham Bros., 57-55 Sparks St., Ottawa, Ont.
- Wm. Rennie & Co., Winnipeg, Man.
- J. A. Bruce & Co., 47 49 King St., Hamilton, Ont.
- Dupuy & Ferguson, 38 Jacques Cartier Sq., Montreal, Ont.
- Wm. Rennie & Co., Adelaide & Jarvis Sts., Toronto, Ont.
- Wm. Rennie & Co., 190 M'Gill St., Montreal, Que.

Chas. E. Bishop, 31 Bridge St., Belleville, Ont.
Steele Briggs Seed Co., 130 King St. East, Toronto, Ont.
Jas. B. Hay, Brantford, Ont.
Adams & Tanton, 115 King St., London, Ont.
Kenneth M'Donald, Ottawa, Ont.
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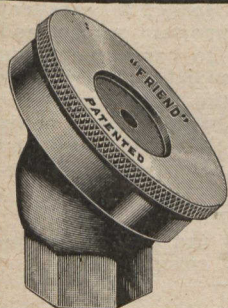
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B. HAMMOND, Fishkill-on-Hudson, New York.

The "Lou Dillon" Tandem Garden Cultivator

It can be set to stir the soil any depth desired, and to cultivate astride the row or between the rows. One third quicker and easier than any other garden cultivator, easier to push than a lawn mower. No gardener can afford to be without one. Write for descriptive catalogue and testimonials.

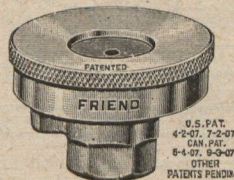
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TWO "FRIENDS"

Introductory Price for the balance of the Season, \$1.50 each

The original Large Spray Nozzles, doing away with the cluster. The only one with the maker's name and the word "Patented" stamped upon them. They have no horns, hooks, nothing to catch, drip or clog. Makes the finest mist-like spray. Drives the spray farther into the trees than the cluster. The "Angle" sprays up under the leaves and down into the Calyx. The "Regular" is for ordinary work. State which is wanted. **Satisfaction guaranteed or money refunded.**



"FRIEND" REGULAR

Reference: "The Canadian Horticulturist."

These Nozzles are now being manufactured in Canada, no Duty Charges to pay.

"FRIEND" MFG. CO., GASPORT, N.Y.

Manufacturers of the World's Best Spraying Outfits, the "Friend."

For every meal —every day

Windsor

Table Salt

is needed.

Fine—pure—full-savoured.

172

were the need of public comfort stations, garden schools for children and the grouping of public buildings.

Prof. H. L. Hutt, of the Ontario Agricultural College, Guelph, gave practical addresses on "The Establishment and Care of Lawns," on "Co-operative Spraying," and on "Kitchen Gardens for the City." Mr. John McP. Ross, of Balm Beach, Toronto gave interesting talks on "Ornamental Trees and Shrubs," and on "Perennials." Dr. Bethune of Guelph, delivered an instructive lecture on "Fungous and Insect Pests." Mr. Wm Hunt spoke on "Flowers, Annuals and Bulbs," and "House Plants."

Among the many good things that the Ottawa Horticultural Society is doing to advance the interests of general horticulture is the offering of a prize of \$50 for a seedling apple hardy enough for the Ottawa Valley.

Bordeaux Injury

Editor, THE CANADIAN HORTICULTURIST:—In the May issue of THE CANADIAN HORTICULTURIST, I noticed the comments of Mr. R. J. Messenger, of Nova Scotia, in regard to Bordeaux injury. The injurious effect of the Bordeaux, is seen both on the leaves and fruit of almost all our fruits, especially the apple. It varies from a slight russetting of the fruit to a deep cracking and malformations due to the resistance set up by the injured texture of the epidermis.

The leaves, when slightly injured, show brown spots, and, as the degree of injury increases, they become yellow, and eventually fall. There is no russetting of leaves, as suggested by Mr. Messenger, and the spots are very much like those caused by the fungi belonging to the genera, *Phyllosticta* and *Venturia*.

There is not the slightest doubt that

Bordeaux mixture does have an injurious effect on the apple. This appearance and intensity of the malady is closely related to atmospheric conditions and, to a certain extent, to the variety of fruit. The injury is caused by the toxic effect of the copper salts. These salts enter the tissues of the leaves and fruit, destroying the tissue and disabling their function.

This malady appears to have its greatest development when the weather is rainy with intermittent sunny durations, during the period which follows the falling of the blossoms, and until the fruit is the size of marbles. As the fruit and leaves grow older, the tissues harden and seem to become less susceptible to the toxic action of copper salts. With these points in view, it seems necessary for us to graduate our sprayings by lessening the percentage of copper in that spraying which is applied during the most susceptible stage of development of the fruit.

The fruit grower must not become awed at the idea of doing a great deal of damage in using Bordeaux mixture. On the contrary, in nearly every case, the good derived from a thorough application of Bordeaux, is always beneficial, and its injurious effects are more than balanced, except in a few cases. To those who have noticed Bordeaux injury in their orchards, I would suggest that they use 3-3-40, and poison formula, after the blossom has fallen, and if the injury still continues, to appear, omit spraying with Bordeaux, and only spray with the poison, but this step should only be taken where the injury is great.

With regard to the use of lime in the excess with a view of controlling or preventing this malady, I might say that I heartily believe, with Prof. Hedrick, that an excess of lime has no beneficial results, for our worst case of injury followed applications which contained a great excess of lime. Mr. Hedrick, in his bulletin on this subject, says that Bordeaux injury greatly depreciates the keeping qualities of the fruit. This depends entirely on the degree of injury, where the fruit is fairly well russeted. I have found it keeping splendidly on ordinary storage, and this in the early part of March. However, where the injury is severe, and the fruit is cracked, it does not keep. The effect of Bordeaux injury on the keeping qualities of apples for commercial use varies with the degree of intensity of the malady, and in ordinary cases has but little effect, but in the case of long storages for home consumption, the effect would be marked.

In concluding, I might say for the benefit of Mr. Messenger, that if he thoroughly understood Prof. Hedrick's excellent treatise on this very important subject and one which is destined to cause the apple grower considerable anxiety, he will be easily convinced that the treatise contains valuable information, which only needs careful observation to be verified by any grower.—T. B. Revett, Department of Agriculture, Toronto.

Choice gladioli, lilies and begonias given away. See inside back cover.

We are pleased to say that we share your views in regard to the value of THE CANADIAN HORTICULTURIST as an advertising medium. The results that we have secured, have been highly satisfactory. An enquiry came to hand quite recently from France, it was preceded by several from England.—Luke Brothers Company, Montreal, Que.



PAGE WHITE FENCES
Get 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 1908 prices and illustrated booklet.

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Largest fence and gate manufacturers in Canada.
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"SCALECIDE"
SAVE YOUR TREES THIS FALL DON'T WAIT TILL SPRING
Or they'll be killed commercially by San Jose Scale. Spray with **Scalecide**, it kills every insect it touches. Cheaper than lime sulphur or any home-made mixture. Easier to apply, non-corrosive, non-clogging, 92% oil—the largest amount with less water than is found in any spray discovered. Order a 50 gallon barrel at \$30, duty paid, makes 800 gallons mixture. Works well in any machine there's nothing cheaper. Free special booklet. **E. G. PRATT, CO., Mfrs., N.Y.**

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THE PROVINCIAL CHEMICAL FERTILIZER CO. LTD.

ST. JOHN N.B.

Pure Bone, Slaughter - House Tankage, and Pure Chemicals

Form the basis of all our Fertilizers

Our goods are not made to fit the price, they are made to sell on their merits

OLD WAGONS MADE NEW

Don't discard an old wagon just because the wheels have gone to pieces. It can be made good for years of yeoman service by putting on our light, strong, Wide-Tire Steel Wheels. Made to fit any size axle or skein. Other advantages told in Free Catalogue. Write for it.

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ORILLIA, ONT.



Free for June Planting

There are thousands of persons deeply interested in horticulture, who are not familiar with THE CANADIAN HORTICULTURIST. We want the help of our readers to introduce our paper more extensively. If you will help us, we will send any two of the following premiums, post paid, for each new subscription you obtain for us at 60 cents a year: One Rex Begonia, one *Lilium auratum*, or 12 Gladioli. Each of these premiums have been carefully selected. As they should be planted during the first part of June, you should send in your list early. The larger list you send the more premiums you will receive, as you will be entitled to receive two premiums for each subscription that you send. Choose any two of the following:

ONE REX BEGONIA

These plants are noted for their showy foliage and tropical effect when planted in a hanging basket, window box or in a shady part of the garden. The plants we have selected are of the best varieties and have been well grown, and should make a desirable addition to your garden this summer. They can be potted in the fall and grown in the house during the winter.

LILIUM AURATUM

This species is often called the "Gold-Banded Queen of Lilies." It is one of the Japanese lilies that can be grown out of doors or in a conservatory and can be flowered for several years if the planting directions are carried out. The bloom is of ivory-white ground, richly strewn with purple studs. The centre of each petal has a broad band of yellow extending from

tip to base. Fully expanded, the flowers measure nearly a foot across, are produced abundantly, and possess a most delicious fragrance.

TWELVE GLADIOLI

The 12 Gladioli are mixed colors of the very best strains of this beautiful flower. They are easy to grow and make a showy addition to the garden.

Any two of these premiums are worth fifty cents, but we will give them to you free if you will send us a new subscription. THE CANADIAN HORTICULTURIST is the biggest 60c. worth of up-to-date horticultural information you can obtain. Send your list at once as the supply is limited. This offer does not apply to new subscriptions received through Horticultural Societies or other similar organizations. Members of these organizations may, however, take advantage of this offer by securing New Subscriptions for THE CANADIAN HORTICULTURIST.—Address: THE CANADIAN HORTICULTURIST, Peterboro, Ont.

The extension and increase of the work of the Horticultural Department at Guelph, has called for a readjustment and a subdivision of the work. Landscape gardening is to be made a more prominent feature, and Prof. Hutt, who for fifteen years has had charge of the whole department, will make this division his specialty.

If you have any photographs of horticultural interest, send them for publication.

I am greatly pleased with THE CANADIAN HORTICULTURIST and consider it among the best publications of its kind.—H. B. Steeves, Shediac, N. B.

China Aster Plants

FROM BEST SEEDS

QUEEN OF THE MARKET—White, Early
" " " " —Pink "

LAVENDER GEM—Early
ROYAL PURPLE—Medium Late

VIOLET KING — " "

VICK'S BRANCHING—White, Medium Early
" " " " —White and Pink, Late

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Orders received now and will be
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Please send Postal Note with order.

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WITHOUT GREAT EXPENSE SO
YOUR LAND WILL PAY

CONSULT US FREELY IT IS
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ENQUIRIES FREELY ANSWERED
AGENTS WANTED FOR
TERRITORY NOT TAKEN UP
THE W.A. FREEMAN CO. LIMITED
HAMILTON ONTARIO

Growing Tomatoes in Pots

Editor, THE CANADIAN HORTICULTURIST: In your issue of April, I read with interest an article headed, "Growing Tomatoes in Pots," by S. B. Courtis, Toronto. The writer, in giving his experience to the readers of your valuable paper, shows an advantage of four weeks by growing them in pots, and still he does not advise using this method to any great extent. Two years ago, I planted over 14,000 plants; 400 of them were pricked out of seed pans into small strawberry baskets and five inch pots, the remainder pricked into boxes in the usual way.

The third week in May, I planted the whole lot in the same field. The plants in pots and baskets were carefully planted with the solid ball of earth, with the result that they started with little or no check. The others in baskets were strong plants, but the roots were thickly matted and with breaking the roots while pulling them apart, they were longer in starting and more liable to be withered up with the sun.

The result was that I had good marketable fruit from the pot plants three weeks before the box plants, and with by far better percentage of plants alive. I would advise growers to use either pots or baskets wherever the fruit is wanted for the market, as the first there commands the best prices.—W. Beattie, Yale and Cariboo County, B. C.

Deming Sprayers

All fruit growers who keep abreast of the times and who know their best interests are spraying their trees as a general and annual operation in the orchard. The rapid spread of insect and fungous pests makes the practice of great importance. Experiments on hundreds of orchards and on our experiment stations demonstrate the fact that spraying pays big profits. It has been shown, also, that the operation cannot be performed economically and effectively without the use of apparatus that is of the first order.

A poor spraying outfit is a bad asset. A concern that manufactures spraying machinery that is guaranteed to give satisfaction and to be as represented is The Deming Company of Salem, Ohio. All users of their machines in Canada and in the United States speak of them in the highest terms. They do the work as well as it can be done and at the least possible cost for the results obtained.

If fruit growers desire to spray effectively, they must use machines of this character. To spray economically, the best of apparatus is none too good. The Deming machines are thoroughly adapted to the work, simple and strong in construction and easy to operate. The Deming people are reliable. They wish to please, and wishing to please, they do what they say. If the reader of this article has not yet

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWN COMMISSION Co.,
Cor. West Market and Colborne St. Limited
TORONTO ONTARIO

purchased a spraying machine and purposes doing so, he cannot do better than communicate at once with the Deming Company.

S.S. Latona Lost

Canadian shippers of perishable goods will learn with regret of the total loss of the S.S. Latona of the Thomson line.

The Latona, homeward bound, and Japanese were in collision off the Lizard on May 19th. Cable despatches contain the information that all the crew were taken off in safety.

The loss of the boat will be a serious one to the St. Lawrence trade as she was recognized as being one of the best boats in the service coming to Montreal. Being originally built for the Australian trade her cold storage compartments were ample to ensure the proper temperature for the safe carrying of fruit and dairy produce to Great Britain.

The Man with the Hose.—The summer season is looked upon by most persons as a season of enjoyment but the man who has to water the lawn and garden with a hose often has cause to complain. Soiled hands and wet clothes make watering a disagreeable job. There is a device now being introduced that removes the objectionable part of this task. With the use of the time-saving coupler, no screwing on is necessary. A slight pressure of the thumb makes the connection tight, making leaks impossible. A descriptive circular will be mailed to readers of THE CANADIAN HORTICULTURIST by sending name and address to the Time Saving Coupler Co., 100 Bay Street, Toronto.

The Cooper Fluids.—The following is an extract from a letter from Mr. Robert Thompson, St. Catharines, to Messrs. Wm. Cooper & Nephews, Toronto, who have created much attention this spring from fruit growers through the introduction of their spray fluids: "Mr. Byron Honsberger of the city, who owns a small lot, got a gallon of V1 Fluid and treated his trees that were bad with San Jose scale. Present appearances indicate that nearly all, if not all of the scale is killed. The spray fluid has loosened up the scale, and they all appear to have been killed where the spray has touched."

Mr. V. Robin, Oakville, Ont., wrote: "The V1 Fluid which I applied as a spray to my trees, has absolutely killed the oyster-shell scale, wherever it has come in contact with it. The V1 Fluid has certainly done all you claim for it."

Mr. Wm. E. M. Crawley, Oakville, Ont.: "I have used your V1 spray mixture and find that it does all that you claim for it. My trees were badly infested with oyster-shell scale, and the Fluid has completely killed it wherever it touched it."



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¶Try our pots for growing early tomato plants, etc.

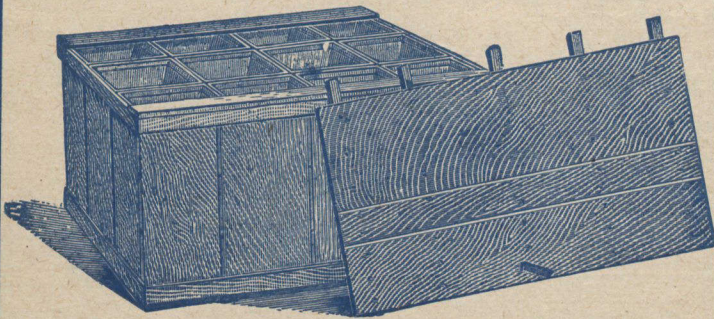
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GLADIOLI REX BEGONIAS LILIUM AURATUM

These Plants deserve a place in all well-planned gardens. If you want choice ones you may secure them FREE by assisting to increase the circulation of The Canadian Horticulturist. For each New Subscription that you obtain at Sixty Cents a year, you may choose any **TWO** of the following Premiums:—

1 Liliun Auratum, 12 Gladioli, 1 Rex Begonia.

WELL GROWN AND SELECT

They will please you and will be sent to you immediately. Do not delay as they should be planted early in June. Any two of these premiums are

WORTH FIFTY CENTS

They have been selected from the extensive stock of the STEELE-BRIGGS SEED Co., of Toronto,

For further information read the article on page v. of this issue.

THE CANADIAN HORTICULTURIST, PETERBOROUGH, ONT.

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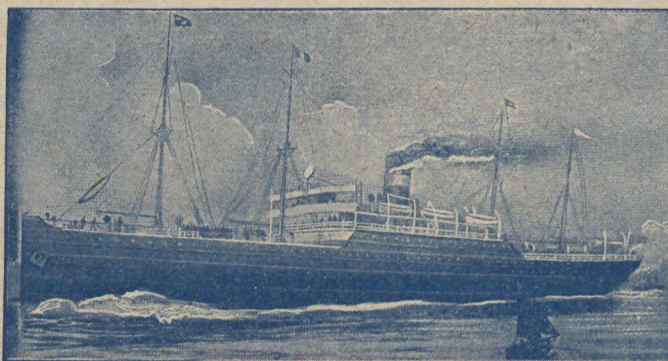
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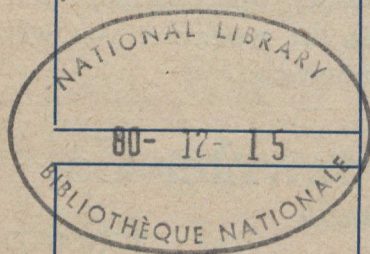
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