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The Canadian Horticulturist

JUNE, 1909

Volume 32, No. 6

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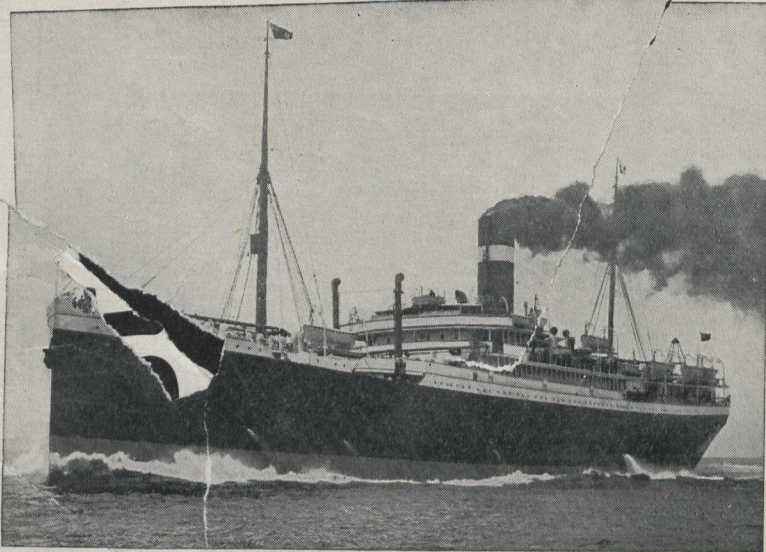
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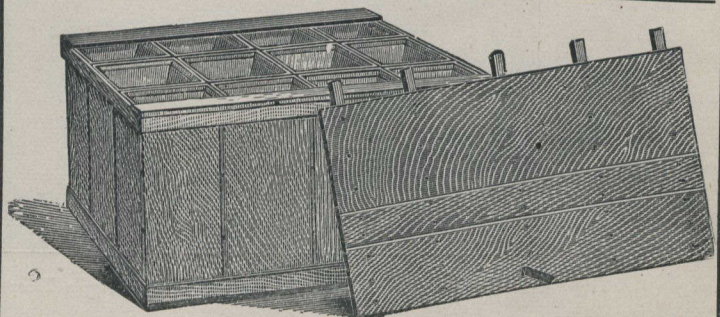
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The Canadian Horticulturist

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Orchard Scene in British Columbia Cover
 Photograph by C. W. Holliday

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The Canadian Horticulturist

Vol. XXXII

JUNE, 1909

No. 6

The Principles of Plant Breeding*

Prof. W. Lochhead, Macdonald College

THIS is a large subject nowadays. The last seven years have been "fat" years for the student of plant and animal breeding, and it is almost impossible to keep up with the tremendous strides that are being taken by hundreds of scientific investigators both in America and Europe. Every morning we enquire what new discovery was made the day before, lest we overlook some important advance and fall behind in the onward march of the times.

On account of the recent discovery of some of the fundamental principles of heredity the plant breeder is now able to work with some degree of certainty in the production of new forms of plants. The haphazard guess-work of former days is to some extent replaced by definiteness, and "the breeder may proceed to build up synthetically, character by character, the plant which he requires. His chief limitations will be those imposed by Nature upon the variations of living forms."—(Punnett.)

It is my purpose to discuss the newer aspects of plant breeding, not from the standpoint of a practical plant breeder, but rather from the standpoint of the biologist who is interested primarily in the principles that underlie scientific plant breeding. In the time at my disposal it is impossible to deal at all fully even with the principles of plant breeding, inasmuch as each of the main methods of plant improvement is now regulated by certain principles of its own. The ideas of "elementary species" and "mutations" belong distinctly to the twentieth century; hence they are not yet out of their infancy stage, and no one is bold enough to state how far-reaching the influences of the new ideas may be. Already in many quarters Darwin's explanation of the process of evolution is being superseded by that offered by De Vries in his theory of mutations. It is becoming more and more evident that the principles underlying plant breeding are closely connected with the question of the origin of species and of evolution.

Plant breeding may be defined as "the intentional production and perpetuation

of desirable varieties of cultivated plants." The three main methods now in use for the improvement of plants are: 1. Continued selection of superior individual plants; 2. Separation from mixtures of such individuals as show desirable qualities, and at the same time breed true to type; 3. Combination of the desirable qualities of two strains or varieties by hybridization.

It is plain that all three methods cannot be employed in every case of plant improvement. For example, some plants are propagated by buds; the crossing of two varieties or strains to form desirable hybrids is a process too difficult and too involved for any person but the trained plant breeder; and, lastly, the separation of new and desirable elementary species requires such

Best in America

I sincerely appreciate the able editorial management of our magazine—THE CANADIAN HORTICULTURIST—the best in America.—H. J. Snelgrove, President, Ontario Horticultural Association.

careful observation of a refined order that the average man untrained along this particular line will seldom meet with success.

SELECTION

The improvement of plants by the continued selection of superior individual plants has been in vogue since Roman times. Virgil, for example, in his "Georgics," wrote: "The chosen seed improved through years and labor was seen to run back, unless man selected by hand yearly the largest and fullest ears." It is probable, therefore, that our chief cereals have been kept up to a high standard of excellence through all the centuries, by a strict process of selection. The origin of most of our horticultural fruit-producing plants is extremely uncertain, being lost in the mists of antiquity.

The importance and value of selection lies in the fact that plants as a rule are highly variable. It is a common matter of observation that plants produced from seed obtained from the same parent may vary more or less widely in size, shape

and other characters. Some of the plants will be inferior from an economic standpoint, others will be superior, but the majority will be about the normal. Experience tells us also that if the seeds from a superior plant be sown, the majority of the new individuals that arise from the seeds will show themselves to be superior. In some cases, therefore, the desirable variations are transmitted to the progeny, and by continued selection of the best seeds from the best plants the plant grower can obtain a higher yielding strain of superior quality. However, in order to keep the strain up to this high standard it is necessary to continue the selection year after year, for unless this is done the plants gradually revert to the normal or average of the strain before selection began.

It is by adoption of this plan of selection that the Canadian Seed Growers' Association hopes to increase the crop yield of Canada. Although there seems to be a limit to the improvement effected by selection of this kind, (i. e., that improvement cannot continue indefinitely, but has a maximum limit) yet the general adoption of this principle of selection of the best seed from the best plants will greatly increase the value of the crops of the country.

Sometimes it is possible to force variation in plants which are but slightly variable by changing the conditions surrounding the plants. For example, it has been observed that high cultivation and manuring will often cause plants to vary considerably, so that the plant breeder is in a better position to make his selections. Budding, grafting and vegetative propagation also tend to bring about variations from which the breeder may begin his selection.

There are two methods of growing plants for selection, which Webber calls the "Nursery Method" and the "Field Method." By the nursery method "each plant is grown under the most favorable conditions for its best development." By the field method "the selections are made from plants grown under normal field conditions." Both methods are in general use by plant breeders, but the nursery method requires more care and attention than the ordinary breeder would care to give to the work.

*Part of an address delivered before last convention of the Quebec Pomological Society. The next instalment will deal with the separation of mutations that have desirable qualities. The third instalment will discuss the question of hybridization.

Dwarf Apple Trees

W. T. Macoun, Central Experimental Farm, Ottawa

There has been a revived interest in dwarf apple trees in Canada and the United States during recent years owing principally, no doubt, to the fact that spraying is now considered necessary to the best success with apple trees, and that dwarf trees can be sprayed much more easily than standards. The success with dwarf trees in America has not, however, been so generally successful as was hoped, although in some cases good results have been obtained. The difference in results is due to the difference in climate, soil, varieties, and so forth, but also largely to methods of pruning, dwarf trees requiring much more care in pruning than standards.

Dwarf trees under favorable conditions come into bearing much earlier than standards, fruit being sometimes obtained the second year after planting of varieties that usually take six or seven years to come into bearing. As dwarf trees are much smaller than standards the crop is smaller on dwarf trees in proportion. Dwarf trees may be set about ten or twelve feet apart each way or even less. Two of the commonest kinds of dwarf stock for apples are the "Paradise" and the "Doucin," the former dwarfing the tree more than the latter. The "Doucin" stock will probably give better results on the whole in this country than the "Paradise."

The Cherry Orchard

Wm. Platts, Jr., Pelham Corners, Ont.

We prefer a clover sod for starting a cherry orchard. After you have cut your first crop of clover, plow the sod under



Among the Blossoms

Orchard of Wm. Platts, Jr., Pelham Corners, Ont.

thoroughly, cultivating it until the middle of October, then mark the ground out eighteen by twenty feet apart. We plant in the fall so that the ground will get thoroughly settled around the roots

by spring, so that they get a good start before dry weather sets in.

We think that a good one year old tree is the best to set out, because it makes a better start and is more sure to grow.

We plant some vegetables or small fruits that take lots of cultivation between the rows so as to make a good growth each year, until the trees commence to bear well.

We start pruning about the middle of March, keeping the trees headed low, and plow away from them just before they come in bloom. From this on keep the ground thoroughly cultivated, using the disc-harrow and the cultivator, until the crop is harvested.

We generally have some good girls and boys to pick them and pay them fifteen cents a quart basket, using small step ladders, or standing on the ground, for being headed low, there is not much climbing to do. We sell the fruit to our nearest canning factory, which is located near Welland, Ont., two and one-half miles from our orchard. After harvesting the fruit we spread manure, and then plow up to the trees for the coming winter.

Arsenate of Lead

M. C. Smith, Burlington, Ont.

Arsenate of lead has many advantages over Paris green as a poison to control codling moth or any leaf eating insect. It mixes readily with water and stays mixed with a minimum of agitation. It is much lighter than Paris green; consequently, much more easily held in suspension. There is nothing in it to clog nozzles. It sticks on the foliage and cannot be washed off by rains; in fact, arsenate of lead will last on the foliage throughout the entire season. It is the safest form of poison that can be used. It positively will not burn foliage of any description, fruit or vegetable.

It should be used in the proportion of two pounds to a forty gallon barrel. At this strength it will control codling moth. If canker worm or potato bugs were allowed to get very bad, an additional pound could be added with absolutely no danger to the foliage.

It is advisable when buying arsenate of lead to get a brand that has a guaranteed analysis of arsenic oxide of at least sixteen per cent., such as the "Niagara Brand." This brand has been used very largely in Ontario and the United States and has given excellent results. It costs from twelve to fifteen cents a pound, according to the size of package. I would not have any brand of arsenate of lead at any price that had not been fully experimented with on foliage, nor would I buy one that did not have a guaranteed analysis of at least sixteen per cent. of poison.

Of late years, Paris green has varied

so in strength that a grower is never sure of results; an overdose at any time is dangerous to foliage. The first cost of arsenate of lead would be slightly higher than Paris green but the difference in the results will more than make up the difference in cost, and it is the best results that growers should look for. Arsenate of lead can be applied by itself, with lime and sulphur or with Bordeaux mixture.

The codling moth is the most destructive pest that the orchards of Ontario are subject to. It causes more loss than any other, and it is the easiest controlled. A thorough application of arsenate of lead when the blossoms are falling will almost entirely control it. Thoroughness in spraying is the most essential feature. Fill in the calyx end of every blossom with poison. Do not try to spare your spraying material. In seasons like last year, when the codling moth is very active, a later spraying in about three weeks or a month is necessary. What growers in Ontario need to learn is thoroughness. This and arsenate of lead used at the proper time will control codling moth.

Forming Apple Trees

Editor, THE CANADIAN HORTICULTURIST: I read with special interest, the article on "Forming and Pruning Apple Trees," in your issue of May, 1908, and I advise the re-reading of that article by lovers of tree culture. The writer of it says truly, "The main stem is the tree, keep that intact," and then contrasts it with the tree that has its "centre cut out"—causes lots of trouble—loss. Ten years ago, about sixty trees of this "second class" style, was sent me to set out. The Duchess has borne some fruit every year. Some branches split off, and many more would have done so had I not fastened the branches together with screws, and wire and small bolts.

On reading the article referred to, I began to consider and examine the trees, to find that they had been beheaded, and I had worked along the same lines in caring for them—so-called. It is time that more care be given and more knowledge be brought to bear on this point.—Peter Barrett, Truro, N.S.

To spray effectively, be on time and be thorough.

If you want to save labor and expense in caring for the new orchard, start the trees with low heads.

Nova Scotia, New Brunswick and Prince Edward* Island horticulturists are requested to contribute articles and photographs for publication in the July issue of THE CANADIAN HORTICULTURIST, which will be devoted in a large measure to topics of interest to our friends in the maritime provinces.

Peach Yellows*

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

WE have always considered that three annual inspections, when properly made at the right time, were sufficient for finding trees affected with yellows. It need hardly be mentioned that the important thing about this work, when it is really undertaken, is to find the diseased trees. Their prompt removal, after being found, is a secondary matter, which is to be taken for granted. Ordinarily three inspections are sufficient.

In Ontario, the first one should be made in July or perhaps about August 1st; the second one should be made the latter part of August or about September 1st, and the third late in September or even running over into October. If a previous eradication has never been carried out, all plainly diseased trees should be removed as soon as they can be noted in the spring. It is always a good thing to inspect a block or row of peaches when they are ripening or about to ripen their fruit. Then the symptoms of premature fruits can be utilized. It is always a good plan to have the pickers instructed to call attention to every tree with suspiciously large or premature red-spotted fruit. Orchards should be inspected tree by tree, row by row, thoroughly, regardless as to whether they are supposed to have the disease or not. In this way, unsuspected cases will often be found.

It seems to me that where a severe outbreak occurs, doubling the number of inspections may well be advised. That would mean pretty nearly an inspection about every two weeks from the first of August. It certainly is advisable to make a very late inspection in October so as to prevent, if possible, the disease carrying over another year.

The orchardist or inspector is often puzzled over a doubtful case. He dislikes to condemn a tree for removal unless certain that it is diseased. To my mind, however, the real doubtful cases which are not plainly caused by some other disease or injury should invariably be removed. One is certainly taking chances of leaving infection behind when he leaves these uncertain cases. It should always be borne in mind that the removal is done for the benefit of the healthy trees left behind.

INSPECTION LAWS

The best results are to be secured in districts where every orchardist will be his own inspector. No outside man can more quickly and accurately detect this disease than a peach grower in his own orchard. He knows the appearance of the trees on every different piece of land, soil, type and exposure, and keenly re-

*Seventh and concluding instalment of a paper read at the convention of the Ontario Fruit Growers' Association held in Toronto last November.

cognizes and watches any change of symptoms which could be attributed to the yellows.

On the other hand, it is absolutely necessary, to secure good work in a community, to have official inspectors. The reason for this is that many growers, although constantly in the presence of this disease do not learn to recognize it in its early stages, especially when the trees are not in fruit. Furthermore, there are a good many trees in gardens or by the roadsides or otherwise out of commercial peach orchards, that would receive no attention. To secure proper uniformity, therefore, some sort of an official inspector, no matter by whom paid, should be employed. The smaller the unit, the better. The less territory an official inspector must cover, the more thoroughly he can be expected to accomplish his work.

As a matter of fact, only a few orchardists in my experience have ever done strictly first-class work in eradicating the yellows. Many orchards otherwise well cared for by progressive and enterprising growers are still somewhat neglected in this regard, and it is a ques-

are found, with our present lack of knowledge about the disease, we feel that the only safe way is to dig the tree up or pull it up with horses and destroy it by burning. Perhaps the very safest way of all is to bring dry wood into the orchard and burn the tree on the spot or in the centre of the colony, if there are several trees, without dragging it out. As a matter of fact, however, there has been so little unsatisfactory experience as to make this seem an extra precaution. Possibly it might be advisable to pull the trees up and let them wilt or dry out before removing from the orchard. At any rate, there seems to be abundant evidence that a dead peach tree, though it may have had the yellows, is not dangerous in transmitting the disease. Never cut the tops off yellows trees and leave them standing. Such trees may still sprout out new growth and from the yellows standpoint are still in action. Kill the tree, root and branch, at any rate. Many orchardists wish to use their yellows peach trees for fuel, and, while this is not supposed to be absolutely safe, I have seen good results in many cases where this was done.

Summing up, therefore, I should say that if you wish to be extra careful concerning infection, burn the tree at once,



An Orchard That is Kept Well Cultivated and in Good Condition
Orchard of Mr. A. E. Sherrington, Walkerton, Ontario, who may be seen in the illustration.

tion in my mind whether the recent severe outbreak in southern New York and Connecticut cannot be to some extent attributed to carelessness on the part of the growers. I have been through these states every summer for the last four years and have been surprised to see the yellows left so commonly scattered about.

DISPOSAL OF DISEASED TREES

A word in conclusion as to what to do with the yellows trees after they are found. The main thing, of course, is to find the diseased trees, but when they

but if the tree is promptly pulled out and allowed to dry you have probably done all that is possible in killing the disease. Above all, the best advice I can give you is to pull out and destroy every peach tree in the province which shows the slightest symptom of the yellows. If this is carried out, especially if repeated for two or three seasons in succession, all the previous history and experience connected with this trouble points to success in bringing this malady under control. New orchards can then be rapidly planted out

and the peach industry renewed under more favorable conditions than ever.

It is ordinarily necessary to take fairly good care of the orchard, at least to give it fair cultivation and fertilization,

in order to tell diseased trees. If trees are weak and sick from nitrogen starvation, growing in uncultivated and neglected weedy orchards, it is oftentimes impossible to properly inspect them. On

the other hand trees over-stimulated with fertilizers, especially nitrogenous manures, may fail to show the yellowing or leaf symptoms promptly.

Notes on Some New Paeonies*

R. B. Whyte, Ottawa

WHEN in England last June, I visited all the exhibitions and nurseries available, where pæonies were shown and made careful note of those that I considered the most desirable varieties—ones that were new to me. Among the many hundreds of good sorts in cultivation there are doubtless many as good, and possibly better, than those noted, but any grower wishing to add to his collection can rely on the desirableness of any of the varieties in the annexed list.

At the Royal Botanical Society's show at Regent's Park, on June 17, the first one at which pæonies were staged in any quantity, the large exhibitors were Kelway & Son, Barr & Son, T. S. Ware and Paul & Son, all of whom had very large collection. On June 19, I visited Barr & Son at Surbiton and carefully examined their extensive collection. Pæonies were one of the main features of the Royal Horticultural Society's show on June 23, and at the Franco-British flower show on June 24th. At both these shows the large exhibitors were Kelway & Son, Barr & Sons, R. H. Bath, Limited, George Bunyard & Co., and J. Veitch & Son.

On June 27, I visited the Royal Horticultural Society's gardens at Wisley and found a few varieties in their large collection in fine condition at that late date. In the following list those that I considered the very finest in color, shape and size, I have marked with XX. Those marked with X, while they appeared to me not quite up to the standard of the XX, are still very fine sorts and well worthy of a place in any collection.

In the light of my increased experience the list of twelve best sorts given last year in my talk on "Pæonies and How to Grow Them," might be revised and improved by the substitution of four of the best of the varieties in the annexed list: Baroness Schroeder, Miss Salway, Ella Christine Kelway, Bunch of Perfume taking the place of Marie Lemoine, Queen Victoria, Lady Lenora Bramwell and Duke of Wellington.

AT BOTANICAL GARDENS

The pæonies exhibited at the Royal Botanical Society's show, Regent's Park, were as follows: Kelway,—XX, Bunch of Perfume, rich deep pink, large, very

double, P; Dorchester, blush, very fine; Duchess of Teck, creamy white to pink, guard petals large, very fine; Ella Christine Kelway, extra fine pink, very large, flat, large petals, P; Miss Salway, white primrose guard, large, extra fine centres, P; Lady Ester Smith, white guard, cream centre, a few large petals in centre; Mr. Manning, dark crimson, very large, fine form.

Barr & Sons—Lady Ardilaun, white-slightly-tipped carmine, very large and very double; Bonaparte, dark crimson, very large, fluffy petals; Humei Carnea, pink guards, white centre, large, very fine, P.; Delicatissima, (Floral Treasure), blush, very large and double, P.; Mad. Calot, creamy blush, deep shape, very fine, P.; La Tulipe, white, faintly tipped carmine, very fine shape, P.; Albert Crousse, clear pink, very large, very double.

Kelway—X, Sainfoin, rich, deep pink, semi-double; Hallam, crimson, large and very double; Limosel, deep pink, very double, good size, P; Baroness Schroeder, pale pink to cream, large guards, medium size, P; Portia, as festiva maxima with a shade of blush; Sir M. Singe, deep crimson—ball shape—very fine.

Barr & Sons—Countess of Clancarty, very fine, pure white, P; Gloire de Patrie, very large, deep pink, P; Lord Roseberry, fine shade of pink; Leonie, pale pink, medium size, fine shape and color, P; Triomphe de Paris, creamy, with a shade of pink, large guards, Alba Superba, white cream centre, good size.

BARR'S NURSERIES

Marshall McMahon, light crimson, large; Eugene Verdier, pale pink, semi-double, shaded salmon; Washington, silvery pink; Snowball, white—large guards; Silenus, silvery pink; Gen. Cavaignac, rosy silvery pink, shaded clear pink, P; Charles Verdier, dark rosy; Duchess of Nemours, white to faint primrose, P; Mistress Parkinson, lavender pink, fine form; Duchess of Sutherland, pink, good color and shape, medium size, P.

KEW GARDENS

L'Elegance, rosy pink, good, P; Lady Carrington, blush to white, P; Mons Dupont, very like La Rosiere, very fine.

ROYAL HORTICULTURAL SOCIETY

Kelway—XX, Sir George White,

very large, rosy pink; Rev. W. Wilks, very large, pink; Lady Romilly, as Md. D'Hour, rather deeper pink; Marie d'Hour, rosy pink, very fine; Mons. Roussilon, very large, dark blush, P; X, Lottie Collins, very large, light crimson, semi-double, yellow anthers; Lord Cromer, large, rosy pink; Duke of Devonshire, light crimson, yellow centre.

FRANCO-BRITISH EXHIBITION

R. H. Bath—XX, Mons. C. Leveque, extra fine blush, P; Enchantress, very pale blush; Claude Loraine, extra large pink, good form; Edmond About, extra fine pink, streaked Carmine; X. Marie, very pale blush; Gismonda, pink, very large; Mad. Hutin, very double pink, centre nearly white, ball shape.

R. H. S. GARDENS AT WISLEY

XX, Viscount de Fonceville, very large pink, fine form; Mde. D. Galhau, very large pink, extra fine; X, De Candolle, rosy pink, fine shade; Felix Crousse, dark, rosy red, ball shaped.

REVISED LIST OF BEST TWELVE PÆONIES

Md. D'Hour—Very large, free bloomer, flesh color, tipped carmine.

M. Jules Elie—Silvery pink, very large.

La Rosiere—White, yellow centre, semi double, remarkably free bloomer, very sweet.

Festiva Maxima—Very fine, white-tipped carmine.

Floral Treasure—Soft rose, fragrant, free bloomer.

Asa Gray—Salmon pink, very large, free bloomer.

Claire Dubois—Light rose, very large, free bloomer.

Ella Christine Kelway—Extra fine pink, very large, flat, large petals, sweet.

Baroness Schroeder—Pale pink to cream, large guards, perfumed.

Miss Salway—White, primrose guards, large, very fine centre, perfumed.

Bunch of Perfume—Rich, deep pink, large, very double, perfumed.

Rubra Superba—Purplish crimson, very free bloomer.

Try something new in the garden.

The July issue of THE CANADIAN HORTICULTURIST will contain a number of articles that deal with fruit growing in the maritime provinces. Send articles and photographs for publication in that number.

*A paper read at the convention of the Ontario Horticultural Association held in November.

Cyclamen for the Amateur's Greenhouse

A. Alexander, Hamilton.

CYCLAMEN *Persicum giganteum* has been brought to such perfection in coloring and size of bloom, of late years, that it is one of the

and I am fonder of them than ever. I will relate my experience of last year with 100 seeds for which I paid one dollar. It was said to have been saved



Cyclamen Plants One Year from Seed
Conservatory of Mr. A. Alexander, Hamilton

most desirable flowering plants for winter and spring use in the amateur's greenhouse. I have grown the cyclamen from seed for many years,

from a very fine collection, and the result proved the claim.

In the first week of February, 1908, I sowed the one hundred seeds in a seed

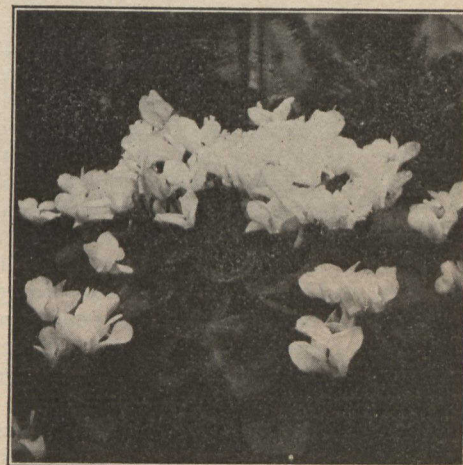


A Partial View of the Miller Greenhouse Disaster in Toronto

The accompanying illustration gives a slight idea of the wreck caused by the boiler explosion at Miller & Sons, large commercial growers of flowers and plants, Toronto, recently. The pile of bricks in the centre of the picture are from the wrecked chimney. The ends of two of the boilers can be easily seen. The boiler that exploded was connected to the pipe that protrudes from the ground in the lower right hand corner of the picture. The head of the boiler, weighing one ton, was blown 1,000 feet away. The centre course of the boiler was blown 300 feet away. Another part of the boiler was blown into the greenhouses, 60 feet away, and dropped on a spot where one of the employees was standing only a minute previously. That no lives were lost is considered one of the extraordinary features of the accident. The illustration shown was loaned by The Canadian Casualty and Boiler Insurance Co., Toronto.

pan, in soil from an ordinary compost heap, where weeds and tree leaves and the decayed stems of herbaceous perennials and general garden rakings had been accumulating for about two years. With this soil, I mixed about one-third of sharp sand. The seed was covered very lightly, and the pan was plunged in the sand of the propagating bed. At the end of May, they were potted into two and a half and three-inch pots.

They stood on a shaded shelf of the greenhouse until the middle of June, when they were plunged in front of a bed of tuberous-rooted begonias, shaded by the over-hanging branches of an apple tree, until the end of August, when they were re-potted into four, five and six-inch pots, according to their size and vigor. They stood in a partially shaded place out of doors until the middle of September, when they were placed in the greenhouse, where they began to bloom about the middle of December. I should say that they were potted in the "compost heap" soil with the addition of near-



Cyclamen Two Years from Seed—73 Blooms

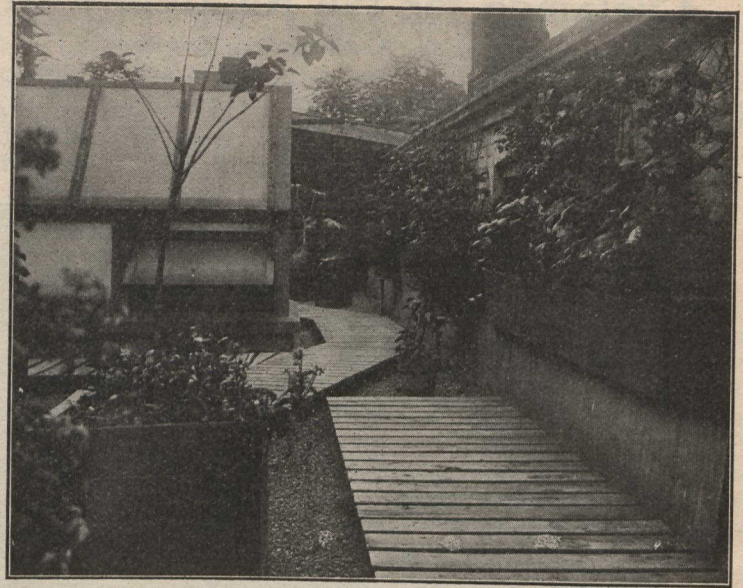
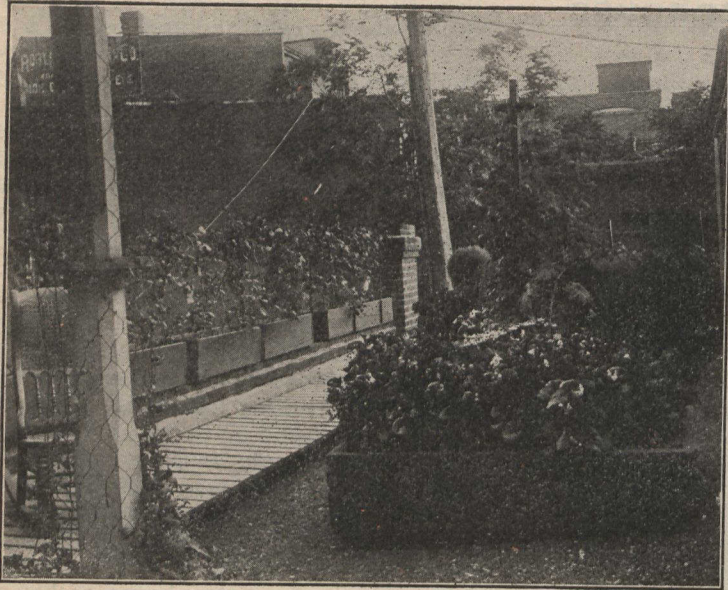
ly one-half of sifted old hotbed manure, with careful drainage.

Each of the fifty plants that I kept had from six to fifteen blooms, and some of them are still in bloom. The photo of the young plants was taken in April of this year. To give some idea of the size of the blooms, I measured the lobes of the corolla and found them to be two and three-quarters inches in length.

Sometimes I keep two or three in a growing condition for another year. One of these is shown on this page. It had seventy-three pure white blooms at the end of March when it was photographed, being then about twenty-eight months from the time of sowing.

I would recommend sowing the seed two months earlier than I did last year; then, larger plants and more bloom would be secured. I had every tint, from the purest white to the deepest crimson. I think that every seed must have germinated.

"A weed is a plant out of place."



A Roof Garden

C. D. Blachford, Hamilton

MY roof garden is planted in boxes of various sizes, ranging from one foot deep and wide by about eight feet long for the tops of the walls and from three feet deep and wide to eight feet square and one and a half deep, placed to the best advantage according to the topography of the roof.

The fern boxes are constructed with net wire semi-circle fronts, moss being placed in the netting before the boxes are filled with earth, the green moss effect showing in front adding much to the beauty of the receptacles.

Wire netting about four feet high runs completely around the tops of the walls, attached to uprights from the boxes, making an enclosure about eighty feet long by twenty-two feet wide.

Slat wooden walks are laid on the gravel roof, a verandah erected at a suitable location, and the boxes interspersed here and there, makes the whole when in bloom an ideal picture, wanting only green grass to compete with a lawn garden.

More attention has to be paid to watering a roof garden than for an ordinary garden, as the roof is situated just where, part of the day, the sun has full play; consequently, the boxes will quickly dry unless daily watering is adhered to.

Summer cypress plays an important part in the arrangement and grouping, while castor oil plants add much to the charming effect. Scarlet runners, hyacinth beans, sweet peas, and climbing nasturtium planted in the outer boxes form an enclosure or floral fence to the garden, while begonia, white alyssum, blue lobelia, geraniums and other plants, are distributed in boxes variously placed. On one side is a high stone wall of an adjoining building; this, by attaching wire

netting about eight feet high, has been utilized to form a wall of green by planting a quick growing climbing vine and when in bloom it is beautiful.

Water Lilies

A. H. Ewing, Woodstock, Ontario

AS far as I have gone into aquatics, no hardy nymphæa seems to be so satisfactory as *Nymphæa odorata*, "W. B. Shaw," herewith illustrated. It is the most free flowering of any of them, its leaves spread over a large area, it increases and multiplies to an almost alarming extent, is the first to get into flower and is with the last when the frost comes, blossoming the whole season through. The color of the flowers is a beautiful clean, rose pink with yellow stamens. Dreer describes it in his catalogue as "one of the best hardy water lilies under cultivation," a description which I can truthfully endorse. From a tuber with one lead, obtained

three years ago, I had a stock of at least seventy-five heads this spring, the large majority of which I was reluctantly obliged to throw on the dump for want of room or customers to give them away to. This sort is, however, essentially a pond lily; it is altogether too rampant for tub cultivation.

N. tuberosa rosea is another very pretty pink variety, and not quite so strong growing or so floriferous as the foregoing. *N. tuberosa Richardsonii* and "Wm. Doogue" are the best whites with me; the latter is described in Dreer's catalogue as "of a pleasing shell pink color," but it comes white here. *N. Marliacea chromatella* is certainly the best yellow, is a free and continuous bloomer and a vigorous grower, although it does not make a very large spread. For a distinct crimson, "James Brydon" "takes the cake"; it is a free bloomer and would be just as desirable in a tub as in the pond.

There are many other varieties but the capacity of one's space and pocket is limited. The pond under my care has a capacity of twenty-four nymphæas, and there are twelve varieties.

It is very pleasant to note the increasing interest that is being taken in aquatics. As their cultivation is very simple, and their preservation through the winter very easy, it may be safely predicted that many present frog ponds will soon be "things of beauty and a joy forever."



Nymphæa odorata, "W. B. Shaw"

Grown in lily pond, "Altadore," Woodstock, Ont.

Aster Seeds for the Saving

Max Moineau, Toronto

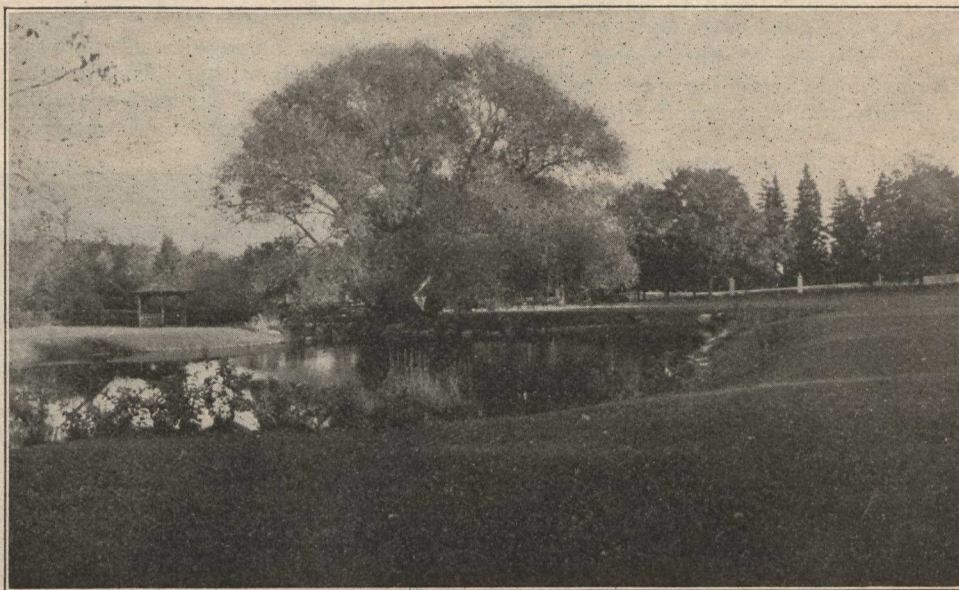
HAVING noticed the difference of opinion existing between Mr. W. Norman, of Elmira, Ont., and Mr. Charles J. Fox, of South London, regarding the saving of aster seeds, I should like to give my own experience, from the amateur point of view. I invariably save my own seeds, but only from flowers that particularly please me. I select a few of my very best blooms, strip the plants of all but three or four buds, and these I cover with cheese cloth to prevent cross fertilization by insects. The flower attains full development before the pollen is ripe, and I can easily pass judgment upon it before there is danger of accidental cross fertilization.

If I wish to cross a variety, I cover the two varieties which I have selected for the purpose, and when the anthers burst and shed their pollen, I use a camel's hair brush, filling it with the pollen of one flower and dusting it over the stigma of the other; the one I have crossed I keep covered with cheese cloth. My flowers always come true, and I have originated several new varieties, which I consider as fine as any that I have seen.

This year I have in my hotbed some beautiful plants, the greater number of which were started from my own seeds. I have others, however, which I bought. I always buy the newest varieties with which to experiment, but at present the best looking plants I have are from my own seed. I quite agree with Mr. Fox that, if flowers are not protected, the bees will cross them; but, by covering them as I do, I get them true to type. Besides, after gathering the seeds, I

make a careful selection, keeping those only that are the best developed. Among the many that I have bought, I have never seen as uniform a collection as I get from my own gathering and selection.

I maintain that if one is careful enough, he can have finer seeds, and better flowers from his own collection



A Pond of Natural Origin That Has Been Beautified by Artificial Means

On grounds of Mrs. Donnelly, Cobourg, Ontario

than can be secured from many of those that he buys. I have bought seeds which, from a whole package, have produced only six or seven plants, and perhaps only one of them true to type. My own seeds have produced ninety-five per

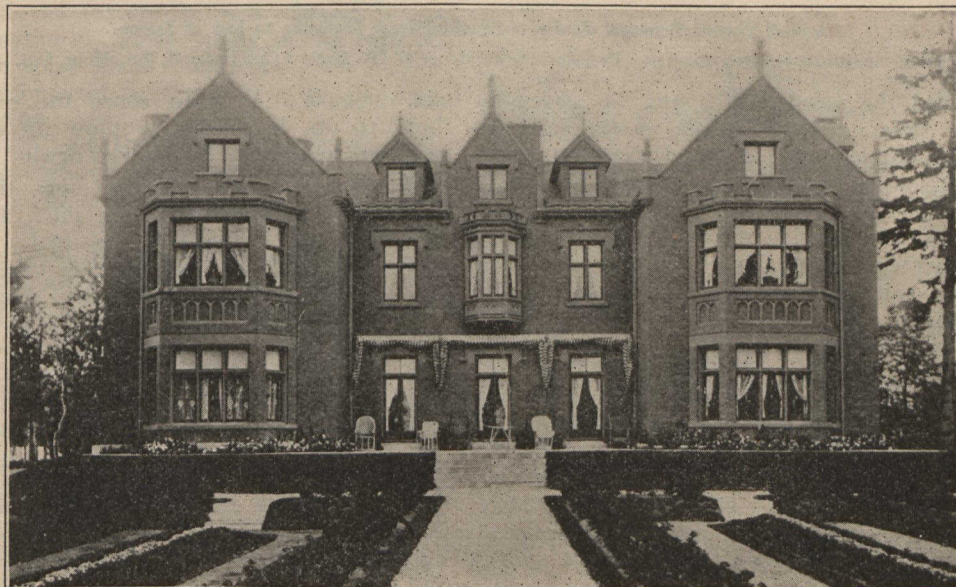
cent. of good plants and well developed flowers.

What the aster really needs, for the proper development of seeds, is the best of attention with the cultivator and plenty of fertilizer. Hardwood ashes, administered about the end of July, makes a wonderful improvement.

I have practiced saving my own seed for several years and, whenever I cover the flower in time, I have not been disappointed. This covering must be done before the pollen ripens, or it will be of

no avail. I do not know what method the commercial grower adopts, but I should think that where large fields of asters, of many varieties, are grown in the open, the danger of cross fertilization would be greater than where an amateur protects his seed by covering. Mr. Fox states that "Each color is grown separately. Every plant showing the slightest signs of a wrong color is destroyed." This method may be necessary among commercial growers, but if the amateur, after making his selection of a seed flower, uses the covering method, he can have true seeds, and better seeds, at a smaller cost, with less discouragement, and without the ruthless destruction of other varieties.

For amateurs, I am an advocate of saving seed from the best of their favorites, but I would not confine them to this method alone. Look the catalogues over for the latest novelties, secure only the best from the most reliable growers, and study the improvement, by cross-fertilization, of old favorites. Herein lies the greatest fascination.



Old English Landscape Art Applied to the Adornment of a Home in Canada

"Hamilton House," Cobourg, Ont., the summer residence of Mrs. C. B. Tracy, New York City, and formerly of Hon. Sidney Smith, a postmaster general of Canada in pre-confederation days. Here, King Edward VII (then the Prince of Wales) lived during his three days stay in Cobourg in 1867. The gardens are laid out in formal style with terraces, sunken flower beds, hedges, arbors, closely trimmed evergreens, and so forth.

As a general rule, it is best for amateur gardeners to steer clear of fancy flower beds. Unless given great care and attention, they will not be satisfactory.

Some Notes on The Dahlia

J. Cavers, Oakville, Ontario

THE culture of dahlias is almost as simple as the growing of potatoes. Existing varieties are propagated by division of the tubers, by cuttings and, to a limited extent, by grafting. New varieties are obtained from seed. The buds, or eyes, are in the neck of the tuber, not in the body of it, as in the potato. The tuber may be divided into as many pieces as there are eyes, care being taken to have a good sized piece of tuber for each eye, for the first nourishment of the young plant. Cuttings made from the growing wood are readily rooted in sand with bottom heat.

Do not plant a dahlia tuber—or any tuber or bulb—in contact with manure.

The following are conditions from which good results may be expected,—open sunlight, a free circulation of air, a plentiful supply of moisture, and a good loamy soil, well pulverized and not too rich in nitrogenous plant food. Give each plant about ten square feet of surface.

The tubers start to bud before it is desirable to plant. If these be placed in a strong light,—not in direct sunlight,—and protected from frost, the buds will develop slowly and make strong plants for setting out.

Training of the growing plant is desirable, and the most approved method is known as “the single stem branching system.” The chief feature of this system is to prevent the plant from making a main trunk, and the method is simple. When the young shoots appear, remove all but the strongest one. Allow this one to grow until two pairs of leaves have been developed, then pinch back the main stem, or leader, to the upper pair of leaves. This will give a short single stem with four long branches close to the ground. A similar pinching back of the leading stem of each of these four branches may be made. The effect of this system of training is to give low-set, symmetrical and widely-branched plants that will withstand high winds without being tied to stakes. Another desirable result is that the first imperfect, short-stemmed flowers that are formed on many varieties under the ordinary system are avoided and, under the system recommended, finer flowers are produced on long stems, well supplied with foliage.

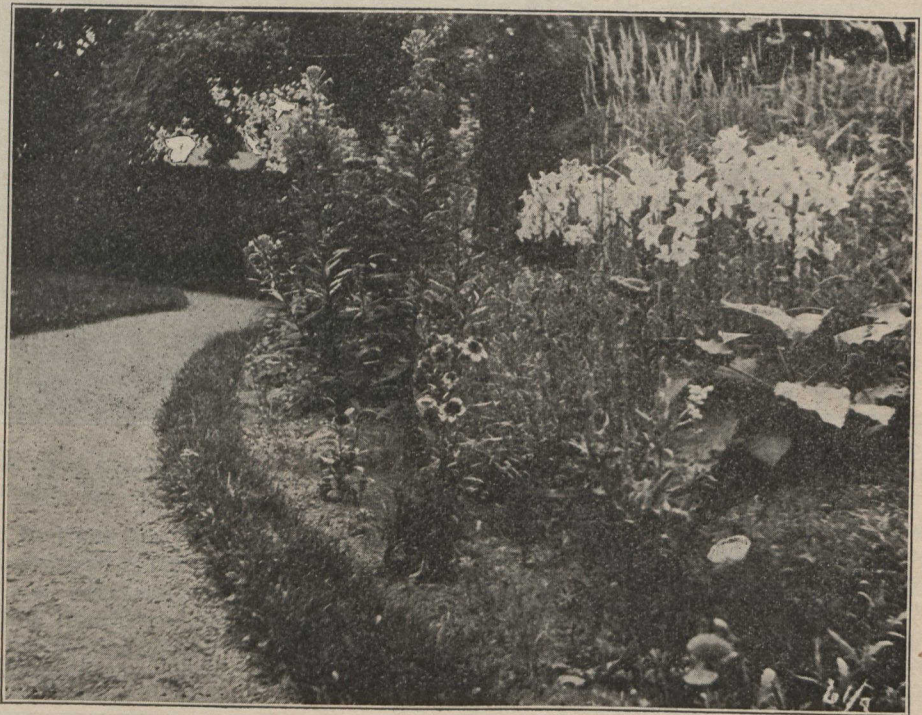
The dahlia is a late blooming plant. It will not give satisfactory results from forcing or from too early planting. The finest blooms, and these are the chief consideration with amateurs, are developed in September, the season of long, cool, dewy nights. Planting from the 1st to 15th June in Ontario will probably give in an average season better results than earlier planting.

Two or three days after the first killing frost, the stems should be cut off, the tubers carefully lifted, and allowed to dry in the sunshine, after which they may be stored in sand in a cool, but frost-proof cellar, care being taken that the moisture does not collect and remain in the crowns of the tubers. Such moisture will almost invariably produce rot.

Dandelions in Lawns

Dandelions, narrow-leaved plaintains, docks and weeds of that class can scarcely be gotten rid of except by spudding, and unless this operation is performed

killing young dandelion plants. A twenty per cent. solution of sulphate of iron is used. Dissolve two pounds of sulphate of iron in a gallon of water, stirring with a stick to hasten solution. Apply with a hand sprayer. Use one gallon of this solution to one square rod of greensward. A second application may be necessary. The grass will be blackened and appear killed but in a week or so it will recover and grow with increased vigor. Old dandelion plants cannot be killed by spraying. On these apply dry sulphate of iron to the heart of the old plant. If this is repeated once or twice, it will kill the old plants. Where the lawn is large and the dandelions plentiful, either of the foregoing operations may require too much time



A Well Planted Perennial Border is Beautiful from Beginning to End of Season.

The one illustrated was taken at “Dunain,” the residence of Mr. Barlow Cumberland, Port Hope, Ont.

when the weeds are young, it may not be satisfactory, especially in the case of old dandelions. A spud may be purchased at a hardware store or from seedsmen. Run the instrument (which resembles a wide screw driver or chisel) downward alongside of the root to loosen the soil so that it may be pulled out whole. Except in the case of young dandelion roots, do not be content with simply cutting off the plant below the surface of the soil. After using the spud, immediately use a pounder to fill up the holes that otherwise would afford lodgement for seeds that are blowing about freely. These spots may also be sown with grass seed to advantage.

Dandelions may be treated with chemicals but where they are very prevalent the process is slow. A few drops of sulphuric acid (oil of vitriol) poured on the crown of each plant usually will kill them. Spraying is also advocated for

and expense. In such cases the only thing to do, is to dig or plow up the turf, and make the lawn over again.

Weeds are more plentiful on thin lawns than on those that are thick and velvety. By improving the turf, by means of fertilizing and additional seeding to thicken it most weeds will disappear. Keep the mower going, as it will do much towards keeping down most weeds.

From England comes a suggestion for the conversion of the home greenhouse into a swimming tank when flowers will not grow. During the summer months the greenhouse often is idle. Use lime and cement for floor and sides and turn it into a pleasure place. The water may be warmed, if necessary, by the pipes that are used in winter for greenhouse purposes.

Lawn and Garden Hints for June

THE lateness of the season this year has kept garden crops backward.

Seeds that were put in the ground a month and more ago are in many instances barely showing through the ground. The wet weather last month may have rotted some kinds of seeds and, therefore, may necessitate reseeded. Plants started too early, that have been injured, may need replacing.

Warm weather this month will bring things on rapidly. Watch the weeds and cultivate the garden frequently. Stirring the surface soil, even if it is apparently clean, will destroy many young weeds that have started to grow in the soil.

Sometimes young vegetable plants find it difficult to break their way through the surface of the dry soil and are either delayed in appearing or killed. To prevent this condition, it is well to soften the soil by means of watering. Apply water also when needed by growing plants. Do not allow anything to suffer from drought.

Plant sweet corn, cabbage and cauliflower. For a small garden, buy plants of the two latter rather than attempt to grow them from seed.

Be sure and have a variety of crops for salads and garnishes. The best of these is lettuce. It is easy to grow except during the heat of summer, and even then, it will prove successful, if shaded and watered and grown carefully. Other crops of these classes, some of which should be in every amateur's garden, are parsley, endive, cress, chicory, mustard and corn salad.

When danger of frost is past, sow seeds of such tender plants as melons, cucumbers and squash. Sow plenty of seed and do not thin out the seedlings until the insects have a chance to do their work. Keep young plants covered with some good insecticide. The use of lime or road dust also is useful for this purpose.

Thin out the onions, beets, carrots, parsnips and others that require it. The more space that is given to these crops, the larger they will grow, but better quality is had by allowing the plants to stand fairly closely together and thereby keeping them on the small side.

WITH THE FRUITS

Cultivate the newly-set strawberry plants and nip off all blossoms that appear. Replace any plants that have died. Some radish or lettuce may be grown this month between the strawberry rows. They will be off long before the strawberries need the space.

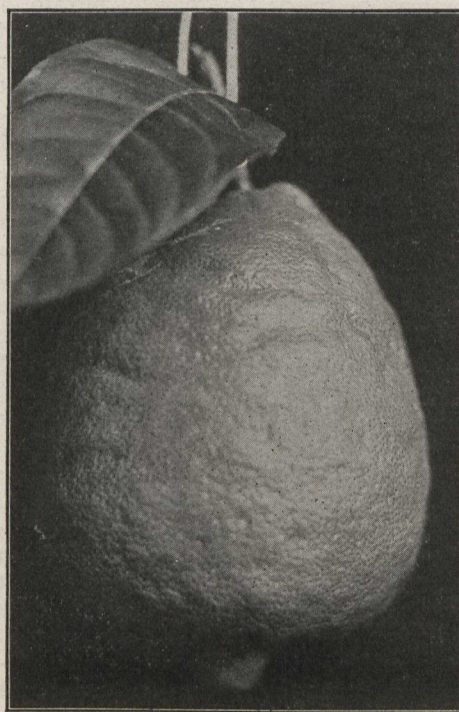
Pick the berries from the fruiting patch every day or two so that they will always be fresh and none of them will go to waste.

To have clean fruit on fruit trees they

must be sprayed. By this time, the operation should have been performed at least once, and better twice. Spray again immediately after the blossoms fall, particularly for the codling moth of the apple.

Few amateur gardeners possess a spray pump of any kind other than probably a little one for bucket attachment. Most home gardens are too small to warrant the purchasing of a large spray pump. The results of one season's spraying, however, would amply prove that it will pay three or four neighbors to get together and purchase a barrel pump jointly.

To have large fruit of the best quality



A Home-Grown Lemon

The tree on which this fruit grew is owned by Mrs. Geo. Kerslake, Lumley, Ont. The fruit weighed 1½ pounds and measured 8½ inches from base to apex and 15 inches around horizontally. The photograph was taken by Mr. Jos. Senior, Exeter, Ont.

on our trees, it is necessary to thin the fruit when young on the branches. Remove enough fruits so as to leave those on the branches about six inches apart. Do this work after what is commonly called the "June drop."

Have you any home-made devices that make gardening easier? If so, send a brief description of them for publication in THE CANADIAN HORTICULTURIST, and thereby help others. A drawing or photograph also would be appreciated.

THE FLOWER GARDEN

Plant gladiolus bulbs in full exposure to the sun. Plant two to four inches deep according to the size of the corns and two to four inches apart in double rows which may be made as close as twelve inches in beds or borders.

Have a good variety of annuals. Among the best of them are salpiglossis, eschscholtzia, scabiosa, schizanthus, mignonette, calliopsis, balsam, zinnia, poppy and many others. Among the best plants for use on the edges of borders and flower plants are sweet alyssum, candytuft and lobelia.

During hot weather, water the pansy bed twice a day—at noon and at night. The pansy is one of the plants that is not injured by watering under the hot sun. Give them water when they need it most, and that is at mid-day.

If your sweet peas were sown in trenches, commence filling in. To have large flowers, disbud and allow only a few of the buds to grow to maturity. Water sweet peas often.

Plant dahlias and cannas. Read the article on dahlias that appears on another page.

Get the window boxes ready and put them in position as soon as danger of frost is past. Hanging baskets and rustic stands also should be looked after.

Keep the perennial border well cultivated and clean. Pick off all flowers when they commence to die.

Keep the walks and drives clean. Keep the mower going on the lawn. Watch lawn weeds and use the spud frequently. Read the article about weeds in lawns on another page.

Mushrooms

When and how is the proper time and way to plant mushroom spawn? This is the way I planted it. I dug a trench about eight inches deep and in this trench put good heated horse manure and dug another trench and put the clay from that trench on the manure and kept on that way until I had about eight square feet and then I put the spawn in (which I broke in pieces about the size of a hickory nut or larger). After a day or so I watered the bed with lukewarm water but they did not grow.—H. T. M., Telfer, Ont.

I have had no experience in cultivating mushrooms in the open air. In view of the difficulty of maintaining a proper temperature and a uniformly proper degree of moisture in open air beds in this climate, I think that any success attained would be more the result of chance or luck, than of skill or management. I would advise the amateur, who wishes to take up mushroom growing, to procure some standard work on the subject, and study and follow carefully the directions given. Falconer's "Mushrooms, and How to Grow Them," is a standard work. It may be secured from THE CANADIAN HORTICULTURIST for \$1.00 postpaid. Mushroom growing is like rod fishing. There is enough uncertainty about it to make it fascinating, but not always profitable. — Thos. Delworth, Weston, Ont., President of the Ontario Vegetable Growers' Association.

The Proper Fertilizers

I am at a loss to know what kind of fertilizer is required for different varieties of flowers and vegetables. My soil is a light sand and for three years I have been putting cow manure on it, as much as I could work in, so that it is perhaps rich enough with that fertilizer. But I do not know what plants require lime or ashes or bone-meal, and so forth, and therefore cannot get the best results. Kindly give me the list of vegetables for a small family garden and the kinds of nutriment each requires. Will you please tell me the kind of fertilizer which will best produce flowers.—C. E. G., London, Ont.

In many cases it is quite impossible to tell what a soil is deficient in without experimenting, that is, applying certain fertilizers and noting the results obtained. All vegetables and flowers require three main fertilizing materials,—nitrogen, phosphoric acid and potash. A fourth may be added, namely, lime, but this constituent is generally present in ordinary soil in sufficient quantity, although some instances are known in which lime has been proven to be deficient. Where lime is lacking, the effect of an application may be most readily observed through the use of a small quantity on a small plot.

For garden crops, such as cabbages, cauliflowers, celery, tomatoes, beets, onions, carrots and potatoes, fertilizers applied at the following rates (in pounds per acre) have given good results:

Cabbage, cauliflower, celery:—Nitrogen, in the form of nitrate of soda, 200-400; phosphoric acid in the form of superphosphate 400-600; potash, in the form of muriate of potash, 150-250.

Beets and carrots:—Nitrate of soda, 140; superphosphate, 400; muriate of potash, 140.

Tomatoes:—Nitrate of soda, 120; superphosphate, 400; muriate of potash, 320.

Onions:—Nitrate of soda, 100; superphosphate, 500; muriate of potash, 160.

Potatoes:—Nitrate of soda, 100; superphosphate, 400; sulphate of potash, 200. You will notice that in the case of potatoes, the sulphate of potash is used instead of the muriate form.

All three of the essential plant food ingredients must be applied to the soil nearly in the proportions indicated in order to get the best results, but it must be remembered that no hard and fast rule can be given as to the quantities of fertilizers to apply, as these depend upon a great number of factors over which the producer has no control.

Under ordinary conditions fertilizers should be applied sometime before seeding except in the case of nitrate of soda. As this fertilizer is very soluble, and, therefore, liable to be washed out of the soil before the crop is able to make use of it, the larger part of the application should be made after the plants are singled out. The fertilizers should be

sown broadcast either by hand or by a fertilizer distributor, and wherever possible harrowed in lightly. A further comment I would add here is that careful observation of the tests on his own garden will enable the producer to follow such a system of fertilizing as will give him the most satisfactory results.

For flowers or pot plants, it has been advised to apply the fertilizer in liquid form, as the plants have such a small soil space. In some cases good results have been obtained by simply applying the fertilizers and watering frequently. The following quantities per rod have, in some cases, given very satisfactory results: Three pounds of superphosphate, two pounds of sulphate of potash and two pounds of nitrate of soda.

For pot plants the following quantities may be tried: One part of nitrate of soda, two parts of acid phosphate, and one part of sulphate of potash. These should be applied once every fortnight or so at the rate of one-half to three-quarters of an ounce to the gallon of water.

In connection with these last quantities (namely, for flowers) I may say that the experimental work that has been done along this line has not sufficiently demonstrated the exact quantities of the materials to be used and I mention these amounts simply as an indication of what might be tried by way of experiment.—Prof. W. P. Gamble, Ontario Agricultural College.

The Time to Plant Ginseng

Ginseng growers recommend that ginseng be planted in the fall and not in spring. A number of enquiries about this point have been received by THE CANADIAN HORTICULTURIST. In reply to the question, Mr. J. E. Janelle, Caughnawaga, Que., writes as follows: "The spring season in Canada is not the proper time for ginseng planting. I would not recommend that seeds or plants be purchased in spring, particularly by beginners. Send your orders at any time, but they will be filled only in the fall."

The following letter was received from Mr. A. Twiner, Saugatuck, Mich: "Stratified ginseng seed planted in the fall will come up the following spring. When the plants first come up they resemble newly-sprouted beans, on account of having one little leaf stem and two leaves. During the first year, the plant attains a height of two or three inches. The work of the plant the first year, seems to be to develop the root and the bud at the top of the root, which produces the next season's stem and leaves. In the spring of the second year this bud produces a single straight stem which has two or three leaves on it and three leaves to a stem. During the second year, the plant grows four or five inches high. During the third year, the main stem has three leaf stems with gen-

erally five leaves to a stem, and the plant grows from six to nine inches in height. After the third year, some plants will have more leaf stems and leaves and they will grow higher. Last fall the writer dug a plant that was four feet one inch from the tip of the root to the top of the main stem."

Location for Ginseng

Would it be advisable to plant ginseng in the bush or woods? It is Nature's method.—H. R., Perth, Ont.

By planting ginseng in the bush it would have the natural shade, but let us see how it would work out in practice. Let us suppose that a farmer planted 1000 one-year-old roots in his wood-lot and, say, 1000 seeds. Now, nature has the birds and small animals, such as squirrels, to feed. These would be apt to take the larger share of the seed each year, and in the course of four or five years, there would be quite a number of young trees growing in that ginseng garden. We will imagine that farmer arriving in the bush some morning in September armed with a spade or fork to dig his ginseng. I think he would require an axe and pick to aid him to extract the ginseng out of a network of forest roots and bush. The orchard would be objectionable for similar reasons. The seeds would be exposed to the same enemies and the fruit falling on the beds would break the plants and the pickers would trample the beds more or less. Plant your ginseng at least fifteen feet away from trees. Tree roots rob the soil of moisture and plant food. Ginseng thrives better, grows larger and firmer and shrinks less in drying than wild roots. We can regulate artificial shade to suit existing conditions.—Wm. Gilgore, Peterboro, Ont.

Articles on the cost of growing an acre of tomatoes for the canning factory with profits are requested for publication.

The matter of drainage is very important in the market garden, for no soil, unless well drained, will yield satisfactory garden crops.

Gardeners in Canada, who have tested mulching with straw or other material between the rows of vegetables instead of cultivation, are requested to tell their opinions of the operation in a letter for publication in THE CANADIAN HORTICULTURIST.

Market gardeners in Quebec and the maritime provinces are requested to contribute articles for publication. Tell your experiences with the crop that you grow most extensively. State the condition of the market in your province, and the outlook. Send some photographs of your garden, if you can.

QUESTION AND ANSWER DEPARTMENT

Lowland Raspberry--Red Canada

1. In a recent issue, I saw the apple, Lowland Raspberry, recommended by an Ontario reader. In British Columbia, this variety is known as Livland Raspberry, sometimes as Lievland Raspberry. Which is correct?

2. The variety known here as Canada Red seems to be known elsewhere as Steele's Red Winter, Pomme de Fer, Roseau, etc. I would like to know by whom the latter name was given.—Pommier, Okanagan Valley, B.C.

1. The Lowland Raspberry is the name for this variety that is recognized by the American Pomological Society, whose decision is taken as authoritative. It is accepted also by Beach in the "Apples of New York." Woolverton's work, the "Fruits of Ontario," gives preference to the name, "Livland Raspberry." Like most varieties of apples, this one has a number of synonymous names.

2. According to Plumb in THE CANADIAN HORTICULTURIST, for 1895, and to Beach in the "Apples of New York," the Canada Red of Ontario is distinct from the Red Canada of western New York and some other fruit districts of the United States. The latter is known also as Steele's Red Winter. Plumb calls the Canada Red of Ontario, "Baltimore," and Beach, "Roseau." Beach describes Roseau as "A variety, known in portions of Ontario under the name of Red Canada or Canada Red, which is said to be quite different from the Red Canada of western New York. Waugh identifies this variety as the Roseau of Downing, and remarks that it is really an important apple. He states that it is known in some parts of Vermont as the Winesap and that it is the Pomme de Fer of Quebec. Plumb gives Flushing Spitzenburg as its correct name and calls it identical with the variety described by Downing under the name Baltimore. We have not had an opportunity of verifying the conclusions of either Waugh or Plumb with regard to this matter."

The following notes have been received from Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa:

"We have adopted the name Lowland Raspberry, following the nomenclature of the American Pomological Society. It is one of the best summer apples, if not the best, we have grown, and being very hardy, is especially desirable in the colder districts. Following are descriptions of Lowland Raspberry and Canada Red apples made by the writer:

"Lowland Raspberry (Livland Raspberry).—This variety is a native of Russia, and has been grown at the Central

Experimental Farm since 1888. The tree is very hardy, and is a strong, moderately upright grower and a medium to good bearer. Fruit medium to large; roundish to oblate conic, angular; cavity medium depth, narrow; stem medium length to short, moderately stout; basin shallow, narrow, slightly wrinkled; calyx closed or partly open; pale yellow, waxy, more or less blotched, splashed and washed with bright red; dots few, pale yellow, indistinct; skin moderately thick, tender; flesh, white tinged with red, crisp, tender, juicy; core, medium to large, open; subacid, pleasant, good flavor; quality very good; season mid to late August. One of the best summer apples, especially for home use, but drops badly and ripens unevenly. Preferable to Red Astrachan in colder districts.

"Roseau (Canada Red, Pomme de Fer).—Origin unknown. Fruit medium to large, oblate, slightly conical; skin yellow, well splashed and washed with deep, rather dull red; dots fairly numerous, large, yellow, prominent; cavity deep, narrow; stem short, slender; basin narrow, shallow, slightly wrinkled; calyx small, partly open; flesh yellowish, tender, moderately juicy, mildly subacid with a pleasant but not high flavor; core of medium size; quality good; season midwinter to late winter. Tree a strong grower and has proved productive in some places, while a shy bearer in others."

Medicinal Plants

I wish to secure some information about medicinal plants that may be grown successfully in Ontario. Can Belladonna or Hyoscyamus be grown here? They are grown in Great Britain and Germany. How about Rosmarinus, Sassafras, Hamamelis, Lactuca, Mentha viridis, Artemisia, Valeriana, Conium and Sambucus?—J.E.K., Lanark Co., Ont.

Atropa Belladonna grows in Europe and in Asia as far as India. It can be grown in Ontario. *Hyoscyamus niger* grows wild in Europe, Western Asia and the Himalayas. It has been naturalized in America and may be grown from seeds. The rosemary (*Rosmarinus officinalis*) is a shrub indigenous to the Mediterranean region and will grow in Ontario in well drained soil if protected. The tree, *Sassafras officinalis*, grows from Ontario to Florida and may be propagated by seed, suckers or root cuttings. Witch Hazel (*Hamamelis Virginiana*) also grows from Canada to Florida. It prefers a moist sandy or peaty soil and is propagated by seeds which germinate the second year or by layers. Spearmint (*Mentha spicata*),

formerly known as *M. viridis*), is native to Europe and Asia. It will grow in Canada and is propagated by perennial root stalks. The question does not specify the species of Lactuca. The one that gives the sedative, lactucarium, is *Lactuca virosa*, native to Europe. Some wild American species also are gathered for medicinal purposes. The common garden lettuce belongs to this genus. The shrubby herb, wormwood (*Artemisia Absinthium*) is native to Europe. It is found here in old gardens and is propagated mostly by division. The medicinal valeriana is extracted from the roots of the *Valeriana officinalis*. It is native to Europe and northern Asia but it will grow anywhere. *Conium maculatum* is a European herb that has run wild in eastern North America. The European elder (*Sambucus nigra*) is a small tree and may be grown successfully in this province.

Yucca Filamentosa

Kindly give some information about the care of the yucca.—W.M., Oshawa, Ont.

We presume that the yucca referred to is the *Yucca filamentosa*, which appears to be one of the hardiest species. The plants at the Central Experimental Farm bloom almost every year and it is rather surprising that the one in question has not bloomed. Yuccas require a rather warm soil, well drained. A sandy loam soil should be suitable if there is good drainage. It is a good practice to throw a few evergreen boughs over the yuccas in autumn to protect them from changes of temperature in winter. A box turned over them is also a good thing as it will often save many of the leaves and the plants will be stronger and more likely to bloom. We notice that some of the plants of the yucca do not bloom as freely as others, and it is possible that a new plant would bloom in a reasonable time.—W. T. Macoun.

Broad Beans

Why are my broad beans always a failure? They grow to be large plants, blossom, and then the leaves blight and become black. The pods never form.—R. T. W., Thorndale, Ont.

The broad bean or horse bean is affected with a blight disease in some parts of Canada. It is more injurious in the drier parts of Canada than in the maritime provinces where the air is moister. In some parts of the country the horse bean is not at all reliable on account of this disease. So far as I know, no remedies have been tried for controlling it.—W. T. Macoun, Central Experimental Farm, Ottawa.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited
PETERBORO AND TORONTO



The Only Horticultural Magazine in the Dominion

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

H. BRONSON COWAN, Managing Director
A. B. CUTTING, B.S.A., Editor

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

CIRCULATION STATEMENT.

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

January, 1908.....7,650	January, 1909.....9,456
February, 1908.....7,824	February, 1909.....9,310
March, 1908.....8,056	March, 1909.....9,405
April, 1908.....8,250	April, 1909.....9,482
May, 1908.....8,573	May, 1909.....9,172
June, 1908.....8,840	
July, 1908.....9,015	
August, 1908.....9,070	
September, 1908.....9,121	
October, 1908.....9,215	
November, 1908.....9,323	
December, 1908.....9,400	

Total for the year. 104,337

Average each issue in 1907, 6,627
Average each issue in 1908, 8,695
(Increased circulation in one year 2,068)

Sworn detailed statements will be mailed upon application.

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Communications should be addressed:

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EDITORIAL

DISAPPOINTING CONDITIONS

The Session of the Ontario Legislature which closed recently was not a very satisfactory one as far as those who are interested in the work of the horticultural societies of Ontario are concerned. The Legislature failed to increase the grant to Horticultural Societies from \$8,000 to \$10,000 as it had been requested to do by the societies through the Ontario Horticultural Association. Thus, although the membership of the horticultural societies this year will be almost double what it was a couple of years ago, the societies are forced to carry on their work with the old grant which is now so small as to seriously handicap the work of the societies.

In addition, the Legislature failed to pass a small grant of \$100, that was given to the Ontario Horticultural Association by Hon. Mr. Monteith, to assist in carrying on its work. It was understood that this grant was to be continued from year to year. It is true that the grant is a small one, but nevertheless, it is needed by the Association which has to depend on the Government to a considerable extent for its financial support.

Furthermore, the legislature amended the Horticultural Societies' Act so as to limit the grant any society shall receive hereafter, to not over \$800. This amendment will seriously restrict the work of the Ottawa and St. Catharines Horticultural Societies. These are the only two societies that so far have been entitled to such a grant. While \$800 may seem a large grant, the principle involved in this legislation is a bad one. If the Government says that the larger cities shall not receive over \$800, it should be consistent and say that the smaller cities shall not draw over, say, \$600, the towns \$400 and villages \$200.

After a society secures a certain membership it is a very difficult matter for it to obtain additional members. Why then should a society be discouraged from obtaining additional members by the restricting of its grant? A feature of this last amendment, which is most unsatisfactory, is, that it was passed without any intimation being given to the officers of the Ontario Horticultural Association. They should have been given an opportunity to make their views known to the Department.

The officers of the Horticultural Societies of Ontario represent the best classes of citizens in the cities, towns, and villages of the Province. They are public spirited to an unusual degree as they give their services in the cause of horticulture free of cost and often at great inconvenience and under discouraging circumstances. It is unfortunate, therefore, that the Legislature instead of granting the reasonable assistance required to still further encourage the work of the societies has taken action that will tend to discourage and hamper them.

JOURNALISM AT GUELPH

About ninety per cent. of the students that graduate after taking the full four years' course at the Ontario Agricultural College secure positions that demand ability and experience in public speaking or in writing and, in many cases, in both. The nature of the positions that are offered by agricultural colleges and high schools, experiment stations, departments of

agriculture, agricultural publications and by other employers of these experts, requires men not only well informed in their respective branches of the profession, but also able to impart information in a competent and acceptable manner. During the past six or eight years, the Guelph college has given some instruction and practise in public speaking and much good has resulted. In the last annual report of the college the professor of English urges the appointment of an assistant who would be competent to take charge of the public speaking classes and to assist in the other branches of the English department. This recommendation should receive the favorable consideration of the Ontario government, and be acted upon before the college again opens next fall.

As a large number of Guelph graduates are now connected with the agricultural press of Canada and the United States, and as there will always be a demand for men qualified to fill such positions, we would suggest that classes in agricultural journalism be also made a branch of the department of English at the college. There is a wide difference between instruction in ordinary composition, which is invaluable in itself, and in journalism. The former is a necessary part of the education of every student and is of a more or less general nature; the latter embodies the former and includes further instruction of a special character—it is a business and a profession that requires distinctive training. At Guelph, where so many embryo journalists are trained, courses should be given in the history and principles of journalism, newspaper administration, illustration, photography, the libel law, news gathering, reporting, editorial writing and so forth, besides the academic branches of the study. Such instruction would be invaluable not only to students who may become journalists, but also to those who may accept other positions in professional agriculture and, by no means least, to those students who go back to the farms and who should be able to teach others by writing for the press. It would spread the gospel of good agriculture and good horticulture more rapidly. To make our agricultural college graduates even more efficient than they are, it would be in the interests of the college and of the country to have classes in agricultural journalism established at an early date. While this is a question more for the consideration of the college than of the government, it could have an important influence on the character of the appointment suggested by the professor of English.

Each co-operative fruit growers' association in the province should be represented at the annual meeting of the Co-operative Fruit Growers' of Ontario, to be held in Toronto on June 8. This organization is becoming stronger each year and is working in the interests of all persons connected with the co-operative handling of fruits. It should receive liberal and strong support.

We were given an opportunity last month of determining for ourselves whether or not Lake Erie apples are good keepers. Through the kindness of Mr. Jas. E. Johnson, of Simcoe, Ont., we received a basket of Spy apples which were apparently as firm and as beautiful as when picked. The flavor was excellent. As pointed out by Chief McNeill on another page of this issue, Lake Erie apples, properly grown, handled, packed and stored, will keep as well as those grown in any other part of the province.

The third annual report of the Horticultural Societies of Ontario contains much

valuable information. It has been well compiled and the illustrations are good. It is to be regretted, however, that the suggestion of the directors (see report, page 59, clause 6) that "the names of the persons whose homes and gardens are illustrated be published" was not observed more closely. Such information would have made the report even more valuable and interesting than it is.

The success of British Columbia fruit at the big apple show held at Spokane, Washington, last December should be an incentive to the fruit growers of all Canada. British Columbia, particularly the Kelowna district, did much to advertise the fruit growing possibilities of that province. As plans are now being made for a larger exhibition and even a better one at Spokane next fall, all the fruit-growing provinces of the Dominion should plan to send exhibits. About fifty thousand dollars will be offered in prizes. Now is the time to start preparations. Prize-winning fruit comes only from orchards that are well-cared for from the beginning to the end of the season.

Arsenite of Soda

R. J. Messenger, Bridgetown, N. S.

The formula for preparing arsenite of soda is as follows: One pound of white arsenic (arsenious acid or arsenious oxide); four pounds of sal soda (washing soda or sodium carbonate); one gallon of water. To prevent confusion I have given the three names under which the first two ingredients are known. It is taken for granted that every one knows water. The sal soda should be in crystals, looking somewhat like borax. The arsenic is a heavy white powder like flour.

PREPARATION

Since the preparation of this poison is not a pleasant operation, it is taken for granted that enough will be prepared to last for the month or two of spraying. Take an old pot or boiler and clean it out. Put in the required number of gallons of water. Bring it to a boil or at least, make it hot, then pour in the sal soda and arsenic, stirring constantly until the liquid becomes clear. It is generally the color of very weak tea. Possibly some of this color is due to the iron from the vessel. Bottle or place in earthenware jugs.

Now this, like Paris green, is injurious to foliage if used alone, only this is much more corrosive. If used as an insecticide, first take two or three pounds of lime and put into a 40 gallon cask of water, then add a pint of the arsenite of soda. If more poison is used more lime will be required.

If used with Bordeaux mixture no extra lime is necessary. Simply add to the mixture and stir thoroughly. I have used as high as a gallon of arsenite of soda with the 4-4-40 Bordeaux and had no injurious results from it, though it is better, if a gallon is used to add a little more lime.

I have used arsenite of soda for four years and find it more efficient, cheaper and better in every way than Paris green, arsenate of lead, or any other of the preparations on the market. A pint of this is equal to a quarter pound of pure Paris green. Keep it labelled "poison," and out of the way of the children.

I have just received a sample copy of THE CANADIAN HORTICULTURIST. It appears to be the best paper on horticulture that I have seen. Enclosed please find my subscription.—F. S. Carr, B. A., Edmonton, Alta.

PUBLISHERS' DESK

Maritime province readers of THE CANADIAN HORTICULTURIST, will find our July issue of particular interest and value. It will be devoted largely to matters of horticultural importance in Nova Scotia, New Brunswick and Prince Edward Island. While we endeavor to make each issue of our magazine of interest to our readers in all parts of Canada, it has been our custom occasionally to devote special numbers to the particular interests of one or more of the provinces. Last October, British Columbia was given special attention. The issues for November, December, January and February contained special articles for our readers in Alberta, Saskatchewan, Quebec and Manitoba, respectively. As the maritime provinces, particularly the Annapolis Valley of Nova Scotia, have long been recognized as a great fruit growing district, our July issue will be largely "maritime" in nature.

While an occasional issue is more or less specialized in matter, it is not done at the expense of material of general interest. Each and every issue of THE CANADIAN HORTICULTURIST is filled with articles, letters and news notes that may be read with profit by everybody.

The maritime province issue will contain, among other things, a number of articles on the work and progress of the model orchard experiment in Nova Scotia, and on fruit growing in the Annapolis Valley and other parts of that province. New Brunswick and Prince Edward Island will be treated likewise. Articles will appear also on market gardening, and on seaside lawns and gardens. Every person interested directly or indirectly in horticulture should read this issue. They should subscribe to THE CANADIAN HORTICULTURIST not only for this number but for the benefit that the paper will be to them from month to month. THE CANADIAN HORTICULTURIST is national in scope and in purpose.

The illustration on the front cover of this issue shows a part of the orchard of Mr. George Paton, Armstrong, B.C. It is situated on high land and the soil is a light sandy loam with limestone subsoil. The Wealthy apple does well in that locality. Other photographs of this nature from any fruit district in Canada will be welcomed for publication.

We would like to call the attention of our readers to the fact that the price of the "Big Four" combination of Canadian papers has been advanced from \$1.70 to \$2.00. The subscription price of one of the papers has been advanced from 50 cents to \$1.00 a year, but the price of the combination has been advanced only 30 cents. You get a better bargain than ever.

How many of our subscribers have a friend who is interested in their flower garden, but who does not know about THE CANADIAN HORTICULTURIST? We receive many letters from persons who when subscribing say that they did not know of the existence of such a paper till by chance they saw a copy of THE CANADIAN HORTICULTURIST and at once subscribed for it. Read the following letter recently received: "I saw a copy of THE CANADIAN HORTICULTURIST for the first time about half an hour ago. It is the first time that I knew of the existence of such a paper. Enclosed please find my

subscription for two years. I am glad that I discovered you." Some of your friends are just wishing for such a paper and do not know that there is one printed in Canada. Show them this copy. Send us the names of some of your friends who would like to see a copy.

Canadian Nurserymen

Editor, THE CANADIAN HORTICULTURIST:—I would respectfully call the Canadian Nurserymen's attention to the fact that we are compelled to pay a duty of 10 per cent. on apple, pear, plum, cherry, quince and peach seeds to grow seedling stock to propagate on, while seedlings of the same varieties are admitted free. Is this to encourage foreign growers?

If seedlings are to be admitted free, why should not the seed to produce this stock be also free and give the home nurseryman a chance to produce his own stock for propagation as cheap or cheaper than he can import it? Probably by calling the attention of the custom authorities at Ottawa to the matter, it would be regulated.—M. J. Henry, Vancouver, B.C.

Pointers on Spraying Pumps.—Since, to insure the most satisfactory results, spraying must be done within stated periods of a few days each, first-class spraying apparatus is essential to successful work. Frequently the loss of time and opportunity occasioned by the breaking down of cheap and unreliable outfits has resulted in a loss of money that equalled the cost of the spraying machine multiplied many times. As brass offers the most resistance to the chemical action of spraying liquids, it is therefore necessary that a sprayer have all parts of brass through which the liquid travels. It can be readily observed if careful machine work has been used in the construction of an outfit, by noting if all parts fit snugly, insuring minimum amount of wear, and also if the main castings are fairly smooth to the touch. To those interested in learning just what constitutes a first-class spraying outfit, The Deming Company, Salem, Ohio, will be pleased to forward a copy of their 1909 spray pump catalogue showing 24 varieties of hand and power outfits, including also a 12 page spraying chart, free of charge.

COMING EVENTS

Under this heading, notices of forthcoming exhibitions and meetings of horticultural importance will be published. Send the information as long in advance as possible.

CONVENTIONS.

- Oka, Quebec Pomological Society, Aug 24-25
- Toronto, Co-operative Fruit Growers of Ontario June 8.
- Toronto, Ontario Fruit Growers' Association Nov. 10-11.
- St. Catharines, American Pomological Society Sept. 14-16.

EXHIBITIONS.

- Calgary, Alberta Provincial July 5-10.
- Halifax, Nova Scotia Provincial, Sept. 2-10.
- London, Ont., Western Fair. Sept. 10-18.
- New Westminster Oct. 12-16.
- Ottawa, Central Canada Sept. 10-18.
- St. Catharines, Niagara Dist., Sept. 15-17.
- Toronto, Canadian National, Aug. 26-..... Sept. 10.
- Toronto, Ontario Horticultural, Nov. 9-13.
- Victoria Sept. 20-25.
- Winnipeg Industrial July 11-17.

Montreal Market Muskmelon Industry

William Stuart in Report of Vermont Agricultural Experiment Station

FOR years a few Canadian growers of this melon have enjoyed an almost exclusive control of the large eastern markets of the United States. These growers through carefully selected stock and skilful cultural methods, succeed in supplying excellent melons at fancy prices (\$8-15 per dozen wholesale). The crop, however, is an expensive and precarious one to grow, owing to frequent recurrence of unfavorable seasons, and to the extreme care required to grow it successfully.

CULTURAL METHODS

The cultural methods employed by Montreal growers are essentially as follows: The seed is sown in the greenhouse or hotbed from late February to early April; later

space is allowed between the ends of each section. When the soil over the manure is well warmed up, the warmest portion of some favorable day is selected for planting. Great care is exercised now in transferring the plants from the hotbeds to guard against setbacks from sudden changes of temperature or soil conditions. The coddling process does not cease now. It is simply spread over a greater area and the plants require even closer care than before, for greater attention must be paid to watering, syringing and ventilation, success at this stage being very largely dependent thereon.

As the fruit attains size, it is usually lifted from the soil by a shingle or flat stone, to avoid loss from cracking, rot, etc. Uniform shape, color, netting and ripening

tant markets. They hold a dozen melons, packed in short, fine-stemmed hay, and are shipped without cover, no attempt being made to fasten the melons in place, the express company being held responsible for safe delivery.

A first hand study of this industry leads one to query as to the causes or reasons for the monopoly possessed by Montreal gardeners. American growers have tried to produce the crop, but apparently without continuous success. At any rate American grown melons of this variety cut no figure in eastern markets. Yet no valid reason appears why American growers should not succeed. Hence the following work was undertaken:

Cooperative work was undertaken with Mr. E. S. Brigham of St. Albans, seed secured from a Montreal grower and sown in the station greenhouse on April 12. Duplicate plantings by Mr. Brigham were made in berry baskets plunged in a hotbed and filled with a rich friable soil. Early in May the plants were shifted into four inch pots and, on May 24 were planted out at St. Albans. Owing to a lack of good fermenting manure no bottom heat was supplied; but an abundant dressing of well decomposed manure was used and the frames covered with sash. Owing to the lateness of the season it was thought unnecessary to cover the sash with mats, yet on the night of May 24 the mercury registered 28 degrees, F., and the weather during the next few days was unreasonably cool. This low temperature, coupled with a lack of bottom heat and of mats, severely chilled all portions of the vines near the glass. Growth was materially checked during this prolonged period of cool and cloudy weather, and the setback was never fully overcome.

The warmer weather of latter June entailed a fairly satisfactory growth. By July 30 some of the larger melons were beginning to net. The first ripe fruit was picked August 19, and from that period on several were harvested, mostly much undersized, weighing less than 8 pounds; some of good quality, others distinctly inferior.

The removal of the sash in late August and the heavy rains of early September induced rapid growth and much cracking of both skin and the flesh, thus affording favorable opportunity for disease. And on September 12 a few melons were found seriously affected by a soft rot, and two days later a large share of the fruit was found thus affected. The primary points of infection seemed to be those parts which were in contact with the soil or the object on which they were superimposed. Had they been turned frequently during the rainy period less loss would have occurred. The frequent and heavy September rains and cool weather favored the development of this disease and lowered the quality of the healthy melons and retarded the ripening period. Few really good fruit were secured after September 15.

SUMMARY

The Montreal grower succeeds only through the careful observance of the best cultural conditions. His success is, however, directly dependent on the weather conditions obtaining during the growing season. Cold, wet weather during the ripening period materially injures quality and retards ripening. Successful plantings, the first ones in late February or early March, extend the ripening period from mid-July to frost.

A crop which may net \$1,000-\$2,000 per acre is worth an effort to produce. Canadian growers seem unable to supply the American demand, even at \$10 to \$15 per dozen wholesale.

The experimental work at St. Albans was not successful. However, the knowledge



A Field on the Island of Montreal Where Big Melons Grow
Plantation of Mr. T. J. Gorman, Outremont, Quebec

they are potted up into three or four inch pots, and when in danger of suffering for lack of root space and plant food and the weather is favorable they are removed to sash-covered frames, there to remain until they are almost fully grown. These hotbeds are well constructed, well exposed to the sun, and also protected from cold winds. The frames are often covered with two sets of sash, mats and board shutters. With such protection, if horse manure is used to generate a sufficient bottom heat and the exposed portions of the frame are banked therewith, the plants may be grown almost as well as in a greenhouse. These frames are movable sections approximately 12 x 6, strong and tight with tie rails for the sash to slide upon.

The soil over which these sections are set is ridged up in beds 12-16 feet wide with a one foot centre elevation. A trench is dug 2 feet wide, 15-18 inches deep, and filled almost level with well fermenting manure, and a portion of the surface soil thrown over it, slightly more being drawn in where the plants are to be set. The frames are then set in place and covered with sash, which in turn are further reinforced with mats and wooden shutters, or hay or straw with or without the shutters. A 4-6 foot

is secured by turning the fruit every few days. When the runners fairly occupy the enclosed area the frames are opened a few inches. As the season advances, more and more air is admitted until, finally, when the melons are almost full grown, the sash and then the frames themselves are entirely removed.

As each fruit sets its shoot is pinched off one or two joints beyond it. A 15-20 melon crop is considered sufficient from each 6x12 frame. Three or four hills are planted and usually two plants are set per hill.

The melons vary greatly in size. One weighing 44 pounds has been grown. The writer saw one weighing 22 pounds which had been selected for seed purposes. Their average weight ranges from 8 to 15 pounds, and a dozen averages from 120 to 130 pounds. In exceptional cases some have been shipped weighing 240 pounds per dozen package. The larger melons are apt to be poorer in quality than those weighing 8-15 pounds.

Two distinct types exist, a roundish oblate and an oblong, the first slightly deeper ribbed than the latter. These do not seem to be separated by the growers. It is not at all certain that either type is fixed.

A large wicker basket (clothes basket) is commonly employed in shipping to dis-

secured in the handling of the crop justifies the assumption that there is no valid excuse for continuous failure on the part of American growers to produce these melons success-

fully. And to the end that a clearer idea of the reasons underlying success and failure may be attained, further work along these lines is contemplated.

and small bush fruits promise very full crops, having come well through the winter. Strawberries do not look well; exceeding dryness of latter part of last season left them in poor condition, and a few heavy frosts since the snow went off were rather hard on them.—C.L.S.

LAMBTON CO., ONT.

Forest.—All fruits have wintered well and everything points to the crop being the same as two years ago.—A.L.

MACDONALD CO., MAN.

St. Charles.—Trees came through the winter in good condition. Damage and freezing back was less than usual, as far as we had time to observe. Truck gardening is very backward.—D.W.B.

KOOTENAY DISTRICT, B.C.

Crawford Bay.—The season is very late, Prospects for a good crop are very good.—H.S.G.

YALE-CARIBOO, B.C.

Lillooet.—The prospect for fruit trees and bushes are not as good as usual. There will be a fair crop of small fruits; cherries, about half a crop; peaches, nil; apples and pears, about half a crop.—J.S.B.

NEW WESTMINSTER CO., B.C.

Hammond.—Strawberries promise 50 per cent. of a crop; blackberries and raspberries, 80 per cent.; currants and gooseberries, full crop. Plums and apples promise well. There are practically no peaches this season.—C.P.M.

VICTORIA CO., B.C.

Victoria.—Cherries have suffered where exposed to recent cold winds. Bushes on the whole show good prospects. Strawberries, in some places, were injured by winds and frost but in more sheltered districts a good crop is looked for.—A.H.T.

Manitoba

George Batho

The spring has been very backward, but still a very satisfactory one from a horticultural standpoint. Three years ago we had an April of warm days with hard frosts at night, which damaged a great many tender—and some quite hardy—things. This year we had the April frosts at night, but the days did not warm up enough to cause even the most precocious plant to bud out, and so no growth whatever occurred until well into May. Even on May 19 the buds of such trees as the elm have scarcely begun to swell, although with the present warm weather they will be pushed out into leaf in a very few days. There does not seem to have been very much damage by winter killing. It is impossible as yet to say anything worth while in regard to the prospects for the fruit crop.

Arrangements are under way for another provincial horticultural exhibition in Winnipeg next fall. Prof. Brodrick, of the Manitoba Agricultural College, has been asked to assume the management, and a committee to work in conjunction with him has been selected.

For some time there has been talk of organizing throughout the city of Winnipeg a number of cottage gardeners' associations, each association to be restricted in its membership to a limited area in the city. Not a great deal has been actually accomplished in the way of organization, but no doubt the starting of such a movement would meet with a ready response as a keener interest in grounds adornment seems to be taking hold of the citizens of Winnipeg year by year.

Readers in Annapolis Valley, N.S., are requested to send contributions and photos,

FRUIT CROP PROSPECTS

Owing to the lateness of the season, fruit trees and bushes have been backward in blossoming. With the exception of peaches and strawberries in some districts, a good crop of fruit is anticipated. Crop correspondents of THE CANADIAN HORTICULTURIST report as follows:

HANTS CO., N.S.

Falmouth.—Trees have plenty of fruit buds. Too soon to be positive about results.—H.O.D.

KING'S CO., N.S.

Auburn.—Apple trees show every prospect of an abundant bloom. All trees show little or no damage from winter. Shrubs and bushes are looking well. Strawberry plants that were not protected by covering are pretty badly killed and are looking more or less brown. Those that were covered look bright.—J.S.B.

Grand Pre.—The prospect is for a good show of blossoms.—J.N.F.

COLCHESTER CO., N.S.

Truro.—Duchess, Transparent and Wealthy apples are promising. Canker is destroying most other varieties. There is a fair show of blossoms on plums. Black currants are not so promising as usual. Red currants and gooseberries are promising. Strawberries, sheltered and covered lightly with litter in fall, came through fairly well.—P.B.

ANNAPOLIS CO., N.S.

Middleton.—Trees came through the winter splendidly. There is promise of an abundant bloom and a good crop of fruit this season. Only a few brown tail moth nests have been found in this section.—R.E.C.

Annapolis Royal.—Fruit trees and bushes look well and the weather conditions at present are favorable.—G.E.C.

CUMBERLAND CO., N.S.

Nappan.—Fruit trees are not as far advanced as at this time last year, but show good prospects of fruit especially the early varieties.—R.R.

WESTMORELAND CO., N.B.

Shediac.—Fruit trees and bushes have wintered well. The prospect for bloom is fair.—E.G.F.

KINGS CO., N.B.

Rothsay.—Fruit trees and small fruits, shrubs and bushes wintered in good condition. Prospects are good for blossoming and an average crop.—D.A.P.

GRENVILLE CO., ONT.

Maitland.—Fruit trees of all kinds are in first-class condition at present. Apples are in full bloom. Trees that bore a medium crop last year are giving a full bloom in most cases. Indications point to a full crop of fruit this year.—H.J.

HASTINGS CO., ONT.

Trenton.—Fruit trees have wintered well and the prospects for blossoms are good. Strawberries, raspberries, blackberries and cherries are in good condition.—A.B.A.

ONTARIO CO., ONT.

Whitby.—The dry weather last fall seems

to have induced a very abundant formation of fruit buds, and we are expecting to see plenty of bloom.—J.H.H.

WENTWORTH CO., ONT.

Fruitland.—There was never a better show of bloom on nearly all kinds of fruit trees. Even peaches, that were reported nearly all killed, have plenty of bloom in many localities; in fact, nearly all. Plums could not be much fuller in bloom. Pear bloom is not all out yet but will be good and the same will apply to apples.—C.C.P.

Winona.—Peaches, pears, plums and cherries show signs of a heavy crop. Strawberries came through the winter well.—H.S.

LINCOLN CO., ONT.

St. Catharines.—Fruit trees are full of bloom, especially plum and cherry. Pears are not fully opened. Marlboro raspberry canes were badly killed back. Strawberries are good.—G.B.M.

Homer.—All fruit trees look well. Peaches are blooming fairly well, also European plums. Japanese plums will be very light, also pears. Apples promise a good bloom. Cherries are also good.—W.H.S.

Grimsby.—The prospects for small fruits are good and also for nearly all tree fruits with the exception of some varieties of peaches in some localities. The cherry blossoms are very large and same may be said as to pears.—C.W.V.-D.

OXFORD CO., ONT.

Ingersoll.—Fruit trees and bushes are in fine shape; practically no injury from winter. Prospects are for an abundance of bloom especially on winter apple trees of all varieties.—J.C.H.

HALTON CO., ONT.

Burlington.—The prospect is good for all tree fruits except peaches; also for currants, gooseberries and raspberries. Strawberries wintered well and are full of promise, although the early bloom was blighted by cold. Duchess pears are very full and apple trees that bore heavily last year are blooming again.—W.V.H.

WELLAND CO., ONT.

Pelham Corners.—Raspberries and strawberries have wintered well and point toward a full crop. Same applies to all small fruits. In pears, Idaho is good; others, medium. Plums, Europeans, good in nearly all varieties; Japans, especially good. Peaches promise a fair crop. Cherries are exceptionally promising.—J.E.M.

KENT CO., ONT.

Chatham.—Plums and pears have lots of bloom as have the hardy peaches. Crosbys will give a small crop; Crawfords, Elbertas and others of their class, are a failure. Apple trees that bore a fair crop last year have no bloom while those that did not promise well. Strawberries came through the winter well. Gooseberries and currants are blooming full.—M.B.

SIMCOE CO., ONT.

Orillia.—The season so far has been very cold and backward. There is promise of good bloom on all fruit trees. Raspberries

NOTES FROM THE PROVINCES

Okanagan Valley, B.C.

Wm. Beattie

The peach crop will be very poor owing to the severe winter and particularly to the late spring frosts. In one orchard which I pruned in the first week of April I never saw a better show for fruit buds; to-day, there is not one to be found. Some of the orchards at the present have from 15 per cent. to 25 per cent. of the peach trees winter killed.

Apricots in general will be poor. Plums and cherries will have an average crop.

I have looked over one of the oldest apple orchards in Summerland, that of Mr. Jas. Gartrell. I find every prospect for a heavy crop.

At the time of writing I am pruning one of the largest peach orchards here. I can safely state that there will not be 20 per cent. of bearing trees having fruit on them. Also I find where irrigation has been kept up late in the fall, the trees, not having a chance to ripen up early enough, have suffered more so than others.

Kootenay Valley, B.C.

Edgar W. Dynes

It has been extremely difficult for those contemplating the planting of orchards to get enough nursery stock to supply their needs. Very much less stock was imported from Washington and Oregon than in former years, and although the output of the home

nurseries is steadily increasing, they were unable to supply the unprecedented demand.

A good deal of interest centres in the strawberry crop. Reports from other districts indicate that the frost has done considerable damage, while in Hood River and Washington it is not expected that more than half a crop will be taken off. Such being the case, the prospects are that the growers in this section should receive a very good return for their strawberries, much better than in the two previous seasons.

All trees came through the winter well and only in rare instances do even peaches appear to have been killed. The heavy snow-fall protects the trees and strawberries to a very large degree.

Some experimenting has been done with walnuts by a few of the growers but so far without success. They appear to be much too tender for this latitude.

Similkameen Valley, B.C.

J. D. Harkness

Early in the growing season there were many reports of damage to trees in the Similkameen and adjoining valleys from the unprecedentedly severe winter. As the season advanced, it became evident that there were a good many such cases, but it was also seen that in many instances mistaken diagnosis had been made owing to lateness of spring growth and to over-apprehension of the effects of winter. It may be said that, gen-

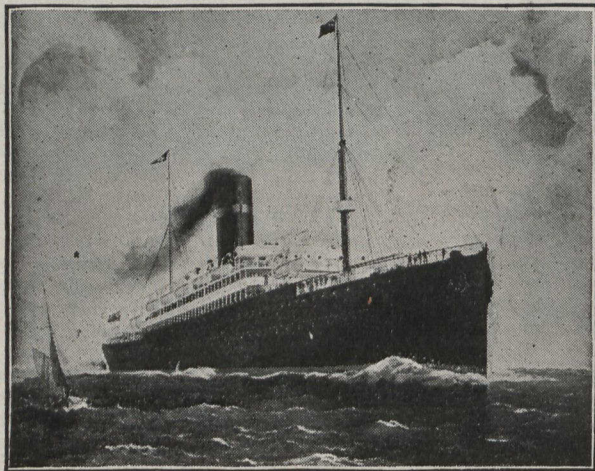
erally speaking, trees that have been properly treated in every way came through sound and vigorous, and where they failed to do so, it has been possible to put the finger definitely on the cause. Most commonly it is attributed to keeping up irrigation too late in the fall, thus making a young growth so late that it was unable to endure frost. That the winter was exceptional was shown by the fact that fields of alfalfa that have flourished for a long series of years, were killed out and must be re-seeded; and as only one crop will be got from them this year, instead of three or four crops yielded in ordinary years, there will be some local shortage of fodder. There was considerable damage to strawberries. Present prospects, however, are excellent for a good yield of peaches, apples, pears, plums and cherries except in a few spots.

The fruit grower is, or ought to be, more anxious over the knotty problems of marketing than over those of cultivation. A good product he knows is his if he exercises the requisite skill and care. A good market, he knows—the prairie market—is hungry for his output. The really hard problem that presses for solution is how to gather here, ship and distribute there, without incurring heavy loss through delay in hauling, danger from lack of cooling, excessive charges of middlemen, and uneven distribution according to the needs of localities. It cannot be done to advantage by individuals. To carry it out properly will require an organization as complete and a degree of executive ability as high as is to be found in the greatest of industrial undertakings.

Saskatchewan

A. H. Hanson

It is a little early to tell just how the fruit trees and other shrubs have passed through the



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winter, but judging from careful examination of the few that we had planted last year, they all appear to be in a very healthy condition. The buds are showing on all of the raspberries, blackberries, gooseberries and currant bushes. The strawberry plants appear to have done very well, and there is no sign of their being winter killed.

While we have many favorable conditions in this new country to warrant us in saying that in time a great many varieties of small fruits will be raised here in profusion, at the same time, it takes considerable education in order to bring more favorable results. The location of the Saskatchewan University and Agricultural College here will no doubt be a great factor in educating people along horticultural lines.

Saskatchewan

G. T. Barley

The prospects for all kinds of small fruits are good. The weather has been backward but heavy falls of snow this spring put the land in good condition.

The bed of horticultural products, consisting of climbing roses, tea roses, spireas, syringa, carnations and grape vines, (a cut of which appeared in your paper last spring), has wintered all right and I expect a fine display this season. This shows me that we can have these things if we wish to take the trouble, and the expense of wintering would not be very much greater than it would be in any part of Eastern Canada.

Montreal

E. H. Wartman, Dominion Fruit Inspector

The first car of strawberries came to our auction room on April 28th. I emptied several boxes stamped "Imp. qt." and found

each filled this measure well heaped; two boxes weighed two pounds, four ounces. The man well accustomed to the trade would understand these were heavy weights. Geo. Vipond & Co. has been the only firm in this city up to the present date, May 19th, who has received a full car; in fact, this firm was the first to bring a car to Canada this season. The trade is a venturesome one, many losses are made by fruit landing in poor condition. So far condition has been very good. Prices have been from 13 cents to 23 cents a box.

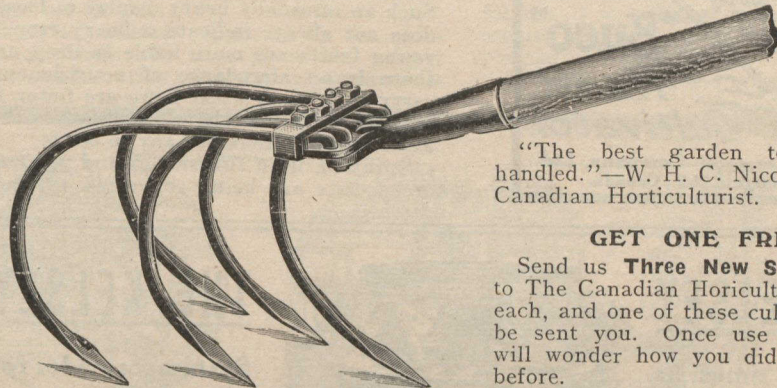
My personal observation in Jacques Cartier County of fruit trees show that the winter was not severe on the apple, cherry or plum, although they are late putting

forth buds; will likely do well as we are past the date for frost or will when the bloom appears.

The tomatoes under glass at Macdonald College have been ripe since May 10th. The crop is an abundant one, and the quality far surpasses those from the south coming in car lots.

Although apples in store are getting scarce, still money could buy 1,000 barrels yet out of cold storage, largely of Spy variety. I saw a barrel, originally packed seven months from tree, opened on May 11, that really looked very inviting—solid, well colored, crisp; price asked was \$8, or by the car \$7, which is quite a good profit to a man who bought at \$2.50. It is wonderful how long

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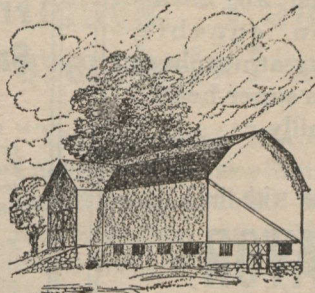
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The Philosopher of Metal Town.



our apples will keep if properly handled. The late Geo. Wright of Wanpoos, Ont., brought some apples to market once in July.

"Why," said buyers, "we have new apples in; yours cannot be any good." He said, "taste them," and they did and acknowledged that they were first-class. Now this gentleman had only a good cellar; temperatures were obtained by the opening or shutting of a window. The other fellow's apples did not keep so well, because probably he tied his picking basket to a limb and when he got up the tree, 10 feet above his basket, he forgot and said, "well, they won't hurt to drop in the basket." This fellow's apples rotted in December and he wonders how his neighbors can keep apples the year around.

tent that they are buying spray pumps. The past and present conditions have been conducive to a good fruit crop. The summer was fairly dry and was succeeded by a mild winter and here we are with a backward spring.

Early peas are fit to cultivate. Asparagus, rhubarb, chives, mustard and cress are now very welcome after the long winter, but during the cold weather lettuce have been grown in greenhouses for which there seems to be an enormous demand; now, they are being

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Nova Scotia
Eunice Watts

The prospects for a good fruit crop are excellent. Apples, pears, plums, cherries and currants are loaded with blossom buds. Such an unusually heavy display of blossoms does not always indicate a heavy crop; the young fruits are more liable to drop unless there is an abundance of nourishment to carry them than when there are fewer flowers, and as yet we have to reckon with the June frosts if there are any to come.

Spraying is in full swing, and many more orchardists are being converted to the ex-

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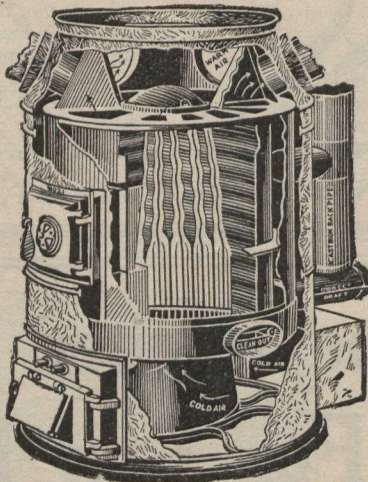
lowed by indoor cucumbers. Farmers make a great mistake by not having an asparagus bed; once planted, it is good for a lifetime and yields a luscious green vegetable before the trees are in leaf.

The brown-tail moth has again appeared in Nova Scotia. More than 200 nests have been taken in Bridgetown.

The rush for young fruit trees still continues, and nursery men cannot supply half the demand. Ornamental trees are also receiving their share of attention; everywhere there seems to be an increased tendency to beautify the homegrounds. When one man makes his surroundings pretty, the neighbors often try to copy; this competition makes it much better for the neighborhood.

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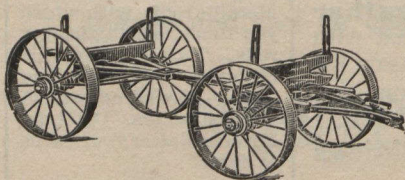
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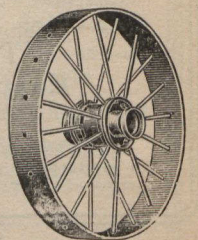
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POULTRY DEPT.

Conducted by S. Short, Ottawa

Besides careful feeding, growing chickens require attention to see that they do not become affected with vermin at this season of the year. With the warm weather and plenty of good food, chickens make rapid development and nothing should be allowed to interfere with their progress towards maturity. The two main evils are lice and over-crowding. Lice may be checked and destroyed by the use of powdered sulphur or any of the insecticides recommended by the poultry supply house. Sulphur is cheap and effective. Dust each chick once a week until they are two months old and after that if the birds have access to dry earth or mud they will dust themselves often enough to keep down the lice. Putting sulphur in the dust bath is a convenient way to help keep the birds clean.

Over-crowding will be evidenced by some of the chicks not having down or plumage, all being rubbed off in the scramble for the warmest corner. An inspection of the sleeping quarters occasionally is a wise precaution. If the birds are all spread out side by side, though close together, they are doing all right, but if they are climbing one on top of the other, they are cold and trying to get into the inside place usually in a corner. If this happens the strongest or weakest should be removed and put in another pen. In flocks of 25 or 30 over-crowding seldom happens but with half-grown brooder chicks in larger flocks great care must be taken.

The leaving open of a window or a door a little late in the evening will sometimes do a lot a harm. I remember seeing 14 Leg-horn chicks smothered to death by over-crowding in a flock of about 20 owing to a door being left open an hour late on a June evening last year and more would have been smothered had the omission not been discovered in time.

From experience, supported by the opinions of others who have given the subject some consideration, the writer recommends

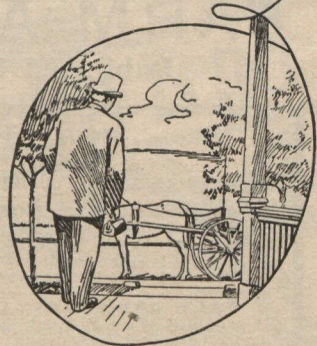
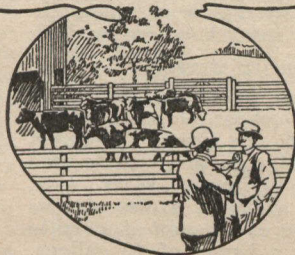
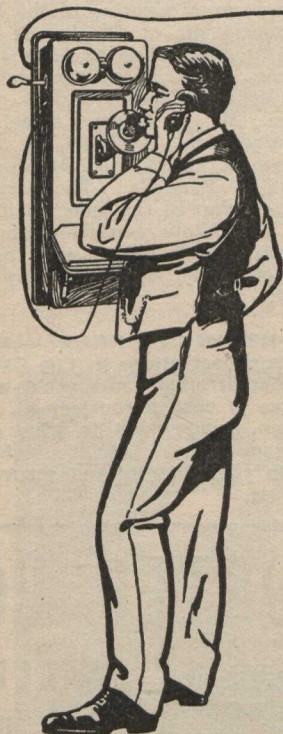
to those who hatch by incubator exclusively, that they hatch the chickens intended for next year's breeding stock by hens. This is a practice that is being followed by most of the careful breeders. It has been found that incubator-hatched and brooder-raised fowl are more given to barrenness or their eggs are more often infertile than the eggs from fowl hatched in the natural way. This is late in the year to make the suggestion, but it is worth remembering for future occasions.

Arsenite of Lime

F. T. Shutt, Chemist, Dominion Experimental Farms

From the number of letters that we have received during the past few weeks from orchardists, more especially in New Brunswick and Nova Scotia, it is evident that there is much confusion respecting the preparation of arsenite of lime. As a misunderstanding in this matter might lead to a very considerable loss through injury to the foliage, it is well that one or two of the essential points in the process should be explained and emphasized.

The first step in the process is the prepar-



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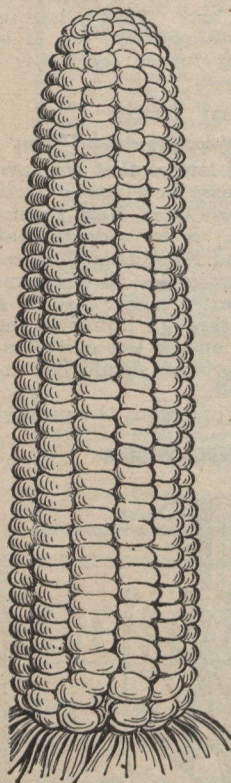
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ation of arsenite of soda by the boiling together of white arsenic and washing soda (carbonate of soda, in crystals). The proportions generally recommended are, white arsenic, one pound; washing soda, four pounds; water, one gallon. A few minutes' boiling usually suffices to dissolve the arsenic and soda, and the result is a solution of arsenic of soda. *This cannot be used as a spray, as it is strongly corrosive and would very quickly strip the trees of their foliage. It must be converted into arsenic of lime.*

The conversion of the arsenite of soda into arsenite of lime constitutes the second and very essential part of the process. It may be accomplished in one of two ways, as follows:

1. Thoroughly slake two pounds of good, fresh quick lime and stir into 40 gallons of water; then pour in, with constant stirring of the lime water, one pint of the arsenite of soda solution. The spray is ready for use immediately, as the formation of arsenite of lime takes place at once. This spray contains as much arsenic as one made by adding four ounces of Paris green to 40 gallons. The above proportions allow for a fair excess of lime, which serves the double purpose of preventing injury to foliage and of making visible the degree of thoroughness with which the spray has been applied.

WITH BORDEAUX MIXTURE.

2. This is the more common method as it allows the employment of a fungicide and insecticide in the one spray. Bordeaux mixture made according to the formula used so successfully for so many years (viz, 4:4:40) contains a sufficient excess of lime to allow the addition of one pint of arsenite of soda solution to a barrel of 40 gallons. All that is necessary is to simply pour the requisite quantity of arsenite of soda (one

pint) into the barrel of Bordeaux, stirring meanwhile. We have now Bordeaux mixture containing as much arsenic as the "poisoned Bordeaux mixture," in which four ounces of Paris green per barrel has been used.

In conclusion, may I further emphasize the necessity of clearly distinguishing between arsenite of soda and arsenate of soda; it is the former that is used in the preparation of arsenite of lime (just described), and the latter which is necessary for making the arsenate of lead spray. Failure to recognize that there are these two classes of compounds—arsenites and arsenates—each with its own characteristics, has frequently resulted in loss and disappointment.

Secure our collection of five dahlia bulbs by securing one new subscription to THE CANADIAN HORTICULTURIST.

Circulars and pamphlets have been received from Benjamin Hammond, Fishkill-on-Hudson, N.Y. They tell about Slug-shot and other preparations for greenhouse, garden and orchard use. Write for copies.

At the annual meeting of the Fruit Growers' Association of Clarkson's and Lorne Park, Ont., the following officers were elected: Pres., L. A. Hamilton; 1st vice-pres., J. P. Stephens; 2nd vice-pres., John Manley; sec., W. G. Horne; treas., W. Clements; directors., R. Lush, C. Sproule, J. Lightfoot, R. Speck, Geo. Manley, G. Adamson and J. Pengelly. The various reports submitted showed the association to be in a highly prosperous condition and to be accomplishing an excellent work in furthering the interests of the fruit growers of that locality.

FOUNTAIN PEN FREE. — For securing two new subscriptions to The Canadian Horticulturist at sixty cents each, we will send you, free of cost, a fourteen-kt. Gold Fountain Pen, guaranteed to give satisfaction. Show your copy of The Canadian Horticulturist to your friends and secure their subscriptions.

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Southern Ontario Apples

Editor, THE CANADIAN HORTICULTURIST: In your May issue, I notice a letter from Mr. J. A. Webster of Sparta, in which he says, "To refute the article (previously referred to) which coincides also with Chief McNeill's settled ideas, I will give the history of my apple crop of 1908."

I am not sure what 'ideas' were expressed in the article referred to, but I am very certain that in the history given by Mr. Webster he is refuting nothing that I ever said or thought, with reference to southern Ontario apples. Indeed, Mr. Webster has done with his apples just what I have advised many times during the last 10 years, whenever I have spoken of southern Ontario apples.

In addition to this, his results are just what I have predicted if this particular course should be followed. Let us consider the history of Mr. Webster's apples in detail. He packed his early apples in boxes and wrapped them in paper. I have been urging the use of boxes for the best grade of fruit for many years (see my Bulletin No. 19). Mr. Webster shipped these apples in refrigerator car and cold storage chamber. I have upon every possible occasion pointed out the advantages of cold chamber shipments, and have maintained that this is the only way to insure uniform success in shipping early fruit (see my Evidence before the Agricultural Committee of the House of Commons in 1905 and 1906-7.) The apples arrived in good condition, and sold for high prices. Again, these are the exact results I have predicted for all fruit shipped in this way.

Then as to his winter fruit. Mr. Webster picked the fruit carefully (no doubt), and got it into cold storage as soon as he could.

Exactly what I have been urging upon all growers of winter apples in southern Ontario. I have even recommended St. John N.B., as a storage point, but any cold storage warehouse will be better than none. These winter apples reached the market in excellent condition, and brought high prices. I would have been very much surprised and chagrined had they not done so inasmuch as they had been treated just as I have recommended for southern apples.

Mr. Webster says that southern Ontario apples have high color, good flavor and "cold storage will keep them as good as those from anywhere else." Mr. Webster might also have said that the apples are of good size and that the trees bear abundantly. All these good things have I said with reference to southern Ontario apples, in common with Mr. Webster. How, then, does he make out that there is any difference of opinion between us? Mr. Webster has evidently been led into error, and when next he is told that I have misrepresented the good qualities of southern Ontario apples let him ask for date and page, and he will find that these cannot be given.

Once more let me express my opinion that southern Ontario can grow as large, as highly flavored and as highly colored apples as can be grown anywhere in Canada, and that the best grades of these apples can be handled with perfect success with the help of cold storage if they are wrapped in paper and packed in boxes, just as Mr. Webster has done. This surely will set at rest any insinuation of my want of appreciation of southern Ontario, the orchards of which I have been familiar with all my life.—A. McNeill, Chief, Fruit Division, Ottawa.

Letters on any horticultural topic are requested for publication.

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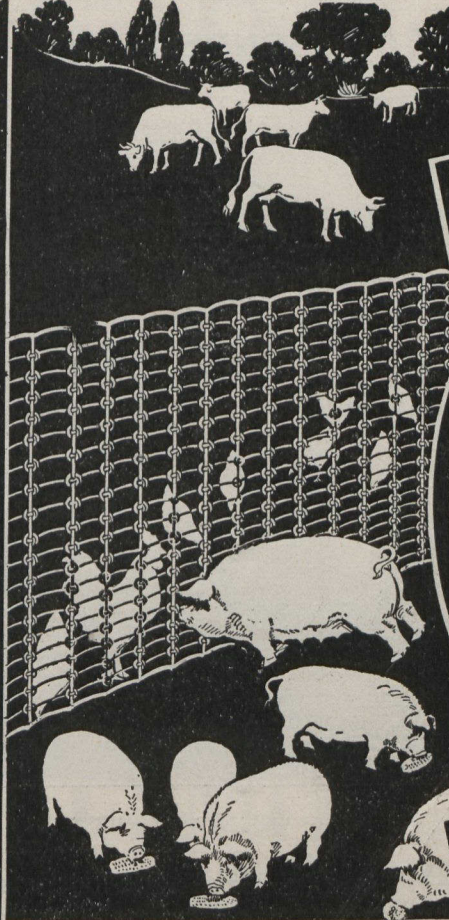
will turn large animals as well as small poultry. The top and bottom wires are No. 9 hard steel wire—heavily galvanized—to prevent rusting. No top or bottom boards necessary because the heavy wires take the place. PEERLESS JUNIOR Poultry Fence almost pays for itself in the saving made on fence posts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

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Export Apples in Boxes

Editor, **THE CANADIAN HORTICULTURIST**: From my observations in Great Britain, I believe that the best way to sell Ontario apples is to take them there and market them personally and stand behind every box and replace every box not satisfactory on seeing it yourself. Open and examine every box complained of. Sell faulty boxes for what they are worth, and set your price on every perfectly packed box, the top market price.

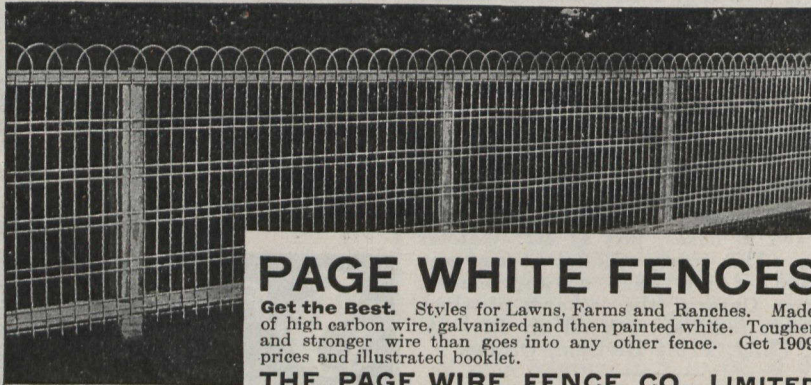
The auction system of Liverpool deserves the highest commendation. I would not say that it cannot be improved, but those auction brokers deserve great credit for having devised such a system of handling fruit. I sold nearly all my apples by auction and stood behind every box.

The dealers in Great Britain expect to get better apples from a box than from a

barrel. First-class apples in what they want. For the good of our growers, we should give them long lines of every variety that we have to offer. Send the first quality all wrapped in paper and tied in boxes, never unwrapped or rolled in loose. Our associations should have a representative in the Liverpool market to control the whole British trade and authorized to stand behind every package. Within four or five hours travel from Liverpool are practically all British markets including Glasgow and London.

Cold storage ought to be utilized at an ocean port in Canada. Cable can direct applesto any market. Cold storage ought also to be utilized as subsidiary at Liverpool, but not at London or Glasgow. I have not mentioned Manchester but I am afraid it is going soon to rival Liverpool as a distributing point for apples.

I agree with you in regard to branding



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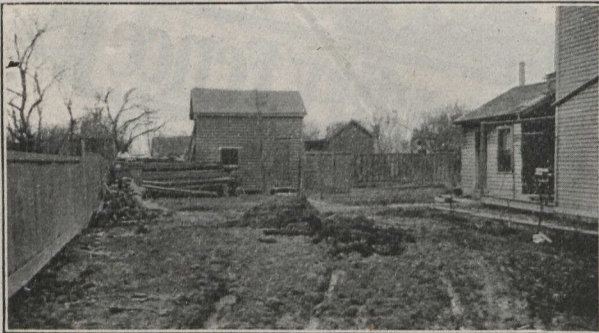
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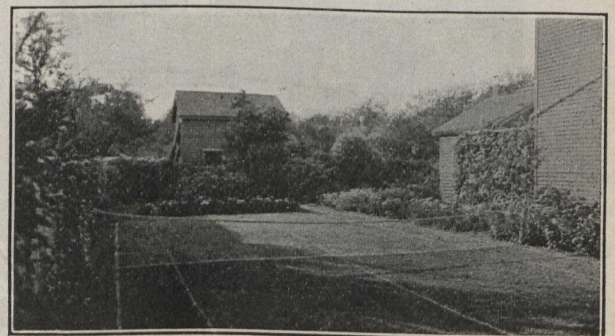
The New Rambler (Violet Blue), hailed by the German rose growers as the forerunner of a genuinely corn-flower blue rose, is a seedling of Crimson Rambler, very vigorous and hardy.

ROSE TAUSENDSCHON

This is a very beautiful New German Rose. In English "Tausendschon" means Thousand Beauties. The most sensational Climbing Rose yet introduced, not barring the great Crimson Rambler.

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WE are pleased to furnish planting plans, designs for formal, old-fashioned and rose gardens. We have practical and artistic experts on landscape development in every branch and are glad to advise on every detail. No estate too large—no city or



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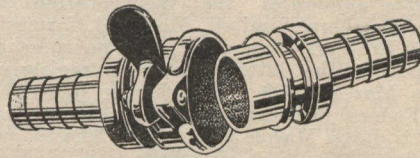
BROWN BROS. CO., Nurserymen, Ltd. P. O. Brown's Nurseries, Ont.

Ontario apples as such. "Canada" is too big to designate our apples. I would go further even and use also the name of the district as, "Lake Huron," "Georgian Bay," "Lake Erie," "Lake Ontario," and so on, similar to "Hood River," "Rogue River," and other districts in Oregon and the different valleys of Washington.—J. A. Webster, Sparta, Ont.

Paris Green vs. Arsenate of Lead.—In the search for good remedies for the potato bug nuisance, considerable controversy has arisen between those using Paris green and those who have adopted arsenate of lead, and doubtless results have fluctuated according to local conditions and the roughness of spraying. As a contribution to a controversy the following case was cited by a nurseryman of high standing which shows conclusively the results obtained from the two articles when used under similar circumstances and conditions. These results may be verified should any person so desire. "Potato bugs had become prevalent in a potato patch of an Ontario town and two-thirds of the patch was sprayed with arsenate of lead; then the supply became exhausted and the remainder was treated with Paris green. On the evening after the application a heavy shower of rain fell and in less than two days that part which had been treated with Paris green was nothing but stalks, the foliage having entirely disappeared. This part was again thoroughly gone over with Paris green but still the bugs seemed to thrive on this diet, and could be seen throughout the season, notwithstanding that a third spraying of Paris green was given. On the other hand that part on which the arsenate of lead had been sprayed, showed very few bugs and gave a good crop at the end of the season, and the white arsenate of lead could easily be

seen adhering to the leaves on which it had been sprayed." Now, from this it will be seen that in a fair comparison of the two remedies, lead arsenate had far greater adhesive properties and consequently greater insecticidal value than Paris green. The people of this district, which by the way, is Prince Edward County, have taken note of this comparative test, and in the season now at hand, arsenate of lead will have a greatly enlarged market.

Rose Tausendschon.—This beautiful new German rose has attracted much attention since its introduction; and it is undoubtedly one of the best varieties sent out during the last decade. As to its complete hardiness in the north, we cannot yet speak with absolute certainty, but it is claimed for it that 10 to 15 degrees below zero has left it unscathed. This being so, it can fairly be placed in the same class as the various ramblers. No more lovely climbing rose for



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pillars, arches and pergolas has ever been sent out. The flowers are larger than those of Clothilde Soupert, and similar in color, being pink when opening and a beautiful rosy carmine when fully expanded. The clusters are large, and the small number of thorns, as compared with other ramblers, is another point in its favor. See the advertisement of Brown Brothers, Nurserymen, on another page of this issue.

Merger of Nurserymen.—The *Canadian Gazette* announces the incorporation of Luke Brothers, Limited, Montreal, formerly Luke Brothers Company. The partnership composing the latter has been registered since March, 1896. The charter issued by the Federal Government to the new corporation is dated March 30th, 1909. The following firms have been absorbed: Capital Nursery Company, Ottawa; Jacques Cartier Nursery Company, Montreal; Quebec Nursery Company, Rougemont.—The consolidation gives the new corporation one of the largest forces of agents operated by any firm or company in Amer-

ica. The head office will be in Montreal. The capital is \$100.00. S. M. Luke has been elected president and E. B. Luke, vice-president.

FOR SALE AND WANT ADVERTISEMENTS

WANTED.—Persons to grow mushrooms for us at home. Waste space in cellar, garden or farm can be made to yield \$15 to \$25 per week. Send for illustrated booklet and full particulars. Montreal Supply Co., Montreal.

STRAWBERRY PLANTS.—Williams, Dunlap, Splendid, Wm. Belt, \$3.50 thousand; Glen Mary, King Edward, \$4 thousand.—E. O. Chrysler, St. George, Ont.

BRITISH COLUMBIA LANDS.—Handsomely illustrated catalogue of apple and farm lands in B. C. Mild climate, rich soil, cheap lands. Write F. J. Hart & Co., Limited, Vancouver. Established 1891.

IF YOU WANT a position, want extra help or have a surplus lot of stock you want to get rid of, advertise in this column.

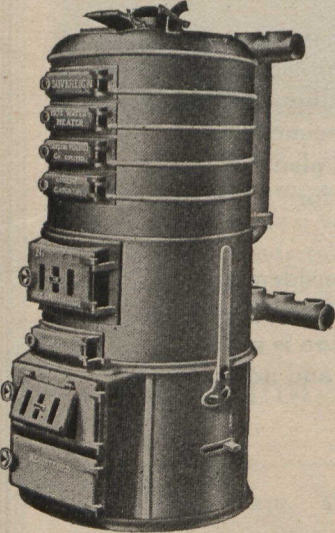
WANTED LADIES to do plain and light sewing at home; whole or spare time; good pay; work sent any distance; charges paid; send stamp for full particulars. National Manufacturing Co., Montreal.

FOR SALE.—Coleus, in 2½ in. pots, in 12 varieties, 60 cents a dozen; asters, in boxes, 10 cents; stocks, 10 cents; alyssum, 10 cents; petunias, 10 cents; ageratium, 10 cents; mignonette, 10 cents; cobeas, in 3 in. pots, 60 cents; geranium Nutt, in 4 in. pots, \$1; Earliana tomatoes, in boxes, \$7 per 1,000.—J. Wood, Floral Dept., Model Farm, Weston, Ont.

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"PURITAN"
Reacting Washing Machine
Grandmother, or any of the children, can do the entire week's wash in an hour with the "PURITAN" It is the only washing machine made in Canada that has the Improved Roller Gear.
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HOT WATER
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LOW PRESSURE STEAM BOILER
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Built on the Kodak plan by Kodak workmen, this simple little camera offers an inexpensive and easy way of picture taking. Loads in daylight with Kodak film cartridges for six exposures, has the Eastman Rotary Shutter for snap shots or timed pictures, has a fine meniscus lens and two finders. Carefully made in every detail and each one rigidly inspected.

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This little box has made the developing of negatives as simple as "pressing the button." Any amateur can now develop his own film with the certainty of getting the best possible results from every exposure. No dark room for any part of the work. Every step is easy with a Brownie Developing Box, Price \$1.00.
Ask your dealer to show you, or write us for free copy of "The Kodak on the Farm."
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A Thriving Town

One of the most attractive towns in Canada is Cobourg, Ont. An editorial representative of THE CANADIAN HORTICULTURIST, who visited Cobourg last month, was shown through the city by Major H. J. Snelgrove, President of The Ontario Horticultural Association, as well as by Mayor H. Field and by Mr. T. S. Chatterton, Manager of the Metropolitan Bank. Cobourg is very favorably situated on a promontory extending for some distance into Lake Ontario. Its climatic conditions are so unusual that Cobourg is becoming the Newport of Canada. Several United States millionaires have taken up their residences in and around Cobourg. They have spent hundreds of thousands if not millions of dollars in erecting costly residences and in laying out extensive and most attractive grounds, gardens and driveways. Illustrations of one or two of these places are shown on another page.

About 1,000 summer residents visit Cobourg each season, but as some of them have 30 and 40 servants in attendance, the summer colony amounts to nearer 6,000 of 7,000. The Horticultural Society in Cobourg is doing splendid work with the result that the residences of the citizens and the streets are most pleasing and attractive. Cobourg also promises to become quite an industrial centre. The ferry of the Grand Trunk Railway which crosses from Cobourg to Charlotte, draws business to the city and has resulted in the establishment there of a large steel plant which is only commencing operations. This year the town will be visited by many who will attend the now famous Horse Show held in Cobourg in August and the Regatta which will take place there this year during the summer months and which will be attended by representatives from Yacht Clubs from all over

the Great Lakes. The town is well worth visiting both by sightseers as well as by business men who will be interested in it as a promising industrial centre.

Hespeler Horticultural Society

The Hespeler Horticultural Society is this year repeating the experiment of last year, in holding a garden judging competition instead of a show for their members. A sample judges' score card has been sent to all the members so that they may be aware of the nature of the judging. A copy of this paper may be had on application to the secretary, Mr. J. E. Warren.

To compensate in some degree for those whose gardens are in a more favored natural position for good crops than others, it is proposed to deduct five per cent. from total of those extremely favored and to add five per cent. to those who may be handicapped in having their gardens in a disadvantageous position. This will in some degree level up to a normal standard all gardens.

Three of the directors have been appointed judges, and they are not allowed to compete by virtue of their position. This plan of work will make Hespeler gardens much more attractive this year, and consequently do much to further the aims of our societies, both locally as well as the mother provincial association.

Over 300 ounces of sweet pea seed have been distributed to the school children this year, and a "Sweet Pea Fete" is contemplated to be held in the town on the day in which the school awards will be made.

I enjoy reading THE CANADIAN HORTICULTURIST very much. I do not think the paper could be improved upon.—J. E. Menzies, Chilliwack, B.C.

American Pomological Meeting

The executive committee of the American Pomological Society has accepted a joint invitation tendered by the Ontario Fruit Growers' Association, the Niagara District Fruit Growers' Association and the St. Catharines Horticultural Society to meet at the city of St. Catharines this year. Arrangements are rapidly progressing for a reunion of unusual value and interest at this attractive place on Sept. 14-16, 1909.

An unusual feature lies in the fact that the Ontario Government has recognized the importance of the coming of this Society to Canada by placing a substantial sum of money at the disposal of the committee on arrangements. This committee includes representatives of the provincial as well as of local societies.

The secretary of the Pomological Society was invited to meet with this general committee on arrangements at a conference recently called at St. Catharines for the purpose of organizing such a systematic campaign making for instruction and entertainment as would place the success of the convention beyond all preadventure. He was greatly impressed by the businesslike and energetic way in which the main and important features involving preliminary arrangements were adjusted. The sub-committees are attacking with vigor and enthusiasm the respective pieces of work assigned to them. The general executive committee was appointed as follows: Chairman, E. D. Smith, Winona; vice-chairman, W. B. Burgoyne, St. Catharines; secretary, P. W. Hodgetts, Parliament Buildings, Toronto; vice-secretary, C. A. Hessin, St. Catharines. A number of sub-committees also were appointed.

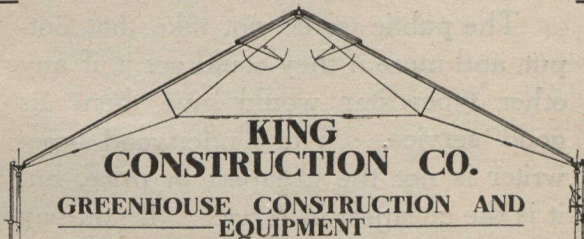
The secretary is glad to report that an unusually large number of state horticultur-

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Are the most

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Greenhouses that can be constructed. Years of actual test and the experience of large and small growers have gained for our houses the reputation of being the most satisfactory ever erected for vegetable or flower growing, or private conservatories.



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Plans prepared for complete plants and equipment at a moderate cost: all or part of the necessary materials supplied and houses of any size erected under our personal supervision if desired by builder.

Write and tell us the kind of houses you desire to erect or ask for question blank and we will mail you our descriptive bulletin by return of mail.

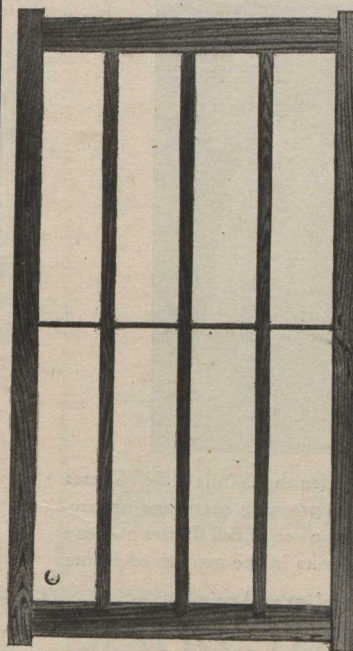
THE KING CONSTRUCTION CO.

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al societies have appointed delegates to attend the St. Catharines meeting. This will insure a wide representation and a diversity of interest which will present exceptional opportunity for considering in a satisfactory way legislative questions of interstate significance. It is also to be noted that a great exhibition of Canadian grown, Lake Ontario fruits will be in progress at the time of the meeting affording a splendid

opportunity for a study of these northern varieties.

The fruit region between Niagara and Toronto is the most intensively cultivated region in Canada. Excursions through this famous section will be arranged for the pleasures and profit of the visitors.

The program may be expected to include the latest and best in the entire field of pomology. Arrangements are now making

for the presentation of subjects of present-day importance by the leading authorities.

Early September is a delightful period in the Lake Ontario section. All members of this historic society should arrange to attend this convention; new members are welcomed. Full particulars will be issued later by circular direct to each member, but in the meantime a note should be made of the time and place, and all members should plan accordingly.—President, L. A. Goodman, Kansas City, Mo.; secretary, John Craig, Ithaca, N.Y.



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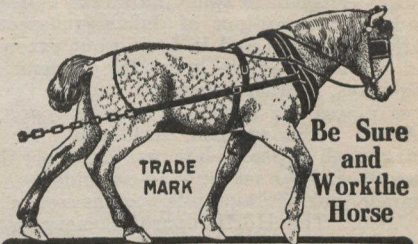
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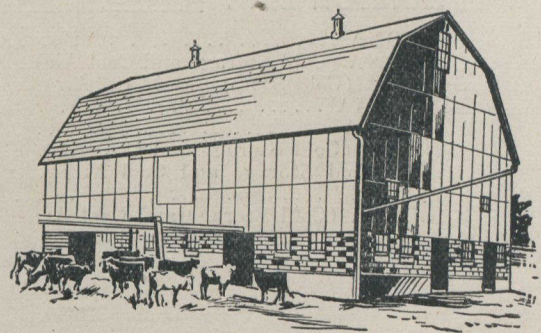
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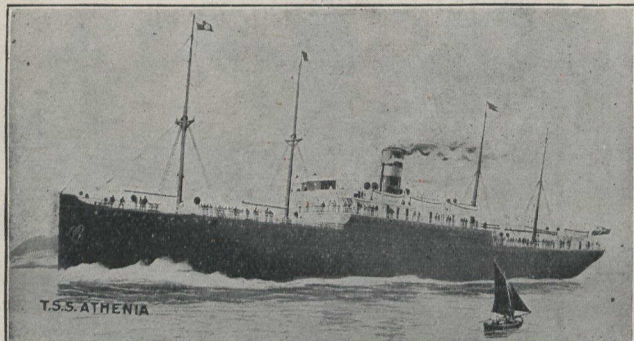
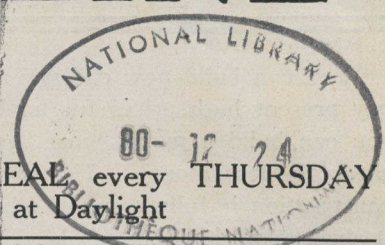


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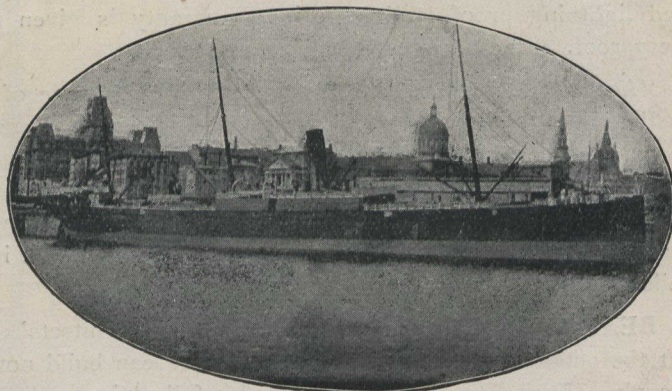
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