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A Valuable Power Sprayer at Work in the Orchard of Mr. J. W. Smith, of Winona

With this sprayer Mr. Smith last season sprayed five acres of eight year old peach trees in ten hours. The trees were planted 16 by 16 feet, their branches almost interlocking. Two extension rods with four nozzle heads were used. This shows a spar with 19 vermorel nozzles being used.

The Canadian Horticulturist

APRIL, 1905

VOLUME XXVIII



NUMBER 4

THE WISHES OF FRUIT GROWERS IGNORED

IN spite of the apparently unanimous wishes of the fruit growers of Canada the Hon. Sydney Fisher, Dominion Minister of Agriculture, has placed the Fruit Division under the control of the Dairy Commissioner. This means that in matters of policy affecting the fruit industry the chief of the fruit division must consult the Dairy Commissioner and has no right to confer direct with the Minister of Agriculture. It means that the fruit industry is placed on a lower level than the dairy and live stock industries and even than the matter of the sale of seeds, as all three have been recognized by the appointment of commissioners subordinate in their work only to the Minister of Agriculture.

When it became known, some months ago, that it was proposed to place the chief of the fruit division under the control of the Dairy Commissioner protest was immediately made by fruit growers in all parts of Canada. Resolutions opposing such a move were passed by several associations including the provincial fruit growers associations of Prince Edward Island and British Columbia.

The protest from the British Columbia association was as follows:

"We, the undersigned, the members of the executive committee of the British Columbia Fruit Growers' Association, beg to protest against the reported proposal to unite the Dairy and Fruit divisions of the

Department of Agriculture under one head. We feel that the fruit industry in the Dominion is becoming so important that the chief of the Fruit Division should be next to the minister and not subordinate to the chief of any other division.

(Signed)

"R. M. PALMER.

"H. KIPP.

"T. W. STIRLING.

"J. C. METCALFE.

"W. J. BRANDRITH."

The Prince Edward Island growers at their annual convention in December passed the following resolution unanimously:

"Whereas it has come to the knowledge of this association, through the press that an amalgamation of the Fruit with the Dairy Division of the Department of Agriculture, Ottawa, is in contemplation; therefore it is resolved that this assemblage of the fruit growers of Prince Edward Island do respectfully express to the Honorable the Minister of Agriculture its unqualified disapproval of any such amalgamation as detrimental to the large and increasing horticultural interests of Canada, which call for extension in their central offices rather than restriction."

Other provincial associations would have taken similar action had they heard of the proposal in time. As it was, many prominent fruit growers wrote direct to Mr. Fisher. A number of papers also registered vigorous editorial protests.

For some time it was believed the proposal to unite the two divisions had been abandoned. The announcement by the Hon. Sydney Fisher that he had carried out his original intention came, therefore, as a great surprise to fruit growers generally.

THE MINISTER'S REASONS.

The reasons for this action, as given by the Hon. Sydney Fisher, in the House of Commons, are as follows:

"On the passage of the Act to provide for the marking and inspection of packages containing fruit for sale, known as the "Fruit Marks Act, 1901," it became necessary to organize a staff for the administration and enforcement of the Act. The organization was placed, by the Minister of Agriculture, under the control of the Commissioner of Agriculture and Dairying, Dr. James W. Robertson, and became known as the fruit division of the branch.

"In addition to the enforcement and administration of the Fruit Marks Act the fruit division was charged with the supervision of the packing and transportation of fruit, particularly in cold storage and cool chambers, and the marketing of the same, and this brought the work of the division in close connection with the cold storage and extension of markets divisions, which, having been organized principally for facilitating the transportation and promoting the sale of dairy products, were in charge of the chief of the dairy division, Mr. J. A. Ruddick, under the Commissioner of Agriculture and Dairying for several years prior to the retirement of the latter.

"Upon the retirement of Dr. Robertson, and the abolition of the office of Commissioner of Agriculture and Dairying, Mr. Ruddick was appointed Dairy Commissioner, the work of the cold storage and the extension of markets divisions being continued under him; and owing to his close relations with the work of the fruit division, as above stated, it was deemed advisable to

place the work of the latter division in his charge as well. The chief and other officers of the fruit division have been retained in office with the same duties as formerly, which they will hereafter perform under the dairy commissioner, as they formerly did under the Commissioner of Agriculture and Dairying.

"It is the intention of the Minister of Agriculture to make the work of the department, both in the fruit division and at the experimental farms, commensurate with the needs of the fruit industry in Canada."

FRUIT GROWERS NOT SATISFIED.

This explanation has not satisfied fruit growers. While it is granted that Prof. Robertson was in charge of the fruit division it is pointed out he was also in charge of the live stock, dairy, poultry, seeds and other divisions of the departmental work and that he was largely responsible for their being established. No objection is taken to Mr. Ruddick having charge of matters pertaining to the transportation of fruit in cold storage, but there is to his having charge of matters pertaining to the Fruit Marks Act, and other matters of a similar nature relating to the fruit industry.

VIEWS OF LEADING GROWERS.

That fruit growers are thoroughly aroused over this matter will be seen by the following letters which have reached The Horticulturist from all parts of Canada:

BRITISH COLUMBIA.

W. J. Brandrith, Sec.-Treas. British Columbia Fruit Growers' Association: The fruit interests of this Dominion are as deserving of recognition as any other industry. Not that we have anything against Mr. Ruddick, on the contrary we esteem him very highly, but we want a man at the head of the fruit division who has had as wide an experience in the fruit industry as Mr. Ruddick has had in the dairy industry. Surely Hon. Mr. Fisher will not go in the face of a united country and maintain an appoint-

ment that is unsatisfactory to those whose interests he is there to look after.

ONTARIO.

Murray Pettit, Winona, Ont., Director Ontario Fruit Growers' Association: The various fruit growers associations throughout the Dominion should press this matter to the very extreme. Not only fruit growers' associations, but farmers' institutes and county councils in fruit growing districts should take it up. This could be done by a circular and petition being sent to them to be adopted and forwarded to the department, followed up by a strong delegation. It is the duty of our association to take this matter up and press it.

NEW BRUNSWICK.

Henry Wilmot, Oranacto, N. B., Treasurer New Brunswick Fruit Growers' Association: I am strongly of opinion that the fruit growing industry of Canada is of sufficient importance to justify the appointment of a fruit commissioner who will be responsible to the Minister of Agriculture only.

QUEBEC.

H. W. Wood, St. Johns, Que., Secretary The Pomological and Fruit Growing Society of the Province of Quebec: It is a mistake to place the chief of the fruit division under the dairy commissioner. The interests of the fruit growers are of sufficient import-

ance to entitle them to a separate commissioner. This, I believe, is the opinion of the great majority of the fruit growers of the province of Quebec.

NOVA SCOTIA.

John Donaldson, Port Williams, Nova Scotia, Director Nova Scotia Fruit Growers' Association: I am very strongly in favor of the appointment of a fruit commissioner who shall be independent of any other branch of agricultural work. I do not know of any other department of agriculture in Canada that requires more fostering care than does that of fruit.

PRINCE EDWARD ISLAND.

Rev. Father A. E. Burke, President Prince Edward Island Fruit Growers' Association: We are quite averse to this appointment, believing, as we said in our resolution, that the fruit division requires extension, not restriction, that it wants a chief more than grain or dairying. I cannot see what sinister influence is effecting this in the face of the protests gone up from the fruit men of Canada.

The foregoing are only a few of many expressions of opinion received from fruit growers. The Horticulturist will be pleased to hear from other growers as to how they consider the situation can best be dealt with.

In Setting a Tree or Shrub sift some fine, rich dirt among the roots, just enough to cover so the boot will not injure them, then with all the strength and weight you can command stamp the earth down until it is solid, then fill in a little more dirt and repeat the stamping until the whole is nearly full; then fill the rest of the hole with loose dirt and leave it with the soil pitching toward the tree from all directions. If it is properly set you cannot pull it up. Do not try to put all the earth back, but throw away some. The same general rules apply to

everything from a strawberry plant to a shade tree.

Cooperative Spraying.—Last year was our first experience in power spraying and we undertook a little too much, so that we only covered the route three times, and our pressure was not altogether satisfactory. Where work was done carefully results were quite satisfactory, and with last year's experience we expect a great improvement this season.—(W. R. A. Ross, Sec.-Treas. Chatham, Ont., Fruit Growers' Association.)

THE SEEDLESS APPLE IN CANADA

W. T. MACOUN, HORTICULTURIST, C. E. F., OTTAWA.

A WONDERFUL seedless apple is said to have been developed by a western experimenter. There have been seedless apples in Canada for many years. One was exhibited at the annual meeting of the Ontario Fruit Growers' Association at Brantford, Ont., December 19, 1900. In the report of that meeting the following reference is made to it:

"A curiosity in the form of a seedless apple was shown by Mr. W. A. Whitney, of Iroquois, Ont. The apple was quite normal in outward appearance and of good size. Mr. Whitney says that none of the apples contain seeds."

As Mr. Whitney is dead, I wrote to Mr. A. D. Harkness, Irena, Ont., for information regarding this fruit. He obtained scions from the tree for me last spring. It was reported by the owner, Mr. L. Cameron, Ont., to be both seedless and bloomless. I asked Mr. Harkness to obtain some of the blossoms or places from which the fruit sprung, and the following description was made of them:

"Apetalous apple blossoms received from Mr. A. D. Harkness, Irena, Ont., from tree grown by Mr. L. Cameron, Iroquois, Ont., May 26, 1904: About one dozen flowers received. Flowers in clusters averaging three each. Calyx apparently very similar (these were not compared with the calyx of perfect flowers at the time) to that of ordinary flowers. Petals abortive, very small, and hidden by the sepals. Flowers evidently all pistillate. Appear to be 15 stigmas to each flower. W. T. Macoun."

Knowing the interest in seedless apples I visited Iroquois, August, 1904, and went to see the tree, which is in Mr. Cameron's garden. It was found in a very thrifty condition, but with no fruit. This lack was explained by the fact that there were practically no apples in the orchard last year, hence the pistillate flowers could not be pol-

lenized. Mr. Cameron informed me that it was a seedling tree about 10 years old, and probably fruited for the first time in 1900, when the fruit was shown at Brantford. He has this seedless apple top grafted on another variety in addition to the original tree. The apple, as shown at Brantford, was a rather handsome yellow apple, above medium in size and of fair quality. I remember testing it and noting that it was seedless. It was an early winter variety. Next summer we hope to obtain a full description.

In April, 1904, the following item appeared in the Prince Edward Island Farmer:

"In a recent issue of the Farmer we published the result of an experiment in apple growing by which a noted Colorado orchardist, after seven years of experimenting, had succeeded in producing a seedless apple. It was noted that the tree bearing this scientific wonder bears no blossoms, and that the fruit resembles a naval orange. Last Saturday, to our surprise and pleasure, we received a box of seedless apples grown last year in the orchard of Mr. Hugh Ramsay, Port Hill, with the explanation that similar apples had been grown yearly on the same tree during the past 30 years. Examination shows that the apple is entirely solid; there are no seed chambers nor any semblance of seed; it is well formed, richly flavored, and a good winter keeper, the samples received being firm and fresh, although stored in ordinary barrels. The tree bearing this peculiar variety was full grown and bearing heavily when Mr. Ramsay came into possession of his farm 30 years ago. Since then it has been a heavy bearer yearly, and in no case has a seed ever been found in any of the fruit."

I wrote to the editor and also to the owner of the fruit, asking for specimens, but unfortunately the best were gone, the speci-

men received being small and the quality, judging by the fruit tested, not more than medium. The core was small and was situated nearer the calyx than in ordinary varieties, and the cartilaginous part of the core was not as thick as in varieties with seeds. There were no seeds. I have tried to obtain fruit again this winter, but so far without success.

When attending the annual meeting of the Prince Edward Island Fruit Growers' Association in December, 1904, I was shown a specimen of a seedless apple grown by Jesse A. Wright, North Bedeque, P. E. I. This apple was past best condition, but was seedless, with a small core confined to the calyx end of the apple.

Unless a seedless apple is as good or better than a McIntosh Red, Spy, King, or

Spitzenburg, it is of little practical value, unless for evaporating or canning, and as so many culls and windfalls of well known varieties can be obtained for this purpose, seedless apples, unless of great merit, will not be popular. It is possible that by cross breeding seedless apples with varieties of the best quality something will be produced of real commercial value, and one of the Canadian seedless apples is being propagated at the Central Experimental Farm with the object of being used for such work.

Seedless apples are not novelties, as they have been recorded for nearly 300 years, and were probably known before that time. The last time the seedless apple received such public notice as now was about 15 years ago.

PARIS GREEN AND THE BORDEAUX MIXTURE

PROF. W. L. LOCHHEAD, O. A. C., GUELPH.

IT is important for several reasons that good paris green should be procured for orchard spraying. The good paris green should contain between 50 and 56 per cent of arsenious oxide, which should be in combination with copper. As a matter of fact about four per cent. of the arsenious oxide is in a free state, known as soluble arsenic.

It is this free, water-soluble arsenic which makes paris green dangerous to plants. Lime is accordingly added to combine with this free arsenic and form an insoluble arsenite. When the amount of free arsenic is large, however, or when the paris green is of a poor grade, experience has shown that the addition of lime does not prevent the injurious action, but actually increases the amount of injury.

There are some good tests for pure paris green:

1. Pure paris green is entirely soluble in ammonia. The percentage of free arsenic, however, is not shown by this test.

2. Pure paris green has a bright green color—any dullness or whiteness is indicative of adulteration.

3. Under the microscope pure paris green should consist of clean green spheres, wholly separate from one another.

The water-soluble or free arsenic is sometimes very dangerous to foliage, especially during very dry weather with much dew or fog at night. It would appear as if the dew dissolved the arsenic, which is then absorbed by the plant. At other times very little or no injury results from the application of uncombined arsenic.

It is always wise to get the very best grade of paris green for orchard work, for such will contain no adulteration and but a small percentage of free arsenic.

It is unlikely that liquid Bordeaux will ever be replaced to any extent by the powder form in orchard spraying operations, for it is doubtful if the dust will cover every portion of the leaf as effectively as the liquid. Again, it would appear that the

action of the liquid Bordeaux is continued for some time in the presence of the lime, water, and carbonic acid of the air with the continued formation of copper compounds poisonous to fungous spores, and in some conditions poisonous to the plant itself. There is a growing tendency to reduce the quantity of lime in the making of Bordeaux, so as make the solution just about neutral. This is all right for ornamentals, and for orchard trees in dry seasons, but in wet weather the addition of extra lime is recommended.

Many growers state that they fail to get good results with Bordeaux. The main cause of failure lies in the quality of the lime used, the manner of slaking the lime to get the milk of lime, and the way the stock solutions are mixed in the spray tank or barrel. (1) The lime should be fresh and firm. (2) Only small amounts of water should be added to the lime in slaking. If too much water is added many small lumps will remain unslaked. When the lime is fully slaked considerable water should be added slowly while the whole is being stirred. (3) When the Bordeaux is being

prepared from the stock solutions, the barrel of milk of lime should be thoroughly stirred, and the milk of lime—a thin white wash—emptied through a strainer into the spray tank. It is very essential that the concentrated stock solutions should not be mixed except in the presence of a large quantity of water.

It is advisable to use the 3-3-40 Bordeaux formula on Japan plums and peach trees on account of the tender nature of the foliage of these trees.

In districts where the lime-sulphur wash is not used on account of the absence of the San Jose scale, Bordeaux should be applied to prevent leaf-curl of the peach. It has been proven pretty conclusively that if a thorough application be made, a week or so before the flower buds open, the leaf-curl will be practically absent from peach orchards treated in this manner.

For the prevention of the black rot of grapes the first application of Bordeaux need not be made until the young shoots are 12 to 18 inches in length. The second application should be given immediately after blossoming, about the first week in July.

THE CORELESS APPLE EXCITEMENT

PROF. JOHN CRAIG, CORNELL UNIVERSITY, ITHACA, N. Y.

THE excitement over coreless apples has reached quite an acute stage. Royalty has become involved. King Edward is an honorary patron. The apple which started out as a seedless form has, in six months, travelling through various types of advertising media, reached the throne of England, leaving its core somewhere en route.

The whole story of this wonderful creation savors of quackery, and I am inclined to lose patience with horticultural journals which offer their columns to the exploiting of an absolutely unknown plant production in this generous, free and decidedly unsophisticated manner. Can it be that horticultural journals are becoming inoculated

with the germ which develops a craving for sensationalism? Are they imitating the yellow hue of some of their strictly news-dealing contemporaries?

This introduction—invention it was first called in the associated press dispatch—has been advertised with more than ordinary skill. The seedless enterprise is being pushed by shrewd business men who are taking advantage of the avidity of newspapers for something novel and the credence and desire of the public for something different. I am not surprised that a paper like the Scientific American should be drawn into the net, because that is quite outside of its scope and purview, but I am astonished

to see The Canadian Horticulturist lend prominent space to the foisting on a gullible public something, which as yet is vague, indefinite, untested and may prove a fake so far as adding anything substantial and useful to our fruit lists.

By the way, is this company proceeding along the lines of those who, before selling, first prove the value of their acquisition by actual trial? Are the experiment stations to be given an opportunity to pass on the merits of the variety, or is this extensive advertising to proceed coincidentally with the propagation and sale of the trees? It would seem that the latter method is to be followed. Although the writer was promised specimens for examination last fall, they did not arrive for some reason; and unless I am misinformed, the samples exhibited in St. Louis were safely embalmed in antiseptic fluids and shown through a glass covering.

There is before me a copy of the National Fruit Grower, of St. Joseph, Mo., in which an extension or elaboration of the stock article published in last month's Horticulturist occupies a prominent place. Passing over the highly garnished statements of the incident of the sale of two specimens for 60 shillings in Covent Garden market, here are some of the statements volunteered by Mr. Sampson Morgan, of Broadstairs, England, the writer of this noted contribution: "In the near future seedless and coreless apples will be on sale in the fruit shops of every city in the United Kingdom." What prophetic vision enables this horticultural seer to pronounce on the success of this variety without a single trial having been made outside the grounds of the interested originator? "The tree produces a cluster of small green leaves like a disorganized bud. It is here that in due course the fruit forms." How astonishing! The apple is a multiple bud. As the winter bud expands in spring the several blossoms which it contains are disclosed. Apple blossoms without petals are not at all uncommon; several specimens

of these apetalous blossoms were sent me last spring. The petal is not an essential organ.

We read further that there being no petals and therefore no fragrance, the codling moth passes it by unrecognized! The author of this ingenious statement forgets (if he ever knew) that the codling moth gets in its fine work after the petals fall and the fragrance (?) has departed. True, like the writer of the interesting article, a second sight may enable it (the moth) to look within and discover the abnormality of the specimen and thus be frightened away. Again, "the trees are being propagated from buds, no seeds being available." Another revelation! Now, it may not be known to Mr. Morgan, but it is a fact nevertheless, that nurserymen have been propagating named varieties in this country by graftage, in which buds are used in various ways, since the settlement of the country. History further informs us that this method came to us from the Greeks and Romans or possibly an older civilization. We grow pansies and pop corn from seed, not apple trees—unless we are after something different.

Again this optimistic writer says: "The permanency of the seedlessness of the Spencer apple is beyond dispute. Over 2,500 trees are already in hand, and the stock is being extended." I am somewhat in doubt as to the nature of the stock referred to, whether the watered article of the company or the stock of this variety. My advice is to take little of either until you absolutely know what you are buying. Listen to this! "Arrangements are in progress to ensure ample supplies of these wonderful novelties in England, and their arrival will be duly announced in the advertising columns of the general press." We understand that a stock of 2,500 grafts will, in Jack-the-Bean-Stalk style, grow to bearing size and furnish enough fruit so that after satisfying the American market there will be a suffi-

cient surplus to supply the English markets in a short time. Perhaps this will come to pass. A single barrel of some varieties will go a long way.

But we must continue our examination of this fascinating article. "Probably half a dozen trees have appeared at different places bearing apples without seed. But these trees would not produce trees that bore seedless apples." Our best records show how seedless apples have appeared here and there for at least 200 years. But there was no associated press, and advertising facilities were painfully inadequate in those days, so that these seedless individuals lived only as local curiosities and died for lack of intrinsic qualities and business enterprise. There was an unusual outbreak of seedless apples in 1904—quite an epidemic, in fact—but the Spencer creation (method new and unknown) is the only one that caused more than a ripple before the eye of the horticultural public.

As one reads this startling article a feeling akin to the uncanny creeps over your being. It says, when standing alongside other pollen-bearing varieties, trees of this variety bear "a small percentage of the apples with one and sometimes two or three seeds, but they (the seeds) are just as apt to be in one part of the apple as the other. For instance, he (Mr. Spencer) has found a seed within one-eighth inch of the outer peeling, far removed from its core." Wonderful! Marvelous! Just think of a seed travelling around in the flesh of an apple like a needle in a man's body!

We learn further, in regard to the blossoms, that "there is a small quantity of pollen, also a stamen." This latter addition would certainly be a very necessary and antecedent attendant of the pollen. As to the characteristics of the fruit, we are also informed that these apples "grow as large as the ordinary winter apple." He may have had a Lady apple in mind; or, on the other hand, he may have meant a Fall-

water. We are told that they are "red when fully mature," "contain much juice," "the flesh is firm and they are excellent keepers." An additional point of interest to the consuming public is whether they are good to eat.

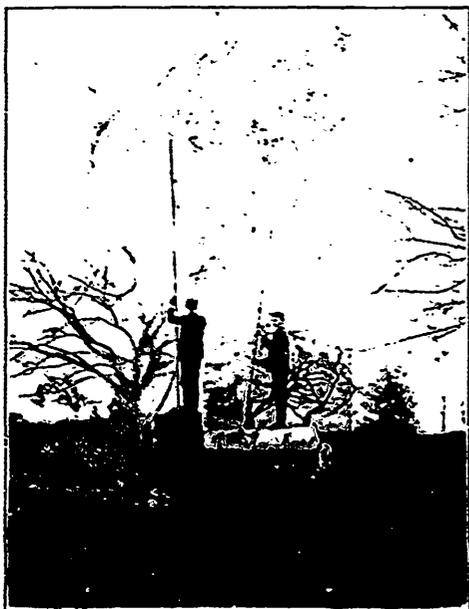
Here is a statement by Mr. Morgan that I am inclined to agree with: "It has been proved that the further we get away from the original proposition (five trees) the larger and better is the fruit." My own notion that Mr. Morgan in England is just about the proper distance from this "proposition," and that before our American fruit planters take second or third hand information as loosely put together as this much-quoted article, for horticultural gospel, they should do a little thinking for themselves. Before buying any of the stock, now being manufactured in the magic fashion hinted at, they should see, taste and examine the fruit. After this, buy for trial if you like.

Before closing this review there is one other quotation which should be made. It is this: "By desire (of whom?) the above record of the introduction of the coreless apple into Great Britain will be filed by the various state horticultural societies and colleges in America; also in England, Ireland, Scotland and Wales." Ho, ye secretaries! Sit up! Hear the mandate and govern yourselves accordingly. Speaking personally and as secretary of the American Pomological society, I shall wait for further instructions and information before filing a notice of the advent of this pomological marvel.

Now for a serious word in closing, while ridicule is not argument, there are times when it should be employed as effectively as possible. The claims of the article are absurd, inaccurate and impudent to a degree, when presented through recognized pomological channels to a reading and thinking horticultural public. What we should have now are disinterested opinions of those who have actually examined and tested this seedless wonder.

A Profitable Investment

It would be difficult to find a fruit grower who is more firmly convinced of the value of spraying than is Mr. Joseph Tweddle, of Fruitland, Ont., whose place was visited recently by a representative of *The Horticulturist*. "I have been using a power sprayer for two years," said Mr. Tweddle, "with which I spray 100 acres of fruit, and my sprayer, although an expensive one, paid for itself, several times over, the first year. I spray two to four times, depending on the season, and aim to secure



Spraying in Mr. Tweddle's Orchard

75 to 90 per cent. of clean apples. My peach trees are only sprayed once.

For killing insects, such as the curculio, my belief is that the old formula of four ounces of paris green to 40 gallons of Bordeaux is not strong enough to do quick work, as the insects are able to do considerable damage before that solution, which works slowly, destroys them. I use half a pound of white arsenic of lead, costing five cents, which is boiled for three-quarters of

an hour in one pound of fresh lime, or boiled with two pounds of sal soda. This mixture has proved very effective. If applied too coarsely it may burn the trees, but if the spray is fine no damage should occur."

Trimming Trees

PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

What season or month is the best for trimming trees? Should all fruit trees be pruned at the same time? When should shade trees be attended to?—(Amos Bruge, Brantford, Ont.)

The safest time to prune or trim trees of all kinds is early in the spring after severe frosts are over and before growth starts. There is then little danger of the trees being injured by frost and severe winter weather, and wounds made at that time heal readily.

With maples and other trees, which naturally bleed freely when pruned, it is just as well to leave the trimming till late in the spring when they will not bleed so much. Bleeding is not so serious an injury as is usually supposed, but often forms a lodgment for spores of fungous diseases, which are the cause of rot.

Arrested Growth of Trees

W. T. MACOUN, C. E. F., OTTAWA.

I have some apple trees planted last spring that have not shown any sign of growth; also an Austrian pine. The apple trees are green and the pine holds its leaves. Will they grow this spring, or would you advise planting other trees in their places?—(Chas. Deraele, Walkerton, Ont.)

If the apple trees and the pine tree were alive in the autumn of 1904 it is quite likely they will live. It frequently happens when trees are received in poor condition, or if the soil is not properly prepared, or the trees not planted carefully, they will make little or no growth during the first season. If the winter is very severe it is quite possible they may die, as trees that are not in a thrifty condition suffer, but the chances are that they will live.

Spraying at the College

PROF. W. LOCHHEAD, O. A. C., GUELPH.

SPRAYING operations usually begin at the college about April 20. As a matter of fact spraying begins as soon as the orchard can be entered by a horse and cart, and no set date can be laid down. Much attention is given to the first operations, for more good can be done at this time than at any other.

The resting spores of many of the common fungi, such as mildew, scab, canker and leaf curl, and the small insects, such as the bud moth and the case bearers, which winter as half-grown caterpillars, are not yet active. An application of Bordeaux mixture and paris green at this time, before the buds have begun to open, will be very effective, not only in preventing the fungous spores, which will soon be carried to the twigs and buds by the wind, etc., from germinating and entering the tree, but also in killing the worms when they attempt to satisfy their hunger after the long winter sleep.

It usually takes two days to spray an orchard thoroughly, and for the first half day the instructor works with the men to whom are assigned the task. They are left to themselves as soon as they have shown themselves capable of doing the work properly. Our orchard is chiefly composed of small trees, consequently it is not difficult to get at all parts of every tree and do thorough work. A second application of Bordeaux and paris green is made before the blossoms open, a third after the blossoms fall, a fourth and a fifth are applied during the season at intervals of two or three weeks.

Sometimes it is advantageous to give three applications before blossoming in apple orchards, but if the first application is thorough there is little need for the one which is usually made a week later. Spraying just before the blossoms open will destroy the

newly hatched canker worms and tent caterpillars, and prevent the scab and leaf spot. The application made just after the blossoms fall is intended specially to control the codling worm. The later applications, especially the one about July 1, are important, as they control the Palmer worm, apple bucculatrix, and the scab.

Saving Injured Trees

COMPARATIVELY few fruit growers attempt to save their trees which have been injured by mice. Where the cambium layer or inner bark has not been completely removed around the trees they may frequently be saved by keeping the remaining new wood moist until the growing season. This may be done by erecting a mound of fresh earth to cover the wound, by binding the wound with a mixture of clay and cow manure, half and half, covering the whole with burlap, or by simply covering the wound with grafting wax. As it is impossible always to tell by a simple inspection whether the cambium layer has been all removed it will pay in most cases to try one or other of these methods.

Bridging is practised by many quite successfully. Mr. W. W. Cox, of Collingwood, has some old trees which have never failed to bear good crops that were girdled when they were five inches in diameter for a distance of one-half foot or more. The method which he found successful consisted in boring a hole above and below the wound to a depth of half an inch or more with a half-inch bit, using for a scion a branch slightly larger than this in diameter. The ends were cut with a slope and the length was such that they could be inserted readily into these holes, above and below the wound, retaining their position by the elasticity of the wood. The points of union were covered with grafting wax and the bare wood about the trunk protected with common paint.

STRAWBERRIES AND THEIR CULTURE

W. T. MACOUN, HORTICULTURIST, EXPERIMENTAL FARM, OTTAWA.

DURING the past 16 years more than 400 named varieties of strawberries have been tested at the Central Experimental Farm, Ottawa, under as nearly uniform conditions as possible. Every year many new varieties are offered for sale, some at very high prices. It has been the aim to test these alongside older varieties and find out whether they are any better. Ninety-five per cent. of the varieties introduced every year are inferior to the best varieties already grown.

Many kinds are discarded at the farm every year, having been tested long enough to judge of their merits. In 1904 there were 196 varieties tested. As the average results are more conclusive than those for a single year, the following 12 varieties, which have averaged best for four years, are those which would be likely to prove most productive when the conditions are the same as at Ottawa, the soil being a rich sandy loam not lacking in moisture.

Most productive 12 varieties in order of merit:

1. Mele, Perf. This is a wonderfully productive berry, but being rather soft is not highly recommended. Fruit above medium size, roundish or pointed conical, pale but glossy red. Quality medium.

2. Sample, Imp. The Sample is undoubtedly one of the best commercial strawberries on the market. It is very productive, handsome and uniform in shape. Fruit large, bright to rather deep glossy red, and moderately firm. Season medium to late, quality medium.

3. Buster, Imp. Although not generally known, the Buster is another fine variety. It is very productive, and the fruit, which is large, maintains its size well to the end of the season. The color is pale, glossy red, much like Clyde in appearance. Moderately firm; quality above medium; season medium to late; foliage very good.

4. Bisel, Imp. This variety has been lost sight of to a large extent owing to so many new and much advertised varieties being given such prominence, but it is one of the most productive and handsomest berries tested at Ottawa. It is a superior variety. Fruit large, roundish, bright red, moderately firm. Quality above medium; season medium to late.

5. Afton, Imp. Can see no difference between this variety and Warfield.

6. Steven's Early, Imp. Appears identical with Warfield.

7. Glen Mary, Perf. The Glen Mary has for years been one of the most productive varieties at the Central Experimental Farm. It combines great productiveness with very large size of fruit, the fruit remaining large until the end of the season. Fruit very large, rather irregular in shape, bright red, moderately firm; quality medium; season medium. The irregularity of the fruit is somewhat against it.

8. Daisy, Imp. The Daisy is a variety which was sent to the experimental farm for test 16 years ago and has always proved exceedingly productive. Fruit above medium size, uniform in shape, round-conical, rather soft, bright glossy red. Quality medium; season medium. A very attractive berry but a little soft.

9. Greenville, Imp. This variety has proved very productive here, and on account of its good quality is very desirable for home use as well as market. Fruit large to very large, roundish or wedge shaped, moderately firm to rather soft. Quality good; season medium. More suitable for near than for distant market.

10. Daniel Boone, Imp. This variety appears identical with Warfield.

11. Howard's No. 41, Imp. A firm, productive, medium to late variety with medium sized deep red fruit.

12. Enhance, Imp. This is another variety which has not received the attention it deserves. Fruit above medium to large, roundish, deep red, firm. Quality above medium to good; season medium. Should be an excellent variety for shipping long distances.

Warfield, Imp. While the Warfield comes thirteenth in order of productiveness, it may deserve fifth place if the Afton, with which it seems identical, is the same variety. The Warfield is one of the very best of the older varieties, being very productive and of an attractive, deep glossy red color. It is one of the best varieties for canning. The foliage is inclined to rust sometimes, which is somewhat against it. Quality medium. Season early to medium.

Others which closely follow the above are Marie and Beder Wood, the latter being one of the best all-round early perfect varieties. For home use would suggest Bubach, Greenville, Lovett and Beder Wood as among the best. Williams, which is probably grown more than any other variety for long distance shipment, came twenty-ninth in the four years average. It is one of the best for this purpose, but Enhance should be given a further trial.

Strawberries succeed best on rich, well drained soil which will not bake easily. Thorough preparation and heavy manuring will give best results. Seldom, if ever, are strawberries too heavily manured. There are many systems of growing plants, but for those who are not strawberry specialists, and even in most cases for those who are, the matted row is the best. Plant early in spring when the soil is ready, setting the plants 18 inches to 24 inches apart in rows three and a half to four feet apart. Give thorough cultivation during the growing season. The looser the surface soil is kept the better the results will be.

Place the runners, if possible, so that they will be evenly distributed in the row. If the plants are kept at least six inches apart the results will usually be better than if closer. Mulch lightly just before winter sets in and after the ground is frozen with coarse straw or marsh hay. Frequently this will save the plants in thawing and freezing weather without snow on the ground, when otherwise they would be killed. Remove mulch in spring before plants begin to grow and place between the rows. It may smother the plants if left too long.

PRUNING FRUIT BUSHES

H. S. PEART, B. S. A., O. A. C., GUELPH, ONT.

AMONG the things that should occupy the attention of the farmer and fruit grower one of the first in importance is the pruning of his fruit trees and bushes. In the farmer's garden the bush fruits are very generally neglected, though the pruning which they require is simple in nature and can be done with comparatively little labor. The following directions may serve as a guide for some who have bushes to prune this spring:

The pruning of raspberries may be summed up briefly as follows: Remove the old

canes after fruiting: thin out the weakest of the new canes so that the row may not be too thick; head back the new canes to about three and one-half feet, so that good strong lateral shoots may be developed near the ground. Strong laterals may be headed back about one-half. In some localities where there is danger of the canes being injured during the winter, it may be best to leave the pruning until spring, but where there is no danger of injury from frost the work is as well done in the fall.

Blackberries or thimbleberries should be

pruned much the same as raspberries except that the new canes should be left somewhat longer, four to four and one-half feet being considered about right. It is generally advisable to prune blackberries in the early spring, as the canes are liable to freeze back during the winter.

GOOSEBERRIES.

Without care gooseberries become a tangled mass, which prevents the proper development and the easy harvesting of the crop. The fruit is borne on one, two and three-year-old wood, mostly, however, on the one and two-year-old wood. The aim should be to replace the three-year-old branches with good healthy new shoots very early each season. Six main branches, two of which may be replaced annually, is a good base from which to build the frame of the bush. Head back the new growth about one-third and keep the bush just open enough to permit the easy harvesting of the fruit. If opened up too much there is danger of the fruit being injured by sun-burning.

Currants are borne on the short spurs arising from the old wood, and near the

base of the new shoots. Two-year-old canes produce the finest quality and the largest quantity of fruit, although some fine berries may be produced on the three-year-old branches. Train the bush to six main stems, two of which may be removed each season and replaced by two vigorous young canes. All other new canes arising from the ground should be removed. Head back the two new shoots about one-half and all other branches one-third. Keep the head of the bush open enough to permit the free circulation of air and to admit sufficient sunlight to ripen the fruit properly.

The treatment of black currants does not materially differ from that of reds. The fruit is borne on one-year-old shoots arising from older branches. As the bushes grow larger and stronger than the reds, it is well to leave about eight canes, renewing two each season. Head back the growth severely to encourage the formation of many new spurs from the old wood for the production of fruit. Leave the head open enough to permit of free circulation of the air and the entrance of sunlight to the centre of the bush.

This Berry Needs a Trial

PROF. H. L. HUTT, O. A. C., GUELPH.

I have been thinking of planting Lucretia Dewberry, and if so of trellising them. Would it be a more desirable variety than Erie or Kittatiny?—(W. O. Burgess, Queenston, Ont.)

I would not advise planting largely of Lucretia Dewberry until you have given it a trial on your soil. It has done well here, although none of the blackberries are very satisfactory in this section. At A. E. Sherrington's Experiment Station, Walkerton, Lucretia has done very well, but I am doubtful if it would be as profitable as some of the best blackberries, such as Kittatiny, Agawam, or Eldorado. Your best plan would be to get a few plants and give them a thorough test along with the varieties of blackberries mentioned.

Pedigreed Strawberry Plants

E. B. STEVENSON, PONSORBY, ONT.

AS a result of experiments with many different varieties of strawberries I can recommend the following varieties:

List for growers and season of fruiting.

Extra Early and Early Kinds.—Excelsior, Success, VanDeman, Michel, August Luther, Cameron's Early, Palmer, Monitor, Johnson's Early, Beder Wood, Clyde, Sampson, Lord Sheffield, Texas.

Mid-Season.—Bubach, Haverland, Lyon, Splendid, Marie, Bismarck, Tennessee Prolific, Ruby, Glen Mary, Saunders, Sample, Williams, Wm. Belt, Lount, Senator Dunlap, Miller, Brandywine, Emperor, Nick Oliver, Mrs. Fisher, Woolverton, Parson's Beauty, Minuteman.

Late to Extra Late.—Joe, Klondike, Gaudy, Lester Lovett, Nettie, Robbie, Timbrell No. 18.

From the foregoing list growers can choose the kinds best suited for their soil. I would caution them to beware of the seller of pedigree plants who makes extravagant claims. Pedigree applies to highly bred animals in one continuous line for many years. Very many of our best strawberries are chance seedlings, found growing in fence corners, on stone heaps or in places frequented by birds that feed on berries.

Many people do not know how strawberry plants are propagated, and are deceived by the man who claims his plants are pedigreed (which claim he makes for the sole purpose of selling) and that they are superior, which is a great mistake. I once obtained some of these pedigreed plants, and when they came I discarded a good many. I called them runts, and the ones I planted did not do as well, by any means, as my own plants. This pedigree business is a great fraud worked on unsuspecting growers.

Diseases of the Grape

DISEASES of the grape was the subject of Mr. W. T. Macoun's remarks before the Niagara Peninsula Fruit Growers' Association at their meetings in March. The diseases described in detail were the black rot and brown rot or downy mildew, for which spraying with the Bordeaux mixture was prescribed; powdery mildew, the remedy for which is dry sulphur; anthracno or bird's eye rot, which has appeared in the eastern part of the province but is not very prevalent; and leaf blight, for which Bordeaux mixture is the remedy.

Last season many buyers would only buy grapes grown on clay soil, and the question arose whether those grown on sandy soil are more subject to disease. Last year, Mr. Macoun said, he visited Mr. W. H. Bunt-

ing's vineyards at St. Catharines, which had been sprayed seven times, and the grapes were almost perfect. He saw another yard of 15 acres which had not been sprayed, and there was not a good bunch to be found. This proved the advantage of spraying in the vineyard.

Cultivation of Carnations

I GET the best results with carnations by keeping them inside," remarks Mr. A. Neal, Stratford. "I start the cuttings and keep them moving to larger pots frequently, never allowing them to become root-bound. When grown in this way they can be put in the benches a month or six weeks earlier than when grown outside. Then I am sure of a good crop of bloom for the Christmas market, which is always wanted. The main object is to keep them growing continually from the time they are rooted until they are in bloom.

"When grown outside they should be set out as soon as danger of frost is past. Keep them well watered and well cultivated so that they will not receive a check. After about three months, or about the middle of August, I put them back in the benches, and if everything has been favorable get a crop of bloom by Christmas. Sometimes, however, weather conditions are such that I miss the Christmas trade by putting them out. Besides there is a more abundant bloom of much finer quality with most varieties when grown inside. The best commercial varieties with me are Lawson (cerise), Enchantress (pale pink) and Queen Louise (white)."

After the welcome bloom of the tulips has gone, if you planted deep, leave them and cultivate over them. If not, take them up and heal them in the ground, out of the way, until they ripen. Then break off stems, dry like onions and store for next fall.

ORNAMENTAL SHRUBS

PROF. H. L. HUTT, O. A. C., GUELPH.

OF late years there has been considerable inquiry regarding the most desirable shrubs for lawn planting. The answer to such a question depends on the locality, as there are a number of very desirable kinds which can be grown in the southern sections of the province but which would not do at all for the north or east.

We have had an excellent opportunity on the college grounds of studying a large



Philadelphus Coronarius

number of the more hardy kinds and are pretty safe in saying that what are hardy enough to do well here will do well over the greater part of the province.

From careful observations for 10 years I would select the following as a dozen of the best hardy ornamental shrubs from among about 200 species and varieties which have been planted here. The list is given in the order of their season of bloom and covers the season fairly well from the earliest bloom in the spring till frost destroys the last in the autumn:

Forsythia suspensa (Golden Bell). An open, spreading bush about six feet in diameter. Flowers large golden bells, an inch or more across, appear before the leaves, about the end of April, and last about three weeks: very showy.

Ribes aureum (Golden Currant). A very hardy vigorous growing bush about six or eight feet in diameter. Flowers golden yellow, very abundant, and having a delightful spicy fragrance. In bloom May 9 and lasts two weeks.

Pyrus japonica (Japan Quince). A showy bush six or eight feet in diameter, with glossy green foliage. Half hardy when young, but after a time becomes acclimatized and quite hardy. Flowers large and brilliant scarlet, some varieties pink and white. In bloom about May 15 and lasts nearly three weeks.

Caragana frutescens (Siberia Pea Tree). A very hardy showy little bush about five or six feet in diameter. Has a luxuriance of fine light green foliage, which appears early and is followed about May 24 with an abundance of clusters of pea-shaped yellow flowers. Bloom lasts a little over a week.

Syringa vulgaris (in variety, Lilacs). The common lilac is so well known as not to need description, and is appreciated by all who grow it. There are a great many improved varieties, with single and double flowers, varying in color from white and pink to dark purple. In bloom about May 24 and lasts for two weeks or more. Some of the Chinese and Japanese species are very desirable and extend the season of bloom to July 1.

Pyrus angustifolia (Bechtel's double-flowered American Crab). This is a crab apple tree of medium size, and very hardy. Four years after planting it began to bloom and bears large double pink flowers an inch and a half in diameter. At a distance they look like small roses and are very fragrant. In bloom about June 1 and lasts about two weeks. These handsome flowers make such dainty buttonhole bouquets that on public grounds, such as ours, the tree becomes the prey of all bouquet lovers.

Spiraea Van Houttei (Van Houtte's Spiraea). This is one of the best of the

spiraeas. It makes a graceful, symmetrical little bush about five feet in diameter, with slender drooping twigs. The bloom is pure white, very profuse, appears the first week in June and lasts about two weeks.

Virburnum opulus sterile (Snow ball). This is a hardy free-growing shrub, about ten feet high, which bears large round clusters of pure white flowers, which look like snowballs. In bloom about June 4 and lasts over two weeks.

Lonicera tartarica (Bush Honeysuckle). A very hardy symmetrical bush 10 feet or more in diameter. Has an abundance of bloom every year, which appears the first week of June and lasts about a week. The bloom is followed by showy red or orange fruits which make the bush attractive long after the bloom is gone. There are red, pink, and white varieties, all of which are worthy of a place on the lawn. Good varieties may easily be grown from the seed.

Diervilla rosea (Rose colored Weigela). This is a handsome bush which is only half-hardy here when young, but becomes hardier with age. It makes a bush five or six feet in diameter. The flowers are large and bell-shaped, appearing among the foliage the first week in June and lasting nearly three weeks.

Philadelphus coronarius (Garland Syringa). A hardy vigorous bush about 10 feet in height, bears large white fragrant

flowers like orange blossoms. In bloom about June 15 and lasts over two weeks.

Rhus Cotinus (Purple Fringe or Smoke Tree). A hardy, thrifty shrub which



Lonicera Tartarica

grows 10 or 12 feet high and makes a shapely bush. About the middle of July it comes in bloom and from that till autumn it is covered with curious fringe or plume-like flowers, which are very showy.

Hydrangea paniculata grandiflora. A somewhat straggling growing shrub, which may become six or eight feet high, but is better when pruned back severely every spring, the same as roses. It bears large panicles of white flowers. In bloom about the middle of August and lasts three or four weeks.

Planting Peonies

PEAONIES are raised in a very simple way. Any loamy land, good enough for corn or vegetables, will do for peonies. Plow two furrows deep and set the plants quite closely together. Fertilize the land at least one season before planting. Never under any circumstances put manure or other fertilizer directly under or among the roots at the time of planting.

September is the best time for planting, but they can be moved up to November or very early in April, before the spring growth begins. If the planting is left until autumn a whole year's root growth, as well as a season's blooming, is lost. Full grown prize flowers must not be expected the first season. The plant needs two or three years in which to get well established and do its best. The time of blooming varies considerably with the different varieties.

CHRYSANTHEMUM WORK FOR APRIL

GEO. HOLLIS, BRACONDALE, ONT.

CHRYSANTHEMUM cuttings for exhibition purposes should be taken during March or even earlier, although they can be taken in April, as a long growing season is required to develop a good stem and a large flower. Should you decide to try some of the novelties, your order should be placed at once, as the growers start shipping as soon as danger from frost is over. By ordering now you can top your new cuttings, and in this way increase your stock before planting time arrives.

In growing chrysanthemums, for either exhibition or commercial use, the secret of success is to never let them get a check from the time of taking the cuttings to flowering time. The method generally used is to place some clean, sharp sand in a bench or flats about three inches deep, in a temperature of 55 or 60 degrees, shaded from the sun, and to keep the sand rather wet. Select the best cuttings, which should be strong and not hard wooded, and in two or three weeks the cuttings should be rooted. Remove them from the cutting bench, shake the sand from the roots, and pot in small pots. The soil should not be too rich at

first. Shade from the sun for a few days, but afterwards give them a sunny position and lots of air. In about two weeks they should be shifted into three-inch pots, and by the second week in May they should be ready to plant in the bench, or, if they are to be grown in larger pots, a larger pot will be required.

If grown for cut flowers the main lot of cuttings need not be rooted before May first, but if short of stock, root all the cuttings you can get. When they are large enough, take the tops and root them.

STANDARD VARIETIES.

The following is a list of standard and tried varieties:

White.—T. Eaton, W. H. Chadwick, Western King, Mrs. H. W. Buckbee, Mrs. Nathan Smith, Convention Hall, Kalb.

Pink.—Dr. Enguehard, Mrs. H. Flick, Marie Liger, A. J. Balfour, Wm. Duckham, Marion Newell.

Yellow.—Golden Wedding, Golden Chadwick, Yellow Eaton, Mrs. Thirkell, Percy Lumridge, Cheltoni.

Red.—S. F. Wright, Lord Hopeton, G. W. Childs, Harrison Dick.

GOOD POTTING SOIL

WM. HUNT, ONT. AGRIC. COLLEGE, GUELPH.

LATE autumn or early spring is the best time to make the compost heap. An excellent method of securing a good pile of potting soil is to obtain some good tough sod from an old well fed down pasture field, where the soil is of a loamy nature. Cut the sod about four inches thick and stack it in the open where it will be fully exposed to the weather.

Place the first layer of sods with the grass side downward. On this place another layer of sod, grass side downward, as before after which spread on a layer of well rotted stable manure or cow manure, to the depth of three or four inches. Repeat with two

layers of sod and one of manure until the pile is large enough. Build the pile upright and keep it perfectly level until finished.

It will take eight or ten months for this material to rot sufficiently for use in potting plants. When it is ready cut down from top to bottom with a sharp spade, as required. The proper proportions of soil and manure to make a good rich compost may be obtained in this way. This soil will make a good compost for bulbs, roses, geraniums and the more common plants. For begonias, fuchsias and the more tender plants, or for sowing seeds in, about one-

seventh part of fine sharp sand may be mixed with the potting soil. Cover the pile of potting soil lightly with brushwood to keep away chickens and animals.

In country places or on farms there should be no difficulty in securing a pile of potting soil. In towns or cities it would, perhaps, be better and cheaper for the plant grower to buy a bushel or two of prepared potting soil from a florist.

Good, sweet, fresh, potting soil is one of the main essentials in floriculture. The soil should be sifted through a sieve having a three-quarter inch mesh, so as to remove

any sticks or stones before using it. The fibry matter and the rotten manure should be all passed through the sieve to mix with the soil.

I have known amateur plant growers pack the sod and manure, as described, in an old box or packing case, and by this means secure a good quantity of potting soil. This compost would also be very useful to market gardeners for use in hot beds. One layer of sod to three or four of manure would probably be a better proportion for raising early vegetable plants.

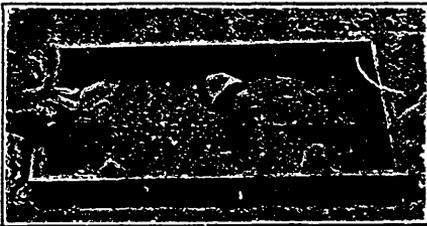
STARTING ANNUALS

W. G. ROOK, TORONTO, ONT.

THERE are several flower seeds which can be sown indoors during April. Nearly all annuals may be bloomed at least one month earlier by starting them now. For the amateur who has not the convenience of a greenhouse or hot-bed, windows with a southern exposure may be used for the boxes in which the seeds are sown.

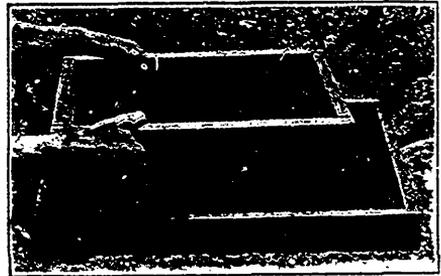
Obtain shallow boxes about three inches deep and small enough to lift easily. Should it be desired to plant more than one kind of

fertilizer and sifted. Press the soil firmly with a piece of board, after which the seeds may be sown.



Showing Box and Method of Drainage

seed in a box, partitions may be inserted. Bore holes in the bottom, about six inches apart, for drainage. Partly cover the holes with concave pieces from a broken flower pot. Take the coarse material which cannot be run through a sieve and make a layer, about half filling the box. Spread over this soil that has been made rich with manure or



Sifting in the Fine Earth

They should be covered with soil to about four times their diameter, the large ones about half an inch deep, and the very fine ones hardly more than below the surface. There are seeds so fine that sowing them on the surface is sufficient. Some people prefer sowing the seeds in rows one inch or more apart, others sow them broadcast. Do not neglect pressing down the soil firmly with a board both before and after sowing. This is very important.

Moisten the soil with a bulb sprayer. Care must be taken to have the box flat and not to give too much water at once, so as to

avoid washing out the seeds. Always keep the soil moist. Should it become dry after germination begins the plants will never fully recover or be as healthy as if properly cared for.



Pressing Down the Soil

Mark each box with a label giving the name of the variety and date of planting. When seedlings show their first pair of leaves developed and the next pair started they should be transplanted to give more

root room. Boxes such as have been used to sow seeds in will be the best, or seed pans, flower pots, or any other article of a similar nature, will do.

Seedlings should be lifted carefully and the soil around their roots not broken. Take the plant between the thumb and finger of the left hand, and with a small stick make a hole in the soil deep enough to cover the plant close up to the leaves and press the soil firmly around the roots. Give a light sprinkling with water, and shade for a few days until the roots begin to grow and the plants stand up, after which place in the strong sunlight. Turn the box every few days as the plants always grow towards the light. When the bright warm days come the boxes should be placed outside during the day to harden the plants before they are planted in the garden.

THE SHAMROCK IN IRELAND

HORTUS SYLVÆ.

SINCE Victoria of Blessed Memory proclaimed the wearing of the green on the 17th of March all classes and conditions of people try to get a shamrock to wear on that day. It makes very little difference to the wearer of the shamrock what the plant is so long as it has a three divided leaf. Many varieties of plants are sold as the "real true shamrock of Ould Ireland," and the less they know about it the more positive they are of being in possession of the real shamrock.

No doubt the plant that St. Patrick used to illustrate the doctrine of the Trinity is lost in antiquity, and at best we can only conjecture as to the plant he used for that purpose. Much has been written in the past, some writers holding to one plant and others just as positive to some other. It would not be time lost to refer to some of the plants that have occupied a prominent place in those discussions. Botanical history throws some light, and is more reliable to

guide us than folk lore or legends. White clover has often been referred to, in fact the writer once had a sod of clover given him that was brought from Ould Ireland as the real true Irish shamrock. The white or Dutch clover was not introduced into Ireland till about the 16th century, more than a thousand years after St. Patrick had passed to his rest, so white clover must be discarded.

Oxalis Acetosella, or Wood Sorrel, is a plant growing in the woods all over Ireland from time immemorial. Being common it is considered a weed, but it is a lovely little plant. There are two species, the white and the yellow flowered. The plants resemble each other very closely, but *Stricta* has yellow flowers two to six on each peduncle, the foliage being of a pleasing green color. *Acetosella* has white flowers on a single scape; the foliage is of a reddish green color.

In some parts of Ireland the peasants

make quite a little money by the sale of seed and plants. One tourist describes their method thus: They stand a plant in a large tin pan; when they touch the long shaped pod it bursts open, scattering the seed. The seed is gathered and put up in packets and sold to tourists for 62 cents.

A VARIETY OF CLOVER.

Trifolium Minus, a variety of *Trifolium Repens* or white clover, has been sold by seedsmen as the shamrock, also *Trifolium Procumbens*, the low hop clover. The *Medicago Lupulino*, or black medick, is another claimant for the distinction. The English and Irish have the trefoil figured on their coins.

Brewer's Dictionary of Phrase and Fable says: "So far as I have been able to find the shamrock is not mentioned by Shakespear. Under the word "clover" the author of Plant Lore of Shakespear says of the clover there are two points of interest that are worth notice. The clover is one of the plants that claims to be the shamrock of

St. Patrick. This is not a settled point, and at the present day the wood sorrel is supposed to have the better claim to the honor, but it is certain that the clover is the club of the pack of cards. Clover is a corruption of *clava*, a club. In England we paint the clover on our cards and call it clubs, while in France they have the same figure, but call it *trifle*. It is certainly curious, says one writer, that the trefoil in Arabic is called shamrock, and was held sacred in Iran as emblematic of the Persian triads.

Pliny in his Natural History says that serpents are never seen on the trefoil, and it prevails against the stings of snakes and scorpions. If such were the case no more suitable emblem could have been chosen by St. Patrick, seeing that he is said to have driven such hideous reptiles from the Emerald Isle. This tradition makes it even doubtful if the whole thing is not a myth.

"The dear little sweet little shamrock of Ireland
Thrives only on starvation.
Good food, justice and kindness kills us all."

FLOWER GROWING ON AN EXTENSIVE SCALE

WHEN Mr. John H. Dunlop, of Toronto, commenced growing flowers in an amateur way, in 1880, with a modest greenhouse six by twelve feet, none of his friends expected that within 25 years he would become one of the leading professional florists in Canada. Yet that is what he has done. From this small beginning Mr. Dunlop has succeeded in adding to his business year by year until he has the second largest floral establishment in Canada and one of the largest on the continent. His greenhouses number 36 and cover about four acres of land. There are 150,000 square feet of glass in his greenhouses.

So well known has Mr. Dunlop's establishment become it is considered one of the sights of the city by many amateur and professional florists who visit Toronto. One of his recent visitors was an editorial repre-

sentative of The Horticulturist, who was entertained in a most interesting manner by a trip (it was nothing less) through the various greenhouses. Believing that time is money Mr. Dunlop has planned his greenhouses so that no time need be lost visiting any section of them. The office and work rooms are located in the center and are thus convenient to all the greenhouses.

The first greenhouses entered from the office were two, 140 feet long each, devoted to the growing of Meteor roses. "This is one of the most productive varieties," said Mr. Dunlop, "but it is giving growers considerable trouble as it seems to be deteriorating. Of late years we have been forced to graft it on the Manetti. Its splendid crimson color and its productiveness are its strong points. Until this year I have been unable to equal it in this respect, but now

the General McArthur and the Richmond promise to excel it on both points and on odour as well. The odour of the General McArthur is very sweet. The great productiveness of the Meteor will be realized when I state that one year the 1,400 plants in this house averaged 33 blooms each.

"One of the strongest points in favor of the McArthur and Richmond varieties is that they do not require as high a temperature by six or seven degrees as the Meteor, which needs a temperature of 65 degrees at night. The Richmond is being sent out this season for the first time. I heard it so highly spoken of last fall I visited the greenhouses of the originator, in Richmond, Indiana, specially to see it. We have grown the General McArthur all season and find it a favorite variety, its fragrance adding to its popularity."

On coming out of the first two greenhouses the representative of The Horticulturist became interested watching one of Mr. Dunlop's employes grafting Bride and Bridesmaid roses. "My method," said Mr. Dunlop, "is to use Manetti stocks, which are imported from England in the fall. These are potted and kept in a cool greenhouse till after New Year's. Some of them are then brought into a warmer

house to start growth. The scions are splice grafted on the Manetti and placed in a close grafting frame. For the first 10 days this frame is kept perfectly tight at an average temperature of 80 degrees. For the four following days about half an inch of air is admitted. For the next two days an inch of air is given, and then four inches of air is allowed in for two days. At the end of 16 days the plants are given full ventilation and they are ready to be moved at the end of 18 days. This method greatly increases the strength of the plants." Some plants, pointed out by Mr. Dunlop, which had been treated in this way, bore evidence to the truth of the statement.

"One of the greatest stumbling blocks many growers encounter," continued Mr. Dunlop, "is to retain the original foliage of the American Beauty rose after the process of rooting till growth starts. I have found that it is best not to vary the temperature during the four weeks the cuttings are in the sand. The cuttings are even potted in the propagating house. They are kept in the house where the grafting frames are until growth starts, after which little difficulty is experienced with them."

The next greenhouses visited were seven in one, there being no partitions between

them. These greenhouses, which were 240 feet long, presented a lovely scene, as they were full of rose plants, many of which were in bloom. The first two houses were devoted to American Beauty roses and the remainder to



Monster Combined Greenhouses Where Mr. Dunlop Grows Some of His Roses

such varieties as Bride, Bridesmaid and Franz Deegan. The benches were of modern construction, being about a foot high and made of cement, brick and tile. "The strong points of these benches," said Mr. Dunlop, "are their durability, their free drainage, and that the soil can be kept at a more even temperature."

"I like this method of throwing several houses into one, as when the gutters are high the light goes right through the houses and none of the plants are shaded. This year I am taking down four old houses and converting them into three large ones, in which I will use the skeleton construction."

POPULAR VARIETIES.

On being asked how many varieties of roses he was growing Mr. Dunlop replied, "I am growing 10 varieties and find the white, pink and red are the most popular in the order given. There are none better than Bride and Bridesmaid in the white and pink. Franz Deegan has supplanted *Perte* in the yellow. The Richmond, I believe, will excel all others in the red."

Two propagating houses are used exclusively for carnations. At the time of the visit these were being used for chrysanthemums and violets. During their season Mr. Dunlop propagated about 150,000 carnation cuttings. The cuttings are kept in for about five weeks and are kept very cool, being given but little bottom heat in the belief that plants grown in this way are more sturdy and have a better constitution. The bench bottoms are composed of slate and



Mr. Dunlop Among His American Beauty Roses

soft brick and about two inches of sand, which gives a better temperature and more even moisture, as the soil does not dry out so quickly as it otherwise might.

The two adjoining houses are used for propagating roses and the sides for lily of the valley. The lilies of the valley are grown from pips imported from Germany between November and January. On arrival they are placed in cold storage and are brought out as needed. Many of the plants in these greenhouses were beauties, having made a splendid growth. Radium and Multibelle are two of the best varieties Mr. Dunlop grows.

Five greenhouses were visited in which asparagus plumoses was growing, some of the plants in one of the greenhouses were 14 feet high. In five other greenhouses, 140 feet long, were growing Bride, Bridesmaid and Kaizerin roses.

WHERE CARNATIONS BLOOMED.

A most enjoyable part of the visit was spent in the greenhouses devoted to carnations, seven of which are 240 feet long by 18 to 21 feet wide. "In white carnations," said Mr. Dunlop, "Lady Bountiful, White Lawson and The Belle are among the best. Glacier is an old standby which is still good. The Harlowarden is the best of the deep shades.

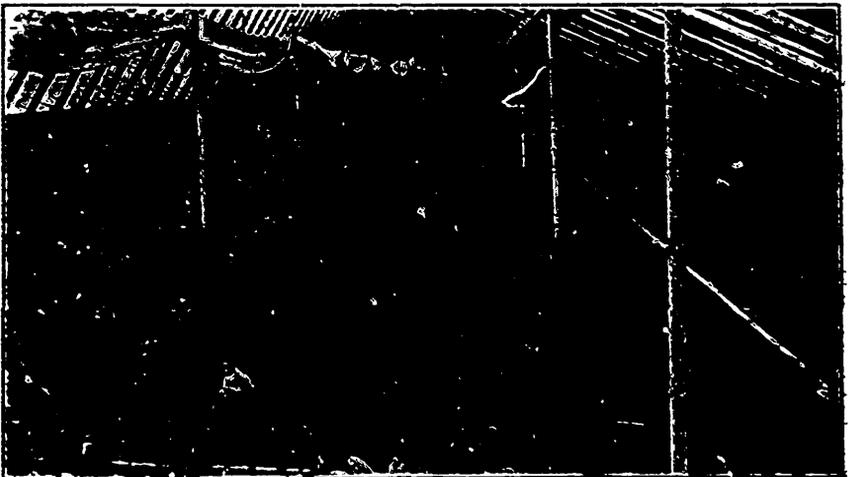
"In the bright reds Estelle, Adonis, Flamingo and Cardinal are of about equal merit. The last is a new variety this year which promises well. Among the dark pinks there is nothing to beat Mrs. T. W. Lawson. The Mrs. Lawson is one of the best varieties ever originated. It is a very free bloomer, of large size, and has a good stem. It has all the points of a perfect flower."

The plants in two of the carnation houses had never been in the field, and the plants, in consequence, have fine long stems early in the season. In one of the houses the carnations had been taken out and 50,000 young plants put in instead, which will be left in until the last of April or first of May. When the plants are young they are pinched back to induce them to make side breaks and develop into bushy plants.

THE CUT BLOOM CELLAR.

A most interesting feature of this big establishment is the cut bloom cellar, which is eight feet deep. The walls are 18 inches thick and made of hollow brick with four inch spaces. There is a nine-inch arch roof with three wooden roofs over that with four inch spaces between each roof. There are double windows, which are double glazed, to let in the light and exclude the atmosphere. The cellar never has any frost or artificial heat. Cut flowers look better 48 hours after being placed in the cellar than when they are cut. They are shipped to such distant points as Winnipeg and Halifax and reach their destinations in excellent condition.

In addition to growing flowers Mr. Dunlop conducts two retail flower shops in Toronto, which do a big business. His ability as a florist has often been recognized by his brother florists who have at different times elected him to such important offices as president of the Canadian Horticultural Association, Toronto Gardeners' and Florists' Society, vice-president of the American Carnation Society, and many others. Any person interested in the growing of flowers will find a visit to Mr. Dunlop's greenhouses both pleasant and profitable.



One of the Greenhouses in Which the Mrs. T. W. Lawson Carnation Is Grown

ANOTHER HANDY GARDEN TOOL

WILLIAM WELCH, KINCARDINE, ONT.

THE description which appeared in the March issue of *The Horticulturist* of Mr. R. B. Whyte's flower garden in Ottawa was an instructive one for amateur flower growers. I was particularly interested in Mr. Whyte's description of the two handy garden tools he uses in weeding his garden. A number of years ago I realized the need for some such implement as those used by Mr. Whyte, as I found it was difficult to keep my garden free from weeds either by pulling them by hand or by using a hand hoe. This led me to experiment, with the result that I finally devised an implement which has been of great assistance to me and with which I find it possible to weed my garden quickly and effectively and without stooping or soiling my hands, two things to which so many people object.

The first implement I made was rather a crude affair, as the blade I shaped myself, but since then I have been able to improve it considerably. It may be used by pulling, or pushing for stirring the surface of the soil. The trouble I found with a hoe was the con-

tinued lifting and hacking. So satisfactory have the results been with the use of



Death on the Weeds

This illustration shows how Mr. Welch, the president of the Kincardine Horticultural Society, uses his weeder.

of great assistance to them in not only weeding their orchards and gardens, but in stirring the soil as well.

this implement that I have introduced it to my friends, who have been delighted with its use. Both amateur and professional florists who have used it have informed me that it has been

HYBRIDIZING CARNATIONS*

GEORGE HELLIS, BRACONDALE, ONT.

I GROW quite a few carnations and chrysanthemum seedlings every year and so far have met with some success. I hope to get higher up the ladder before I give up and should like to see more growers take up this work. In Canada we should be able to do something to hold up our end and bring out a variety that will be a credit. Raisers of seedlings must not be disappointed if they do not get anything good the first, the second or even the third year. After that they should have some success.

The plants raised the first year should be the foundation of the seedling stock. The color of the flowers does not matter much, provided the plants are strong, with thick

flower stems and an upright growth, the calyx never bursting, and the flowers not very full in petals. Select the plants you mean to seed, and take the pollen from some healthy strong growing plant, never from weak, puny ones. Nothing is gained by getting new ones to work with, unless some new variety should give you some advantage in vigor, size and bloom. With good judgment and selection it is better to work with seedlings.

The dull days of winter are not so easy to cross the flowers as the warm bright weather of early summer. Many of the varieties have no pollen till warm weather. Having selected the blooms you wish to

* Paper read before Toronto Gardeners and Florists' Association, March 27, 1905

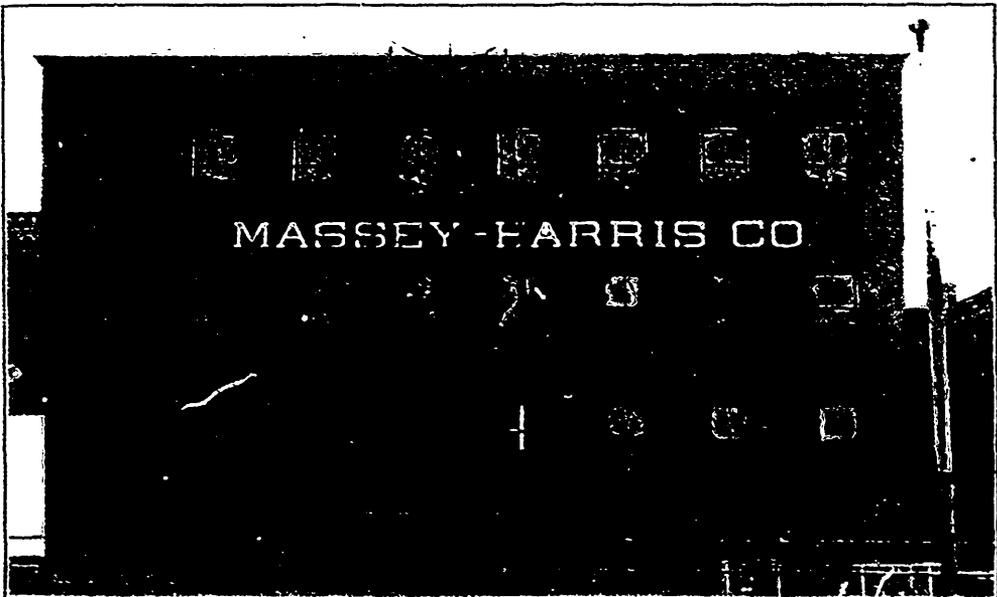
seed. take out the pollen anthers before they burst. The petals should not be cut off, and two days after the pollen can be put on the pistil, bringing it to the flower with a pair of small forceps. Do this about noon, when the sun is shining, and if successful the blooms will close by the next day. If not successful repeat. After a few days pull the dead petals out.

Some varieties will not seed, but the pollen from them, in nearly every case, is wonderfully effective. Label your crosses and keep an eye on them. When the seed pods show signs of bursting gather and put each in separate papers, and keep them in a tin box in a cool dry place, till sowing time, which I think is best in February. The seedling can be grown on in pots or flats and planted outside in May. Do not stop the seedlings. Let them flower, and do not be afraid to pull out the bad flowers or the poor growers. After planting outside you will have more to pull out. Out of 500 you may end with 12 or less.

Cross them, sow, select and house as be-

fore, and propagate any you think are worth saving. They may be good as seedlings, but when grown from cuttings they may be far from good. Carnations, as grown for cut flowers, have practically no rest. A cutting cannot, in any sense, be called a new plant, as it is only a branch, so to speak, of the new plant, and if ever propagated or badly treated a good kind may soon be ruined. Seedlings of extreme vigor are what are wanted. Propagated and grown with care, when put on the market, they should keep in health and vigor for many years.

The last two years I have lost nearly all my seedlings through their being flooded when planted outside, and this year I have to work up a new stock. I am using some singles, which I hope will give me some vigorous plants to seed next year. Some growers think the use of singles is going backwards, but in my opinion that is not the case. There are some grand varieties sent out this year, but there is room for something better.



A Beautiful Object Lesson For Large Manufacturing Companies

The unattractiveness of many commercial sections of cities has been greatly relieved of late years by the planting of vines and wall-hung boxes. During the summer this Toronto building is always greatly admired.

GROWING EARLY TOMATOES

J. L. HILBORN, LEAMINGTON, ONT.

FOR the best success in growing early tomatoes for market it is necessary to have a greenhouse in which to grow the plants. There are about 30 of these in the vicinity of Leamington, which are used almost entirely for the growing of tomato plants.

We start the seeds in flat boxes made one by two feet and four or five inches deep. We sow the seeds the first or second week in March. When the plants have developed four to six rough leaves they are pricked out into other flats in rows two or three inches apart each way. They are grown here until they begin to crowd each other, when they are again transplanted into flats which are divided into spaces about four inches square by using veneer partitions. The plants are grown in these until they again begin to crowd, when they are transplanted and given a space six inches

each, which gives six plants to a tray where the trays are used.

Some growers use other forms of trays and some use square veneer boxes 5 x 5 or 6 x 6, but all use some form of box so that they can transplant into the field without disturbing the roots. We set the plants four by six feet and cultivate and hoe often until the fruits begin to ripen.

Last season we trimmed about 3,000 plants, allowing but two stems to grow. These were tied to stakes and suckers were kept off. Where this was practised a much finer quality of fruit was obtained, but it was hardly so early in ripening and the yield was lighter. The most serious hindrance to the success of this industry that we have to contend with is the great quantity of cheap imported stock that is found on the market when ours are being harvested.

VARIETIES OF VEGETABLES FOR A HOME GARDEN

PROF. H. L. HUTT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THE following varieties of vegetables should give excellent satisfaction when grown in the home garden:

Beans.—Summer, Golden Wax; autumn, Burpee's Bush Lima; winter, Navy. Sow when danger of spring frost is past.

Beets.—Globe, Egyptian Turnip; long, Long Smooth Blood. Sow as soon as ground is fit to work. Thin when small to three inches apart and take out every other one as soon as they are large enough to use.

Carrots.—Chantenay, Scarlet Nantes. Sow early and thin the same as beets.

Cabbage.—Early, Wimmingstadt; late, Flat Dutch, Savoy; red, Mammoth Rock. Sow seed of early variety in hot-bed about middle of March and transplant to open ground about end of April. Sow seed of late varieties in the open ground about end of May, and transplant about July 1.

Cauliflower.—Extra Early Erfurt, Early Snowball. Treat the same as cabbage.

Celery.—Early, White Plume; medium, Paris Golden Yellow; late, Giant Pascal. Sow seed in seed box or hot-bed about first of May. Prick out into flats or cold frame when an inch high, and transplant into trenches four or five feet apart about July 1.

Corn.—Early, White Cory; medium, Metropolitan; late, Country Gentleman, Stowell's Evergreen. Sow about May 1, and if plants are injured by cold or frost sow again about May 24.

Citron.—Colorado Preserving. Sow in hills about eight feet apart when danger of frost is over.

Cucumber.—White Spine, for slicing; Cool and Crisp, for pickling and slicing. Sow in hills about four feet apart when danger of frost is over.

Egg Plant.—New York Improved. Sow seed in seed box or hot-bed about middle of April, and transplant in the open when danger of frost is past.

Kohl Rabi.—Early Purple Vienna. Sow seed early for summer use and again about middle of June for winter use.

Lettuce.—Toronto Gem, California Cream Butter. Sow seed as early as possible, and at intervals of a month for succession. Thin plants to six or eight inches apart for good heads.

Muskmelon.—Rocky Ford, or Emerald Gem; Montreal Market. Sow seed in well prepared hills when danger of frost is past.

Onions.—Yellow Danvers, Prizetaker, Red Wethersfield. Sow seed as early as possible. The thinnings may be used as green onions.

Parsnips.—Hollow Crown. Sow as early as possible and thin to six inches apart in row. Leave part of the crop in the ground over winter for spring use.

Peas.—Early, Steel Briggs' Extra Early; medium, Gradus; late, Champion of England. Sow early kinds as early as possible and others a couple of weeks later.

Potatoes.—Early, Early Ohio; late, Empire State. Keep potatoes for planting in a warm room in the light for three weeks before planting. Plant a few for early use as soon as the ground is fit to work, and follow with others when danger of frost is past. Plant late varieties about May 24.

Pumpkin.—Sugar. Plant when danger of frost is past.

Radishes.—Early, Rosy Gem, French Breakfast; winter, Scarlet China. Sow early varieties as early as possible, and at intervals of two weeks for succession. Sow winter varieties in summer after crop of early peas.

Salsify.—Long White. Sow as early as possible and thin to four inches apart in the row. Part of the crop may be left in the ground over winter for spring use.

Spinach.—Victoria. Sow as early as possible, and at intervals of a month if succession is desired.

Squash.—Summer, Crookneck, White Bush Scallop; winter, Hubbard. Do not plant until danger of spring frost is over. Bush varieties require about four feet of space between hills. Hubbard should have at least eight feet.

Tomatoes.—Early, Spark's Earliana, Dominion Day, Mayflower. Sow seed in seed box or hot-bed about the middle of April. Transplant in the open when danger of frost is past.

Turnips.—Golden Ball, Hartley's Bronze Top. Sow early for summer use and about June 20 for winter use.

Vegetable Marrow.—Long White Bush. Plant when danger of frost is past.

Watermelon.—Hungarian Honey, Col's Early. Plant when danger of frost is past in well prepared hills eight feet apart.

If you care to start a hot-bed, or a cold frame for flowers, all right. If not, scatter the seeds thinly on a bare piece of ground, even if the frost is not all out, and when the plants have four or five leaves on them they can be readily transplanted to beds. Take up a small clump of earth with each plant, and do not disturb the roots. Poppies bloom very early, asters later, so that if you plant poppies in one row in the bed and asters a foot apart behind them, when the as-

ters are ready to bloom the poppies will be gone and you can weed them out.—(N. S. Danlop, Montreal, Que.)

A good garden requires good soil. Sandy land is the earliest. It can be made productive by the addition of plant food. Commercial fertilizers are good in their place, but they do not make humus, which comes from decayed vegetable or animal matter.

Onion Growing For Profit

JOSEPH W. RUSH, HUMBER BAY, ONT.

What is an average profit per acre growing onions, all expenses being deducted? Is it difficult to dispose of the crop and how much per bushel do onions generally bring? Have you tried the transplanting method introduced by T. Grenier in his book, *The New Onion Culture*? Is it advisable to keep onions until spring? What kind of soil is best and what onions are the most profitable? How many bushels can be grown from an acre?—(A. R. Douglas, Ailsa Craig, Ont.)

There is certainly money in onion growing if properly managed. Try it and manage as well as you can. The returns from an acre of onions may range from \$20 less than nothing up to \$300 to the good. There is always a sale for onions at market prices which range from 50 cents to \$1 per bushel for well dried onions. A good plan for early onions is to sell them in bunches, six onions tied in a bunch. The onions should be three to five inches in diameter. They sell at 50 cents per dozen bunches in Toronto market.

Sell the onions when they are ready and you need the money. My soil includes sand, heavy clay, black muck, clay loam, gravelly clay and some very strong land. The Yellow Danver onion I find the most profitable and I always use a well known Toronto firm's seeds. Sow five to six pounds per acre. Four hundred bushels is a fair crop, 600 bushels is a good one. There is lots of work in onion growing, and you should find a profit as well as work.

THE BEST SOIL.

The soil best suited for onions is a dark, sandy loam that retains moisture. Work deep when preparing the ground for the reception of the seed. Use land that has been worked for a root crop the previous year. Use 30 to 40 tons of well rotted barn manure per acre and plow it under four to six inches. The manure should be covered by not less than four inches of soil.

Harrow thoroughly so that the manure is thoroughly incorporated with the soil. After

harrowing with the ordinary harrow the surface should be further worked with the arm or disk harrow, so that it is well pulverized to the depth of four inches. Then put on the smoothing board and go over the ground two or three times until you are sure the soil is ready for the seed. When ready make a straight mark across the land to be sown, have your seed in the drilling machine and set the marker to suit. If the crop is to be worked by hand 15 inches will be about right, and if by horse 18 to 20 inches.

Run the drill at a good fast walk, as the seed runs truer than when run at a low speed. Have the heaviest man on the farm follow the drill, treading every inch of the rows thoroughly to insure a good catch. There is no other crop where the adage, "A Stitch in Time," is so applicable as in the onion crop; therefore, just as soon as the line can be seen, which will be about 10 days after sowing, apply the double wheel hoe between the rows and keep it going once a week all season. Do not thin the onions, as they will ripen better if allowed to crowd each other.

Experiment in Pruning Tomatoes

W. T. MACOUN, HORTICULTURIST, C. E. F.,
OTTAWA.

AN experiment in pruning tomatoes was tried last season with gratifying results. When the plants in the hot-beds had six strong leaves developed, which was on May 23, the tops were nipped off and the plants given more room, being placed five and a half inches apart in the frame. The object of pinching off the top of the plant was to cause new shoots to develop at the axils of the leaves in order to have six branches bearing early tomatoes instead of the one cluster usually found on the top of the plant. These were planted out June 6, alongside other plants unpruned. On June 22 half the pruned plants were again

pruned, all laterals being taken out and the six main branches only left. The other plants were left to grow at will, and it was found that they produced the most ripe fruit, though not the largest early crop.

This system of pruning is very promising. The further advanced the axillary shoots are when the plants are set out the larger the early crop is likely to be. In the experiment the plants were not started early enough to get the best results. When the first fruit was ripe on the unpruned Sparks' Earliana, July 29, there was very little ripe on that date. The experiment was suggested by Mr. J. S. Littooy, Everett, Washington Territory, who has been pruning tomatoes in this way for some time in Washington with gratifying results, where they have difficulty in ripening tomatoes.

Two varieties were under test, the Sparks' Earliana, one of the best, if not the best, early variety, and the Matchless, a main crop sort. I would advise all market gardeners to give this system a trial this year.

wet season particularly, it is not fair to compare the lower ground with higher. I am still satisfied, however, that for tomatoes, and for some other crops, it pays to use chemical fertilizers, and I should not like to be without a few sacks each season, even if I could get all the stable manure I wanted.

This fertilizer question is an important one. There is still prejudice against commercial fertilizers, largely, I believe, because of lack of knowledge. I have no record of definite, detailed results from the use of commercial fertilizers, although I have used them on a number of crops each year, and after watching their effect have gradually increased my purchases each season. I have no great knowledge of farm chemistry, but have read and studied the subject as I found time, and have attained some measure of success in the use of fertilizing chemicals. As a result I have about given up using ready-mixed fertilizers, finding it cheaper and better to buy the ingredients separately and to mix them as the land and crops seem to require.

Name of Variety.	Date of First Ripe Fruit.	Ripe Fruit First Three Pickings.	Total Yield of Ripe Fruit.	
			Lbs.	Lbs. Ozs.
Sparks' Earliana:				
Unpruned	July 29	9	84	10
Pruned once	Aug. 13	6	127	12
Pruned twice	Aug. 12	18	132	12
Matchless:				
Unpruned	Aug. 4		29	
Pruned once	Aug. 29		73	8
Pruned twice	Aug. 29		62	

Vegetable Notes

Too much nitrogen in the soil, or rather not enough phosphoric acid and potash for the amount of nitrogen will cause the first fruits of cucumbers or tomatoes to drop.— (W. W. Hilborn, Leamington, Ont.)

The soil for growing celery can hardly be made too rich. Celery is a great consumer of nitrogen. Potash must be abundantly supplied to give strength for bleaching and keeping. It is one of the great secrets of success with this crop.

Maine is the champion potato state, with a yield of 200 bushels to the acre. New Hampshire is next with 145 bushels. New York is the lowest with 86 bushels. Iowa is the champion of the western states with 118 bushels. It is also the champion corn state.

Better to Mix the Fertilizers

W. C. M'CALLA, ST. CATHARINES, ONT.

I GREW six acres of tomatoes last year, but the season was so unfavorable I was not able to see definite results from the different fertilizers tried. It rained so much at planting time that it took a week to get all the plants out, and a week's start gives a very considerable advantage. In a large field the soil is not uniform, and in a

The Canadian Horticulturist

The Only Horticultural Magazine in
the Dominion.

OFFICIAL ORGAN

ONTARIO FRUIT GROWERS' ASSOCIATION.

THE POMOLOGICAL AND FRUIT GROWING SOCIETY
OF THE PROVINCE OF QUEBEC.

PRINCE EDWARD ISLAND FRUIT GROWERS'
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ONTARIO VEGETABLE GROWERS' ASSOCIATION.

H. BRONSON COWAN, Editor and Business Manager.

J. J. BELL, Associate Editor.

W. G. ROOK, Advertising Manager.

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

8. **All Communications** should be addressed:

THE CANADIAN HORTICULTURIST,
507 and 508 Manning Chambers,
TORONTO, CANADA

THE CANADIAN HORTICULTURIST.

That Canadians, who are interested in the growing of fruit, flowers and vegetables, are prepared to support a Canadian publication which is devoted to their interests is proved by the rapid growth that has taken place in *The Canadian Horticulturist*. The great increase in the subscription and advertising patronage has made it possible to issue this number under a new cover and to enlarge the magazine from fifty-two to sixty pages. During March, handsome and enlarged offices were secured in the Manning Chambers, Toronto.

The best evidence of the increase in the support of the paper is afforded by its subscription lists and advertising pages. During the past few months two provincial fruit growers' associations have appointed *The Horticulturist* their official organ, and others intend to do so shortly. The number and value of the advertisements has been increasing by leaps and bounds. The

February issue, 1905, carried more advertisements than any previous issue. The advertisements in the March issue showed an increase in value of eleven per cent. over the February issue. This month the advertisements in *The Horticulturist* have surpassed those in the March number by almost thirty per cent., and are worth as much as the total advertisements in the twelve issues of the magazine published during 1902. Can any other publication in Canada show a more rapid increase in the same length of time?

This increase will soon make it possible to considerably enlarge the paper and to strengthen all the departments. Many improvements are being planned which when carried out will make *The Horticulturist* a magazine of which Canadians may well feel proud. As such progress as has been made, is due to the assistance of our readers and advertisers, the management trusts it will continue to receive this support in the future as in the past. In the meantime a cordial welcome is extended to our readers, one and all, to visit us in our new home in the Manning Chambers, where lovers of horticulture are always assured of a warm welcome.

GOOD RESULTS SHOULD FOLLOW.

The announcement, by the Hon. Sydney Fisher, Minister of Agriculture, that in compliance with the requests of fruit growers he may arrange for the holding of a conference by representatives of the fruit interests in the different provinces, has been received with general satisfaction by fruit growers at large. Such a conference has long been needed. There are questions relating to the transportation and marketing of fruit, uniform packages, the Fruit Marks Act, etc., which are pressing for a solution and these can best be dealt with by a conference such as is proposed. Important results will follow the meetings.

The Minister of Agriculture is, also, to be congratulated on the passage of his bill making the 10 x 11 x 22-inch box the standard for Canada. This size is the one most generally acceptable. The adoption of this box will bring about several improvements connected with the shipment of a certain class of Canadian fruit.

OUR CORELESS APPLE ARTICLE.

In this issue Prof. John Craig, the well known authority on horticultural subjects, gets after the people who are interested in the Spencer Coreless Apple, as well as Mr. Sampson Morgan, for writing the article on this apple which appeared in our last issue, and *The Horticulturist* for publishing it. By implying that *The Horticulturist* lent itself to "foisting on a gullible public" something which "may prove a fake," Prof. Craig takes a stand which is not justified. Before publishing the article in question *The Horticulturist* considered the matter carefully. While realizing many of the weak points in the article, which are pointed out by Prof. Craig, our intention was to draw

editorial attention to them in this issue. This would have been done in the March number but for lack of space and the date on which the article was received.

It is well known that seedless apples have frequently been produced. Proof of this is furnished in the article in this issue by Mr. W. T. Macoun. Mr. Sampson Morgan is a well known English writer on horticultural subjects, articles by him appearing frequently in some of the most conservative English horticultural publications. A contribution on this subject by Mr. Morgan, which appeared recently in *The Nineteenth Century and After* attracted a great deal of attention. When Mr. Morgan stated definitely that "over 2,500 trees of the Spencer apple are in hand" *The Horticulturist* concluded he must have proof for this statement, and, therefore, felt free to publish it although holding Mr. Morgan responsible for its truth. Mr. Morgan has been written to and will have to make his own defense. Should it be true that 2,500 of these trees exist there is no reason to doubt that there will soon be a large increase in the production of these apples. The excitement these apples created in Great Britain and the large sums they realized when sold by auction were items of interest *The Horticulturist* felt perfectly justified in presenting to its readers.

The Horticulturist has no intention of misleading its readers on this or any other subject. For this reason we do not hesitate to publish Prof. Craig's letter in full. It is published with pleasure because we understand from other sources that Prof. Craig has excellent reason for speaking as he has. The statement has been made to *The Horticulturist* that a company is being formed in the United States with the intention of selling nursery stock of so called coreless apple trees to the public at exorbitant prices. If this is the case the sooner the warning to the public is sounded the better. While *The Horticulturist* intends to keep its readers informed on matters relating to seedless or coreless apples it will also use its best efforts to prevent their being misled by sharpers. It is now up to Mr. Sampson Morgan to explain his position.

THE FRUIT DIVISION.

Until he has produced stronger reasons than those given in the House of Commons. Hon. Sydney Fisher will find it impossible to convince fruit growers of the necessity which led him to place the chief of the fruit division under the direction of the Dairy Commissioner. In taking such action the Minister of Agriculture has given fruit growers reason to believe that he does not consider it necessary to consult their views in affairs connected with his department no matter how interested in them they may be. More than that: he has shown fruit growers that he does not intend to pay any heed to their wishes as expressed through their provincial fruit growers' associations, through papers representing their interests and by means

of private letters, many of which he has received.

Hon. Mr. Fisher has not claimed that the Dairy Commissioner (who is a recognized authority on dairy matters) is better informed in regard to the fruit interests than is the chief of the fruit division. Such a claim would be ridiculous. Why then should the latter be placed under the direction of the former? This, however, is not a question of the fitness of these two men for the work. There is a principle at stake which demands recognition, and that is that the fruit industry is of sufficient importance to require a head who shall not occupy a minor position to the head of any other branch of the department of agriculture. As the Hon. Mr. Fisher does not recognize this fact it means that the fruit growers of Canada must produce the proof and that is what they intend to do.

OUR TEN DOLLAR BONUS.

The successful winner for March of the \$10 offered by *The Horticulturist* each month to the reader who buys goods to the greatest value from the advertisers in each issue was Mr. Lewis Miles, who purchased trees and vines to the value of \$126.25 from *The Belleville Nurseries*, of Belleville. Among those who applied for the bonus was Mr. G. H. Mills, of Toronto, who secured goods to the value of \$87.50 from the *Steele, Briggs Seed Co., Limited*, of Toronto. As a reward *The Horticulturist* is sending Mr. Mills a handsome premium.

Owing to the large number of applications that are received for this monthly bonus it has been decided to make a change in the method of its distribution starting with this month's issue. In future, instead of giving one prize of \$10, this sum will be divided into six prizes, one of \$5 and five of one dollar each. The largest sum will be given to the reader whose purchases aggregate the most, and the remaining five prizes to the applicants in the order of the value of their purchases. Should there be more than six applicants those who do not receive money prizes will be sent handsome premiums. A notice concerning this offer appears in our advertising columns.

It is understood that City Park Commissioner Chambers, of Toronto, purposes making a change in the management of the Allan Gardens. Such action will meet with the approval of many who have felt for a long time the injustice of one man being paid for work another man was doing. The Allan Gardens, while under the control of the city of Toronto, might almost be called a provincial or Canadian institution, as they are visited by lovers of flowers from all parts of Canada. It is only justice that the man responsible for the splendid appearance of the gardens and grounds should receive full credit for his work. It is time, also, that Toronto had new conservatories. They are needed and should be built.

THE VEGETABLE GROWERS HAVE ORGANIZED

The vegetable growers of Ontario have organized and formed the Vegetable Growers' Association of Ontario. Organization was completed at a representative meeting held in Toronto March 25. Those present included Messrs. W. C. Emory, Aldershot; E. J. Mahoney, Hamilton; W. C. McCalla, St. Catharines; A. McMeans, Brantford; J. Terrill, Picton; W. Carter, Dovercourt; Joseph Rush, F. F. Reeves, Humber Bay; John McKay, Doncaster; George Syme, jr., Carlton West; R. Lankin, Toronto; J. W. Hyatt, West Lake, Ont.; H. D. Anderson, Dresden; John F. Atkin, Sarnia; Mr. Porter, York; P. W. Hodgetts, secretary Ontario Fruit Growers' Association, and H. B. Cowan, of The Horticulturist.

Mr. G. A. Putnam, Supt. of Farmers' Institutes, addressed the meeting and offered to assist the vegetable growers of the province every way in his power. Speakers would be sent by the department to their meetings, and he was willing to assist in the work of organization.

A report of a sub-committee which had been at work drafting a constitution was presented by Mr. Cowan, and after careful consideration was adopted with one or two amendments. The preamble states:

"The object of the association shall be the advancement of the science and art of vegetable growing, in all its branches, by holding meetings for the discussion of questions relative thereto, and by collecting, arranging and disseminating useful information, and by such other means as may from time to time seem desirable."

Local associations may be formed in any part of Ontario and their membership fee shall be one dollar a year. Their annual meetings must be held during December of each year. Each local association has the right to appoint a director to the board of the provincial association and shall hold office for one year. Associations may be formed with ten members. The provincial association will pay the expenses of one director from each association having a membership of 25 or over, when attending meetings of the provincial board. Associations having a smaller membership than 25 may elect a direc-

tor but must pay his expenses. Each director will have a vote on the provincial board for every 25 members in his local association. The directors will elect from among themselves a president, vice-president and secretary-treasurer.

Local associations will send the secretary of the provincial association fifty cents for each of their members, which will constitute the members of the local association's members of the provincial association, shall entitle them to free copies of the official organ of the association, to free copies of the report of the annual convention, and such other printed material as may be issued by the provincial association. The Canadian Horticulturist was appointed the official organ of the association. Individual growers not connected with local associations may join the provincial association by sending one dollar to the secretary of the provincial association.

OFFICERS ELECTED.

On motion those present at the meeting were elected provisional directors until the local associations can elect directors regularly at their annual meetings next December. Associations already in existence but not represented at the meeting will be allowed to elect provisional directors to the provincial board.

The election of officers resulted in Mr. W. C. Emory being selected as president; Mr. Jos. Rush as vice-president, and Mr. H. B. Cowan as secretary-treasurer. These officers were appointed a committee, with power to add to their numbers, to wait on the Hon. Nelson Monteith, to ask for a grant for the association; that the Provincial Fruit, Flower and Honey Show shall be extended to include vegetables, and that the experts at the agricultural college be asked to devote more attention to matters pertaining to the growing of vegetables. The meeting was an enthusiastic one. Those present dispersed feeling that the new association has possibilities for splendid work ahead of it. Copies of the constitution adopted may be had on application to The Canadian Horticulturist. An organizer may be placed on the road to form local associations.

COOPERATIVE WORK AMONG FRUIT GROWERS

P. W. HODGETTS, SEC'Y ONTARIO FRUIT GROWERS' ASSOCIATION.

A strong deputation representing the cooperative committee of the Ontario Fruit Growers' Association waited on the Hon. Nelson Monteith, Minister of Agriculture, early in March, to impress on him the necessity for assisting in every way the cooperative movement among the fruit growers. There were president Messrs. A. E. Sherrington, of Walkerton; Robt. Thompson, of St. Catharines; A. W. Peart, of Burlington; W. A. Ross, of Chatham; Mr. Johnson, of Forest; Elmer Lick, of Oshawa, together with President Alex. McNeill and the secretary. A strong statement as to the losses sustained by the fruit growers under the present system of selling the crop was presented to Mr. Monteith, together with a brief account from each

of the cooperative associations represented, as to the benefits which had accrued to their members the past year when prices were low.

As an aid to the successful carrying on of this work in the future, it was suggested that the department might revise and extend the present "Act for the Incorporation of Cooperative Cold Storage Companies" so as to include cooperative packing companies. This extension would also assist financially in the purchase, erection and equipment of suitable buildings for storage or packing purposes to the extent of one-fifth of such cost.

Two other suggestions were made, one asking that a number of power sprayers be operated this year throughout the province:

the other that expert packers be sent this fall to the various districts to teach the Ontario packers the proper methods of grading and packing fruit in either boxes or barrels.

Mr. Monteith expressed himself as being much impressed with the necessity for such a line of work among the farmers and promised to do all in his power along the lines suggested.

A STANDARD APPLE BOX ADOPTED

The bill promoted by Hon. Sydney Fisher, providing for a uniform sized apple box, which has passed its third reading in the House of Commons, meets the views generally of fruit growers and exporters. The standard size provided for is 10 x 11 x 22 inches, inside measure, or ²/₃,200 cubic inches. It holds one bushel and is equivalent to one-third of a barrel.

Mr. David Henderson, M. P., put in a plea for a box 9 x 12 x 18 inches, one quarter of a barrel, which is the size used in the county of Halton, which he represents. Mr. Claude Macdonell presented the views of some Toronto shippers, favoring the size proposed for shipments to Great Britain, but smaller sizes to South Africa, France, Germany and other countries where different sizes are preferred, but the uniform size was adopted. The act will not come into force till June, 1906, so that this year's trade will not be affected.

The Fruit Growers' Associations of Ontario, Quebec, Nova Scotia and British Columbia passed resolutions in favor of a uniform box of the size which has been incorporated in the bill. That the fruit growers are in favor of a stand-

ard box will be seen by the following expressions of opinion, a few of many given to The Horticulturist:

It is a step in the right direction to have a legal box, for we will be able to get sale quotations based on the legal box and it will give us a more intelligent view of market situations.—(Harold Jones, Maitland, Ont.)

It is a mistake to have different sizes in boxes. In the past we have not known where we were at. The size adopted is the right one.—(S. M. Culp, Beamsville, Ont.)

I approve of Hon. Sydney Fisher's resolution respecting apple boxes. There ought to be some standard size and the boxes should be of good timber, well seasoned.—(R. A. Thomas, Barrie, Ont.)

A standard size for apple boxes is all right. The boxes should be of No. 1 timber. A box shown at the Toronto exhibition had sides only half an inch thick, which is too thin for exporting. A square box of the same size would be stronger and better. However, I prefer the barrel to the box.—(Ed. Veale, Mount Brydges, Ont.)

A Series of Instructive Meetings

The Niagara Peninsula United Fruit Growers' Association strengthened itself among the fruit growers of the Niagara district as a result of the series of meetings under its auspices during the second week of March. The meetings were held at Stoney Creek, Beamsville, Jordan Station, Queenston and St. Catharines. Two meetings were held each day, and the attendance and interest were well sustained. Mr. C. M. Honsberger, president, and Mr. C. E. Fisher, secretary, made the necessary arrangements. The subjects specified on the program were San Jose scale work, diseases of the grape, and cooperation and organization among fruit growers. In addition to well known local fruit growers, such as Messrs. W. H. Bunting, E. D. Smith, A. H. Pettit, Erland Lee, S. H. Ritzenhouse, W. C. McCalla, L. Woolverton, Joseph Tweddle, R. Thompson, H. Griffith, S. M. Culp, W. H. Lee, F. A. Goring, F. G. Stewart, Rev. W. J. Andrews, Isaac Usher, Wm. Armstrong, Chas. Lowrey and W. M. Hendershot, two outside speakers, Prof. Lochhead, of Guelph, and Mr. W. T. Macoun, of Ottawa, divided the meetings, dealing chiefly with diseases of the grape.

Mr. A. N. Brown, an extensive and experienced fruit grower of Wyoming, Delaware, was present at the meetings and spoke twice daily, his addresses being full of interest and instruction. He is a many-sided man of pleasing ad-

dress, and won golden opinions from those with whom he came in contact.

Arrangements have been made by the association to supply members with spraying materials at wholesale rates. There can be no excuse for neglect in the matter of spraying this season.

The Deseronto Workers.—The season of 1904 was one of the most successful in the history of the Deseronto Horticultural Society. The annual flower show given by this society is becoming one of the events of the year, and the last show held was the largest and best ever given. The competition in classes for best kept lawns and grounds was keen, and great interest aroused. Prospects for the coming season are good, as the members are anxious to make an even better record than the past year. Mr. D. McClew was re-elected president and Mr. R. W. Lloyd as secretary.

The premiums distributed this year by the Durham Horticultural Society will consist of fruit trees, evergreens, flowering shrubs, gladioli and geraniums. The members of this society are taking more interest in their surroundings than heretofore, and much rivalry is expected in competing for prizes for the best kept grounds and lawns of the members. The membership is constantly increasing and the society is a power for good in this community.—(Chris. Firth, Sec'y.)

A Dominion Convention

A deputation of fruit growers waited on the Hon. Sydney Fisher to ask him to call a Dominion convention for the purpose of discussing various matters connected with the fruit growing industry, also to urge him to take steps to have express rates placed under the control of the Railway Commission. The deputation was an influential one and placed its views before the minister with much force.

The following were mentioned as some of the subjects which might be discussed at the convention:

Statistics and fruit crop reports.

Transportation.

Uniform packages.

Markets and marketing, including the regulation of the commission business, and all questions pertaining to interprovincial trade, also the export trade.

Adulteration of fruit products.

Regulation of nurseries and tree agents.

Amendments to the fruit marks act.

Suggestions looking to the increasing usefulness of the Dominion experimental farms and provincial experiment stations and orchards.

The deputation met with a sympathetic reception and Mr. Fisher expressed himself favorable to holding the convention. It is expected that representative fruit growers, representatives of the transportation companies, local and foreign buyers, and others more or less directly connected with the industry will be present, and that an exhibition of fruit, representative of the provinces, will be held at the same time.

Items of Interest

A very successful banquet was held by the Market Gardeners' Protective Association at Toronto March 1. The principal speakers were Hon. N. Monteith, Minister of Agriculture; Mr. J. W. St. John, M. P.P., and Messrs. R. C. Steele, W. Rennie, J. A. Simmers and H. B. Cowan. The affair passed off very pleasantly.

A number of fruit growers' cooperative associations have been formed in Ontario as the re-

sult of a series of fruit institute meetings. Among those associations are the Bruce Fruit Growers' Association, Thedford Association, Forest Fruit Growing and Forwarding Association, Georgian Bay Fruit Growers' Association, Lake Huron Fruit Growers Association, and Allenford Fruit Growers Association.

At a meeting of the British Columbia Central Farmers' Institute, held at Victoria February 28 to March 2, a resolution was passed unanimously endorsing the action of the Provincial Board of Horticulture in refusing admission to the province of fruit and fruit trees infected with fungus disease and infested with insect pests.

An influential deputation, introduced by Hon. J. S. Hendrie, M. P. P., waited on Hon. Nelson Monteith, Minister of Agriculture, recently, to urge the holding of the annual Fruit, Flower and Honey Show at Hamilton. A deputation is being formed in Toronto to wait on the minister and ask that the show shall be continued in Toronto.

New Advertisers

The following advertisements appear in this issue of The Canadian Horticulturist for the first time:

Sinclair, D. J., Toronto, Ont.

MacLean Publishing Co., Toronto, Ont.

Welsh, W., Kincardine, Ont.

Kastings, W., Buffalo, N. Y.

Niagara Gas Sprayer, Buffalo, N. Y.

Smith, J. B., Strachan ave., Toronto, Ont.

Stone & Wellington, Toronto, Ont.

Blackie Bros., Halifax, N. S.

Massey, Harris & Co., Toronto, Ont.

Renfrew Nurseries, Renfrew, Ont.

McMillan Fur and Wool Co., Minneapolis, Minn.

Indianapolis Nurseries, Indianapolis, Ind.

Banfield, H. G., Woodstock, Ont.

Breckon, T. W., Merton, Ont.

United Typewriter Co., Limited, Toronto.

Vanduzer, C. W., Grimsby, Ont.

Gilchrist, A., Toronto Junction.

Advertise in The Canadian Horticulturist.



Our Fully Descriptive Catalogue Entitled

Canadian Plants for Canadian People

is now out. Drop us a card for a copy.

The Webster Floral Company, Limited, Hamilton, Ont.

"THE LEADING CANADIAN FLORISTS"

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.
See Notice in Advertising Columns.

Trade With Grocers

The keener the demand, the better market. This is a truism that is not amiss to repeat once in a while. Fruit growers as a general thing ship to jobbers, who in turn sell to the retail fruit dealer or grocer. There are, however, many buyers among both jobbers and retailers who are anxious to get in touch with large shippers and who are ready to take good sized shipments regularly—ready to pay, too, a better price than the market for a dependable article. Some of these buyers are in Eastern Canada and some are west. An excellent means of reaching them is by advertising in a newspaper which they consult for market quotations, etc. Such a newspaper is *The Canadian Grocer*, published in Montreal, Toronto and Winnipeg. *The Canadian Grocer* enjoys the name of being the best news medium of the green fruit trade, as this relates to green fruit as merchandise.

Our Reputation Is Extending

"The reputation of Canadian fruit is apparently extending to all parts of the world," said Mr. Stone, of the firm of Morris & Wellington, whose nurseries are at Fonthill, while in conversation recently with *The Horticulturist*. "We have lately received an order from a party living at Kuanguing, China, for several hundred dollars' worth of fruit trees, including apples, pears, cherries, plums, peaches, apricots, ornamental stock and an assortment of small fruits

and roses. The check paying for the consignment accompanied the order.

"It may be interesting to readers of *The Horticulturist* to note that the climate of Manchuria is not unlike that of the Niagara district, as it seldom goes lower than 10 below zero and as high as 100 degrees in summer. Our firm has previously shipped to such foreign points as Great Britain, France, Germany and Russia, but this shipment to China is the most foreign we have ever made, as well as being one of the best orders of the kind received from any foreign customer. The purchaser of this stock intends experimenting with these trees, and as splendid pears have been grown very successfully in Manchuria he is hoping to branch out extensively in the fruit line. The consignment was shipped by C. P. R. to Vancouver, where it will go straight to Shanghai, and thence forward to New Chwang, Manchuria."

The Value of a Tree

Trees are valuable from every standpoint. Railroads taking planted lands often pay \$30 to \$300 each for trees occupying the land, and there have been instances where \$600 in cash was paid for trees standing on condemned property. It pays to plant trees—all kinds of trees—fruit, shade and ornamental, and when laying out parks, public and private grounds, windbreaks for farms, shelters and belts for landscape effects, there is one indispensable class, namely, the evergreens. They include

SMALL FRUIT PLANTS GARDEN ROOTS

- Gooseberries**—Josselyn, Red Jacket, Downing, Pearl and Houghton. \$1 per doz., \$6 per 100; \$2.50 per doz., \$10 per 100.
- Currants, Black**—Lees' Prolific, Champion, Naples. \$1 per doz., \$6 per 100.
- Currants, Red**—Moore's Ruby, Childs' Ruby, Red Cherry, Victoria, Versailles. \$1 per doz., \$6 per 100.
- Currants, White**—White Grape. \$1 per doz., \$7 per 100; 50c per doz., \$2 per 100.
- Raspberries**—Miller, Cuthbert, Japanese Mayberry. \$1.50 per doz., \$10 per 100.
- Black Berries**—Taylor's Prolific, Snyder. 50c per doz., \$3 per 100.
- Grape Vines**—Warden, Moore's Early, Campbell's Early, Salem, De cware, Eaton, etc. \$1.50 per doz., \$10 per 100.
- Strawberries**—Clyde, Williams, Splendid, Saunders, etc. 50c per 100, \$4 per 1000.
- Strawberry Raspberry**—Tree Strawberry. \$3 per 100, \$20 per 1000.
- Garden Roots**—Asparagus, Pa'motto, Conovers Coossal. \$1 per 100, \$6 per 1000, 2 yrs.—Rhubarb (divided roots), Linnaeus, Victoria, \$4 per 100, \$30 per 1000—Sago Roots, 50c per doz., \$4 per 100.

FOR FURTHER INFORMATION APPLY TO

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P. O. Box 54 OWEN SOUND, ONT.



some of the most useful and beautiful specimens known to horticulture—several varieties are valuable for reclaiming waste lands and some of them will thrive while less hardy trees cannot live.

At Dundee, Illinois, is the nursery of D. Hill, the evergreen specialist. For more than forty-two years Mr. Hill has turned his attention to this branch of horticulture, and in his Dundee nursery will be found all the practical varieties of these beautiful trees. His catalogue and bargain sheet will be forwarded free to any one requesting the same. Address D. Hill, Evergreen specialist, Dundee, Illinois.

Power Sprayers

The F. Hamilton Company, Limited, Hamilton, Ont., have secured the agency for Niagara Gas Sprayers, as well as the Wallace. They report that enquiries for power sprayers are coming very fast and expect a very large sale of these goods this coming month, and have already sold several.

Fruit Culture.—If you are interested in growing apples, pears, plums, grapes, strawberries, raspberries and other fruits it will pay you to send for the catalogue of Green's Nursery Co., Rochester, N. Y. It is a pamphlet of 72 pages, illustrating and describing fruit trees, plants and vines, also ornamental vines, plants and

trees, and giving much information of interest to fruit growers. If requested a sample copy of Green's Fruit Magazine will also be sent. The address is Green's Nursery Co., Rochester, N. Y.

A Word to Farmers.—Farmers cannot be too particular in the quality of seeds sown. Someone has said "that a dollar saved is a dollar made," and while this may be true in many cases, yet a small saving in the price of seeds may mean hundreds of dollars lost in the crop, and very often the sowing of cheap seeds means no crop at all. The Rennie Co., of Toronto, have a reputation for good seeds. Every gardener and farmer should have their seed book.

Among the seed catalogues received by The Canadian Horticulturist is that of John A. Bruce & Co., the well known seed merchants of Hamilton, Ont. The catalogue contains a full list of the seeds, garden implements, sprayers, insecticides, poultry supplies and other garden requisites in which the firm deals. Those who patronize this old reliable firm will be well served.

The officers elected by Leamington Horticultural Society for the year are: President, A. McLaughlan; secretary-treasurer, J. E. Johnson. A premium list is being arranged by a special committee appointed at the last meeting.

**SEEDS
THAT
SUCCEED**

"THE PIONEER SEED HOUSE OF CANADA."

ESTABLISHED 1850.

SPECIAL OFFER

No. 6. Floral. 1 pkt. each Alyssum, Balsam, Calliopsis, Eschscholtzia, Dianthus, Linum, Larkspur, Mignonette, Pansy, Petunia, Schizanthus and Zinnia—12 pkts. Retail value 60c, for 25c, postpaid.

No. 7. Floral. Bruce's Royal Nosegay Sweet Peas. Ten exquisite distinct varieties. Retail value 50c, for 25c, postpaid.

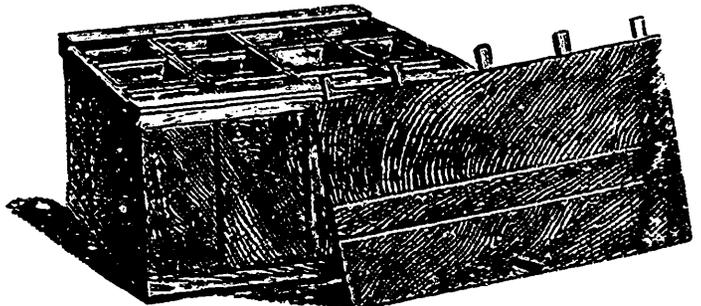
Send for our handsome illustrated Catalogue of Seeds, and Everything for Farm and Garden. 88 pages. FREE.

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HAMILTON, - ONTARIO.

BASKETS

We are Headquarters for
All Kinds of Splint Baskets

**FRUIT PACKAGES
A SPECIALTY**



THE OAKVILLE BASKET CO., - OAKVILLE.

A Handsome Premium will be Given Free to all Readers who buy goods from Advertisers.
See Notice in Advertising Columns.

Strawberry Plants and Seed Potatoes are the subjects of the Flansburgh & Pearson Co.'s spring catalogue, which has reached the office of The Canadian Horticulturist. The company carries on business at Leslie, Michigan, and while dealing in other lines make a specialty of strawberries and potatoes. Growers who raise these crops should secure one of these catalogues.

A New Catalogue.—Among the catalogues which have reached The Canadian Horticulturist is that of The Central Nurseries, A. G. Hull & Son, St. Catharines, Ont., growers and dealers in fruit and ornamental trees, roses, shrubs, etc. They also deal in thoroughbred poultry. This firm has been in the business for a quarter of a century and one of the most reliable firms in the Dominion. Their catalogue is very nicely printed and well worth writing for.

Write For It.—A catalogue has been received by The Horticulturist from James J. H. Gregory and Son, of Marblehead, Mass., covering the varieties of vegetable and flower seeds, bulbs, small fruits, etc., in which the firm deals. It will be sent free to anyone on application. Mr. Gregory is well known among horticulturists, being not only a seed grower and dealer, but the author of a number of works on horticultural subjects, such as Fertilizers; Onion Rais-

ing; Squashes, and How to Grow Them; Cabbages and Cauliflowers, How to Raise Them; Carrots, Mangel Wurtzels and Sugar Beets. The catalogue is well worth writing for.

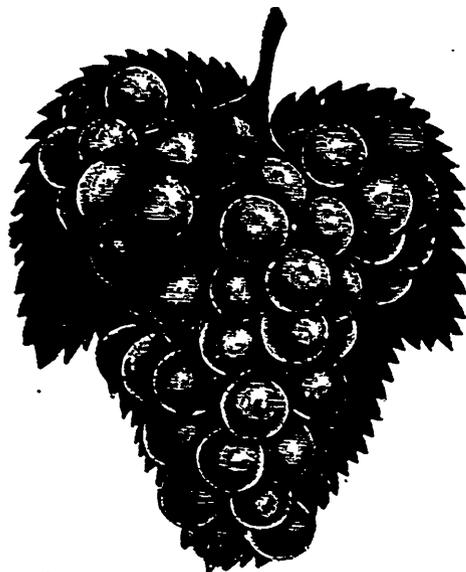
Six exporters, representing the apple trade in all parts of Canada, were asked separately to name the best paying varieties of apples from an exporter's point of view. All named Baldwin and Greening, five named Spy, four Golden Russet, four King, four Ben Davis, four Canada Red, three Mann, two Cooper's Market, and one Hubbardston.—(A. McNeill, Ottawa, before Nova Scotia Fruit Growers' Association.

I am a subscriber to your excellent paper and would find it harder to give up The Horticulturist than any other of the fruit papers I read.—(R. J. Messinger, Bridgeton, N. S.

Classified Advertisements

Advertisements under this heading will be inserted at the rate of ten cents per line, each insertion; minimum charge, fifty cents.

REQUIRED BY 2 YOUNG MEN, WORK AT gardening. Five years' first class experience in England. Apply. "Benfield," Woodstock, Ontario.



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We Grow the Best, and
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Send your order at once.

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Catalogue.

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Grapes Currants

FOR SALE BY

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FRUITLAND, ONT.

Grape-vine Specialist, twenty-five years experience. The largest grower in Canada.

Good stock of first-class currants. Special lines of genuine Black Naples. Stock guaranteed to be from heavy bearing plantations. : : :

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The Easiest, Best Flavored and Largest Crops of

Strawberries, Tomatoes and Vegetables

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New Rose Crown Comet Aster, Pkt. 10c.

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—TO—

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Members can make their own selections from Rennie's Catalogue for 1905.

Secretaries will please write for Special Discounts

Catalogues supplied free to members.

WM. RENNIE, TORONTO.



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I Make { Baskets, Large and Small,
Berry Crates and Carriers,
Plant Boxes,
Georgia Fruit Case.

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