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# THE CANADIAN HORTICULTURIST

MARCH, 1910  
Vol. 33 No. 3

PETERBORO, ONTARIO

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THE ONLY HORTICULTURAL MAGAZINE IN CANADA  
FOR FRUITGROWERS, MARKET GARDENERS & AMATEUR HORTICULTURISTS  
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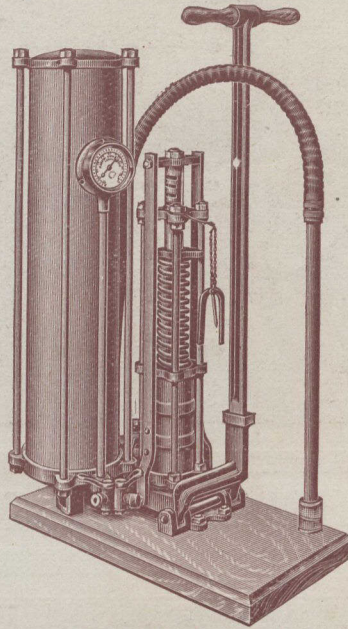
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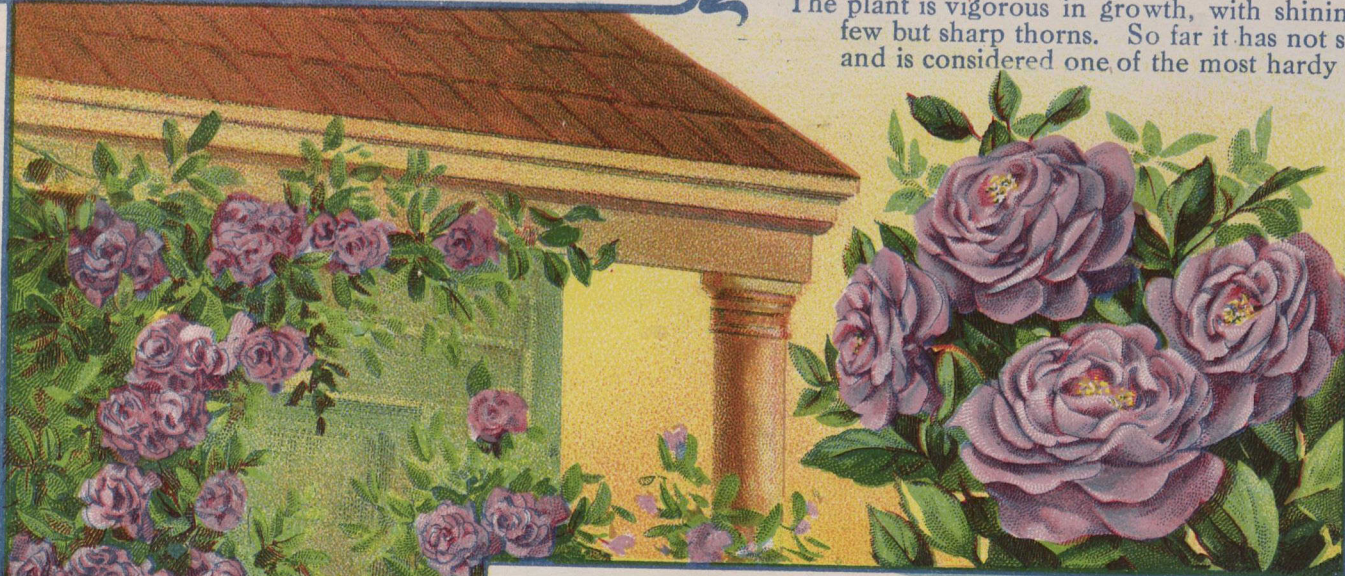
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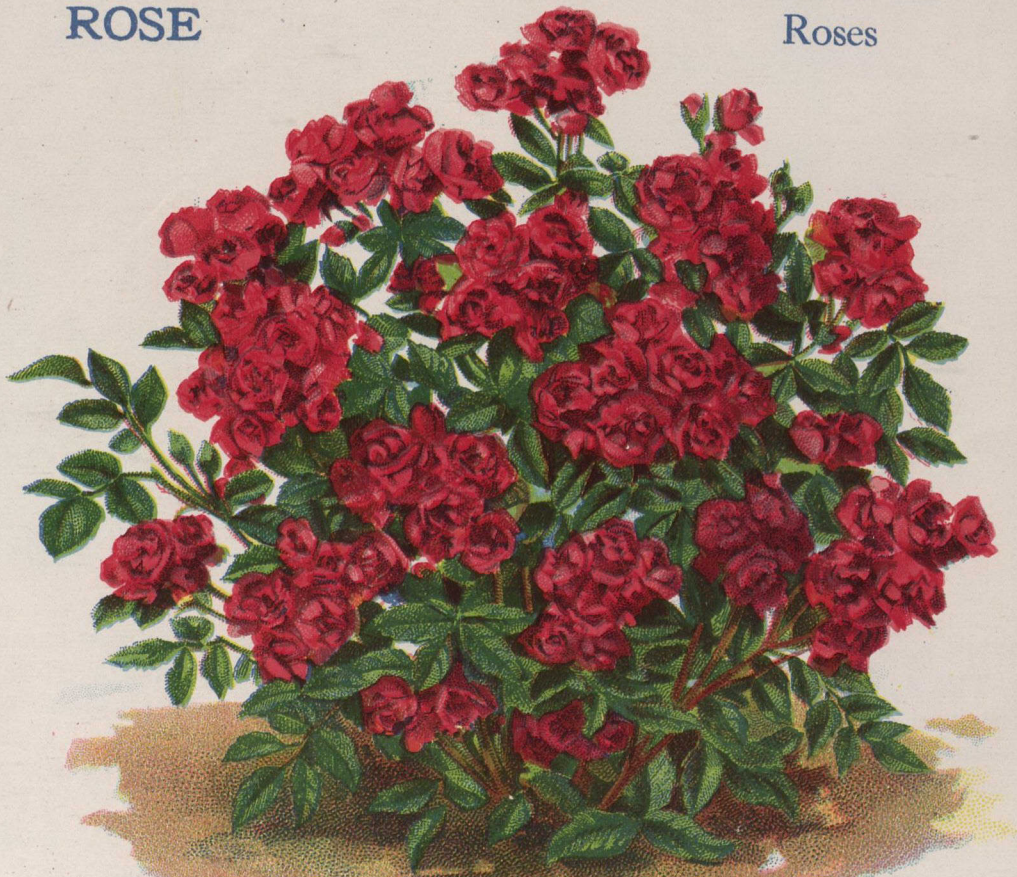
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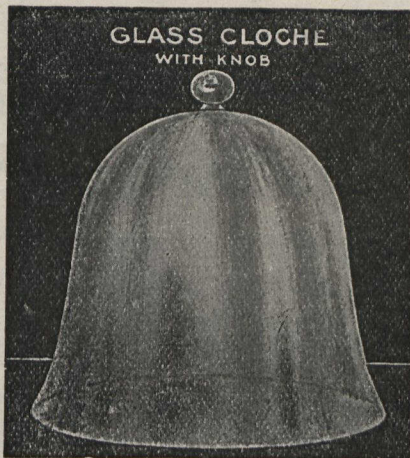
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1910

No 119

THE ROBERT SIMPSON COMPANY LIMITED.  
TORONTO CANADA

 This Catalogue

## Now Ready for Mailing

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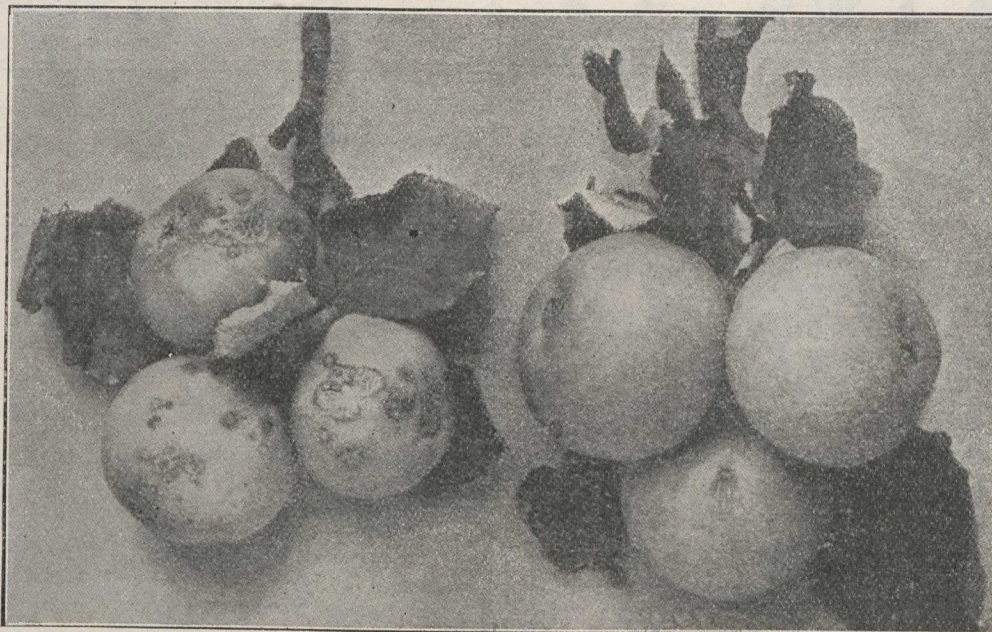
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# The Canadian Horticulturist

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Orchard Scene in British Columbia . . . . . Cover

Photograph by G. H. E. Hudson, Kelowna.

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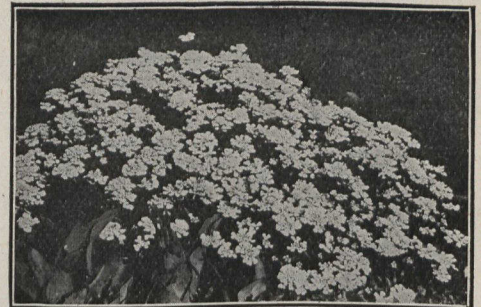
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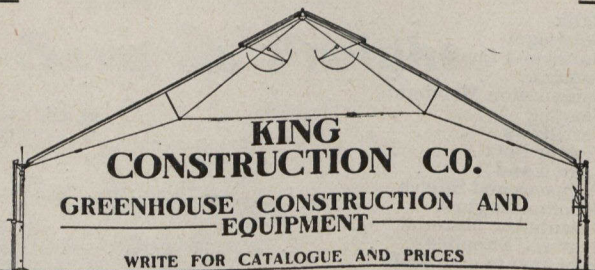
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# The Canadian Horticulturist

Vol. XXXIII

MARCH, 1910

No. 3

## The Preparation and Use of Concentrated Lime-Sulphur

J. P. Stewart, Experimental Horticulture, State College, Pennsylvania

THE spraying part of the horticultural world is just now in a state of transition. This transition involves the breaking away from Bordeaux mixture and the whole list of copper sprays which have served for more than a quarter of a century as fungicides and the taking up of what may become an equal list of sulphur sprays. It also involves the abandonment of old formulas and processes for making the latter sprays, and the substitution of more definite, economical and less disagreeable methods. Just how complete the transition will be can hardly be predicted now. But this much is certain that, whereas two years ago we might easily have told how best to spray a tree, to-day we must wait for further results before this question can be finally answered.

Among these coming sprays, the clear, concentrated lime-sulphur solution will undoubtedly occupy a leading place. In the commercial form this solution already has a satisfactory insecticidal record of some seven or eight years. In the new home-preparation, it has an excellent record both as an insecticide and fungicide, being first used by Cordley of the Oregon Station in 1907. Realizing the importance of this work, in the latter part of 1908, the writer undertook to determine the essential features of the preparation of storable lime-sulphur solutions and, if possible, render their use available to orchardists.

In brief, the results of this study are as follows: In the making of a storable lime-sulphur at home, we must first get the formula right. This is accomplished by using one pound of good lime, (one containing 90 to 95 per cent. calcium oxide and as little magnesium as possible), two pounds of sulphur, and one gallon or a little more of water, boiling it all down so as to have about one gallon of total product at the close. This 1—2—1 formula can be made up in any quantity, merely noting that the pounds of lime and the gallons of final product are the same in number, while the pounds of sulphur are just twice as many.

The kind of sulphur may be either

flour, flowers, or "powdered commercial" at least 99½ per cent. pure. The last named is probably most desirable, with the flour next, on account of cheapness and the somewhat lessened tendency to form pellets in the process of mixing.

The utensils needed are a cooker, measuring stick, strainer and hydrometer. Their total cost need not exceed \$15. They are described in detail in our Bulletin No. 92\*, so that it will suffice here to say that the cooker may be of either iron or wood and use either bottom heat or steam. If steam is used it is preferable for accurate work that it be in closed coils rather than live steam, at least in the latter stages of the process. This is merely because it is desirable that the

uring stick and bring to a boil and stir until the sulphury scum practically disappears. Then add water (preferably, but not necessarily, hot) to the sixty gallon height and boil again to fifty gallons, if storage space is limited. If it is not limited, a little more water may be added the third time, and boiling stopped at about fifty-five gallons. The material should be kept well stirred, especially during the early stages of the process, and any lumps of sulphur or lime should be thoroughly broken up. (If cooker is large enough, the whole amount of water may be added immediately after mixing in the sulphur, thus avoiding the check in boiling though greater care is required to prevent boiling over. A seventy-five gallon cooker is large enough for this).

The time of boiling should be until the sulphur granules are evidently dissolved. This is best determined by dipping and slowly pouring some of the material, under close observation. In many cases we have obtained as complete dissolving of the sulphur in less than forty minutes of actual boiling as was obtained by any time up to two and a half hours. In general a period of forty to sixty minutes of actual boiling should be safe and sufficient to put the sulphur into solution. But the amount of sulfites and sulfates and, therefore, the sediment, are undoubtedly increased by unduly prolonged boiling. Hence the amount of water added in the third addition should be so regulated as to permit the necessary boiling and just reach the desired volume at the close. This gives the least sediment and the regulation can be easily accomplished after a few trials.

The finished product may be immediately poured or strained into a barrel or settling tank. The straining is merely a safeguard to prevent possible clogging due to imperfect materials or failure to break lumps in the sulphur. When properly made the amount of sediment left in the strainer is insignificant. To avoid any considerable loss of materials, it may be washed with part of the water used in making the next lot, simply pouring the water through the strainer into the kettle, and any lumps of sulphur discovered may be broken up and used again.

### Two Reasons

THE CANADIAN HORTICULTURIST should be in the homes of every amateur horticulturist in Canada for two reasons: First, it is a worthy exponent of all that is interesting and desirable in horticulture; and secondly, it has a unique inverse ratio in its mission, being the lowest in price and the highest in quality.—W. M. Robson, Lindsay, Ont.

final volume be under control and be decreasing rather than increasing. Steam jacketed kettles with mechanical agitators are available and they work very nicely indeed. But where storage is not considered and lower densities are permissible, there is no objection to making the material with the use of live steam throughout.

### DETAILS OF PREPARATION

In making fifty gallons of concentrate the procedure is as follows: Materials:—50 lbs. best stone lime (not over 10 per cent. impurities), 100 lbs. sulphur (kind stated above), 50-55 gallons of total product, at finish.

Put ten gallons of water in kettle and start fire. Place lime in kettle. After slaking is well started, add the dry sulphur and mix thoroughly, adding enough water to maintain a thin paste, which requires about five gallons. After the slaking and mixing are completed, add water to the height of fifty gallons on the meas-

\*Penn. Expt. Sta. Bul. 92, July, 1909. This bulletin contains full practical directions for making, preserving and diluting lime-sulphur solutions, together with a table of uses. It may be obtained for the asking by writing the Experiment Station, State College, Pa.

(Continued on page 68)

## Pruning Pears

A. W. Peart, Burlington, Ont.

*Dwarfs.*—When planting cut away the bruised torn ends of the roots, with an under or oblique cut so that the clean wound impacts firmly with the earth. Prune back the top to form a head of three or four main branches, each eight or ten inches in length. Each spring go over them and thin out cross and superfluous limbs and cut back the new growths of the main branches from one-third to one-half, leaving, however, the shorter spurs or laterals on the branches, as they eventually become fruiting wood.

For six or eight years this process goes on, forming the top of the tree in the shape of a wine glass. Some growers prefer the pyramidal form, which is just the opposite. See the diagrams. I think work can be done closer to the trees under the former system.

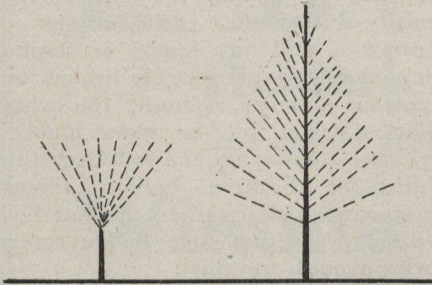


Diagram Showing Outlines of Trees

On the left, wine-glass-shaped; on the right, pyramidal. The former is best shape for dwarfs; the latter, for standards.

*Standards.*—The head is formed in much the same way as in the dwarfs. Each year afterwards cut back and thin out the branches, leaving, however, the central ones higher than those on the sides, and upon the whole aiming at a somewhat obtuse pyramid. When trees attain the full fruiting habit, or become old, the leading branches in the top should not be allowed to grow out of reach, but kept cut back.

In the average dwarf the branches project from the trunk six inches to a foot from the ground, and in a standard from two and a half to three feet.

Do not be afraid to prune thoroughly. That is one of Nature's laws in getting results.

## Raspberry Varieties

Charles F. Sprott, Burnaby Lake, B. C.

When selecting varieties of raspberries to plant the grower must consider climate and location. I would strongly recommend anyone to visit existing plantations and plant such varieties as are in that locality making money for the owners. Later on, if one sees fit and with experience gained, some of the new or untried varieties can be tested.

Personally I favor for this district of British Columbia, the Red Antwerp. It far exceeds in productiveness, thriftiness

and good shipping qualities any other variety I have tried. Other good varieties are the Loudon, Cuthbert, Marlboro and Golden Queen, the latter a yellow variety.

## Kind of Apple Stock to Plant

In a special orchard and garden number of *Farm and Dairy* that appeared this month, there is an article on the above subject by Mr. T. B. Revett, Department of Agriculture, Toronto, in which the writer advocates the planting of well-grown two-year-old trees; instead of trees older and larger. His reasons are given as follows:

"1. The space allotted to the trees in the nursery row is just the same from the time they are first planted until they are dug for market. After two years, the tree has fully utilized this space and has reached a state of development which lends itself most advantageously to transplanting.

"2. After two years, the roots of trees in the nursery row take a greater hold on the soil, developing deeper roots, and in the process of digging a greater percentage of the finer roots are destroyed and, such being the case, such trees are not as desirous as younger stock.

"3. The system of pruning in the nursery does not enable the nurseryman to give each tree the individual attention which is required for the formation of a proper head. The sooner the comprehensive and intelligent farmer or fruit grower buys his trees the better able he will be to form a desirable head, which is the most important factor outside of the question of vitality of stock. Every year there are thousands of full bearing trees in Ontario which break down and split owing to the improper branching of the head.

"4. A two-year-old tree has not to be pruned very much and offers every facility to the grower for the formation of an ideal head, allows him to adopt either the low-headed or high-headed system, and offers a greater selection of branches, which is very important in settling the relative position of one branch to another."

The article is concluded by Mr. Revett with the following advice: "Buy young stock which has not already been pruned to any extent. Formulate some definite type of tree which you prefer and know to be desirable. Use your intelligence in pruning and you will be able to secure a proper shaped tree in two years. Do not neglect a tree in the younger stages as all errors are more easily combatted and remedied then than when the tree is older. Keep the heads down, and don't tolerate crotches."

The currant will endure much neglect, but it will respond quickly to liberal treatment.

## Grafting Fruit Trees

G. N. Gordon McKeen, Milford, N. S.

In getting ready for the spring grafting, the first step to take is to consider the markets we expect our grafted fruit to go to. If we are preparing to ship our fruits to the Old Country, we should get an apple report from there and see what varieties lead in price and, if those varieties will do well in our locality, get them. If, on the other hand, we prefer a soft variety for the local market, get the kind most sought after in that market.

Having decided on the varieties, while the trees are in a dormant state, cut the scions, only cutting the growth of last year. After cutting, label them and roll in damp moss or bury in sand in the cellar and have them ready.

At any leisure time you can get the material and prepare your grafting wax. The following is as good as any: One pound of tallow, three pounds of beeswax, four pounds of resin. Melt the resin, and then add the others, and when ready to use warm and apply with a small brush.

When spring opens and the green is showing in the ends of the twigs, is a very good time to begin operations. Take a keen-edged knife and a fine-toothed saw, also an iron or hardwood wedge (a narrow one). Cut off the limb, and see that it is a healthy one, and insert the wedge. I plan to have a number of grafts cut in advance and in cutting them leave two buds beside the one that is to go into the cleft as I find the root of the bud a valuable aid to growth. Make the graft wedge-shaped, leaving the outside slightly thicker so that the edges to unite will be the firmest. Then, having put in two (if the limb is large enough) carefully withdraw the wedge. After having done a dozen or more limbs, take your brush and apply the warm mixture. See that every part even the top of the graft is covered and in two or three years, if your operations have been successful you should find some fruit.

Decide now what trees in your orchard grow undesirable fruit and determine to graft them over with some suitable variety. If you want a particular kind you have not got, secure some scions from someone who has.—J. A. Moore, Hazelbrook, P. E. I.

The ideal apple tree in the interior of British Columbia is trained with a central stem or leader, no limb emerging from the stem within several inches of another, and any limb well separated from any other above or below it. The lowest branch is brought from the stem ten or twenty inches from the ground. A stronger tree can hardly be imagined. Even as doctors differ, so some can be found who prefer the more open headed vase-shaped style.

# Lime-Sulphur vs. Bordeaux for Summer Spraying

L. Caesar, Ontario Agricultural College, Guelph

IN the February issue of THE CANADIAN HORTICULTURIST appeared a partial report of an address on "Lime-sulphur vs. Bordeaux for Summer Spraying of Apples and Pears," that was giv-

Paris green, on the other hand, has caused considerable burning in a number of cases, although not in all, and its use, therefore, cannot be recommended. Arsenite of lime is the safest and cheapest of all the forms and can safely be used if made according to the following improved method advocated by Prof. J. P. Stewart of Pennsylvania:

## ARSENITE OF LIME.

To make arsenite of lime use: White arsenic, two pounds; sal soda crystals, two pounds; water, one to one and a half gallons. Add the white arsenic and sal soda to the water and boil with frequent stirring until all the arsenic is dissolved. This usually requires about fifteen minutes. Then add three or four pounds of good fresh lime and boil a few minutes, letting the lime slake in the boiling liquid. After this remove the vessel from the fire and add enough water to bring the total up to two gallons. Each quart of this mixture, if thoroughly stirred, will then contain one-fourth pound of the white arsenic, or one-eighth of the original two pounds. This amount is ample for forty gallons spray for codling moth and other biting insects; in fact, where drenching sprays are used it would be better to use a little less than one quart. As much of this arsenite of lime as is likely to be required for the summer's work may be made up at one time and stored away. Care must, of course, be taken to label the barrel "Poison," and to see that the white arsenic itself is not left where it may be mistaken for some other substance. Serious accidents have occurred from carelessness of this kind. The barrel should be kept tightly covered lest the stored liquid evaporate and thus render it impossible to determine the proper

strength to use. Always stir thoroughly before measuring out the quantity desired.

Our chemists tell us that the commercial lime-sulphur when combined with arsenate of lead breaks the latter up and forms new compounds with it, one of which is arsenite of lime. If this be so, it is a strong argument in favor of using the arsenite of lime in the first place and saving the difference in cost between it and arsenate of lead. Its value as a poison is nearly as great as that of arsenate of lead.

(Continued on page 70)

## Low-Headed Peach Trees

At the last convention of the Ontario Fruit Growers' Association, Mr. Wm. Armstrong of Queenston, Ont., gave the following reasons why a low-headed peach tree is best:

1. It will increase the annual cash profit on account of a larger percentage of first-class fruit.
  2. It will add at least five years to its life.
  3. There will be minimum damage on account of broken limbs caused by wind, snow and heavy crops.
  4. The fruit can be picked from the ground, thus saving the cost of ladders and labor.
  5. The damage caused by fallen fruit will be light.
  6. The expenses for spraying material and labor will be reduced about one-third.
- "In order to have this kind of tree," said Mr. Armstrong, "the peach grower must insist on getting his baby trees from the nursery rows, not the slim five to six feet kind, but short, stocky ones of three to four feet."



Using the Knapsack Spray Pump

Red Cheeked Pippin (Monmouth) apple tree, four years planted, in the Fleming orchard, Victoria, B. C.

en at the last convention of the Ontario Fruit Growers' Association. Further information on this subject is published herewith:

## ARSENICALS WITH LIME-SULPHUR.

We have now seen that there is very little or no doubt that lime-sulphur, either of the commercial or of the self-boiled type (hot water being used in making the latter), but preferably commercial, will control the ordinary diseases of the orchard almost as well as Bordeaux, the differences being very slight, if any. But there are still several very important points to take into consideration and the first of these is, whether we can use an arsenical with the lime-sulphur, to kill biting insects, such as the codling worm. If not, there are very few fruit growers who will have time to make the extra applications necessary.

With Bordeaux we can use arsenate of lead or Paris green or arsenite of lime, and not fear that any evil effects will result from the combination. With the self-boiled lime-sulphur, where there is a great abundance of lime, there is no doubt that any of the above poisons may be used with safety. I have myself used all three and seen not the slightest sign of injury, although I purposely drenched the foliage and used the poisons stronger than required. With the commercial lime-sulphur arsenate of lead has been tested many times and very little injury has, in most cases, followed, so that this poison may be used with it if desired.



A Power Spraying Outfit in Use in an Ontario Orchard

Orchard of E. Leonard and Sons, Cobourg. The machine is an "Auto-Spray," manufactured by The E. C. Brown Company, Rochester, N. Y.

## The Principles of Plant Breeding\*

Prof. Wm. Lochhead, Macdonald College

**H**YBRIDIZATION involves a knowledge of the parts of the flower and of their particular functions. It is based on the fact of the sexuality of plants. When ripe pollen from the stamens of a flower belonging to one variety or species is placed on the mature stigmas of a flower belonging to another variety, the pollen grains send down slender tubes through the styles into the ovary, where they enter the ovules and come into contact with the egg-cells. A male germ cell then passes out of the tube and fuses with the nucleus of the egg-cell. This process is known as *fertilization* of the egg-cell by the male germ cell. The fertilized egg-cell soon divides into many cells and becomes an embryo. The plant that develops from this embryo is a *hybrid*, and the process of formation is called *hybridization*.

The principles of hybridization of plants were unknown before the eighteenth century. The development of our knowledge of hybridization is largely due to Kolreuter (1760), Knight (18—) and Darwin. Later additions to our knowledge were contributed by Gaertner, Naudin, Focke, Vilmorin, Mendel and others. To Darwin we owe the phrase: "Nature abhors perpetual self-fertilization," which does not hold true in the case of many vigorous plants such as tobacco, wheat and barley. Dr. East says Darwin's phrase should probably be changed to read: "Nature resists any sudden change in long established conditions."

It is well known that many plants have special adaptations in their flowers, whereby self-fertilization is prevented; that the highly colored flowers are usually cross-fertilized by insects; that the more inconspicuous flowers are cross-pollinated by wind, etc., etc. Darwin proved by numerous experiments that the products of crosses were usually more vigorous than the parents of the hybrid. It has also been observed that "in general the closer the botanical relations of two plants, the more easily they will cross. Crosses between varieties are generally very easy to make; those between Linnaean species have been made in quite a number of instances, while crosses between genera and families are rare." Moreover, it has been observed that hybrids arising from parents not closely related are usually much more likely to be sterile than are those from parents nearly related.

While a host of facts regarding hy-

bridization had been accumulated, no general principle had been established until Mendel published a report in 1865. The experiments embodied in the report were made between 1855 and 1865, and were published in the transactions of an obscure society in Brunn, Austria. This publication lay unnoticed until 1900.

If one turns to the works on plant breeding published before 1900 he will realize how vague at that time were our notions of the laws regarding hybrids. No person seemed to be able to predict with any degree of certainty the result of crossing varieties of plants. In fact, contradictory results are often reported by different plant breeders. "The facts were wonderful enough, but they showed no signs of falling into an orderly arrangement." Mendel's results were formulated in two laws:

1. *The Law of Dominance*, which may be expressed thus: "If two contrasted characters which have previously bred true are crossed, one only, the dominant character, appears in the hybrid." (East); and

2. *The Law of Inheritance*, which may be stated as follows: "In succeeding generations, self-fertilized plants grown from seeds of the cross reproduce both characters in the proportion of three of the dominant character to one of the recessive character. Furthermore, the recessive character continues ever to breed true, while those plants bearing the dominant character are one-third pure dominants, which ever after breed true to the dominant character, and two-thirds hybrid dominants which contain the recessive character in a hidden condition." (East).

Mendel's experiments in cross-breeding were made with the common garden peas, which are capable of self-fertilization, and which have numerous varietal forms, distinguished by the color and shape of the seed, the color of the flowers, the color of the pods, the length of the stems, and the arrangement of the flowers on the stem. He determined the heredity first of all, of each set of characters; i. e., yellow and green seeds, round and angular seeds, smooth and wrinkled seeds, and so forth. He found, for example (a) that when yellow and green seeded varieties were crossed he obtained only yellow-seeded hybrids. (Generation F<sub>1</sub>) the yellow being *dominant* to the green which is *recessive*.

(b) When, however, the hybrid plants were self-fertilized, the seeds obtained in this second generation (F<sub>2</sub>) were composed of both yellow and green forms,—in the proportion of three yellow to one green.

(c) When the plants arising from green

seeds of the second generation were self-fertilized, only plants with green (F<sub>3</sub>) seeds were obtained.

(d) When the yellows of the second generation were self-fertilized, some gave rise to plants with yellow seeds only, while others gave rise to plants with yellow and green seeds in the proportion of three to one, as in the second generation (F<sub>2</sub>.)

In like manner Mendel crossed peas, each possessing one of a set of characters and obtained similar results. He found "round seeds dominant over wrinkled, colored seed coats over white seed coats, tallness over dwarfness," etc. The similarity of the results led Mendel to the conception of pairs of *unit-characters* of which either can be carried to any gamete, or sex cell, to the exclusion of the other." De Vries adopts this idea of an organism being composed of a bundle of unit-characters in his theory of mutations, and considers a mutation to differ from the parent plant in the addition of a unit-character, not previously possessed by the parent. Such is the idea of a discontinuous variation.

Mendel carried on experiments where peas possessing two or more pairs of contrasting characters were crossed, and found that the separate pairs were transmitted entirely independently of one another. "When, for example, a tall yellow-seeded pea was crossed with a dwarf green-seeded one, the F<sub>1</sub> plants all exhibited the dominant character of each pair, and were tall yellows. In the next generation appear, as usual, tall and dwarfs in the ratio of 3.1, and also yellows and greens in the same ratio. If we suppose that there are 16 plants, it is clear that 12 of these will be tall, and that the other 4 will be dwarf. Now, of every 4 tall, 3 will be yellows and the other green. Out of our 12 tall, therefore, 9 will be yellows and 3 will be green. Similarly, of the 4 dwarfs, 3 will be yellow and one will be green. Consequently, the F<sub>2</sub> generation arising from the cross will consist of 9 yellow tall, 3 green tall, 3 yellow dwarf, and one dwarf green. In other words, there will be for every 16 plants a class of each showing the dominant character of one pair and the recessive of the other; and one plant with both recessive characters. Mendel established by experiment that these were the proportions that actually occurred, a result which has been amply confirmed since his time for other plants as well as for animals. And the principle may be extended indefinitely for any number of pairs of characters." (Punnett).

More care must be taken in spraying Japanese plum trees than with most other kinds of fruit. They are more easily injured.

\*In last June issue of The Canadian Horticulturist, the improvement of plants by selection was discussed. The theory of mutations was dealt with in the September number. The article on hybridization that appears on this page will be followed by further information on the same subject.

## Grafting Nursery Stock

Edward Lane, Galt, Ontario

**N**INETY-FIVE per cent. of fruit-growers purchase trees from some nurseryman who grows trees on the principle of quick returns for his money. In order to get these quick returns, there are two mistakes made. The faster a tree grows, the more likely it is to be a failure when removed, as the change is greater. A tree which has made moderate growth is easier transplanted than one which has made extraordinary growth. The second mistake is in the mating of grafts and stocks. What fruit grower has not noticed that some trees will persist in throwing up suckers around the roots, oftentimes above where the graft was put on?

There is from one to fifteen days' difference in the leafing out of different kinds of apples and a corresponding difference or even greater length of time in going to rest in the fall. If there happens to be ten or fifteen days' difference between the seasons of stock and of the scion, there is sure to be a certain amount of failure as we are working against Nature. The roots will be sending up sap when the parts above ground do not want it, and it goes to form what we call suckers, sometimes from the roots and sometimes from the body of the tree just above ground, showing plainly that one is at rest and the other is not.

Grafts taken from young trees or side shoots from an older one will grow much faster than those taken from the outsides of full bearing trees. If left to their own way, they will not bear fruit as soon as the latter, neither will they stand a severe winter as well. The reason is that the large roots, commonly called "tap" roots, are the ones which send up sap for the forming of wood growth and the surface or small fibres send up sap to form fruit bearing wood. The large roots are deeper down into the soil and are affected by the heat of the soil and continue to send up sap longer than the surface roots which are affected by the early frosts and consequently the wood is not so well ripened and a fast growing young tree is almost sure to have large roots instead of small ones.

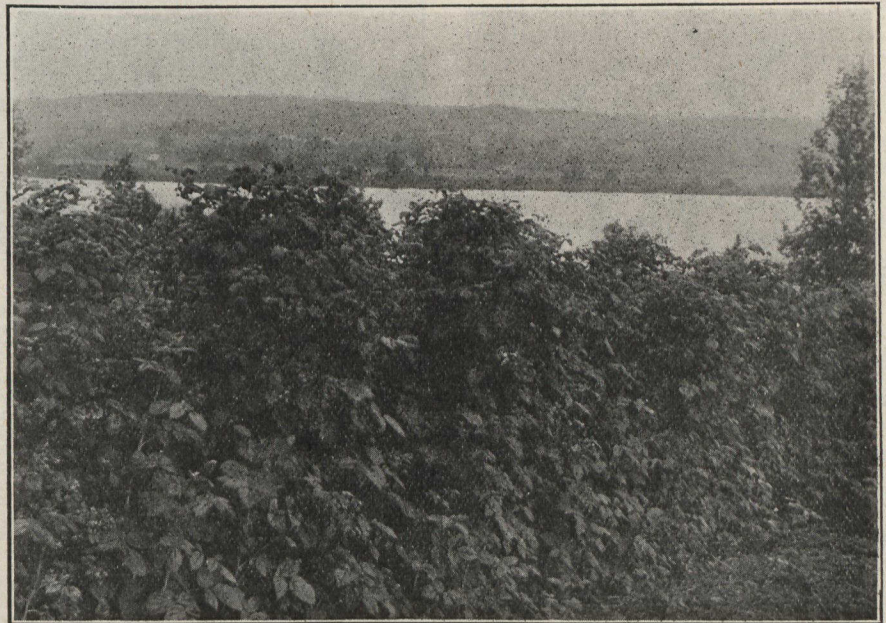
A fruit grower, in order to be successful, must control the roots and thereby he controls the sap which goes to make either wood or fruit in the same way that a farmer controls bone, muscle or fat when he chooses the food for his animals.

I believe that under a powerful microscope the cells of bearing and non-bearing wood will be found to be differently formed; if so, we must start our trees bearing as young as possible. There is no reason why a tree should not commence to bear as soon as it is well estab-

lished in its place and continually bear every year when the sap is led to do its work rightly.

### INFLUENCE OF STOCK ON SCION

In respect to the effect of the stock upon the graft: I have noticed that, in some instances, it has a considerable effect on the habit of growth but not so much on the fruit. Twenty-five years ago, I purchased two Duchess apple trees. One of them assumed a habit of growth foreign to that variety so much so that I concluded that it was not a Duchess at all; but, when I picked the fruit and placed samples from the two trees together, I could not tell one from the other. The tree would persist in throwing up suckers which resembled the Spy in growth and in time of leafing



King Raspberries Growing on the Farm of Mr. John C. Gilman, Near Fredericton, New Brunswick

out. It died when fifteen years old, while the other has never shown any sign of a sucker and is healthy yet.

One of the principal causes of some kinds of apples not being as good as they were thirty or forty years ago, is the practice of taking grafts from young trees exclusively. This practice in about thirty years would result in twenty different kinds of stock, while if scions are taken from one tree for thirty years, there would be only one change instead of twenty. The fruit growers of the future will require pedigree stock in trees. A haphazard system leads to great difficulties and many changes in type.

### Raspberries in New Brunswick

J. C. Gilman, Fredericton

In growing raspberries, we find it best in our section to grow to single canes, without any branches. These canes are cut back the following spring to three

or four feet. All old canes and any new growth not needed are cut out at the same time.

After removing all clippings from the field, we take cotton twine, such as grocers use, and tie the canes in bunches of six or eight each, taking care to have them bracing in such a way that when tied near the top, they will be stiff enough to carry their fruit and foliage without bending or breaking down.

The berries are then easily picked and are free from dirt. We try to pick three times a week, and place the fruit before the consumer as quickly as possible. Although our market is well supplied with wild raspberries and also blueberries, the demand for the cultivated raspberries continues good. With King for early, Herbert for medium, and Cuthbert and Golden Queen for late, we have a full month of raspberry picking. A few of

the purple and black varieties have been tried but the demand for them is small. We have stopped setting these kinds.

### Pruning Sweet and Sour Cherries

F. G. Stewart, Homer, Ont.

Plant the young sweet cherry trees first and then prune back to four prongs, six or eight inches long. In cutting back be sure to leave the end or terminal bud on the outside of each limb to make the tree spread outwards in growing. If the young trees are pruned first and then planted, there is danger of some of the young buds being rubbed off in handling them, as they develop early and are quite prominent.

Do not touch them again until they have made two years' growth, then with plenty of wood to choose from, trim so as to form a spreading, shapely tree. Let the trees alone for two years longer and then cut back the central upright

limbs of last year's growth, to spread out the head of the tree. This is especially necessary for the Black Tartarian, May Duke and all upright growers, otherwise they grow up a tall, dense mass like poplar trees.

After the sixth year, very little pruning is necessary, except every other year to cut back the central upright limbs to keep the tree from growing too tall and to make it spread outward.

#### SOUR CHERRIES

In just the same way, sour cherries should be planted first and then trimmed back like the sweet ones. After two years' growth, trim so as to form a shapely spreading tree. After that, the sour cherry trees need very little pruning. If it is continued, the trees will make only a great growth of wood and very few fruit spurs.

There is no fruit tree that requires less pruning than the cherry, after it comes into bearing. There is much more harm done by pruning them too heavily, than by leaving them unpruned. To thin out a tree, never cut out a large limb to make more room.

The Montmorency is a more upright grower than the Early Richmond, so the central upright limbs of last year's growth should be cut off to make the tree spread out and to keep it from growing too tall.

### Pruning the Orchard

John Spencer, Henrysburg Centre, Que.

There is not one man in ten that knows how to prune an orchard. The best time to prune is when the sap is done running, say, in June or the first of July, as the wood of the tree is then growing. Leave no stubs on the trunks of the trees. Keep the top open to let the sun in. Cut out all suckers and branches that spread over. [NOTE.—What is the opinion of others respecting best time to prune?—Editor.]

Some men cut off all the lower limbs. They claim that it gives a chance to get around better but they have a tall tree twenty feet or more from the ground. What are apples good for that fall on the ground from such trees? Perhaps they can grade them No. 1; I cannot.

Low trees are preferable to high. You can pick and spray to better advantage. Trees have different habits of growth, and cannot be pruned by rule.

### Pruning Currant Bushes

Wm. Fleming, Owen Sound, Ont.

The pruning of red, white and black currant bushes should be performed late in the fall or early in the spring, and the work should not be committed to an inexperienced hand, as the result would certainly be disastrous. The following method should be followed:

1. The operator should note the extent of space the bush can occupy, how

close the limbs are to the ground, the crowded state of the limbs and the symmetrical condition.

2. If the bush can afford it, the limbs that lie too close to the ground should be removed, and the bush generally, if required to admit air and sunshine freely, should be trimmed.

3. About half the preceding year's growth (if the bush is in a healthy condition) should be cut back, but not in any case to injure the symmetrical condition.

4. The severity of the pruning should be controlled by the space the bush has to occupy.

5. The pruning should be performed annually.



A Spruce Hedge Twelve Years Old

This hedge was planted in April, 1898, by Mr. Peter Barrett, Truro, N. S., who tells how he trained it as follows: "During the first year or two, the pruning was done with a pocket pruning knife, heading back the leaders and evening up the hedge generally. An inverted 'V'-shape is the system adopted which approaches nearer to Nature's method than any other. The hedge is now pruned about three times annually. Training to a point at the top gives the under branches a chance to thrive. Furthermore, this shape admits more sun light to the garden. By pruning this way, one can get any kind of a hedge to a desired height in less time than by the round-top system."

### Some Little-Known Annuals

A list of new and little-known perennials recommended by the novelty committee of the Ontario Horticultural Association was published in the January issue of THE CANADIAN HORTICULTURIST. Herewith are mentioned four annuals recommended by this committee and in later issues will appear lists of gladioli, chrysanthemums, cannas and other garden subjects. The following annuals were noted at the Ontario Agricultural College, Guelph, as giving promise of being useful additions:

1. *Dimorphotheca aurantiaca* (golden marguerite).—A new introduction from South Africa. Might be termed an annual *Gazania splendens*, as its flowers somewhat resemble the flowers of this well known perennial plant so often seen in hanging baskets, etc., and, like the *Gazania*, it opens its flowers only in bright sunshine. Will make a good annual for bedding out in sunny positions. The deep bronzy orange flowers which it produces in profusion are very showy and conspicuous.

2. *Eschscholtzia* (Dainty Queen).—A novelty that deserves its suggestive name and is quite a departure in point of delicacy in coloring to older types. The ground work of flower is of a delicate cream, and the top of the petals are suffused and shaded coral pink to rose pink. If the type will perpetuate itself true from seed it will prove of merit.

3. *Eschscholtzia* (Mandarin).—Deeper shade of yellow than ordinary California poppy. Base of petals deep orange faintly shaded crimson, margin of petals sulphur yellow. A more imposing and and showy flower than the old type. Upright habit. An acquisition to this class of plant.

4. Sunflower (Starlight).—One of the prettiest of the decorative type of the helianthus. The graceful star-like formation of its canary yellow petals, twisted and arranged very like a cactus dahlia makes this variety a splendid addition for cut flower purposes. Flower four to five inches in diameter.

### The Heliotrope

C. M. Bezzo, Berlin, Ont.

This plant is propagated from seed or cuttings. It is a delightful fragrant and free flowering species and for that reason is admired by all. Seed should be sown in shallow boxes of rich light soil and placed in a sunny window of a warm room. Great care must be exercised so as not to plant the seed too deeply. The best way would be to sow the seed thinly on top and sift over it a very thin layer of fine soil or sand, just enough to hide from view. When watering do so with a fine spray until the plants are well started. Until the plants are up keep covered with glass or newspaper to prevent evaporation of moisture and the seed drying out.

When about one inch high transplant to small thumb pots and early in June they may be planted in the permanent flower bed. The soil should be very rich, as the heliotrope is a gross feeder and requires an abundant supply of plant food to produce the largest clusters of bloom. For this purpose sheep manure is excellent. Make a weak liquid from the manure and apply twice a week, or if plenty of it is at hand spread a mulch of the manure over the bed.

If desirable the plants may be taken up in the fall and potted, cutting the tops back to allow a fresh growth and they will bloom throughout the winter in the house. Young plants may also be started from cuttings rooted in the sand.

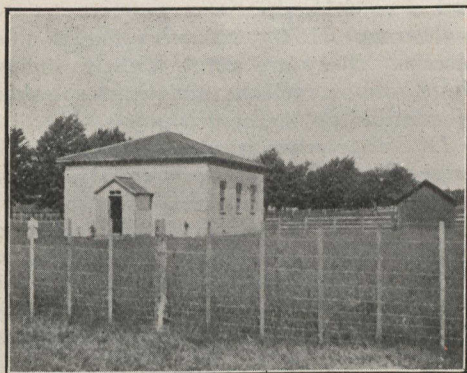
*Brugmansia*.—By an oversight, credit for the article and photograph on this subject that appeared in the January issue of THE CANADIAN HORTICULTURIST, was given to S. J. Jackson, Bowmanville, Ont., instead of S. J. Jackman.



# A Work for Horticultural Societies and the School

S. Silcox, Principal, Normal School, Stratford, Ontario

WHEN a country has been denuded of its primitive forest and artificial products have replaced natural vegetable growth, it becomes essential for the inhabitants to beautify the



School-house Bare and Unadorned

An unimproved opportunity, and there are hundreds of others like it in Canada.

bare and unattractive landscape with a second growth of flowers and shrubbery. Any one who travels through Ontario will discover that people have lived in houses for ten, fifteen or twenty years and have planted nothing to make those houses homes in the true sense of the word. This is more inexcusable when we consider that within a mile or two of any house in Ontario may be found shrubs, vines and annuals which could easily and successfully be transplanted to the grounds of homes or schools, where they would transform the barren surroundings into bowers of beauty. The reason this is not done is due to one of two things, ignorance or lack of interest in anything better than that which exists, or probably to both.

What can be done to change this state of affairs? It seems to me that there are only two organizations in Ontario which can bring about a change but these organizations are equal to the task. They are the public school and the horticultural societies and the latter will do their best work by using the former for the medium of transmitting their views. Of course this means that school gardens should be established in connection with our schools, more particularly in our city schools. One teacher who has done good work in connection with a small city school in the way of decorating a very inattractive backyard says:

"The garden gives pupils a practical lesson in the rights of citizens. When they have assisted in digging, planting and weeding, they have a sense of ownership in the garden and they expect that it will be allowed to grow and flourish, unmolested by the passerby; therefore, they do not pick the flowers or interfere with the property of their neighbors.

"Anything that opens the eyes of the

child, even a little, to see the beauty of color and form in the world about us or that helps to show him how a little expense and labor will transform what was ugly into a delight is well worth while. For example our fences and out-buildings are now a 'thing of beauty' in their dress of morning glories, upon which the eye rests with pleasure.

"Our garden serves as a means of beautifying their own homes. The children are at liberty to pick the seeds of any of the seed-bearing plants and the geraniums are broken into slips and given to the children with instructions for planting them.

"We also have a few plants in our windows throughout the winter. These give a cosy look to the room and serve as a rest for tired eyes.

"Incidentally, the children learn the value of birds, bees and beneficial insects; also something of the formation of soil. We rake and then burn the leaves and old plants on one of the beds, the ashes being thus preserved for a fertilizer or bury the leaves (all but the first to fall which are burned to destroy the insects) that they may decompose and so enrich the soil."

It may be well to sound a warning note, through the medium of THE CANADIAN HORTICULTURIST, against the false nature study which teachers are so apt to resort to in the ordinary class room. About seventy-five per cent. of the lessons in this subject are not as valuable as lessons in grammar, geography or literature, because they are not the result of the children's experience nor do they incite the children to acquiring experience with nature first hand. Let this be the test of success in nature study—more outdoor study and less class-room

work, more beauty created and less talk about the beauty of creation.

## Polyanthus

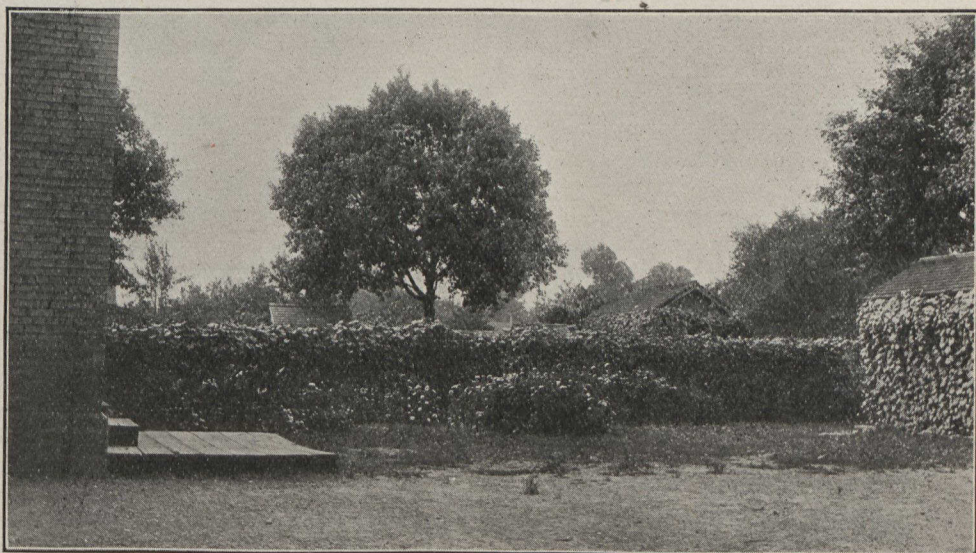
Editor, THE CANADIAN HORTICULTURIST: How very seldom one finds the charming spring flower Polyanthus (*Primula Polyanthus*) in Canadian gardens. It is one of the oldest of all the florists' flowers, and in Old Country gardens it has its thousands of votaries. Three or four years ago I imported two or three packets of seed from a seed firm in England, and from these seeds I have had some splendid plants. They flower about the same time as tulips, and I have them in bunches in my peony bed. After they are finished flowering, I divide the roots, and get numbers of new sturdy plants for re-planting and distribution among my friends.

Sow the seed in February, March or April in pans or boxes, and when large enough, transplant to the place in the garden where you wish them to grow. They will flower the following spring.

They are perfectly hardy, and I never remember having any of them winter-killed; they get no protection, excepting nature's snow, in my garden.

There is an indescribable charm in spring about a bed of young polyanthus flowering for the first time.—J. C. Hodgson, Westmount, Que.

An excellent subject among trees for planting on the lawn is the cut-leaved weeping birch, but it should not be planted too promiscuously. An occasional specimen is very striking when planted individually on the lawn or backed by trees of darker foliage and bark.

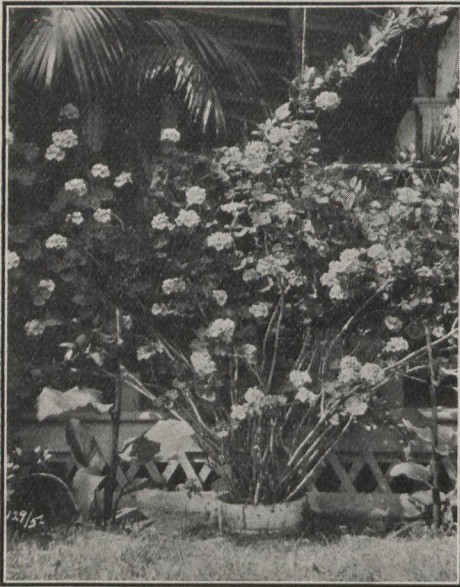


Outhouses and Fence Covered with Morning Glory—Work of School Children

Boys' yard, Manitoba street school, St. Thomas, Ont., Miss A. McColl, Principal. All the work done by pupils of first and second book classes.

## What Amateurs Can Do in March

THE best gardens are those that have been planted beforehand. If you wait until time for seed sowing you may not have time to do just what you would like. Decide now on the general scheme for next season and order plants and seeds right away.



**A Grand Specimen Geranium—Five-years Old**

This plant had eighty-two blooms last August. It is kept in the house in winter and outdoors in summer. Owned by Mr. Barlow Cumberland, Port Hope, Ont.

In localities where the season is early, considerable work may be done outside this month. Remove from the garden and lawn all rubbish that was left over winter. If the snow leaves early, lawns may be raked and rolled and walks and drives may be graded and put into shape.

Repair all holes in tree trunks by removing the rotten wood, singeing the cut surfaces and filling with cement.

Some kinds of shrubs and vines may be pruned. Remove dead branches and head back limbs that are growing too vigorously in any one direction. Shrubs that flower very early in spring should not be pruned until after blossoming time as they produce their flowers on twigs that were formed last year. Prune hardy roses. See page 61.

### THE VEGETABLE GARDEN

Make a hotbed. Prepare the material now. If the manure is fresh from the stable, throw it in a heap for a week or ten days. Turn it once or twice during that time. Use manure that contains a fair proportion of straw. If the manure is not to be placed in a pit, see that it extends at least one foot around all sides of the frame. Have the manure two and one half feet deep. Tramp it well when building, and finish the job neatly. After placing the frame, raise the sash for a couple of days in order to allow superfluous moisture to escape. Use about six inches of soil on top of the manure.

Home-grown rhubarb may be had early by placing a barrel or box, from which the top and bottom have been taken, over a clump in the garden. Cover the top at night and during cold days.

If you are burning wood in the house, save the ashes for use as a fertilizer. Keep them dry.

### AMONG THE FRUIT TREES

If you have fruit trees that are not producing satisfactorily, or are not the varieties that you want, graft them with scions of good varieties. Read the article on page 54.

With most fruits and for most purposes, this is the best month for pruning. Do not leave this work until too late. Read the articles on pages 54 to 58. Prune grape vines.

If you did not mulch your strawberry bed last fall, there is still time to give it some protection against alternate thawing and freezing this spring. Cover the bed with straw or boughs in order to keep the ground frozen as long as possible.

### FLOWERS INDOORS

Hydrangeas, oleanders and similar plants can be brought to the light and started into growth. Put them into larger tubs or pots if necessary. Repot old tuberous begonias. Cannas and dahlias may be started in pots. Divide them before potting.

Re-pot geraniums, ferns and other plants required for summer decoration. Water them thoroughly.

Cuttings of fuchsias, geraniums and verbenas will strike readily in sand. When rooted place in very small pots at first.

Bulbs that have been flowering may be stored in the cellar without water until they can be planted outdoors.

Freesias should not be dried off hastily. After they are out of flower, give them water less frequently until the foliage is quite yellow, when water should be withheld altogether. Keep them in the pots until next season.

Sow seeds of nasturtiums, petunias, verbenas, cosmos, lobelia, antirrhinum, salvia and mignonette in boxes or pots. Six or eight weeks before it is time to start plants in the open is about the right time to sow most seeds inside.

## Peonies for the West

Rev. Andrew B. Baird

The peony is one of the most beautiful and desirable of our herbaceous perennials. It is perfectly hardy, and while it responds to good treatment you cannot kill it by neglect; it maintains itself from year to year and produces new plants without effort or attention. Its duration of bloom is considerable, and while it is flowering it is the most magnificent thing in the garden. I will give

only a dozen varieties—four white or cream color, four pink and four red or crimson.

*Festiva maxima* is an old favorite on account of the size, purity and beauty of its flowers. They are of the purest white with occasional spots or streaks of carmine, which heighten the beauty of the whiteness. It is an early bloomer and a good keeper.

*Couronne D'Or* has very fine double blooms. They are white with a creamy tinge, almost yellow, and little splashes of carmine on the centre petals.

*La Tulipe* when it opens has a pinkish tinge, but after a day or two it fades to pure white. It is deliciously fragrant.

*Whitelji* is a white flower with a creamy centre, changing to pure white. It is very large and very double.

*Delicatissima* is large and pink and fragrant. It took the prize as the best pink at the Chicago show in 1905.

*Queen Victoria* is a large and showy flower. The outer petals are of a clear rose color, the inner petals straw color.

*Humei* blooms late, has extraordinary large blooms with a distinct cinnamon fragrance. The color is a shiny pink.

*Queen Caroline* is an old fashioned variety, in color a rich deep rose, very large and very double.

*Crimson Queen* has finely fringed blooms—clear, bright crimson in color. The plant is strong and the flowers perfect.

*Rubra superba* is one of the best of the crimsons. It flowers late in the season.

*Francoise Ortegal*—This is an old favorite, purplish crimson with a yellow centre.

*Felix Crouse*—Large bell shaped blooms, brilliant red with a lighter colored centre.

There are a few yellow varieties, but in growth, size and form of bloom, etc., they are inferior to the more common colors. There are also many single varieties of real merit, but for use as cut flowers the single varieties are not likely to grow in favor. They are beautiful as half open buds, and since they are earlier than the double kinds they serve to lengthen the peony season.

**The Back Yard.**—While the good citizen is clearly justified in properly planning and caring for a nice front lawn in order to please the travelling public, he should not forget the inmates of his own house. These usually occupy the rear of the house much of the time. Would the travelling public enjoy a view of the back yard on many farms? What proportion of city men's back yards is entrancing? Why not let passers-by pass on while we expend some energy on that part of the premises that we are sure to see very often? —E. Morden, Niagara Falls South, Ont.

# Pruning Rose Bushes

By "Amateur"

**D**ISAPPOINTMENT surely awaits him who, having procured a dozen or so of rose bushes in the early spring and having carefully planted them just as they came from the nursery, anxiously awaits the blooming season, expecting to be able to gather an armful of such roses as he sees pictured in the seedsman's catalogue, and all because he has failed to realize that the proper pruning of a rosebush is one of the most important features in its successful cultivation.

Roses differ so greatly in their habit of growth that no directions for pruning established plants can be given that will not require modification in respect to certain individual plants. There are, however, two rules which must be followed invariably. One is that all pruning should be done before any growth begins in spring, and the other is that all plants which come from the open ground must be pruned before planting or immediately after; such plants should have all weak growth removed entirely and the stronger shoots cut back to within four to ten inches of the ground. If set out just as they are received from the nursery, many of them will die and at the best but a weak growth will be made. No matter how carefully they have been removed, many of the smaller roots will have been destroyed and unless a corresponding amount of the top be removed, there will not be sufficient sap to nourish so many buds.

In dealing with established plants, if quantity rather than quality be the object aimed at, the only pruning necessary is to remove the dead and weakly wood, and only cut back the remaining shoots to a point below where the winter has killed the immature growth of the season before. If, however, the object be, and it should be, the promotion of a symmetrical growth and the improvement of the quality of the blooms, a different course should be followed and here practical experience must determine what is to be done in each particular case, always remembering the general rule laid down by all writers on the subject, that "plants of a delicate growth should be severely pruned, while those of vigorous growth should have some of the branches cut out entirely and the remaining ones only moderately shortened." Keeping this rule in mind, it will be found that plants of moderately vigorous growth should be cut back severely, say to four or five buds, always cutting at a bud pointing outwards and of course to a point below where the wood has been injured by the winter's frost.

To severely cut back such vigorous growers as Clio, Margaret Dickson, John Hopper, Charles Lawson, Jules

Margotten and some others, results in a crowded growth of wood and very few blooms and it will be found that to remove some of the branches entirely and only shorten the remaining ones a few inches, will throw the whole strength of the plant into the production of bloom. One shoot, however, should be cut back severely in order to promote growth near the bottom of the plant.

Climbing roses should, after the pruning recommended at the time of planting, have only the dead and weak shoots removed and one shoot cut back to three or four eyes for the purpose just mentioned, viz., to prevent a bare appearance near the bottom.

Some recommend a summer pruning after the blooming season is over in order to remove withered blooms, and to promote autumnal bloom, but the true lover of the rose will have few withered blooms to remove because he will find that one of the greatest pleasures connected with his hobby is that derived from the distribution of his flowers among his friends and in doing this liberally he will probably find that he has done all the pruning necessary.

The tools required for pruning are a good pair of pruning shears and a sharp pruning knife with a hooked blade. The operator will probably discover for him-

self that a good strong pair of leather gloves are not to be despised.

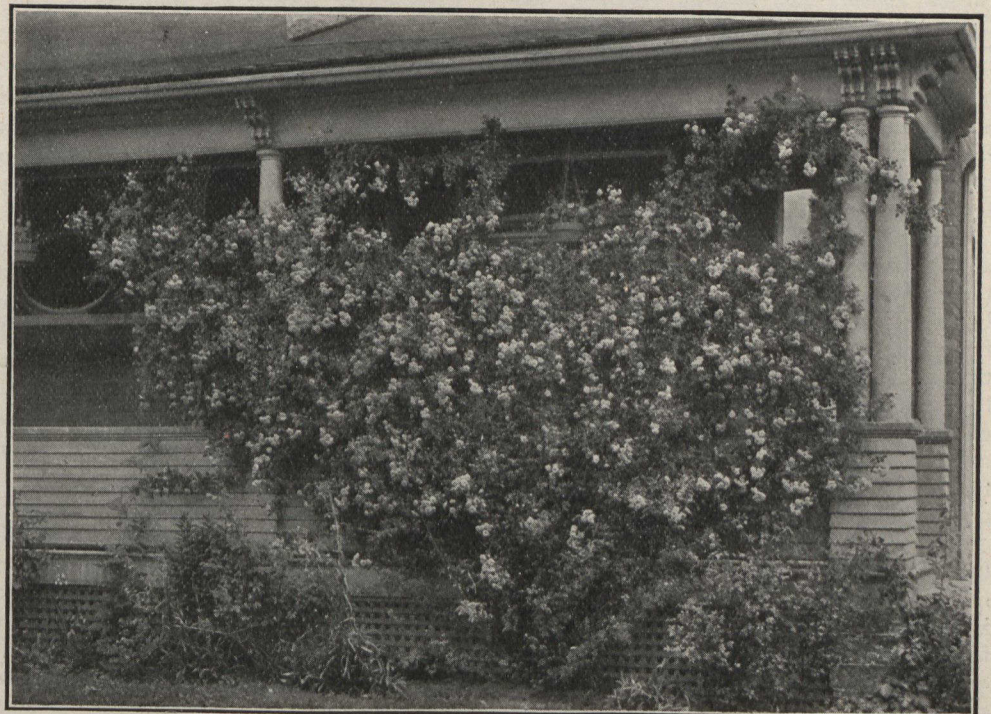
## Nicotiana Affinis

No garden is complete without a few plants of this delightful, fragrant free blooming annual. Where the grounds are fairly large a good plan would be to plant them at intervals throughout the garden, and the whole surrounding atmosphere, charged with the most deliciously pleasant sweet-scented odor imaginable will possess that indefinable magnetic influence which makes one long to linger near.

Seed may be sown in the cold frame or in the open garden in May, and when the young plants are large enough transplant to the place where they are to grow. If planted in clumps of two or three set the plants about fifteen inches apart. If given fairly rich soil with frequent tillage to keep it loose and fine on top, and kept well watered during dry weather, the plants will bloom far into the season.

For training over stumps, fences, out-buildings, trestles and screens, the grape vine can be used to advantage.

Keep the leaves of house plants clean.



A Beautiful Dorothy Perkins Rose Growing at the South Side of a Verandah

At the residence of Mr. John McQuaker, "Elf Lodge," Owen Sound, Ont. In a letter to THE CANADIAN HORTICULTURIST, Mrs. McQuaker tells its history as follows: "This rose was sent out by the Horticultural Society five years ago. It is trained over a wire netting which is fastened at the ends to the pillars of the verandah. About the end of November, we place a barrel against the bush to prevent the snow breaking down the branches in winter. The fastenings are taken out and the bush is turned over to the ground. The bush is well manured in fall and gets a little liquid manure during the summer. It has never been pruned except to take the dead wood out of it. It bears immense clusters of roses, many of them containing eighteen to twenty blooms.

## What Can Be Grown in a City Back Garden

George Baldwin, Toronto

HAVING a fair sized garden, namely, thirty-one feet, six inches wide by about 130 feet long, I decided three years ago to become an amateur gardener and went to work and planned



A Well Filled City Back Garden

In this garden an amateur has grown many kinds of vegetables that have competed successfully at the Canadian National Exhibition with stuff grown by market gardeners. Mr. Baldwin, who tells something about his experience in the accompanying article, is yardmaster for The Canada Foundry Co., Limited, Toronto, and works ten hours a day. As he has not much time for gardening, he was in his garden at four a.m., every morning last summer.

it to the best of my ability. First, I made a lawn next to the house about twenty-five feet by forty feet with flower beds on all sides. This left about eighty-five feet for vegetables and fruits.

I then saw the necessity of having a small greenhouse to raise my plants in the early spring. So I got some second-hand bricks and with the assistance of a friend we built the brick work up about two feet above the ground, got some lumber and glass, put it together, painted it and had it all ready for the spring of 1907. The inside measurement is nine feet by twelve feet with an eighteen-inch passageway in the middle.

I have had such pleasure and success from it, that I would strongly recommend anyone to put up a small greenhouse in preference to having a hotbed, for after you have gotten your plants all out in the spring, you can grow the long cucumbers, egg plants, peppers, etc., to advantage.

I laid my vegetable garden out on paper and had all my plans and arrangements made for an early start in the spring. I manured the ground heavily the previous fall.

I had such good results that I made up my mind to compete at the Canadian

National Exhibition the following year and which I did, gaining three prizes. This was an incentive for me to try and do better last year, and regardless of the fact that I had to compete in the same classes with market gardeners and farmers (who have almost as many acres as I have feet), I was successful in obtaining the following prizes: Fourth for collection of vegetables with sixty-one varieties, second for greenhouse cucumbers, fourth for a collection of tomatoes (containing twenty-three varieties, including the small fruited varieties), and I took also third prize for a bunch of marigolds.

Last fall we stored enough vegetables to do us till next summer, thus combining pleasure with profit. I know of several gardens as large as mine. If the owners of them only knew what pleasure I have derived from watching the things grow, I am sure we would have more amateur gardeners in this city and eventually get an amateur class at the exhibition, which I have been aiming at for two years.

I did not have very good success with onions, peppers and egg plants. Perhaps some friend will give me some pointers. [An article on onion culture is published on page 65. Pointers on growing peppers and egg plants will be welcomed for publication.—Editor.]

## The Best Hardy Shrubs

J. McPherson Ross, Toronto

In THE CANADIAN HORTICULTURIST for March, 1909, I gave a descriptive list of twelve hardy shrubs, as follows: *Hydrangea paniculata grandiflora*, *Spiraea Van Houttei*, Japanese Golden Bell, *Weigelia rosea*, althea or rose of Sharon, Persian lilac, garland syringa, Japan quince, deutzia, purple barberry, purple fringe and flowering currant. To extend this list into twenty-four varieties, we must have the flowering plum (*Prunus triloba*). It makes a striking shrub in any lawn in early spring.

My next choice is the white lilac which is too well known and liked to need description. As its companion we will include Charles X. lilac and also the variety Josikea which blooms after all the other lilacs have faded and gone.

The snowball is worthy of cultivation and a place on the lawn. When it blooms it makes a great show.

The Tartarian honeysuckle is another old favorite and is strikingly ornamental when in full flower. Either the pure white or the deep pink should be in every collection. It has the added attraction of orange-colored berries in the fall and in winter its greyish white branches

make it one of the best shrubs for color effect in winter. We have to have more spireas in the collection. Plant either *S. prunifolia*, *S. Billardii* or *S. ulmifolia*, all showy and desirable in any situation.

Our winters are too severe for the growing of the evergreen holly. The best substitute for it is the holly-leaved barberry, (*Mahonia aquifolium*). This does well in partially shaded places, especially when in a clump.

One of the grandest of shrubs is the *Syringa grandiflora*. It grows to a height of ten to twelve feet and makes a great show when in flower. The bloom is exceedingly fragrant and its strong habit of growth makes it useful as a screen to fill in a gap in a belt of trees. It stands the drip of the trees well and grows under the most adverse conditions. The African tamarisk is a unique shrub with fine green foliage of a feather-like nature and small pink flowers.

The common barberry, as a specimen shrub, is quite attractive when in bloom and presents a pleasing sight in fall and winter from the profusion of its scarlet berries. The bladder senna (*Colutea arborescens*) is a strong growing shrub with yellow pea-like blossoms followed by inflated membraneous pods containing seeds.

Last but not least is the *Azalea mollis*. Its orange-colored blossoms on naked stems make it a very ornamental shrub in the earliest days of spring.

The evergreens have an important place in producing landscape effects, and in planting for protection from winter winds.

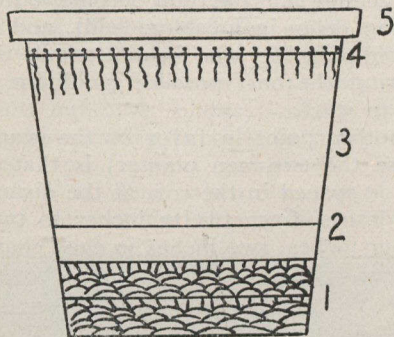


A Winter Scene in a Canadian Park  
Victoria Park, Peterboro, Ont.

## Sowing Garden Seeds

A. V. Main, Almonte, Ontario

THE success of our seeds generally depends upon how we treat them for germination. Failures and complaints of bad seed are quite common. We are too apt to lay fault on the individual who furnishes the seed, con-



Flower Pot Prepared for Seed Sowing

1. Drainage material, broken pots, clinkers, etc. 2. Rough leaves or decayed manure. 3. Prepared soil. 4. Seeds and covering of fine sifted soil. 5. Space for water. Prepare boxes in similar fashion.

demning his seed as rubbish. I would not give the seed trade immunity altogether, but the non-germinating of seed is often due to our own negligence.

For flower seeds good, clean pots and boxes are essential. Boxes three inches deep with several holes bored in the bottom for an outlet for water, and made a convenient size, are first-class for seeds or plants. A good layer of rough leaves, rotted manure, pieces of broken flower pots, oyster shells or rough ashes should be at the bottom of the pots or boxes, then fill up moderately firm with fine soil to within an inch of the top. A mixture of loamy soil, sand and leaf soil make a suitable compost.

We have failed as yet to procure sieves from any of the leading seed firms for the purpose of grading or sifting the soil for seed sowing. For this purpose a fine mesh of mosquito netting will do by nailing a two-inch board round a square of it. Chicken netting, half-inch mesh, will also make a good sieve for sifting soil. With boxes, a flat board will make an equal level for the soil; for pots, anything round and flat is sufficient.

For very small seeds, such as begonia, gloxinia, lobelia, antirrhinums and coleus, water the seed receptacles with a fine rose can an hour prior to sowing. A mere dusting of fine soil is sufficient covering. The size of the seeds will almost determine the covering of the soil required. Begonia seed does not require any, coleus requires very little, while castor oil plant and sunflower want half an inch of soil.

A piece of glass should be laid over the seed pot or box, also a piece of brown paper before the seedlings appear, then gradually withdraw it when the seed receptacles become very dry. Do not apply a shower bath overhead,

but hold the seed pot half way down in a pail or tank of tepid water. The water will thoroughly saturate the soil from the bottom, finding its way to the surface. This will be sufficient for a good many days, and better than daily dribbles on the surface. Seedlings like to be kept tolerably dry before they gain strength. With a good sunny window, many fine plants can be raised, then remove to a frame outdoors.

Any haphazard or slipshod fashion with vegetable seeds will only result in disappointment. The ground is best forked over the day it is to be sown. A fine open mould, neither too wet nor dry is best. Gardeners on a small scale should prepare a fine tilth of soil, raked level.

The alert gardener will take the first opportunity of a good day to sow onions, parsnips, carrots, beets, turnips, cauliflower, cabbage and pasley. All these will do with half an inch of covering. The culinary peas and flowering sweet peas require very early sowing, three inches deep. Label all seed correctly and give date of sowing.

Before we convict the dealer of bad seeds, let us consider if we have done justice in the preparation of the soil and the seed bed, having climate and price of seed duly noted. Buy from reputable seed firms.

### The Worth of Tree Planting

Editor, THE CANADIAN HORTICULTURIST: At your request I am sending a photograph of a corner in my garden containing hydrangeas, asters and gladi-



Asters, Gladioli and Hydrangeas in a Garden in the Province of Quebec  
Garden of Mr. W. F. Hool, North Coaticook.

oli. The large maple and elm trees on the street were planted by me thirty-eight years ago. Now, in my sixty-third year, I take lots of pleasure in daily viewing their silent, majestic appearance.

If young people of both sexes would plant trees they would derive daily gratification in watching nature's monuments growing in stately magnificence; besides, they would contribute lasting blessings to the rising generation. I speak from experience, having set in this town of Coaticook some 500 native forest trees besides many foreign ornamental trees and hedges. Some of the native elms set forty years ago, could not now be purchased for fifty dollars each; for which I received the magnificent sum of fifteen cents each for digging, setting and tying to two stakes. This shows the financial standing of the trees today. Where and how can a small investment be made to better advantage than the setting of a few trees in a suitable place?—W. F. Hool, Coaticook, Que.

An old-time favorite among the shrubs is the golden currant (*Ribes aureum*). Whether in flower or in fruit it is very ornamental. The flowers are yellow and sweet-scented. It blooms late in May and grows about eight feet high.

Of all shrubs that we have, probably the most popular is the *Hydrangea paniculata grandiflora*. It starts to bloom late in July and lasts until frost. The blossoms are white at first and gradually change to a rosy pink. This shrub grows six to ten feet high, and is most effective when planted in masses.

## Tomatoes in Western Home Gardens\*

Brenda E. Neville, Cottonwood, Saskatchewan

**A** FEW years ago it was a matter of doubt as to whether or not ripe tomatoes could be grown with any degree of certainty in Saskatchewan. Even yet the "very best" methods are being sought, and much greater success awaits the future tomato grower than has been attained hitherto.

There are two methods of raising tomatoes here. Both deserve a trial, as one method may suit some soils better than the other.

The first method to be considered is that of early planting of seed, and transplanting of plants. I will not touch on the method to be followed by market gardeners, or by wholesale tomato growers. The instructions given are merely for home gardens.

Selection of seed is important. The earliest varieties only should be chosen. I have found Spark's Earliana to be the best. June Pink is good, also Early Ruby, and several others. But Earliana is the surest.

A sandy loam is the best soil in which to plant the seeds. If planted in soil very rich in leaf-mold the young plants are apt to make too rank a growth, and are harder to transplant.

Boxes four inches deep, ten inches wide and twelve inches long will be found most convenient for the first sowing. Each box should be fitted with a pane of glass on top. Fill the boxes three inches deep with finely sifted soil, pressed rather firmly, and very level.

Mark with the edge of a thin board, drills one-quarter of an inch deep and one inch apart. Sow the seeds in these drills, quite thickly. One-eighth of an inch is far enough apart for the seeds to lie. Cover the seeds evenly, and press the surface of the soil down with a flat board. Now place the box in a large pan of water at a little higher than blood heat. The water should come nearly to the top of the box. It will gradually permeate the soil until it is all thoroughly saturated, and is better than watering from the top, as it does not disturb the seeds. When the soil is well soaked, lift from the pan and allow to drain.

After the free water has drained out of the box, cover the box closely with the glass, and place the box in a warm, sunny window. The seeds should germinate in from eight to twelve days, and should require very little water until up. If the room is very dry, a little water may be very gently sprinkled on the surface of the soil if it is in danger

of drying out too much. The soil should be kept soft and moist all the time.

The glass should not be removed until the plants crowd against it. It should be raised a little to admit air, and finally be removed altogether.

The plants can be left in this box until they have grown several inches high, and have four or five leaves. Then they should be moved. It is best to place them in separate pots if possible. If this is impossible, larger boxes, with about five inches of soil in, will do nicely; or I have used tomato cans with holes punched in the bottom, filled with soil. Three plants can be placed in each tomato can if desired.

When transplanting, the plants may be lifted by means of a sharp table-fork run well under them, commencing at the end of each row of plants. Then hold each plant by the leaves; gently fill in a little earth over the roots; add a quantity of cool water; fill up the can with earth, leaving the roots in a wet bed, while the surface of the soil is loose and comparatively dry. Do not place the plants in hot sunshine for a day or two; but avoid chilling, as that will rot them very quickly.

The plants may be kept in these separate pots until the beginning of April. They may be showing flower-buds, and will seem quite large. By this time, if spring opens in reasonable time, the weather will be safe for making hotbeds.

### Potato Planting by Machinery

W. A. Broughton, Sarnia, Ont.

Labor is higher and harder to get now than it was before the advent of the potato planter, which was ten or twelve years ago. In 1897, my brother and myself planted ten acres of potatoes by hand, costing about \$1.25 per acre (marking, planting and covering). The weather set in dry, and there was a little delay in the potatoes starting owing to the fact that in covering with the cultivator nearly all the soil was dry that covered the seed.

The potatoes came up fairly even, but a week or ten days late. The growing season was good and they looked fine (new land). Some parties driving past told me they never saw such a fine looking field of potatoes. About the middle of August the blight struck the field and the yield was only seventy bushels per acre; whereas, had the potatoes started a week or ten days sooner the crop would have nearly doubled.

The point I wish to make is this: Had the potatoes been planted with a planter they would have been put in moist soil and covered at once and would have come up a week sooner besides getting them planted in less time. After using

a potato planter for eleven years we would not have them planted by hand if it were done without charge.

Some of the advantages of using a machine for planting are: Any depth desired, evenness in depth, light or heavy covering, saving in time in getting crop in (this is important in both early or late planting, as the weather may change and the land become too wet causing delay in finishing field), and the planter puts the seed in moist soil, thus ensuring the best possible condition for seed to start.

Another point in favor of the planter (I use the two-men planter) is that the seed is spaced in the row at the distance you desire—from twelve inches to twenty-four inches, two inches in each change of gear. Whereas, if you hire boys to plant, the spaces will be irregular—from one to three feet.

The planter we use requires a team and two men (or a man and a boy) and makes the row, opens the furrow, drops the seed and covers it in one operation, and will plant 100 per cent perfect work. It has also a fertilizer attachment which spreads the fertilizer in the furrow and mixes it with the soil before the seed is dropped. From four to six acres a day can be planted with the machine.

If one or more growers plant ten acres a potato planter will pay ten per cent interest on the investment. My planter paid me seventy-five per cent. of cost in the first season, my boys planting fifty acres for neighbors.

### Onion Culture

E. G. Malcolm, Scotland, Ont.

Each grower must do a certain amount of experimental work for himself before he can find out what will be the most economical fertilizer for him to use for onions, because the soils differ in their chemical as well as in their physical composition. Onions require a good loam or sandy loam soil with loam predominating. It should be made as rich as possible, and I know of nothing better than a heavy application of barn yard manure, well rotted. Plow as early in the spring as possible.

Prepare the seed bed by using a heavy roller and working it up with harrows. Then use a scraper of plank to level the ground. Have the ground thoroughly warmed before sowing. The more work there is done before sowing, the less labor there will be after the onion has started to grow as you can then better keep the weeds in control.

Sow in rows from twelve to fourteen inches apart. About three pounds of seed to the acre is sufficient if No. 1 seed is used, but if you are doubtful of the seed, sow more. Always test the seed before sowing.

Buy from advertisers in this paper.

\*Although this article was written by Miss Neville for amateur gardeners in the western provinces, the information that is given is equally applicable to conditions in many other parts of Canada. Amateurs in eastern Canada can follow it with profit. Further information will be given in next issue.—Editor.

## How to Grow Large Onions

A. V. Main, Almonte, Ontario

LET us outline briefly the culture of transplanted onions and their value in comparison with the ordinary method of sowing outdoors. The crop is decidedly better, because the plants have two extra months' growth, being sown generally in March. There is also less loss of seed and the extra labor is not worth considering. This idea of transplanting, however, not only with onions but other plants, looks a useless and unnecessary process to many amateurs and market gardeners. Transplanting is done when we are not so busy, and a plant that is set out with

equal parts of old manure, loam and leaf-soil, adding a little sand and wood ashes, to be visible in the compost when mixed. Use boxes about five inches deep of convenient size. Cover the bottom with some rough manure, then fill to within an inch of the top. Make the soil firm and a level surface by using a smooth board, with a handle attached. A level surface is imperative for small seeds. Sow thinly, give each seed a "five-cent" space. Thoroughly saturate the soil with a fine sprinkling can. Place in hotbed, greenhouse or your seed raising quarters, and cover with brown paper,

varieties from Canadian firms such as Giant Prizetaker, Southport, White Globe, Red Wethersfield and others, but so far none are so satisfactory as the one illustrated on this page. Onions of this type command a high price, have a ready market, are good for exhibition purposes and culinary use, have mild flavor and reliable keeping qualities.

### Growing Cauliflower Plants

A. Knight, Kingston, Ont.

To be successful in growing cauliflower plants, there are three essential things to be followed: 1. Proper soil, which should be of the very best obtainable—a loose, mellow soil made rich with fine rotted manure, one that will remain loose and keep moist; it cannot be too fine, for the finer the more rootlets the plants will have, and the more soil will adhere to them when plants are taken up. 2. The seed, which should be the best to be had. 3. Care in growing the plants.

If plants are required for early crop, seed should be sown by first of March in a greenhouse or properly made hotbed. The seed bed should not be too warm but of proper warmth to keep plants growing healthy. Plant the seed about one-half an inch deep, and not too thick, as thick planting makes plants too fine, and they are more apt to damp off. The bed requires plenty of fresh air on warm days to make stocky plants.

As soon as the plants are large enough, that is, well out in second leaf, which should be in three weeks after sowing, transplant them into a new bed, which should be made a few days before needed.

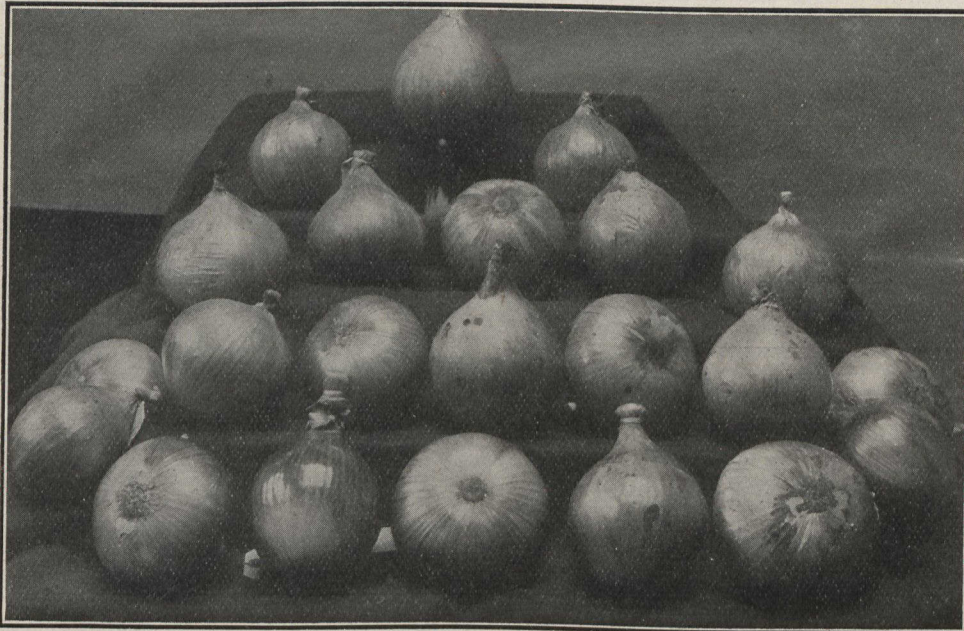
If plants are wanted for extra early, it is better to pot them in fair sized pots, as by doing so you can plant in the field a larger plant, and not check growth. Great care must be taken to prevent any serious check; for plants are apt to have very small heads or "button up" as it is termed, if any serious check occurs in growth.

For late crop, seed is better sown in outdoor ground. Plant not too deep, in warmest and best soil you have. Thin out the plants while small to make good stocky plants. Watch for cabbage fly, and dust plants often.

The soil for blackberries must be well drained, and it should be a strong loam.

Asparagus, that daintiest of spring vegetables, is as easily grown in Saskatchewan as is the indispensable rhubarb.

Rhubarb has been the standby for the western farmers' table; but it is being supplemented by many of the small fruits that respond to fair treatment in the western climate, such as currants, gooseberries, strawberries and raspberries.



**Leamington Giant Onion, an English Variety, that yields a Heavy Crop of Large Bulbs**

The specimens illustrated were grown in the gardens of Mr. B. Rosamond, "Pinehurst," Almonte, Ont., by his head gardener, Mr. A. V. Main. They averaged one and one-quarter pounds each.

fine fibrous roots, healthy and vigorous, has no comparison at all with a weak, spindly, stunted, lop-sided plant with scarcely a root, culled from a box amongst hundreds, the one supporting the other.

A good open position is the first consideration. It must be well drained and clear of trees, hedges or buildings, as shade, want of sun and wet ground are causes of thick-necked onions. Select good rich soil, moderately heavy. Prepare the ground in the fall, digging or plowing deeply and giving a heavy dressing of horse, cow or poultry manure. It takes a couple of seasons to get ground into onion condition. With the yearly application of manure, farm and artificial, the ground will grow splendid onions for six or seven years, then a change of crop such as celery should follow for two seasons.

#### SOW SEED THIS MONTH.

Sow the seed in February if convenient, or at least early in March. Sift

to retain moisture and darkness before germination moves.

The young plants must be kept to the light and aired to be sturdy. Sprinkle overhead on sunny days and keep the roots moist. For exceptionally large specimen onions, transplant into other boxes of rich soil two inches apart, each way. If this method of "raising onions early" is to be carried out extensively, the seed may be sown in hotbeds to have a quantity for planting a large area.

Gradually harden off to the weather outdoors, making preparations to plant early in May. The need for hardening off plants to the outside weather is much neglected or unforeseen by many. Onions suffer if not properly looked after in this respect.

#### VARIETIES.

The variety that I grow is an English one, Leamington Giant, yellow, considered the largest onion in cultivation. The writer of this note can supply any information for seed. I have treated other

# The Canadian Horticulturist

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## CIRCULATION STATEMENT.

Since the subscription price of The Canadian Horticulturist was reduced from \$1.00 to 60 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with Dec., 1909. The figures given are exclusive of samples and spoiled copies, and of papers sent to advertisers. Some months, including the sample copies, from 10,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

January, 1909.....	9,456	January, 1910.....	8,925
February, 1909.....	9,310	February, 1910.....	8,967
March, 1909.....	9,405		
April, 1909.....	9,482		
May, 1909.....	9,172		
June, 1909.....	8,891		
July, 1909.....	8,447		
August, 1909.....	8,570		
September, 1909.....	8,605		
October, 1909.....	8,675		
November, 1909.....	8,750		
December, 1909.....	8,875		

Total for the year .107,638

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

Sworn detailed statements will be mailed upon application.

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

Communications should be addressed:

THE CANADIAN HORTICULTURIST,  
PETERBORO, ONTARIO.

## EDITORIAL

### GRANT SHOULD BE INCREASED

No more deserving petition has been placed before the Minister of Agriculture for Ontario this session than that of the Ontario Horticultural Association which asks for an increase of \$8,000 in the grant to horticultural societies. Excellent work is being done by these societies, and it is increasing rapidly. The deputation that waited upon the minister pointed out that the growing increase in membership requires at least a proportionate increase in the grant. Further reasons also were given, as reported on page 72.

The horticultural societies of Ontario are engaged in a work that means much to the province. Probably no other phase of agricultural effort has such an important influence on the general welfare of the people. The work should be encouraged. Each member of the legislature should support it personally. The future adornment of our homes and public parks depends largely upon the aid that is given to our horticultural societies. Personal gain does not enter into the proposition in any way. The societies are working for the general uplift of life and living. Their petition for an increase in the grant should be considered favorably by the government and passed at this session of the legislature. Failure to give the increase asked for can be taken only as an indication of ignorance, on the part of the government, of the splendid educational work the societies are doing as well as of their pressing needs.

### A POSSIBLE INVADER

One of the worst insects known to fruit growers anywhere in the world is the Queensland fruit fly. Unless preventive action is taken, it may some day invade Canada. Many other injurious insects have been imported from abroad. The San Jose scale, the apple maggot, the brown tail moth, the currant worm and a host of others have come from other lands. They gain entrance to our country in spite of inspection at the ports of entry. If their presence is known at the beginning, their spread can be and in some cases has been prevented to a large extent, as, for instance, in the case of the brown tail moth in Nova Scotia. It is well, therefore, always to be on the watch for newcomers. From reports of its operations in Australia, the most dangerous possible intruder is the Queensland fruit fly.

About two years ago, THE CANADIAN HORTICULTURIST wrote to the late Dr. James Fletcher, then entomologist and botanist for the Dominion Experimental Farms, regarding the possibility of this pest gaining an entrance to Canada through British Columbia, and received the following reply, now published for the first time: "The Queensland fruit fly (*Dacus tryoni*) is described as a serious pest of orchards in Queensland and New South Wales, but I do not remember what kinds of fruits it infests. If fruit is imported into British Columbia from Australia, it is possible that this insect might be introduced; but I do not know what fruits would be brought from Australia, and even if the insect were introduced I should think it would be hardly likely to propagate and spread there. I have never heard of a specimen of this fly being taken in British Columbia."

If fruit is imported from Australia into

British Columbia, it is quite probable that this insect will arrive some time, if it has not already done so. That a trade in fruits is carried on between these two countries is stated in the following extract from an interview with Mr. W. E. Scott, Deputy Minister of Agriculture for British Columbia, given to and published a few weeks ago in *Canada*, an English publication: "With Australia we carry on a kind of exchange trade. She supplies us with fruit in our off season, and in return buys our apples in her off season, the seasons being opposite, so each of us gets an all-year-round supply."

To get information regarding the Queensland fruit fly from one who knows the pest at first hand, we wrote recently to Mr. W. R. Dewar of Fruitland, Ont., who was for five years and until a year ago, entomologist for the Orange Free State and the Eastern Province, Cape Colony, consecutively. Amongst fruit insects Mr. Dewar spent more time on the Queensland fruit fly than on any other. He replied to our letter in part as follows: "I think that there is little danger of the fly being established in British Columbia. In warmer climates, it spells disaster to fruit growers, but I doubt if it would adapt itself to our climate. It infests nearly all cultivated fruits and many wild ones."

As Mr. Dewar states, it may be that the pest would not be able to exist in our climate. Nevertheless, the possibility remains. Vigilance on the part of our fruit pest inspectors and of our fruit growers, particularly in British Columbia, is necessary in order to be safe. We are not in the "war scare" business, but it is always best to "keep your powder dry."

### ADVERTISE YOUR PRODUCTS

Growers of fruits and vegetables for local markets should advertise their goods. It is thought by most market gardeners, if they think about it at all, that advertising is an unnecessary and expensive luxury. This is not the case. Advertising means salesmanship and, as a result, increased business.

There is no reason why men who have fruits and vegetables for sale in a local market should not tell people about them through the home newspapers. The man who does this will step in advance of his neighbor. His produce will become better known and consumers will look for it and ask for it. Advertising is being done more and more each year by the leading growers in the United States, and they are unanimous in its favor. It can be made equally successful in Canada. Further suggestions will appear in our next issue. In the meantime, gardeners and fruit growers that have tried advertising, through the press or otherwise, are asked to tell others through THE CANADIAN HORTICULTURIST what they think of it. Advertising pays in all other lines of business. Why should it not pay in gardening?

### PUBLISHERS' DESK

Our cover cut this month illustrates an evening view of the Penticton benches, British Columbia.

Do you want an index to Volume XXXII of THE CANADIAN HORTICULTURIST? The titles of leading articles and subjects dealt with during 1909 have been arranged alphabetically into convenient form for ready reference. This index is useful to all of our



readers that keep the copies of this magazine on file. Copies of it will be sent only to those persons that apply for them.

Communications from two or three sources have asked us what has become of our question and answer department. In the past four or five issues this department has not appeared chiefly because we considered that the space usually given to it could be used to better advantage by contributed matter. All questions that have been received have been answered by mail. It is not our intention, however, to eliminate this department. It will appear again probably in next issue. Questions on horticultural work and problems receive our best attention. Place them on separate sheets of paper and write plainly and briefly. Be sure and sign your name.

### The Duty on Plants

At a meeting of the directors of the Ontario Horticultural Association held in Toronto early in February, the question of moving to have the Dominion government remove the duty on palms, ferns, rubber plants, gladioli, cannas, dahlias and peonies, was discussed. Messrs. T. W. Duggan, of the Dale Estate, and T. Manton of Eglinton, members of the Canadian Horticultural Association, had been invited to attend the meeting and were present. They were asked if the Canadian Horticultural Association would be willing to assist the Ontario Horticultural Association in petitioning for the removal of this duty.

Both Messrs. Duggan and Manton stated that they were personally in favor of having the duty removed, but claimed that they could not commit the Canadian Horticultural Association. They explained that the matter had been discussed frequently at the convention of their association, that the tariff had been framed as it now is largely through the action of the Canadian Association, although there was a strong feeling with many of the members that the duty should be removed. It was ultimately decided to allow the matter to stand over until the convention of the Canadian Horticultural Association in St. Catharines next summer, when representatives from the Ontario Horticultural Association will attend the convention and confer with the members of the Canadian Horticultural Association on these points.

### Experience Necessary

W. J. L. Hamilton, South Salt Spring, B.C.

In the November issue of THE CANADIAN HORTICULTURIST I noticed a letter from Mr. Aitken of Peachland, B.C., together with a photograph of his peach orchard. I have many pleasant recollections of a visit paid to that locality, but even in that favored spot I did not find fruit growers entirely free from the difficulties which trouble us at times. In fact, I was called in as an expert to visit several orchards there, and diagnose their troubles, which I am glad to say I was able to successfully accomplish.

An amateur, if clever, can succeed well in fruit growing, but just as sickness is sure to come in a large family, so surely will trouble arise, sooner or later, in his orchard, when expert knowledge is necessary, first to diagnose the trouble, and next to treat it successfully.

I claim that farming, horticulture and above all the orchardist's work should be raised to the level of a profession; for, in no profession of the present day is higher education called for in many branches of natural science, besides general knowledge.

### Protecting Trees 100 Years Ago

From Mr. C. C. James, Deputy Minister of Agriculture for Ontario, we received recently an interesting article entitled: "A Method of Preserving Fruit Trees in Blossom from the Effects of Frost." The article appeared in the *Upper Canada Gazette* of June 1, 1805. As a curiosity it was brought to the attention of Mr. James by Col. J. M. Delamere. The method is a novel one, but the principle is similar to that which underlies the modern practice, in some countries, of adding moisture to the atmosphere by means of sprinkling, spraying, irrigating or flooding ditches in order to raise the dew-point and thereby protect plants against frost. The article is as follows:

"The Chevalier de Berenberg of Prague, we are told, has discovered a method of effectually preserving trees in blossom from the fatal effects of those frosts which sometimes in the spring destroy the most promising hopes of a plentiful crop of fruit. This method is extremely simple. He surrounds the trunk of the tree in blossom with a wisp of straw or hemp. The end of this he sinks, by means of a stone tied to it, in a vessel of spring water, at a little distance from the tree; or the cord may be lengthened, so as to surround several, before its end is plunged into the water.

"It is necessary that the vessel is placed in an open situation and by no means shaded by the branches of neighboring trees, that the frost may produce all its effects on the water by means of the cord communicating with it. This precaution is particularly necessary for those trees the flowers of which appear nearly at the same time as the leaves which trees are particularly exposed to the ravages of the frost.

"The proofs of its efficacy, which he had an opportunity of observing in the spring of 1787, were remarkably striking. Seven apricot espaliers in his garden began to blossom in the month of March. Fearing that they would suffer from the late frosts, he surrounded them with cords as above directed. In effect, pretty sharp frosts took place six or eight nights. The apricot trees in the neighboring gardens were all frozen and none of them produced any fruit, whilst each of the Chevalier's produced fruit in abundance, which came to the greatest perfection."

### Strawberry Culture

One of the most complete bulletins that we have received for some time on any subject is bulletin No. 62, recently issued from the Central Experimental Farm, Ottawa, on "Strawberry Culture." In this bulletin, Mr. W. T. Macoun, its author, chronicles the results of experiments conducted at the Central Experimental Farm for the past twenty-one years with strawberries. The records tell the behavior of the best 100 or more varieties of the 596 that have been tested there since 1887 and some descriptive notes are given about each of them. Experiments were made to determine the most productive varieties, the best early and the best late, those that have the firmest and largest and most attractive fruit and many similar points.

The bulletin covers the whole subject of strawberry culture from propagation and planting to harvesting. Selection of plants for planting, soil, cultivation, fertilizers, systems of growing, winter protection, renewing old plantations, irrigation, "ever-bearing" strawberries, and strawberries in cold storage, are many of the subjects treated. The bulletin also contains notes on habits and characteristics of strawberry insects and diseases and gives methods of control. Extracts from this bulletin will

appear in later issues of THE CANADIAN HORTICULTURIST.

The arrangement of sub-divisions and the general treatment of the whole subject is a relief from common works of this nature. It interests one from cover to cover and imparts information both new and old. Some excellent illustrations brighten the pages. This bulletin should be in the hands of all persons who are interested in strawberries. Copies may be secured on application to the Central Experimental Farm, Ottawa.

### Shipping Peaches to England

Editor, THE CANADIAN HORTICULTURIST: As it might be of interest to many of your readers who are interested in fruit to learn of our experience in the exporting of some 90 boxes of Elberta peaches to nearly as many different addresses in Great Britain, we shall proceed to relate our methods and results.

In the first place, this was an experimental shipment for commercial purposes brought about by suggestions from some of our customers for whom we had already delivered apples in this manner in the old land and from our Mr. Edward Biggs of Maidenhead, England, the latter advising us to use a one-layer box. After obtaining our limited number of orders, and giving our usual guarantee to lay them down in good condition or return the money, we proceeded to choose a box with two compartments each sufficiently large to hold eighteen large peaches, and, after placing a nice pad of excelsior in the bottom and a layer of cotton batting next, we had our packers double wrap the peaches and pack them snugly together followed by the batting and the excelsior to finish. The wood cover was pretty stiff but did not allow of much pressure on the fruit.

As this was an experimental shipment, we did not go to the expense of dies for the box printing, using dressed lumber and stencils for printing so that the package would hardly have so neat an appearance; however, it answered the purpose intended.

Owing to disappointment in obtaining the peaches where they were promised us, we were forced to secure and pack these peaches under adverse circumstances so that they did not leave our packing house from 48, and some of them 72 hours after they were picked (much too long for tender fruits without cold storage). We then shipped them by the Fruit Express to Montreal where they were placed in cold storage on one of the Allan boats for Liverpool where upon their arrival, our agents quickly dispatched them to all parts of the United Kingdom.

We had previously issued a circular letter to all receivers of these peaches notifying them of their coming with the name of the friend that sent them as a present, also asking them particularly to let us know as to their condition upon arrival. We were amply repaid by this method. Especially are we indebted to our Trade Commissioner, Mr. W. A. MacKinnon of Birmingham to whom we sent a box for his criticism. It is a pity we do not avail ourselves more often of the advice and experience that these gentlemen who are on the spot are so willing to give regarding our methods of packing, packages and fruit.

It would take more space in your journal than you would care to allow to give verbatim the good things that some of the consumers said about these peaches, and, while we were pleased to hear them, we were more deeply concerned about the bad things some said. This interested us more than the other, because it affected our repu-

tation and finance; however, we made good for the peaches that were not good upon arrival and our reputation was sustained.

Now for the lesson that was taught by our experience (which coincided with the advice we received from several) this was that if we desire to lay down this fruit in the best condition for commercial purposes at a distance we must be most careful of the handling here. This may be summed up in few words: viz., proper maturity of the finest specimens before picking, padded baskets, one layer only in basket, picked more by the palm of the hand, avoid bruising in every possible manner, and when packing in your box see that every peach is entirely separated, in fact, nested by itself. This fruit should be pre-cooled before shipping and by all means use every effort to get fast transit to the market. Now, regarding the cold storage on boats, I believe the ocean carrying companies are anxious to obtain this class of business and are using every effort to give a good service. I have found it so.—The Biggs Fruit and Produce Co., Burlington, Ont., Alex. C. Biggs, Manager.

### Concentrated Lime-Sulphur

(Continued from page 53)

The sediment is of apparently no value as a spray material against insects (as indicated by the work of Parrott at the Geneva New York Station), hence its volume and removal, especially in the commercial preparations, becomes matters of importance. It is composed largely of sulfites and sulfates of calcium, together with the magnesium, iron, aluminum and other insoluble impurities in the lime and sulphur used. Its volume is affected chiefly: by the ratio of lime and sulphur; the purity of materials and the time of boiling. Its relative volume also naturally increases with the density of

the product. Made as described above its actual volume apparently runs from five per cent. to nine per cent. of the total product.

In the home preparation, the difficulty of its economic removal and its fineness and apparent lack of objectionable mechanical qualities, except in displacing valuable materials, have led us to disregard it. If desired, however, it may be removed by letting the product settle for about a day, drawing off the clear portion and straining the remainder through a moderately fine cloth inside the strainer. The sludge may then be washed free of any further valuable materials in the manner stated above.

#### PRESERVATION OF LIME-SULPHUR

If properly handled, lime-sulphur preparations apparently can be preserved indefinitely. Ordinary changes in temperature have little effect on them. But they are very sensitive to a number of other influences. Continued exposure to air, for example, results in the development of a crust of solids of varying thickness. This is prevented by cutting off the exposure to air, either by an oil covering or by immediate storage in tight closed vessels, filling them completely. When the crust does develop it can be skimmed off with a fine screen and readily redissolved by heating either in water or in the concentrate itself.

These solutions are also decomposed by a number of other things. Acids, carbon dioxide, certain arsenicals, and even extra lime put in as a marker, all appear more or less rapidly to break down the lime-sulphur combination. This is by no means always fatal in practical results, but we believe it is to be avoided when possible. Most of them can be avoided by elimination.

In the case of arsenicals, however, their addition is necessary if the material is to be

used as a summer fungicide. The addition of arsenate of lead results in very rapid decomposition, both for itself and the lime-sulphur. The resulting compounds seem to give good results practically, however, so that we cannot entirely condemn the process just at present. But it seems to be a very wasteful process, especially when we can obtain the same poisoning power in another arsenical, the arsenite of lime, for about one-sixth the cost. The latter arsenical also is practically stable in the lime-sulphur solution. It has been in use to a greater or less extent for a long time in connection with other fungicides, but has been limited by a tendency to burn foliage. This is practically avoided by making it up with a slight modification of the Kedzie formula, the method being described in the afore-mentioned bulletin of the Pennsylvania station. The use of Paris green in this solution, we believe to be undesirable, with nothing to commend it.

#### THE PROCESS OF DILUTION

In the application of any concentrate either home-made or commercial, it is essential that a definite method of dilution be followed. Two solutions may look exactly alike and yet differ widely in density, so that any accurate method must be based primarily on the density of the concentrate that is being diluted. Moreover, we believe that recommendations based on the density of diluted spray are preferable to those based on the number of dilutions even when accompanied by a statement of the concentrate's density.

Accurate dilution is very simple and easily accomplished with the aid of a hydrometer having the specific gravity scale. (Such an instrument, fitted with the Baume scale also, may be obtained from Bausch & Lomb, Rochester, N. Y., or

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from the firms mentioned in our bulletin 92. The presence of foreign materials or of much roily sediment in the sample will vitiate the test, a fact which must be taken into consideration—the former especially in solutions of unknown preparation). Sprays of any desired density may be obtained from any concentrate by simply getting the reading of the concentrate and dividing the decimal of this reading by the decimal of the spray desired. For example, if the reading of the concentrate is 1.27 (about 31 degrees Baume), to get a spray of 1.03 density we divide the .27 by .03 and obtain 9, which is the number of dilutions required, and which of course is obtained by adding eight volumes of water. In this we are simply applying the general fact that the densities of solutions heavier than water vary inversely with the number of dilutions.

The workings of the process may be seen further in the following:

(a) To determine number of dilutions.

Formula:  $\frac{\text{Decimal of Concentrate}}{\text{Decimal of Spray desired}} = \text{No. of Dilutions}$

Examples:  $\frac{.24}{.03} = 8$ , or  $\frac{.25}{.01} = 25$   
 $\frac{.30}{.03} = 10$ , or  $\frac{.30}{.005} = 60$

(b) To determine the density of spray used.

Formula:  $\frac{\text{Decimal of Concentrate}}{\text{No. of Dilutions}} = \text{Decimal of Spray}$

Examples:  $\frac{.26}{10} = .026$  ∴ Spray = 1.026  
 $\frac{.27}{50} = .0054$  ∴ Spray = 1.0054

This method gives final sprays of definite density, and the importance of this is obvious when we consider the relatively small

margins between safe and unsafe densities in the use of these solutions on foliage.

With Baume hydrometers, the dilutions are obtained indirectly either by conversion into the Specific Gravity scale or by means of a special dilution table. In the latter case, however, a table is likely to be needed for each density of spray desired. The following table gives the uses of the lime-sulphur spray, as far as our present knowledge extends:

Times and Strengths of Sprays for Various Purposes

INSECT OR DISEASE	SPRAYING TIMES	DENSITIES OF SPRAY
San Jose Scale,	Trees dormant, but best in fall or spring.	1.03 for regular annual control.
Oyster-shell Scale,	At hatching time.	1.04 in bad cases, especially on old apple trees.
Blister-mite, Plant lice eggs, Peach leaf curl,	Just before buds open.	1.02.
Apple and pear scab, Apple worm, add arsenical in 2 and 3,	(1) Blossoms beginning to show pink. (2) Within a week after petals fall. (3) About three weeks later.	1.03 to 1.04. Latter strength for aphid eggs. (Colo. Bul. 133:27).
Cherry leaf spot,	Three sprayings, a month apart, beginning with signs of infection.	1.01; may be varied by .002 or more either way as results direct.
Peach scab and brown rot of stone fruits. (Experimental as yet),	(1) Three or four weeks after petals fall. (2) Half-way between (1) and (3). (3) Two weeks before fruit ripens.	1.01, or slightly weaker.

While it is believed that the densities recommended in this table will generally prove efficient and safe where pure solutions are used, yet occasional injury has occurred from third and fourth applications when the earlier applications of the same strength of spray had proved entirely safe. Also the abundance of the application may

frequently affect the amount of foliage-injury nearly as much as the density of spray applied. (The presence of salt in some of the commercial preparations, as indicated in the work of the Geneva, N.Y., Station, makes special caution desirable in using them upon foliage.)

ADVANTAGES OF HOME-MADE CONCENTRATE

As compared with our other leading sprays the advantages of the storable, home-made lime-sulphur are conspicuous. In total cost,

including the making, it will produce a 1.03 scale spray for about three-fourths of a cent or less per gallon, while the commercial preparations usually cost two cents or more. The known absence of superfluous and possibly harmful ingredients is also of some importance. For apple scab, it does not "russet" the fruit; it can be made up be-

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fore hand; and in proper strengths costs about a quarter of a cent per gallon. Bordeaux (4-4-40); on the other hand, russets fruit; is not storable; and costs about half a cent per gallon.

### Lime-Sulphur vs. Bordeaux

(Continued from page 55)

Summing up these points, then, we find that Paris green should not be used with commercial lime-sulphur and that, while arsenate of lead may be used, the chemical changes that take place make it no better than arsenite of lime, which is very much cheaper and should therefore be used. In a word there cannot be the same freedom in adding arsenicals to lime-sulphur that there is in adding them to Bordeaux, but in arsenite of lime we have a good cheap arsenical that may be safely combined.

#### THE COST

There is still one more point to take into consideration; namely, the comparative cost of the lime-sulphur mixture and of Bordeaux. If the materials used are bought in large quantities, they can be obtained at the following prices: Sulphur, \$1.50 a hundred-weight; or one and one half cents a pound; lime, twenty-five cents a bushel of about sixty pounds; bluestone (copper sulphate), five cents a pound.

At these figures one barrel of the self-boiled lime-sulphur of the strength of ten pounds of lime and ten pounds of sulphur to forty gallons of water will cost: Lime, five cents; sulphur, fifteen cents; fuel used to boil the water required for slaking the lime, about two cents; total, twenty-two cents.

One barrel of Bordeaux, 4.4.40 formula, will cost: Lime, two cents; bluestone, twenty cents; total twenty-two cents. The Vanco

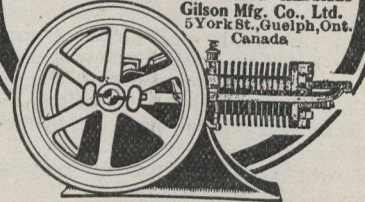
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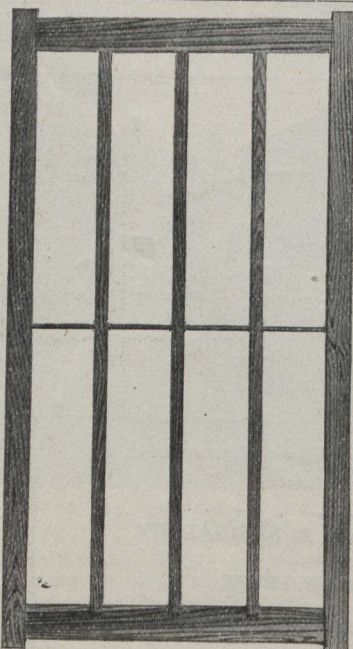
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brand of commercial lime-sulphur costs \$8 a barrel or about twenty cents a gallon. If we use it at the strength of one gallon to thirty gallons of water, which is probably as strong as the foliage will stand, it will cost approximately twenty-seven cents a barrel of diluted spray.

From these figures we see that the difference in cost is very little, the commercial wash being five cents a barrel dearer but requiring much less labor to prepare it.

**LIME-SULPHUR FOR SCALE INSECTS**

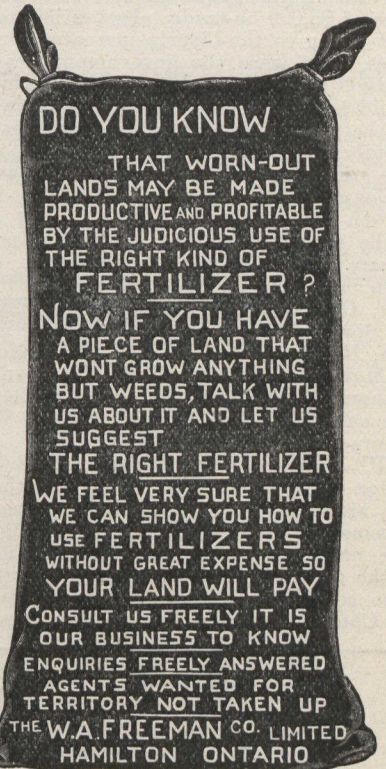
One other point should be mentioned before closing: The lime-sulphur washes have considerable value, much more than Bordeaux, as insecticides in destroying the newly hatched San Jose and oyster-shell scales. A thorough application of the commercial wash last summer just after the oyster-shell scale eggs had hatched killed a very large percentage of them and therefore added to the merits of the wash.

**WHICH ARE WE TO USE?**

In conclusion, the question comes up: Which are we to use for a summer spray, lime-sulphur or Bordeaux? Each man will have to answer this question for himself now that he has heard the pros and cons. If his orchard is infested with San Jose scale or if he has not got the oyster-shell scale under control, I should advise him to use the lime-sulphur wash, preferably the commercial form; if these insects have not to be combatted, he might experiment with this wash on a few rows but should not be in a hurry to give up Bordeaux, as the latter is on the whole slightly the better fungicide.

If you want reliable spraying materials buy from the manufacturers that advertise in this magazine. Please mention THE CANADIAN HORTICULTURIST when writing.

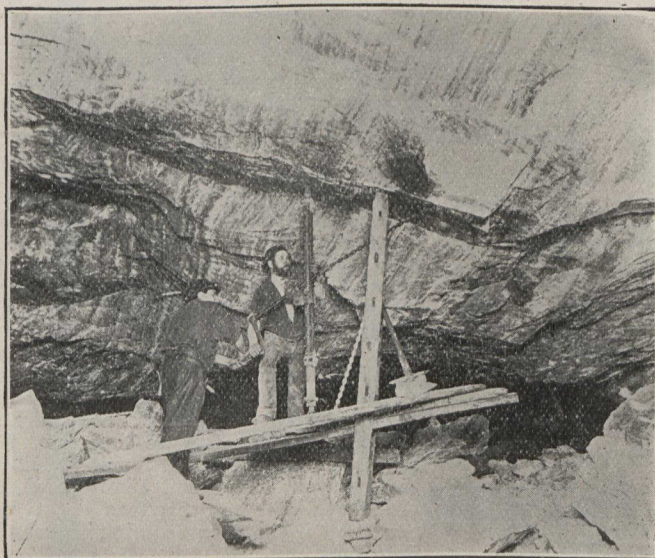
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## Horticultural Societies' Grant

The directors of the Ontario Horticultural Association met in Toronto early last month and waited on Hon. J. S. Duff, Provincial Minister of Agriculture, and asked that an increase in the grant to horticultural societies of \$8,000 be made. It was pointed out that owing to the largely increased expenditures, that were the government grant increased by \$5,000 the grant per member would be only about the same as it has been in the past. As the societies are growing rapidly in membership, it was felt, therefore, that the grant should be increased by at least \$8,000 to provide for the future growth of the societies.

The members of the deputation included Messrs. R. E. Whyte, the president, of Ottawa; Rev. A. H. Scott, Perth; J. P. Jaffrey, Galt; J. Lockie Wilson, Toronto; F. B. Bowden, Vankleek Hill; J. O. McCulloch, Hamilton; G. W. Tebbs, Hespeler; H. J. McKay, Windsor; W. B. Burgoyne, St. Catharines, and Prof. H. L. Hutt, Guelph. The subject was introduced by Mr. Whyte. Others who spoke were Messrs. Rev. Scott, J. P. Jaffrey, W. B. Burgoyne and H. B. Cowan. Rev. Mr. Scott went into the subject at some length, having prepared a statement with great care showing the absolute necessity that exists for the increase in the grant. Mr. Jaffrey pointed out that some years ago when Canadians were leaving Canada for the United States they used

to decrie Ontario towns and villages as being slow and behind the times. He had lived in the United States for some years and had heard many do this. Of late years, since the horticultural societies have been improving the appearance of the municipalities in which they exist, many Canadians, when they returned home, were proud of the appearance of their home towns and now boast of their places. Now that the government is trying to induce immigration to the province, it should do everything it could to assist horticultural societies to improve the attractiveness of their respective municipalities.

Mr. Burgoyne showed that whereas the membership of the horticultural societies in 1906 was 6,367, it had increased in 1909 to over 9,000. Owing to this increase, where the government grant in 1906 to every society, was equal to 37 cents for each member, it had decreased in 1909 to 26 2-3 cents a member. In the same way, where the expenditures of the societies in 1906 were \$14,863, they had increased to about \$24,000 in 1909. Thus, whereas the government formerly gave 32 cents to a society for every dollar they expended, it is now giving only about 20 cents. Mr. Burgoyne contended that the time had arrived when the grant to the societies was not sufficient and it had become a burden to the society to conduct their operations successfully.

Hon. Mr. Duff, who said he was in a hurry, did not give the deputation as much

encouragement as they felt the importance of their question justified. In order that the government might see that there is a general demand throughout the province for this increased grant, it was later decided to telegraph the presidents of all the horticultural societies in the province urging them to telegraph their members in the legislature asking them to interview the members of the cabinet and urge them to give the increased grant. It was felt that if the various societies would do this, it would do more to show the government the necessity that exists for this increased grant than anything almost that could be done.

## San Jose Scale in Ontario

R. H. Lewis, Provincial Inspector, Hamilton

San Jose scale in this province is spreading. In most municipalities which I have visited, during the past year I have found more or less scale.

What surprises me is to find such townships as South Grantham and Niagara, all in the peach belt, not having local inspectors to inspect the orchards where trees are badly infested with scale. There are about 10 municipalities that have local inspectors and all are doing good work. In North Grimsby and Saltfleet townships excellent work is being done by the inspectors and the growers are holding the scale in check by thorough spraying.

Leamington has taken up spraying so extensively that the coming spring a large number of peach trees are going to be planted. Now that the growers can buy the lime and sulphur prepared, I expect to see greater advancement in the way of general spraying of peach orchards this coming spring. Apple orchards in this locality are nearly a total ruin by the scale.

The department of agriculture is doing everything that possibly can be done. All stock in the nurseries is inspected during August and September by inspectors sent by the department. Every tree is carefully looked over, and when found with scale the trees are broken down and the nurseryman notified to take out and burn.

I have visited a number of the nurseries during the past season and found the nurserymen doing all that is possible to keep the stock free from scale. The nurserymen have a good deal to fight against. Surrounding most of our nurseries are old apple orchards and line fences with all kinds of trees growing, which are infested badly with scale and affording breeding spots for it.

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A new subscriber in Oxford Co., Ont., writes as follows: "I have just seen a copy of THE CANADIAN HORTICULTURIST at a friend's home and enjoyed reading it. It is the first copy of the paper that I had seen. Enclosed find a two years' subscription." Take the hint. Show your copy of THE CANADIAN HORTICULTURIST to your friends.

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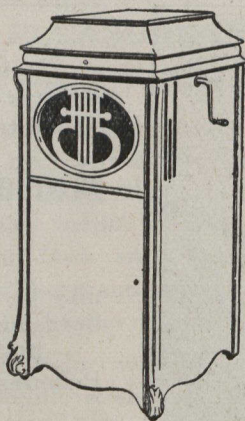
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NOTES FROM THE PROVINCES

Kootenay Valley, B. C.

(Daily News, Nelson)

A branch of agriculture that will no doubt be taken up in the future in the Kootenays is the raising of cranberries. This fruit requires water in abundance, the plantations requiring to be periodically flooded. The Kootenay flats, at the eastern end of Kootenay lake, present the

ideal physical conditions and the ideal climate. The great slough that now produces nothing may become a vast producer of this fruit, that is always in demand and extremely easy to market in good condition.

Wild cranberries are to be met with in many parts of the Kootenay in great luxuriance. The high bush cranberry is famous for the quality of jam that house-

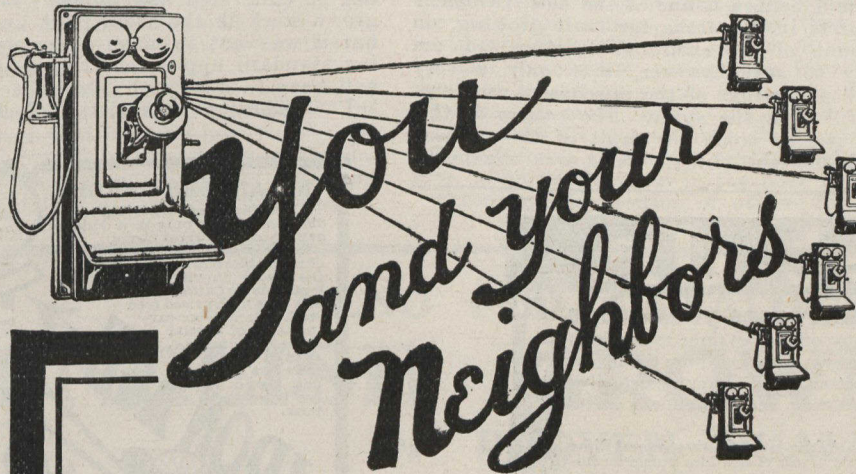
wives make from it. It is prevalent at Crawford Bay and along the Duncan river, and in the Lardo country and in many other districts.

The cranberry requires special conditions and brings rich returns from swamps and wet land that will produce nothing else. Its culture should be taken up.

Ontario vs. British Columbia

A. B. Clarke, Toronto

In old Ontario, the general farmer who owns an orchard is scarcely interested in it. He is not a fruit grower in a business sense and, for the benefit of the fruit industry, should have his orchard demolished or be made to grow good fruit. One or the other



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No. 1317 the severest tests of which he knows. Take it up point by point. There is the transmitter, for instance, the same, standard, long-distance type that is used on all standard long-distance 'phones. The general manager of the biggest telephone company in the world could have no better on the private 'phone he uses on his own desk. There is no better made. And not only is ours the best transmitter, but it is also cheapest in point of maintenance; it requires less battery current than any transmitter on the market—as little as 1-7 of some of the others. Then the receiver on No. 1317 is worthy of attention. Here the magnets demand consideration; made from a special grade

of steel, they are permanent, retain their full strength indefinitely. And the bell pieces are made of special annealed Norway iron. This receiver is so constructed that dust cannot accumulate on the back of the diaphragm nor can local noises disturb the listener and spoil transmission. Each part of the receiver on No. 1317 is the result of long and careful study—throughout, it is the best combination possible. Or look at the switch-hook—note how compact and self-contained it is,—how all contact springs are vertically mounted as to afford no resting place for dust and other accumulations. Our standard self-contained switch-hook is equipped with platinum points—you can understand the efficiency for which that makes. And so it goes—through our No. 1317 every part is the best and most perfect it is possible to devise. Never before has it been possible for any manufacturer—no, not even for us—to offer such an instrument to the Canadian farmer.



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method would benefit both himself and others.

The greater superiority of Ontario fruit in regard to flavor over that of British Columbia gives it preference among consumers; even in the latter province of British Columbia, it would receive favor if only the appearance and condition were equal to that of the home-grown fruit. I have heard this admitted by a British Columbia fruit rancher who grows apples as his business—apples to sell and he sells them on their appearance. In British Columbia, one cannot buy a really poor apple. They all have a good appearance and the fruit rancher, finding that the buyers will not take poor looking apples, has cut them out altogether.

Compare this state of affairs with Ontario, especially in the case of small towns and small fruit stores in a city like Toronto. In the former, you can go to the open market on a Saturday and buy the smallest, poorest and most pest-ridden apples that it is possible to pick. Most of these are purchased by housewives who say: "Well, I can make jelly of them." Why shouldn't she

make jelly out of good apples that have no waste? "Fewer and Better" should be thought of by the farmer in taking his apples to market.

One of the reasons for British Columbia's advanced position in the fruit industry, is the fact that her people are, to a great extent, new to the business. She has a mixed population with varied ideas and all are willing to accept advice from one another and to follow the best; i.e., the advice which helps in the making of the most cash out of their business.

**Manitoba**  
R. J. N. Jamieson

I have sold a great deal of various kinds of nursery stock in the Swan River Valley, which I believe is one of the most favorable districts in Manitoba for fruit growing, on account of its sheltered location. I am sorry to say, however, that only a very small percentage of the purchasers were successful with the stock. The reason of this was not so much the fault of the nursery stock nor the climate as it was the negli-

gence of the settlers to protect the young trees from vermin during the winter months and from live stock in the summer and fall.

With regard to the varieties of fruit which proved most successful in this district, I found the Transcendent, Whitney and Hyslop crab apple survive the winter and make rapid growth during the summer, and some trees that I know bore fruit to the amount of one pail the fourth season. Almost any variety of currants will do well in Manitoba. With raspberries, I found that the black caps can be grown with success if protected during the winter. Many varieties of the red berries will survive the winter and do well.

Almost any variety of crab apple, currant, gooseberry, raspberry and strawberry can be cultivated and grown. The eastern grown stock in the small fruit lines will do but if we want to make a success of growing standard apples, cherries or plums, we will have to deal with Manitoba nurseries.

I will mention two varieties of cherry and

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Woodstock, Ont. 2



two of plum which I have tested myself and found perfectly hardy, coming through the winter unprotected and leafing out to the very tips. These are the Cheney and the De Soto plum, the Compass and the English Morello cherry. They were purchased from a Manitoba nursery.

**British Columbia**

At the 20th convention of the British Columbia Fruit Growers' Association held at Victoria, early last month, the secretary in his report, stated that the loss of trees during the late severe winter had not been serious on the whole, averaging for the province some six per cent. The chief losses were in the irrigation districts and were largely due to injudicious irrigation, and, in East Kootenay to the planting of unsuitable varieties. In the executive committee's report it was stated that since spraying materials were now manufactured in the province, they would no longer be handled by the association.

President Puckle, in his address, pointed out the need for a re-organization in the association so that it would become of greater general benefit to the province. Besides discontinuing the supplying of spraying materials, much of the dissemination of

knowledge would be left in hands of the provincial board of horticulture, and the association should confine its work to other lines. Something should be done also to increase attendance at the annual meetings.

The president, on behalf of the association, presented the late minister of agriculture, Capt. Tatlow, with a handsome case of cutlery, and the secretary, presented him with a gold-headed cane; both in recognition of Capt. Tatlow's work during his connection with the department.

In acknowledging these tokens of esteem, Capt. Tatlow said that he had been fortunate in holding office at a time when the re-organizing of the department of agriculture had become imperative, owing to the growth of the province, and that, in consequence, the separation of horticulture from dairying had been effected, and they thought it had been better to get men from the east, from college, to manage these departments, but that, in future, it would be well to educate young men from the province by giving grants to aid in their education in these lines at an eastern college, so that, by this means a staff could be collected for a provincial agricultural college, which would come in the near future.

Preceding the election of officers for the

coming year, Mr. W. E. Scott, the deputy minister for agriculture, took the chair, and made some remarks on the following lines: That something must be wrong with the association, as evidenced by its small attendance, and that in future it would have to come under the fostering wing of the department of agriculture, since it appeared we could not market the fruit, fine as it is. He made several suggestions as to how the association could work to better advantage, amongst which were:

1. Providing judges for local fairs.
2. The collection and selection of fruits for exhibition purposes.
3. Collection of crop reports to learn quality and quantity available.
4. Compiling a list of shippers both individuals and associations.
5. Compiling lists of prices and also of best places to obtain supplies.
6. Holding annual conventions, care being taken to secure letter attendance at them.

The election of officers was then proceeded with and resulted as follows: Pres., Mr. Puckle; 1st vice-pres., J. Johnston, Kootenay; 2nd, 3rd and 4th vice-presidents, Messrs. Brown, Shaw and Wilson; sec-treas., W. J. Brandrith, Ladner.

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 For every Horse-Power Potato & Orchard Sprayer we sell will credit you \$8.50 or send check.  
 We do all corresponding and selling. All you need do is show the sprayer. Many have paid for their sprayers in this way. This offer is good for only the first order in each locality. Don't delay. Send the coupon or post card NOW.  
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### OUTLOOK FOR THE INDUSTRY

Mr. Winslow, of the horticultural branch of the department of agriculture, spoke on the development of the association on new lines and said that the department intended to collaborate with the fruit growers in handling the output of the fruit. He anticipates strong competition for British Columbia fruit in the future, Oregon being a dangerous rival, as their expert methods will contrast with our lack of organization, especially as many new and inexperienced fruit growers in our province, will, for the first time, be placing their fruit on the market. This he said emphasized the need of collaboration.

Mr. Metcalf, who watched the markets for us last year in the prairie provinces, said that what we want is more fruit and better fruit. There were three alternative methods for handling our fruit in these provinces: 1, utilizing the existing wholesale houses; 2, establishing our own; and 3, by co-operative associations. Much discussion had been raised about the taking over of the management of the association by the department of agriculture, and Mr. Scott stated that arrangements had been made for a big meeting of the representative fruit growers of the province at Kamloops next April, when the association's affairs could be discussed.

### MISCELLANEOUS

An excellent address on "The Marketing of Fruit" was given by Mr. Rutlee, a wholesale fruit dealer of Winnipeg. Mr. W. E. Scott gave an account of his recent experiences in England in care of the British Columbia fruit exhibited there. These addresses will be reported at length in a later issue of THE CANADIAN HORTICULTURIST.—W.J.L.H.

### Montreal

E. H. Wartman, Dominion Fruit Inspector

In the interests of the fruit trade I have visited all the towns in eastern Ontario. I find the stock of winter apples in these places in limited quantities on account of local apples being in fair quantities and the price of export pack high. I find fruiters asking from \$4 to \$5 a barrel for best brands of Spy, Baldwin and Golden Russet. At this price, only the few can buy freely. The majority are well satisfied with their fruit. Several complained of apples being damaged by hard pressing, especially the Spys that they had put away for long keeping.

I am glad to know that the packers in Ontario I have been visiting lately are waking up to the fact that they are injuring the fruit by hard racking and filling barrels too full. The best lesson they have got lately is when a purchaser comes to inspect a lot from the pressed end and says: "I cannot buy your pack on account of the damage you have done by overpressing."

Many, after racking well, only fill their

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GLADIOLI—The best named.  
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TESTED SEEDS  
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Have Produced the Finest Crops for the past thirty years.

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you will want a "CHAMPION" Washing Machine right off. The Momentum Balance Wheel, which almost runs itself—the up-and-down stroke of the Lever, which means greatest power with less effort—the absolute perfection of the "CHAMPION"—will make you want one for your home.

"Favorite" Churn gets all the butter out of the cream. Easy to churn, too. If your dealer does not handle these home necessities, write us.

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barrels level full and they have carried to England with few slacks. This is a wise conclusion. Many have tailed apples an inch higher and in case of fine Spys when opened at faced end, found them beautiful, but when they got to other end of the barrel found half a bushel rotten. This is rather discouraging to the one who has paid from \$4.50 to \$5 for same.

**Annapolis Valley East, N. S.**

Eunice Watts, A.R.H.S.

At a meeting of the Waterville Fruit Co., Ltd., it was decided to continue the company and build a warehouse and the members agreed to co-operate in buying fertilizers. This company also intends to combine with other companies in the valley so that they can charter boats thus getting their fruit more cheaply into England.

After the business meeting, Mr. L. D. Robinson gave an interesting address which covered a number of subjects including the subjects of cultivation, fertilization, pruning, spraying and thinning orchard trees, and the value of humus and lime in the soil.

In the discussions that followed it was concluded that orchardists must now spray at least four times in order to combat the disease called the sooty or fly-speck fungus which develops on Greenings, Spys, Baldwins and other apples after the third spraying. It was estimated that during last season in Nova Scotia thousands of dollars worth of damage had been done to apples by this fungus. Apples which were apparently free from blemish when barrelled arrived at their destination in a very spotted condition, proving that the disease developed still more after gathering. The merits of a lime and sulphur wash were discussed, and although this mixture has been used as a fungicide in other fruit centres, Nova Scotia at present is only experimenting with it.

On Feb. 15, a fruit growers' meeting was held in Berwick, when Mr. B. H. Lee discussed "Some Mistaken Ideas in Raising Fruit," in which he referred to mistakes in mixing varieties when planting, mistakes in fertilization, pruning, wrong varieties, and marketing. Mss Eunice Watts gave a paper on "Beneficial Insects in Orchards," mentioning bees, wasps, ichneumon flies and various beneficial beetles.

**Prince Edward Island**

J. A. Moore

The Co-operative Fruit Co., have packed a lot of Ben Davis apples for shipment to the British market. They had the growers take their apples to Charlottetown in barrels and boxes and there had them repacked in the company's barrels properly graded.

It is said that a very high standard has been set. One man told me he took in five barrels of what he thought were No. 1 ap-

**APHINE**

The New Insecticide Discovery which Kills Plant Lice of Every Species

"There was a demonstration of the efficiency of this new destroyer of insect pests on Saturday last at the new seed store of the H. F. Michell Co., Philadelphia. Growers had been invited to bring plants of all kinds that were infested and see the various "critters" put away in a jiffy, which prediction was certainly carried out. Martin C. Ebel, the treasurer of the Aphine Co., was the demonstrator, and showed how very easy it was to apply the insecticide. It is not an oily, sticky, or bad smelling solution, and when applied does not require washing off, except that a good hosing the next day will remove all insects, from which all life appear to be taken with one application. In this demonstration one plant in particular, a ficus, was badly affected with the long Belgian scale and mealy bug. The Belgian black scale is said to be one of the toughest of the family, but in less than half an hour after the application the insects were easily removed by wiping, and a good stream from the hose would have cleared the leaves effectually. We congratulate the Aphine Co. on the apparent success of their solution as seen here, for if the results attained in this test will work out practically on a large place, the cost of growing plants will be materially reduced, and growers will have to find some other 'rainy day' job than gunning for bugs." — "The American Florist," Feb. 19, 1910.

"Collier's Weekly" says "Aphine has a future as wide and long as the United States."

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Office of the Curator, Kew, September 13th, 1909

Mr. H. H. Groff, Simcoe, Ontario, Canada

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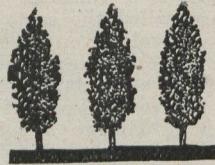
Abounding in stimulating goodness, a most healthful and pleasing beverage. Its sustaining and invigorating qualities are beyond dispute.

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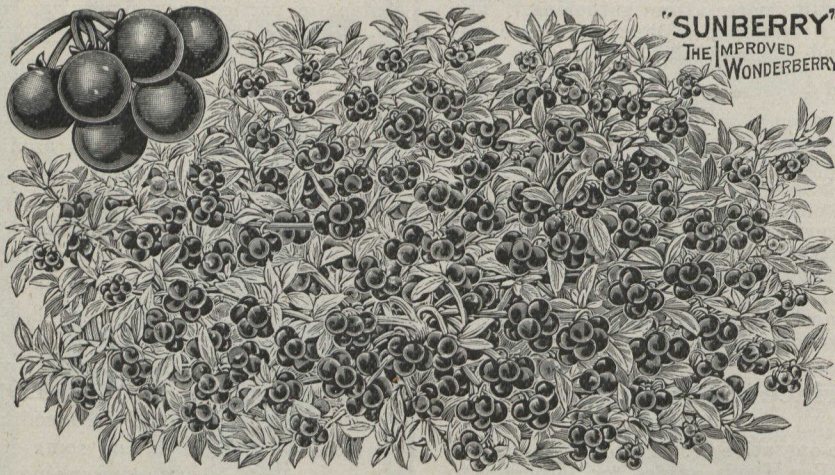


At the front as usual with a well assorted stock of Apple, Pear, Plum, Cherry, Peach, and Ornamental Trees, Shrubs, Roses, Small Fruit Plants, Evergreens, etc. All well grown and reliable. Carefully handled; well packed and O. K. We ship direct from nurseries to planters. For satisfaction, get our prices by mail before placing your orders, it will pay. Established 30 years. Write us,—

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THE IMPROVED  
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SEED 20 CTS. PER PKT. 3 PKTS. FOR 50 CTS. POSTPAID.

This is positively the GREATEST new Fruit and the best NOVELTY of modern times. These are facts which no one can get away from. The proofs are overwhelming in number and conclusive in character. Grown last year by 350,000 people.

Fruit blue-black like an enormous rich blueberry in looks and taste. Unsurpassed for eating raw, cooked, canned or preserved in any form. This great garden fruit is equally valuable in hot, dry, cold or wet climates. Easiest plant in the world to grow, succeeding anywhere and yielding great masses of rich fruit all summer and fall. The greatest boon to the family garden ever known. Leaves and branches are also used for greens and are superb. Everybody can and will grow it.

Luther Burbank of California, the world famous plant wizard, originated the Wonderberry and turned it over to me to introduce. He says of it: "This absolutely new berry plant is of great interest and value as it bears the most delicious, wholesome and healthful berries in utmost profusion and always comes true from seed."

READ my Catalogue for full description, culture, uses, etc. Also scores of testimonials from well-known and reputable people all over the country. Read the "Crime of the Wonderberry."

THE SUNBERRY is an improved form of the Wonderberry which proved so satisfactory last year. It is greatly superior to the original type, and I alone have genuine seed.

SEED 20c. per pkt.; 3 pkts. for 50c.; 7 for \$1.00. Agents Wanted, \$2,000 in cash offers. With every packet of seed I send a booklet giving 99 Receipts for using the fruit, raw, cooked, canned, preserved, jellied, spiced, pickled, jams, syrup, greens, etc. It is superior for any of these uses. Also a copy of my 132-page Catalogue with every order.

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ples and took home three barrels which the packers rejected. A neighbor of mine, Mr. A. M. McRae, is sending along with the others some barrels of his own packing in his own name as the company will not put their stamp on anything that they do not pack themselves. We await with interest the outcome of this venture. If we can sell Ben Davis to advantage in the British market then our fortunes are assured; for we can grow this variety of apples in great abundance here. I think myself it is a much maligned apple. As good sauce as one could desire can be made from it. It is good for pies and bakes well. Of course, wise men would not think of using it till its proper season which here is from April to July or August.

### Ontario Co-operative Movement

The Co-operative Fruit Growers of Ontario, the central organization with which are affiliated the leading local associations in the province, has this year made a step in advance in reference to the purchasing and distribution of supplies. Up to this year, the directors have simply obtained prices from a number of the wholesale houses and manufacturers and distributed these so that the local associations could write direct to these firms for their supplies. This year they have arranged with the St. Catharines Cold Storage and Forwarding Co., to purchase all of the supplies and distribute to the local associations. In this way they have been able to get lower prices with a better quality of goods. The central association hopes in time to be able to rent or build its own warehouse and to distribute material from some central point. In the meantime, however, this year's plan is a decided step in advance.

It was also ascertained at the last meeting of the executive that it was possible to obtain a charter under the provincial Act, and the executive were instructed to arrange this matter before the annual meeting in the summer. Some of the executive hope to be able to arrange matters so as to sell the product of a number of the smaller associations this year. This will entail some system of inspection and will necessarily have to be gone into rather cautiously. There is no doubt, however, that in time the plan will be perfected and it will aid materially in the organization of smaller associations which are not generally in a favorable position to dispose of their pack. The secretary of the provincial association is P. W. Hodgetts, Department of Agriculture, Toronto.

Plant your garden with good seeds and plants, free of cost. See page VI.

### For Spraying

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Bushes and Plants, there's  
nothing to equal



Requires but one pumping to empty entire contents of tank. Automatic lever valve stops flow of liquid while going from one plant to another. Easy, light, compact; tested to stand 5 times the pressure required to expel liquid. Two nozzles, with hose attachment for spraying small trees. Write for catalogue. 1 THE EUREKA PLANTER CO. Limited, - Woodstock, Ont.

**Western Horticultural Society**

At the convention of the Western Horticultural Society held at Winnipeg on Feb. 17 and 18, the name of this society was changed to "The Manitoba Horticultural and Forestry Association." This was done in order to emphasize the provincial nature of the society. The change met with unanimous approval.

A resolution was adopted appreciating the work of the late Dr. S. J. Thompson, and a motion of sympathy to relatives was passed. A similar resolution was passed with regard to Professor Robertson who represented the Minnesota Horticultural Society at the W.H.S. Convention two years ago. A resolution "that the executive be instructed to approach the bee-keepers association with a view to affiliation," was also adopted.

A carefully prepared paper on the "Beautifying of Rural School Grounds by the Planting of Shrubs and Flowers," was read by H. N. Thompson, M.A.C. This address was accompanied by blue-print sketches of proposed school grounds and evoked such animated discussion that it led to the passing of a resolution to the effect "that the association recommended to its members that they take more active interest in the improvement of school grounds in their respective districts and that the executive committee be authorized to approach the provincial department of education with a view to the preparation of a bulletin with regard to the care and beautification of school grounds and also to approach the Provincial Schools' Trustees' Association on the same subject."

**THE NEW OFFICERS**

The following directors were elected: John Caldwell, Virden; Dr. H. M. Speechly, Pilot Mound; J. J. Ring, Crystal City; Geo. Batho, Winnipeg; Dr. A. H. Baird, Winnipeg; D. W. Buchanan, St. Charles; A. P. Stevenson, Dunston; W. G. Scott and R. Nelson, Winnipeg; Norman M. Ross, Indian Head; H. Holland, Swan Lake, and A. M. High, Killarney.

Subsequently, the directors convened and elected the following officers: Hon. presidents, W. J. Black, Winnipeg; Jas. Mur-

ray, Brandon; Angus McKay, Indian Head; pres., Dr. H. M. Speechly, Pilot Mound; 1st vice-pres., J. J. Ring, Crystal City; 2nd vice-pres., N. M. Ross, Indian Head; sec-treas., Prof. F. W. Brodrick, M.A.C., Winnipeg.

**SECRETARY'S REPORT**

President John Caldwell opened the sessions with a brief address, after which the

representative of the Minnesota Horticultural Society, Prof. S. B. Green, St. Anthony Park, Minn., was formally enrolled as a member of the W.H.S.

The reading of the annual report by Secretary Brodrick showed the Society to be in a healthy condition both as to members and finances, and also that it was doing good work along special lines. The society



"Mr. Farmer, if some steel shingles are as leaky as the guarantee behind them, they're not worth the cost of labor in laying them. Stick to 'The Eastlake.'"—  
The Philosopher of Metal Town.

**You can build cheaper than ever before—you can make your farm buildings weather proof for all time with —**

**"METALLIC"**

Lumber is of inferior quality now-a-days. Why pay high prices for it when you can cover your buildings with "Metallic"? Galvanized sheet steel is the most desirable building material known, and "Metallic" is the heaviest and toughest made.

By actual test "Metallic" has proved itself the best material for roofing and siding. Roofs covered with "Eastlake" Metallic Shingles 25 years ago are in perfect condition to-day—absolutely lightning, wind, rain, snow and rust proof.

Look over this list, check the items that interest you, clip list and mail, with your name and address to us. We will give you valuable information that will save you money.

"EASTLAKE" METALLIC SHINGLES—for all buildings.

"METALLIC" ROCK FACED STONE OR BRICK SIDING—makes an artistic house.

"METALLIC" CEILINGS AND WALLS—most sanitary interior decoration.

"MANITOBA" STEEL SIDING—for grain elevators.

CORRUGATED IRON—for barns, implement sheds and stock buildings.

"METALLIC" GRANARY LINING—Easy to lay. Protects the grain from rats, mice and other vermin.

On receipt of your name we will mail you our interesting illustrated booklets, "Eastlake Metallic Shingles" and "Interior Decoration in Metal." Write to-day.

MANUFACTURERS



Agents Wanted in Some Sections

Write for Particulars

**Seeds**

**\$25**

in cash prizes

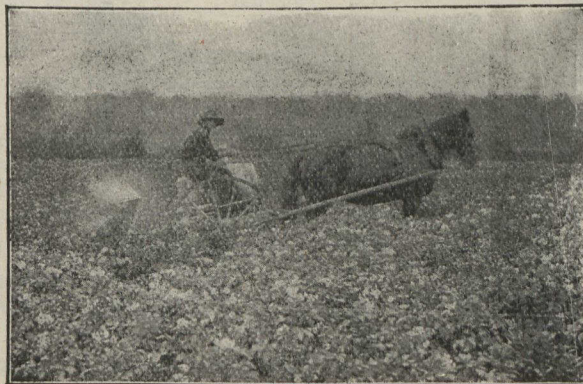
**FOR 4 ONIONS**

of

**CRANSTON'S EXCELSIOR**

to be competed for at our store  
Catalogue of Garden  
Seeds, with particulars of  
prizes, free on request.

**DUPUY &  
FERGUSON**  
Seedsman  
**MONTREAL, QUE.**



**SPRAYS AN ACRE IN 20 MINUTES**

The H. P. Spramotor will spray an acre of Potatoes in only 20 minutes. No other method known can do that work in even twice the time.

The picture shows the H. P. Spramotor spraying potatoes. There are three nozzles to a row, and four rows. Two spray from the sides and one from the top. They are adjustable to height and width up to 40-in. rows. The nozzles will not clog or get out of order. Have a 12-gal. air tank with 100 lbs. pressure guaranteed with 12 nozzles open. Automatic and hand controlled. The Spramotor has agitator clean-out pressure relief into tank and nozzle protector all under control of the driver from seat. The Spramotor is made for 1 or 2 horses. Fitted for Orchard, Vineyard and Grain Crops. Can be operated by hand. The Spramotor saves enough money in time and labour to pay for itself in 1 year on 20 acres of potatoes. Don't be content with moderate results when you can increase per crop 3 or 4 times. Send for Free Treatise on Crop Diseases.  
Agents Wanted

**HEARD SPRAMOTOR CO.,**

1391 KING STREET  
LONDON, CANADA

# Small Fruits

## STRAWBERRIES and RASPBERRIES

### Quebec Grown Plants

Have you found suitable varieties for your soil and section?

The beginner should make his trials wide to arrive at this.

Professionals should bear in mind the best variety is always moving forward.

A trial patch is very interesting, and inexpensive, and leads to improvements that increase the effectiveness of one's work for all time.

I have some of the best varieties of both these fruits.

Send for Catalogue.

Will Lower Quotations for Quantities.

## C. P. NEWMAN

BOX 51, LACHINE LOCKS, QUE.

now is able to offer a variety of 12 different premium plants to its members and this opportunity of obtaining hardy shrubs, etc., has been taken full advantage of during the past season. Emphasis was laid upon the establishment of testing stations to find fruit and flowers suitable for the province and reports from the first year of this work (1909), were most satisfactory, so much so that the advisability of the extension of the work was discussed and taken into consideration later in the session. The report further stated that prizes had been awarded in various districts of the province of Manitoba for the best kept school grounds. The prizes consisted of valuable and suitable horticultural material and in the awarding of these prizes the society had received the co-operation of the inspectors.

#### DAHLIA CULTURE

Dr. A. H. Baird, gave an interesting address on the dahlia, in which he said that this is the most adaptable of flowers, showing the greatest transformation in the past 100 years and ranging in color from black to white, green dahlias even being known. He stated that it is a most suitable flower for this western country, a species having being produced by artificial propagation, which would flower in as short a space of time as six weeks from the date of planting.

#### MISCELLANEOUS

A demonstration in judging garden veg-

## TREES! TREES!

Fruit and Ornamental Perpetual and Climbing Roses  
Beautiful Hardy Flowering Shrubs  
Herbert Raspberry Perfection Currant  
Descriptive Catalogue and Price List Free

A. W. GRAHAM, Nurseryman, St. Thomas, Ont.



Keith's Selected Early Cabbage

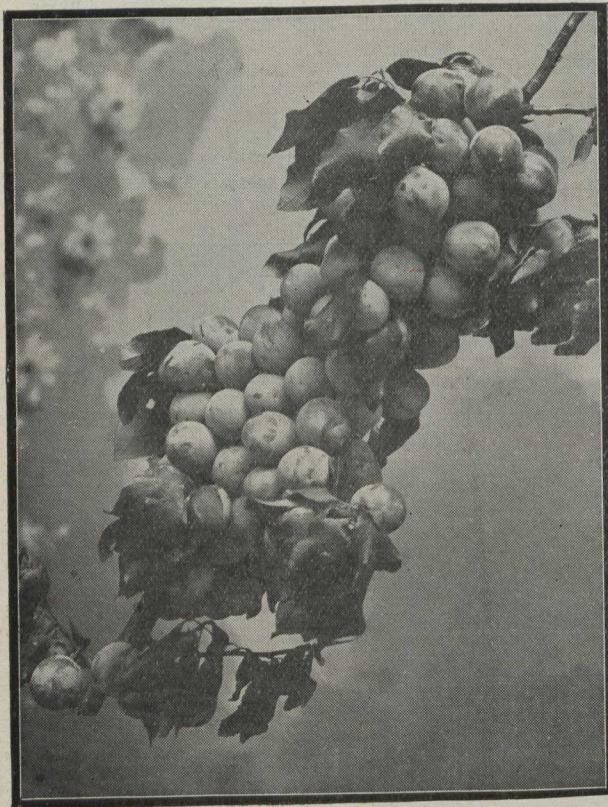
Just as easy for you to plant the very best seeds as the ordinary kinds. Our 1910 Catalogue is a directory of the kinds that bring best results. No guess work. The varieties have all been thoroughly tried out and you can have as successful a garden as if you had specialized in each vegetable or flower for years.

We will gladly send you a copy of our catalogue on request, and if you send us 10c in stamps or silver and mention the Horticulturist, we will send in addition a 10c packet each of our best Sweet Peas and our best Dwarf Nasturtiums. Write to-day.

## GEO. KEITH & SONS

124 King St. East, Toronto

SEED MERCHANTS SINCE 1866



# BUY FONTHILL QUALITY STOCK

## The Standard of Tree Excellence

### APPLE TREES ARE SCARCE, ORDER EARLY

We Still Offer Best Varieties in First Grade Healthy Trees

Baxter	Hibernal	Ontario	Scott's Winter
Ben Davis	La Salle	Pumpkin Swt.	Staymen's Winesap
Baldwin	Longfield	Peerless	Salome
Bottle Greening	Lady	Pewaukee	Twenty Ounce
Blenheim Orange	Langford's Sdg	Primate	Vargul
Duchess	McMahon's White	Roxbury Russett	Winter St. Lawrence
Fallowater	Mann	Ribstone Pippin	Winter Blen. Orange
Fameuse	Maiden Blush	St. Lawrence	Wine Sap
Gano	McIntosh Red	Seek-no-further	Winter Duchess
Grimes' Golden	Milwaukee	Spitzenburg	York Imperial
Gold'n Russett	N. W. Greening	Sutton Beauty	Yellow Transparent

WE OFFER A COMPLETE STOCK OF Cherries, Plums, Standard and Dwarf Pears, Quinces, etc.

SMALL FRUITS IN STRONG 2-YR. TRANSPLANTS—Herbert and Ruby Red Raspberries, Cumberland Blackcap, Perfection, Fays and White Grape Currants, Mercerian and Gainor Blackberries.

Best English and American Gooseberries.

NOVELTIES—Ideal Asparagus, Silver Queen Potatoes.

MANITOBA MAPLES—Beautiful trees for Shade Purposes, 10 feet and up in height, straight and stocky, with well shaped heads. Just the thing for street and lawn planting. Valuable for cold districts.

SALESMEN WANTED—Write for Terms and Catalogue.

# STONE and WELLINGTON—TORONTO, ONT.

**SOMETHING NEW IN FRUIT TREES**  
 We offer you PEDIGREED TREES. This is a New Departure in the Nursery Business. We propagate from Selected Bearing Trees. Our Stock is High-class, and we want your trade.  
**AUBURN NURSERIES,**  
 QUEENSTON, ONTARIO.

**EUREKA**  
**Glass Tank Sprayer**



Solution tank is a quart Crown glass jar. If broken, it can be easily replaced for a few cents. Solution tubes are brass. None of the liquid used can be drawn back into the pump chamber, thus the chamber and valves are uninjured. This is the easiest operated and the most effective small sprayer on the market. Inquire of your hardware dealer.  
 Write for our complete catalogue of Sprayers and Garden Tools.  
**THE EUREKA PLANTER CO. LIMITED**  
 Woodstock - Ont. 6

**China ASTER Plants**  
 From Best Seed

Queen of the Market, white, early  
 Queen of the Market, pink, early  
 15c per dozen; 40c per hundred, postpaid

Lavender Gem, early  
 Royal Purple, medium early  
 Vick's Branching, white, late  
 Crego, a fine late pink  
 15c per dozen; 50c per hundred, postpaid

Packed to go safely anywhere in Canada  
 East of Rockies by Mail

May be planted with good results until 15th June  
 Not less than 25 of one variety at 100 rates  
 Orders received now will be filled in latter part of May and in early June

Please send Postal Note with order  
**JOHN CAVERS,** OAKVILLE  
 ONT.

**KENDALL'S**  
**SPAVIN**  
**CURE**



**Kills Bone Spavin**

Rich Valley, Alta, May 20th. 1909  
 "I have used your Spavin Cure for a long time and would not be without it. Have killed a Bone Spavin by its use."  
 OLE CARLSON.

That tells the whole story. And hundreds of thousands have had the same experience in the past 40 years.

**For Spavin, Ringbone, Curb, Splint, Swellings and all Lameness,**

Kendall's Spavin Cure cures the trouble—makes the horse sound and well—and saves money for the owner because it removes the cause of the trouble.

Keep a bottle always at hand—\$1 or 6 for \$5. Good for man and beast. Ask your dealer for free copy of our book "A Treatise On The Horse" or write us.

**DR. B. J. KENDALL CO.** Enosburg Falls, Vt.

etables was given by Professor Brodrick and excellent addresses were delivered by Miss A. B. Juniper, Dr. H. M. Speechly, Prof. S. B. Green, Deputy Minister J. J. Golden, Messrs. H. J. Edwards, J. J. Ring, A. P. Stevenston, S. R. Henderson, F. W. Hack, N. M. Ross, T. J. Harrison and others. These will be reported at greater length in next issue.—J.C.S.

**Nursery Land Sold**

The property occupied by M. J. Henry, nurseryman and seedsman, on Westminster Road, Vancouver, B.C., has been disposed of for \$90,000. The deal is for the land only and Mr. Henry will continue the nursery business until further notice. See his advertisement on another page.

That the climate at the coast is an ideal one for the production of horticultural products is evidenced by the following information taken from a letter that was received from Mr. Henry, lately: "We are having a mild winter so far. Fruit buds are swelling, crocus and snowdrops are showing above the ground. We are shipping nursery stock and ornamentals every day. Two large consignments went forward to China today (Feb. 9)".

Fourteen packets of flower and vegetable seeds, one Crimson Rambler rose, five dahlias, twelve tuberose or three Japanese lilies—your choice for only one new subscription to THE CANADIAN HORTICULTURIST. If you are interested, write to us.

**Imperial Bank**  
 OF CANADA

HEAD OFFICE TORONTO

Capital Authorized, \$10,000,000.00  
 Capital Paid-up. . . 5,000,000.00  
 Reserve Fund . . . 5,000,000.00

D. R. WILKIE, President  
 HON. R. JAFFRAY, Vice-President

Branches and Agencies throughout the Dominion of Canada

Drafts, Money Orders and Letters of Credit issued available in any part of the world  
 Special attention given to collections

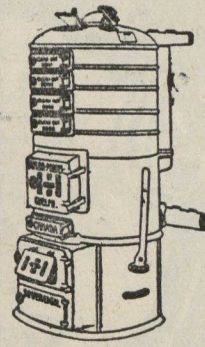
Savings Department—Interest allowed on deposits from date of deposit.

**OREGON FRUIT LANDS**

Several tracts Rogue River District for Sale. Very reasonable. Oregon fruits bring highest prices.  
 Address  
**N. S. BRADEN,** Hamilton, Ontario

THE  
**"SOVEREIGN"**  
**HOT WATER BOILER**

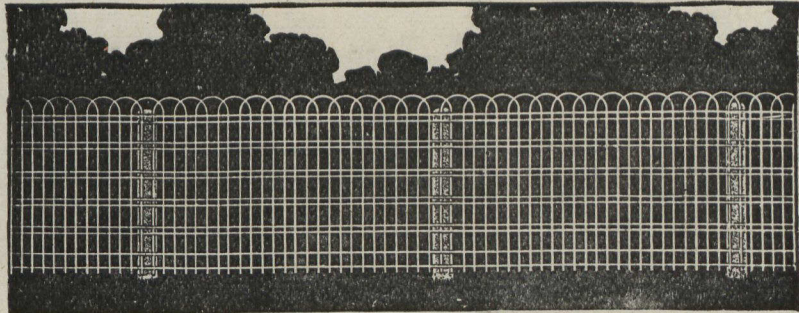
is the only boiler that can show an appreciable reason why it should work better, and burn less coal, than any other house-heating apparatus—It is that larger first section.



Invest in a "SOVEREIGN" at the same cost—

The profit is 25 per cent. on the entire outlay.

—MADE BY—  
**TAYLOR-FORBES COMPANY, LIMITED**  
 Head Office GUELPH Works Foundries  
 Most Reliable for Hot House Heating



**PAGE WHITE FENCES**

Page Fences wear Best—Styles for Lawns, Parks, Farms and Railroads. 14,000 miles of Page Fences and 73,000 Page Gates now in use in Canada. Our 1910 Fences are better than ever. Page Gates for 1910 have Galvanized Frames. Get our latest prices and booklet.

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

**WALKERVILLE TORONTO MONTREAL ST. JOHN WINNIPEG VICTORIA**

**ELM GROVE POULTRY FARM**

Rose Comb Brown Leghorns, Silver Grey Dorkings, Light Brahmas, Barred Rocks, Rouen Ducks  
Eggs for hatching from any of the above breeds  
Guaranteed to hatch and packed to carry safely  
any distance. Write for catalogue.

Box 62 J. H. RUTHERFORD, Caledon East, Ont.

**Poultry Notes**

S. Short, Ottawa

The breeding pens should now be made up. Once more I would urge those who have mongrel fowl to discard them for pure-breeds, at least a pure-bred male should be used and in three years, if a male of one

particular breed is used, the flock will show a fair proportion of apparently pure-bred fowls. Not only will the appearance be improved but also the laying qualities. It is an established fact even with breeders of high class stock that the infusion of new blood improves the laying qualities, but sometimes spoils the markings, in the plumage of the progeny, for exhibition purposes. In the same way inbreeding, to establish and retain highly desirable characteristics in the plumage, weakens the vigor of the flock and therefore impairs their laying qualities.

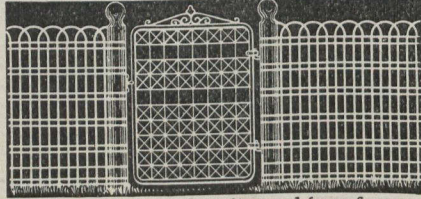
In mating such breeds as the Rocks, Orpingtons, Wyandottes, etc., about nine females to a cock and 13 to a cockerel is a safe number for the best results. With the lighter and more active breeds, such as the Leghorns, Minorcas, etc., 13 females for a cock and up to 20 may be mated to a cockerel.

**As handsome as the best iron fence  
at less than the cost of cheap wood**

Here's a neat, strong, durable fence that will add to the appearance of the handsomest city lawn and is cheap enough, close enough and strong enough for the farm. The

**Peerless Lawn Fence**

is made of heavy No. 9 steel spring wire, so it can never sag. It is carefully galvanized and coated with white enamel paint. No investment you can make will add so much to the appearance of your property.



Also a full line of poultry and farm fences and gates. Write for particulars.

THE BANWELL HOXIE WIRE FENCE CO., LTD. DEPT. O. HAMILTON, ONT., WINNIPEG, MAN.

**SPRAYERS**

**HAND-**power outfits that are simplicity materialized, always "on the job," without any balking, breaking, or frequently needing repairs. All sizes, and for one or two men.

**WHEEL-**power machines for Strawberries, Potatoes, Mustard in grain, etc., and for all kinds of Orchard and Vineyard uses. **No Cost for Power; High Pressure** on all the nozzles required; **Simpler than Ever;** styles from a **Barrel-on-Cart** for small work to a **Tank-on-Trucks** outfit of different capacities.

**GASOLINE ENGINE-**power rigs that are the most compact and powerful obtainable and that **will actually do** the running of barn machinery. Get free information about any of these in which you may be interested; a post card will bring it. **We have the only Load Controller that is practical,** and we use it on any of our machines.

Let us hear from you EARLY, and so give us time to get yours landed ready for business when wanted—we have hundreds of others to supply.

**W. H. BRAND**  
Jordan Station, - Ontario

The old sweet "tunes" of childhood days.  
The songs we all sang together in the long ago.  
The songs which Mother sang, and we are chorus.  
What would you not give to have the old songs back?

Try Them on a  
**Gerhard Heintzman**  
**[SELF PLAYING PIANO]**

You cannot play? That matters not at all. You need no skill. You command it—all—the old-time music which never grows old—the new music of the passing days—the serious music which nothing could replace.  
This, the only self-playing instrument made in Canada playing the complete keyboard.  
Send now for our beautiful self-player art booklet.

**SPECIAL OFFER**  
A self player, very little used, cannot be told from new, all our patent improvements and fully guaranteed.  
Write at once for price and terms.  
Your present instrument taken as part payment.

**Gerhard Heintzman, Limited**  
New Salesrooms, City Hall Square, Toronto.  
Hamilton Salesrooms: 127 King St., E.



**Our Trade with Germany**

It was announced last month that the Dominion government has arranged with Germany for the removal of the surtax that has been in force during the past seven years. The agreement means that the surtax imposed by each country on the other's goods has been removed and that the trade conditions that existed before 1903 have been restored. The German government concedes to certain articles, the produce of the manufacture of Canada, upon their importation into Germany on and after March 1, 1910, the conventional or minimum tariff rates of duty. Unless a commercial convention for the consideration of all tariff matters between the two countries has been entered into within a reasonable time, either of the parties may terminate the above-mentioned concessions on giving two months' notice. Among the items that come within this arrangement are the following: Wheat and spelt, barley, oats, red clover seed, white clover seed, and other clover seeds, grass seed of all kinds.

Fruits (unpacked)—Fresh apples, pears, quinces.

Fruit (packed)—Apricots, peaches, plums of all kinds, cherries, medlars, strawberries, raspberries, currants, gooseberries, blackberries, myrtles, elderberries, juniper berries and other edible berries.

Dried or kiln dried (cut up and peeled or not)—Apples and pears, including waste capable for use. Apricots and peaches, plums of all kinds, loose or in casks or sacks weighing at least 80 kilos, gross weight.

Packed in other ways—Other dried or kiln dried fruit.

**Wanted—A Fruit Commission**

Mr. S. Nesbitt, M.L.A., of Brighton, Ontario, headed a deputation that waited on the Ontario government last month, and asked that a government commission be appointed to investigate the conditions surrounding the fruit industry with the object of bringing about needed improvements. Mr. Nesbitt claimed that he represented the Apple Shippers' Association, as well as a number of co-operative apple growers' associations.

Whereas, a number of years ago the apple shippers made profits as high as several dollars a barrel on apples shipped to the old country, Mr. Nesbitt contended that during the past few years men shipping 10,000 barrels a year have been fortunate if they have not suffered heavy loss on their consignments. He felt, also, that the conditions surrounding the growing and marketing of peaches and strawberries needed to be investigated. At the factory of the Canadian Cannery at St. David's they had been unable to secure enough peaches and had purchased some \$12,000 worth from a grower in the state of New York. There was need also for an investigation covering the shipment of fruit from Ontario to the West to insure the growers obtaining better results. Efforts should be made to develop a strawberry that would not be green at the end. The strawberries now grown largely for canning purposes had this defect, which was a serious one. He thought that it might be advisable for legislation to be passed to provide for compulsory spraying and to compel nurserymen to furnish trees to growers true to name.

Mr. Nesbitt felt there was a great deal of dishonesty connected with the growing and marketing of fruit, and he felt that a commission would help to find the weak points. This led Hon. Mr. Duff, Minister of Agriculture, to ask him if his desire to have a commission appointed was not largely governed by the hope that such a com-



**Tone Durability**

No matter how pleasing the tone of a piano may be, unless that tone endures, there cannot be real satisfaction. This tone durability in

**Gourelay Pianos**

is secured through an exact knowledge of what to use, how and where to use it, and a vigilant supervision over every smallest detail, during construction.

We publish a booklet on piano construction that every prospective piano buyer should read. Write for it.

**GOURLAY, WINTER & LEEMING**  
188 YONGE ST.  
TORONTO



**GOULDS RELIABLE - SPRAYERS**

**GOOD FRUIT**

Nowadays but few places get *good* fruit without using a *good* sprayer. If you want to spray effectively yet with the utmost economy, don't waste your time with an inferior outfit that some dealer may try to make you believe is "Just as Good" as Goulds.

We make over 25 different styles—for hand or power. One of them is specially adapted to do *your* spraying better than any other outfit. See that the name "Goulds" is cast on the pump. It is your guarantee.

We publish a book that is interesting and will help you. Write for it.

**"How to Spray—When to Spray—What Sprayer to Use"**

It is full of interesting information and contains many valuable formulas for spray mixtures. Copy sent free on request.

**THE GOULDS MANUFACTURING CO.**  
17 W. Fall Street, Seneca Falls, N. Y.

*We Build Pumps for Every Service.*  
Pumps from \$3 to \$300.

# OXO Cubes

have arrived—and the beverage made from them is just as rich in the stimulating and nourishing properties of beef as the bottle OXO which has such an enormous sale.

**OXO Cubes are the best and handiest of concentrated foods.**

32

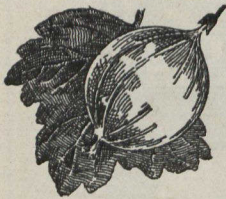


**Planet Jr. 2-row Cultivator**  
The Planet Jr No 72 two-row Pivot-Wheel Cultivator, Plow, Furrower and Ridger is the greatest implement ever invented for saving time and money on large crops.

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

Write today for 1910 illustrated catalogue of all Planet Jrs, including 55 kinds of horse and hand implements for every farm and garden need. Mailed free.  
**S L Allen & Co Box 1106 G Philadelphia Pa**

Write for the name of our nearest agency.



## SMALL FRUIT PLANTS

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

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



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

The **H. P. Spramotor** can be arranged for vineyards, row crops, strawberries or grain crops. The nozzles will not clog. **Agents Wanted.**

Get our Free Treatise on Crop Diseases

**HEARD SPRAMOTOR CO.**  
1388 KING STREET, LONDON, CANADA

mission would help to make people more honest. Mr. Nesbitt admitted that that was practically what it amounted to.

As practically all the matters mentioned by Mr. Nesbitt have been considered thoroughly by the Ontario Fruit Growers' Association, and have been discussed with the government, it is hardly likely that the request of the deputation will receive much consideration.

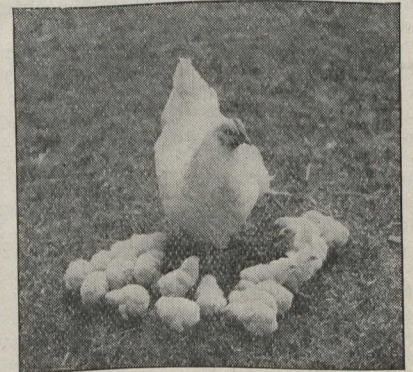
### Cartage Charges in Toronto

An influential and representative meeting of the fruit growers of Ontario was held at Hamilton, Feb. 15. Among those present were Messrs. J. W. Smith, Murray Pettit, Winona; G. M. Hill, Fruitland; H. St. Clair Fisher, W. L. Palframan, Queenston; W. H. Hough, J. H. Brodrick, St. Catharines; Ezra Honzberger, W. Seult, Jordan Harbor; A. M. Harris, Dr. G. C. Buchanan, J. S. McCallum, H. T. Hern of the Ontario and Western Co-operative Fruit Co.; A. Onslow, Niagara; E. Morden, Oakville; H. T. Foster, R. C. Fowler, J. E. Jarvis, Burlington; W. C. Oughtred, L. A. Hamilton, R. Shook, E. A. Orr, W. G. Horne, Clarkson.

Business of much importance was discussed, more especially in reference to the cartage charges exacted by the commission merchants on the shippers of fruit. A delegation consisting of two representatives from every shipping point between the Niagara river and Lorne Park was appointed to wait on the commission merchants for the purpose of having the cartage charge abolished. The charges were looked upon as an imposition by every representative present, and very strongly resented.

See the premium offers on page VI.

We have received a valuable little booklet entitled "Records of Fertilizer Experiments." It gives much information on the value and use of commercial fertilizers. Results of experiments conducted during the past three years are given. The booklet is published by the Dominion Agricultural Offices of the Potash Syndicate, Temple Building, Toronto. Send to this firm for a copy, which is free.



### "The Kodak on the Farm"

A beautifully illustrated little book containing a score of pictures that show how interesting the Kodak may be made in the country.

Free at your dealers or by mail

**CANADIAN KODAK CO.**  
LIMITED  
TORONTO, CAN.

**FOR SALE AND WANTED**

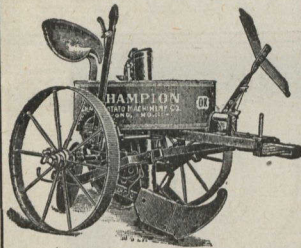
Advertisements under this heading inserted at rate of two cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

**GINSENG FOR SALE.**—Seedlings and stratified seeds, due to come up in May. Write to J. E. Janelle, Caughnawaga, Que.

**WANTED—GOOD FARM** in good locality. Will deal only with owner. American Investment Association, 813 Palace Building, Minneapolis, Minn.

**LANDSCAPE ARCHITECT.**—Charles Ernest Woolverton, Grimsby, Ontario, is prepared to make plans for the improvement of country estates, city parks or private grounds, giving lists of suitable trees, plants and shrubs for planting. He has no personal interest in the sale of any of these, but can direct clients for purchasing them at lowest wholesale prices. He will superintend the work of the gardeners in carrying out his plans where such service is needed.

**O. K. CANADIAN AUTOMATIC POTATO PLANTER**  
With, or Without, Fertilizer Attachment



One man and team plant from 4 to 6 acres per day. Spreads the fertilizer, opens the trench, drops the seed, covers it and marks for the next row all in one operation. Handles the seed as carefully as by hand; does not bruise or mar the seed in any way. Write for our catalogue.

**CANADIAN POTATO MACHINERY CO., LIMITED**  
GALT, ONT.

**Peerless Jr. Poultry Fence**

**Saves Expense**

**Close enough to keep chickens in.  
Strong enough to keep the cattle out.**

PEERLESS JUNIOR Poultry Fence will do all you wish of a poultry fence and will do much more. It is built close enough to keep the chickens in, but it is also built strong, rigid and springy. Those heavy, hard steel top and bottom wires, together with intermediate laterals, will take care of a carelessly backed wagon, or an unruly animal and spring back into perfect shape again. It is the most handsome and most effective poultry fence on the market. At every intersection the wires are firmly held together by the never-slip PEERLESS Lock.



**The Fence That Saves Expense**

because it never needs repairs. It is the cheapest to put up, too. It is stretched up like a field fence. More than half the price can be saved in posts and lumber alone, as required by some other poultry fences. Write to-day for our printed matter. It tells you how to get your full money's worth in fences. We build fences for every purpose.

**BANWELL HOXIE WIRE FENCE CO., Limited**  
Dept. O  
WINNIPEG, MAN. HAMILTON, ONT.

**FRUIT GROWERS**

Who Want Clean Fruit Should  
Write For Our Booklet on - -

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All Ready for Use in Few Minutes  
No Clogging of Pumps  
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No careful, experienced gardener omits a good sprayer from his equipment. The garden and field crops, fruits and vines must be protected from the ravages of insects and plant diseases.

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COMING EVENTS

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

EXHIBITIONS.

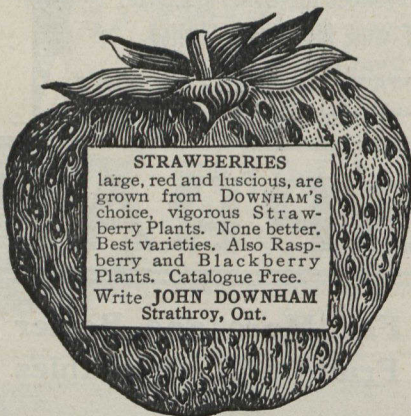
- Calgary, Alberta Provincial.....July 4-9.
Charlottetown, P. E. I. Provincial,.... Sept. 20-24.
Halifax, N. S. Provincial..Sept. 28-Oct. 6.
London, Eng., Royal Horticultural Show (for colonial-grown fruit and vegetables) .....Dec 1-3
St. John, N. B., Dominion Exhibition.... Sept. 5-14.
Winnipeg, Industrial .....July 13-23.

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This celebrated strawberry still maintains its lead in the Niagara District as the best all round commercial berry. In size, vigor, productiveness and the qualities that go to make up a first-class shipper, it stands at the head of the list of proved varieties, and is now more largely grown than any other strawberry in this section. We can supply a limited quantity of first-class plants at lowest rates.

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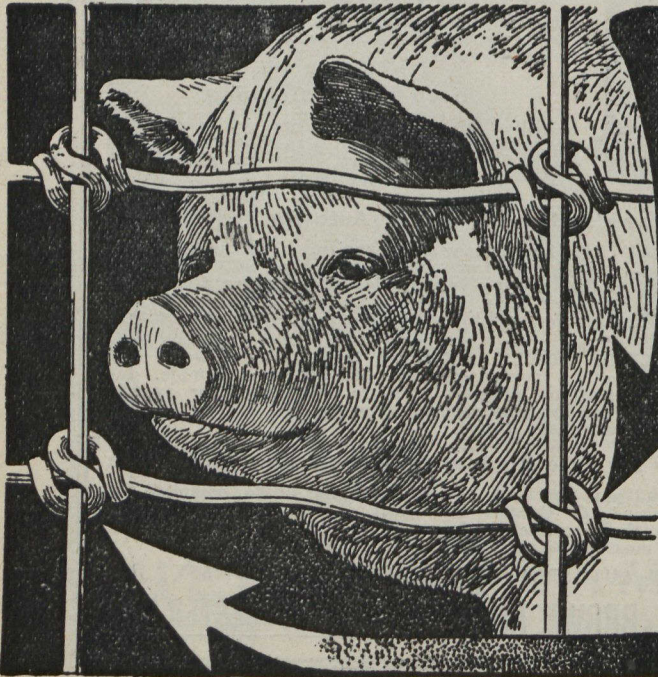
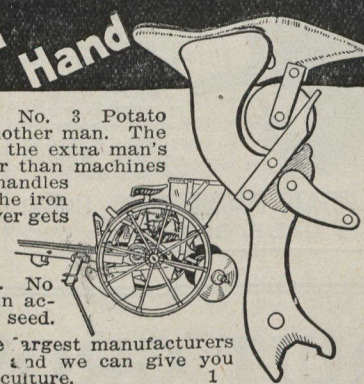
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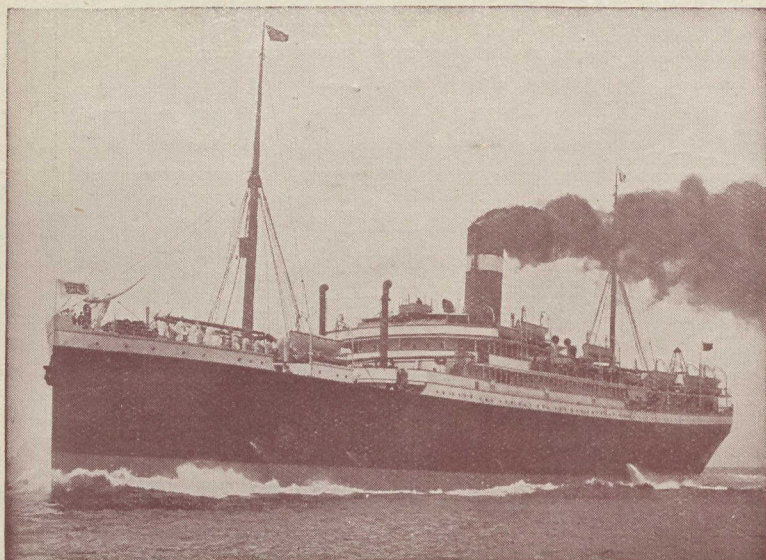
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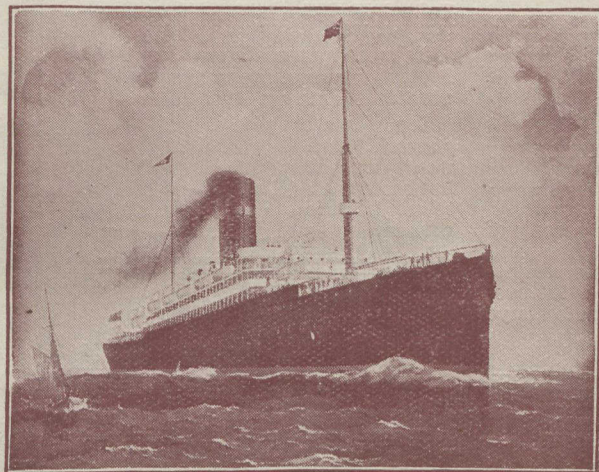
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Oshawa-shingled roofs are guaranteed for twenty-five years. No other roofing is guaranteed for five minutes.

SO put it squarely up to the next fellow who tries to sell you some roofing "as good as Oshawa Steel Shingles." Ask him to agree in writing to replace the roof free if it gives any trouble within the next quarter century.

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Tell him it doesn't prove what the Pedlar Guarantee does prove. Because that guarantee is your absolute protection against roof troubles for twenty-five years to come.

There is your roof-insurance for the future. There is a binding promise to give you a new roof entirely free, to put it on the building for you free, and to guarantee it for another twenty-five years, if your roof of Oshawa Galvanized Steel Shingles gives any roof trouble within twenty-five years from the day it's on.

There is \$250,000 capital back of that guarantee. There are 48 years of honorable reputation back of that guarantee. And there is the biggest business of its kind in the British Empire back of that guarantee.

So it is plain common sense for you to refuse to buy any roofing that is not guaranteed. And the only kind that is guaranteed is this kind we make—Oshawa Galvanized Steel Shingles. Guaranteed for twenty-five years. Actually good for a century.

## This is the Roofing for Your Money

Oshawa Galvanized Steel Shingles make the roof you can best afford for any building. They cost but five cents a year per square. (A square is 100 square feet). They are stamped from heavy sheet steel—28 gauge steel. Then they are thickly galvanized. That means they are coated with zinc—the rust defying metal—in such a way that the zinc is driven right into the steel. It cannot flake off, as it would if this galvanizing were done the ordinary way.

Thus these Oshawa Shingles require no painting. They will not rust. They cannot possibly leak.

So you are sure you will have no bother with your Oshawa-shingled roof, once it's on the building. You can depend on that; and you can doubly depend on it because you have the guarantee. Hand it to your banker or lawyer to keep for you; and know that it is good for a new roof right up to the last day of the twenty-fifth year—if the first one gives any trouble whatever.

## Cost far Less Than Wood Shingles

You must pay about the same price per square for ordinary wood shingles. They will cost you more to lay because it is a quick and simple job to roof with Oshawa Steel Shingles—and it's no easy job to lay wooden shingles right.

And the wood-shingled roof will need repairs every year or two. Probably it will leak from the start. And it will be no real roof at all at the end of ten years, at the most.

You can be certain that an Oshawa-shingled roof will outlast a wood-shingled roof ten to one. Thus it costs but one-tenth as much.

Send to-day for Sample Shingle and "Roofing Right" Booklet No. 8 Address nearest place:

## The PEDLAR PEOPLE of Oshawa

ESTABLISHED 1861

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303 ADDRESS OUR NEAREST WAREHOUSE. WE WANT AGENTS IN SOME LOCALITIES. WRITE FOR DETAILS. MENTION THIS PAPER.

## This is the Roof That Really Protects

Oshawa-shingled roofs are not merely weather proof roofs. They are fire-proof roofs. They are wind-tight roofs. They keep buildings cooler in summer and warmer in winter.

And the building covered with Oshawa Steel Shingles is safe against lightning—far more so than it would be if it fairly bristled with lightning rods.

Put these Oshawa Shingles on a building, following the simple, plain directions that come with them, and you have a roof that is handsome enough for a city hall and that absolutely protects.

Practically an Oshawa-shingled roof is one seamless sheet of tough galvanized steel. Not a crevice for moisture to get through. No way to set fire to it. No chance for the wind to worry it. Dampness cannot gather on the underside of it. It needs no painting. And you need not worry about it needing any repairs, for twenty-five years at least.

Isn't that kind of a roof the roof for you? Isn't that kind of a roof worth more than it costs? Isn't it the only roof you ought to consider?—since it is the only roof of which all these things are true.

## Get Your Copy of This Free Book

Send your name and address to the nearest Pedlar place. Tell them you want your free copy of "Roofing Right."

When you have read that book through, you will know more about roofing than a good many experts know. It gives you facts, proofs, figures.

Get it and read it. Get it even if you don't expect to do any roofing for some time yet. It will put you right on the whole roofing question.

With the book will come a copy of our Guarantee. Study that, too, and see how fair and square and straightforward it is. See what positive protection it gives the man who buys Oshawa Steel Shingles.

## Sample Shingle Free

WITH the book will come a sample of the Oshawa Shingle itself. It will interest you to study it. You will see that the Pedlar Improved Lock, on all four edges of the shingle, makes it certain that moisture never can get through any Oshawa-Shingled roof. You will see how the Pedlar process of galvanizing drives the zinc right into the steel so it never can flake off. You will be in no doubt about which roofing after you have studied this shingle.

Send for it and the Book and Guarantee—Send now.



I KNOW of course, that some salesman for some other roofing material is liable to tell you there some "catch" about Pedlar's guarantee.

And you can't wonder at his saying so. How else could he meet the great, big, dollars-and-cents value that guarantee has for the man who buys Oshawa Shingles?

But you know right well that a concern cannot stay in business unless it does business strictly on the level. This business was founded by my father in 1861. To-day this is the biggest factory of the kind in the British Empire. Our capital is a quarter of a million. You can easily find out our business standing.

So, seriously, do you imagine for a minute we would dare issue a guarantee that wasn't square?

Take my personal word for it—the Pedlar guarantee is exactly what this advertisement says it is.

Send for a copy of it and see for yourself. You won't doubt its good faith then. That is certain.

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"To Pedlarize" means to sheathe your whole home with handsome, lasting and beautiful steel—ceilings, side-walls, outside, roof. It means to protect yourself against cold; against fire; against much disease; against repair-bills. Ask us and we will tell you the whole story. Just use a postcard and say: "How about Pedlarizing my house?" State whether brick or frame. Write to-day.

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