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## The Benefits of Winter and Summer Pruning Compared\*

By Dr. C. D. Jarvis, Conn. Agricultural College (formerly of the Guelph Agricultural College)

**P**RUNING is a natural process. It may be observed on both fruit and forest trees. In the struggle for existence the weaker branches, or those unfavorably located, die and drop off. An attempt, often successful, to heal the wound takes place. The modern practice of pruning is an attempt to assist nature and to improve upon her crude methods.

The objects of pruning are three in number. The primary one is to reduce the struggle for existence among the various parts of a tree so that the remaining portion may produce larger and better fruits. Pruning, therefore, is a thinning process, the beneficial effect of which may be readily demonstrated by the cutting out of about half the brush from a neglected apple tree. The process includes the removal of dead or diseased parts as well as of superfluous living branches.

The second recognized object of pruning is to control and modify the shape of trees. Pruning, therefore, is a training process. It commences when the tree is in the nursery now and may continue throughout its life.

Finally, pruning is practised on account of its effect upon the formation of fruit-buds and leaf-buds. The physiological processes concerned in this are not well understood, but it is well known that pruning during the growing season produces an entirely different effect from pruning during the dormant season. A heavy pruning of the top during the winter tends to produce wood, because the same amount of root energy is concentrated on a smaller top. The pruning of the root has the opposite effect, tending to lessen the production of wood, because the same amount of top receives a smaller supply of the stored up energy of the roots and a smaller supply of the soil water with its plant food constituents.

### THE IDEAL IN PRUNING

In the pruning of the apple tree there are two distinct styles or ideals, the central leader type and the open centre type, each with its corps of adherents. There are many supporters of the central leader type among the western growers, and they claim that a tree pruned in this form makes a stronger structure and is not so likely to be

broken down by wind and heavy crops of fruit. This is a strong argument and cannot be ignored. A tree of this type, however, is inclined to grow too high and completely shuts out the light from the centre of the tree.

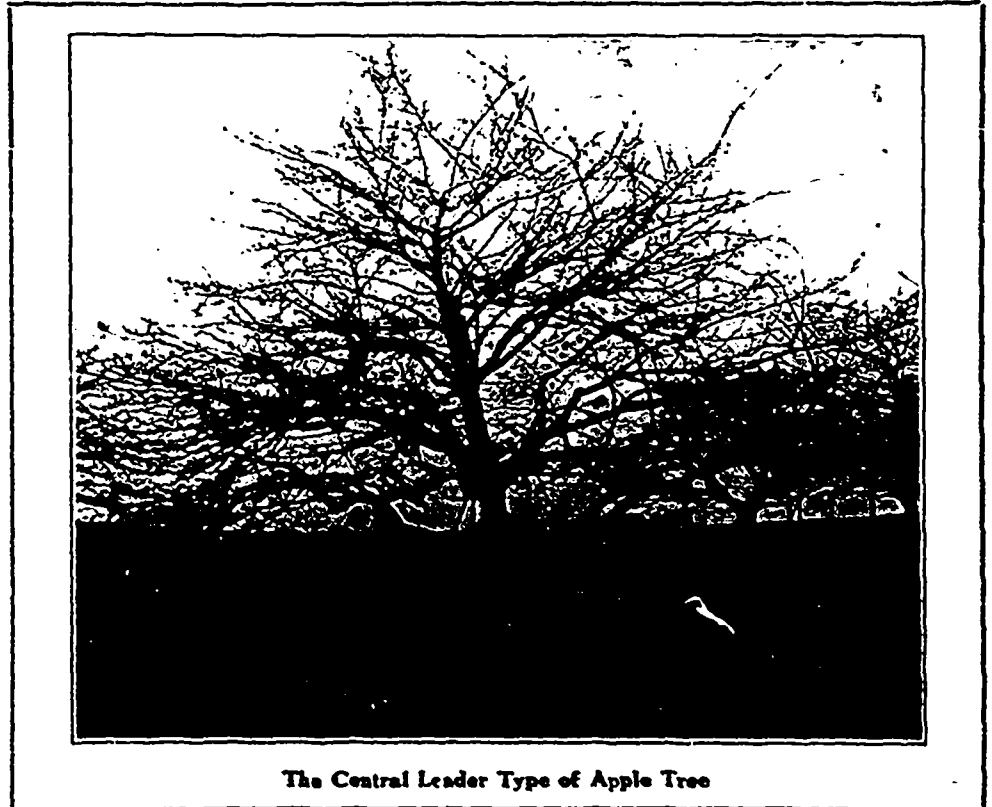
The open-centre type of tree is the one most commonly found in the commercial orchards of the east. For New England, where the maximum amount of sunshine is necessary to develop fruit of high color, this seems to be the most desirable type. If carefully grown and properly trained, and if the trees are not allowed to overbear, there is not likely to be much trouble from the breaking of the branches.

In order to develop a strong open-centre habit, we must have a good nursery tree to start with. We hear a great deal nowadays about the desirability of growing low-headed trees, and I am a strong advocate of such practice, but I do not believe in heading them so low that there is no room for the proper distribution of the main or scaffold limbs of the tree.

Many nurserymen are making a mistake in "rubbing" their trees too high;

by this I mean that all the buds and shoots are rubbed off from the yearling tree to a point six or eight inches below the point where the tree is headed in. If the practice is to head a tree thirty inches from the ground, the "rubbing" should not extend more than twelve inches from the ground, leaving a space of eighteen inches for the proper distribution of the scaffold limbs of which there should be from three to five. These should be fairly evenly spaced along the central axis and no more than one should be allowed to develop at the same point.

An apple tree is a wonderfully tractable object when handled properly. The man who follows the ordinary practice of severely pruning down the dormant season only, is going to have trouble for the more we prune at this season of the year the more persistent the tree becomes. To encourage the development of the weaker growing branches and to check the persistence of the stronger ones, it is necessary to do some pruning during the growing season. This subject will be discussed more fully under the head of Summer Pruning.



The Central Leader Type of Apple Tree

\*An address delivered before the Massachusetts Fruit Growers' Association.



A Twelve-Year-Old Apple Tree Never Pruned Since Planted

I believe that in the past we have grown our trees too fast and have pruned them a great deal too much. To develop a strong fruit-bearing structure, a tree should not be unduly forced. It may be observed that with trees that have made a normal growth the branches are more tapering and more rigid than those on rapidly grown trees. The excessive growth is frequently due to liberal fertilization and cultivation, but is just as often due to severe winter pruning.

During the past six years I have had under observation a young orchard that has been developed under various systems of pruning, and I am forced to state that the best shaped trees in the orchard to-day are those that have not been pruned since they were planted. Now, we should not deduce from this that under all conditions a young tree should not be pruned. These trees were Baldwin and McIntosh, and were grown under the grass mulch system. I was fortunate enough to find another young orchard that appeared to be about twelve years of age and composed of Baldwins and Spies. These trees had not been pruned since they were planted. They had been under cultivation part of the time and in grass part of the time. The Baldwins were in bearing, but the Spies had evidently not started to bear. The Baldwin trees were fine shaped specimens, but could have been improved by a moderate pruning. The Spy trees were unsightly specimens, and their tops presented a broom-like appearance.

It is safe to say that some varieties

would be better left unpruned until they reach the bearing age, and that others should have a moderate amount of pruning, and that a large part of this pruning should be done during the growing season. The character of the soil, of course, will exert considerable influence upon the behaviour of a growing tree. Trees grown on light soil require less pruning than those grown on heavy soil. Drainage, also, exerts considerable influence upon the behavior of a tree, and the training of a tree on a well-drained soil is an easier proposition than that of training one on land that remains wet late in the spring.

#### SUMMER PRUNING

Summer pruning, as contrasted with the regular practice, is the pruning of trees while in foliage. Its influence upon the tree in many respects is opposite to winter pruning. The latter, as mentioned before, stimulates wood growth, while the former tends to lessen wood growth. As a rule, any practice that checks wood growth tends to induce fruitfulness. Growers have taken advantage of this fact for many years. In England the result is attained by root-pruning. The method consists in digging a trench around the tree at some considerable distance and severing some of the roots. This interferes with the food supply and necessarily reduces growth. In the famous Ozark apple region of Missouri and Arkansas the same result is attained by ringing or girdling the trunk or main branches of the tree, thus checking the downward flow of sap. The roots in this way are

partially starved and are, therefore, unable to induce a strong wood growth the following season. The work is done during the growing season, and, as a result, the wound soon heals over. The growers in the Pacific Coast region practice summer pruning to check wood growth. A complete or partial defoliation by insects, disease, or spraying injury during the early summer seems to have the same effect.

Just why the checking of wood growth should induce the formation of fruit buds and how it exerts this influence is not well understood. The theory has been advanced that there is some inherent tendency on the part of the tree to reproduce itself before it dies and that when anything interferes with the natural processes the tree prepares for death. This is not a satisfactory explanation, and it is hoped that the physiologists may be able to throw some light on the subject in the near future.

(To be continued.)

### A Balanced Ration for Peach Trees

Wm. Armstrong, Niagara-on-the-Lake

As a balanced ration for peach trees on sandy soil I give a light annual dressing of good manure, left undisturbed over the roots and applied during late December or January in each year. This is supplemented with the following home mixed commercial fertilizers, applied immediately after mixing, about May first in each year, and scattered carefully and evenly around each tree by hand:

Mix in your wagon box on the barn floor, twenty-five per cent. pure fine ground bone meal and five per cent. fine ground sulphur together first. Add forty-five per cent. muriate of potash, fifteen per cent. Thomas Phosphate Powder, and ten per cent. coarse salt.

The quantity for each tree is as follows: Infant tree from the nursery row, one-half pound each; one year old, three-quarters pound; two years old, one and one-half pounds; three years old, two three pounds; five years old, four pounds.

### Varieties of Gooseberries

W. T. Maccom, C.E.F., Ottawa

As the best varieties of gooseberries for planting in western Canada, I should recommend either the Pearl or Downing. If a red skinned gooseberry is desired, either the Josselyn or the Red Jacket would be a good variety. I should suggest planting gooseberries in the proportion of fifteen hundred Downing or Pearl and five hundred Red Jacket.

The English varieties are very subject to mildew, and although this can be controlled in part by spraying, it is not entirely satisfactory. I believe the American varieties would off-set any advantage in price there might be in favor of the English sorts in this country.

# The Planting of Strawberries

W. A. Dier, Ottawa, Ont.

Any good garden soil will grow good strawberries, but the selection of varieties is of the greatest importance, and a chance selection is more than likely to end in failure. The soil best suited for the strawberry, that is, the soil that will grow successfully the largest number of varieties, is a deep, rich sandy loam. A light sand or heavy clay may, with very little expense, be brought into a condition that will produce abundant crops. Some varieties thrive best in a soil in which clay predominates, while others do best in a light, rich, sandy soil. A deep soil, whether it be naturally light or heavy, is one of the requisites demanded by the strawberry. If the soil is naturally wet, it will require under-draining.

The preparation of the soil is of the utmost importance. In digging, care should be taken to go to the full depth of the spade or fork, throwing the soil ahead six or eight inches. See that it is thoroughly pulverized, and every lump broken up, as the roots of a plant cannot penetrate a hard lump of soil. The better the soil is broken up, the better the chance for the root. Then, also, if the soil is lumpy it cannot retain moisture and the plants suffer, whereas if the soil has been thoroughly broken up it will remain moist even through a very considerable drought.

## PREPARATION OF THE BEDS

In preparing my beds, I dig them twice. The manure is dug in the first time and in the second digging I make sure that there are no lumps of either manure or soil, and endeavour to more thoroughly incorporate the manure with the soil than is possible with one digging. The second digging is not labor lost; it is, in my mind, absolutely necessary if the best results are expected.

The manure should be well rotted. If not, great difficulty will be experienced in keeping down weeds and grass, and, besides this, the straw in fresh or half-rotted manure, when dug or plowed in, is one of the greatest causes of failure. It does not rot for some time after being placed in the soil, and as it holds the soil particles apart, the hot dry air penetrates deeply soon drying it out to the detriment or probable loss of many plants. The question of soil preparation is old, and to some it may seem quite unnecessary to mention it at all, but one sees on every side, every spring, people digging or plowing strawy manure, fresh or half rotted, into a lumpy soil, and, therefore, I feel that I should mention it. In a wet season the ill-effects of straw in the soil are of course

less noticeable, but as the average growing season is dry, the safer plan is to use only well rotted manure.

## FERTILIZERS

As a rule, unless the soil is very poor, or very rich, a dressing of about three inches of well rotted manure plowed or dug in, and a moderate application of bone meal, harrowed or raked in, is sufficient fertilizer in the spring before planting. Later on, in the early fall, a good top dressing of hardwood ashes is most valuable. The manure furnishes humus, nitrogen and some potash; the bone supplies nitrogen and phosphoric acid; and the ashes potash, phosphoric acid and lime. Beds supplied with this top-dressing of ashes, produce fruits of the finest possible flavor and color. If ashes are not procurable, muriate of potash may be used.

## HOW TO PLANT

The situation of a strawberry bed should be open and airy; they will not tolerate shade. Early spring is the usual time of planting and for commercial growers it is undoubtedly the only time; but for the man who grows for his own use and incidentally for exhibition, and who wishes to obtain the greatest amount of the finest fruit, with the least amount of labor, the annual system is the best.

There are three methods of culture, the matted row, the narrow row and the annual system. The first mentioned is for commercial growers only, and need not be dealt with here. The narrow row system is as follows: The plants are set out in rows thirty to thirty-six inches apart, with the plants twelve to eighteen inches apart in the row. They should be well cultivated, and the top inch or so

of soil kept loose right up to the plant, in order to conserve the moisture in the soil. When the plants have become well established in June or early in July, three or four runners from each plant are placed carefully about six inches from the centre of the row on each side, and between the plants in the row. Two plants only are allowed to each runner, care being taken that they don't crowd each other, four to six inches apart being about right. It is good policy when possible to assist these little plants to take root.

As soon as the small white rootlets are visible, they should be placed where they are to be left, and kept in place by a small stone or a little earth. When the row has been formed, it is advisable to religiously keep off all runners. It pays to do it. The energy of the plant is thereby turned in another direction, that of forming new crowns and fruiting buds. Thorough cultivation and hand hoeing around each plant all summer is imperative. The best time to annihilate weeds is when they are so small as to be invisible. The constant stirring of the surface of the soil will accomplish this, and the time necessary to do it is very small compared with what would be required were the weeds to get a start. If they get a start their removal from the ground disturbs the plants, keeping them back; and besides valuable nourishment has been taken away by the weeds, all of which is needed for the plants.

We have found motor goggles a great help in protecting the eyes from the spraying solution while spraying trees. —Alfred Chaplin, Golden Acres, Rougemont, Que.



Failwaters, planted Twelve Years in the Orchard of W. H. Gibson, Newcastle, Ont. Promise of Second Good Crop.

\*Extract from an address delivered at the last annual meeting of the Ontario Fruit Growers' Association.

**Cost of Spraying**

R. S. Duncan, B.S.A., Port Hope Ont.

Herewith is given a tabulated statement of the cost of spraying the demonstration orchards in Northumberland and Durham counties during 1911 and 1912. All calculations are based on the valuation of four men at one dollar fifty cents each a day and a team at one dollar fifty cents a day. Lime-sulphur is valu-

ed at twenty cents a gallon and arsenate of lead at thirteen cents a pound in 1911 and ten cents a pound in 1912.

The cost of spraying the apple orchard, including labor and material, varies, according to the figures given, from thirty-nine to fifty-five cents a tree.

**SUMMARY OF SPRAYING RULES**

From our experience along the north shore of Lake Ontario the following sprayings are recommended: First, just before or as the leaf buds are bursting, spray with lime-sulphur, commercial strength, one to ten. This controls San Jose Scale, oyster shell bark louse, and blister mite; second, just before the

blossoms burst or as pink begins to show in the leaves, use lime-sulphur, one to thirty-five commercial strength, and add two pounds arsenate of lead to forty gallons of mixture. This is to control bud moths, feeding caterpillars, case bearers, canker worms, and apple scab, third, immediately after the blossoms fall, and before the calyx cup closes, use lime-sulphur, commercial strength, one to forty, with two pounds arsenate of lead added to forty gallons of mixture. This controls codling worms, plum curculio, and apple scab.

In damp seasons it might be advisable to spray a fourth time two weeks later with the same mixture as given for the third spraying.

**The Influence of Bees in Orchards**

W. White, Brantford, Ont.

Every fruit grower realizes the importance of good methods of cultivation in the orchard. It is doubtful, however, whether he appreciates the fact that in spite of all his improved methods his yearly income would be reduced to a minimum were it not for the labors of the hive-bee. He is, indeed, greatly indebted to the beekeeping fraternity, almost entirely dependent upon them, in fact, for his yearly crops. Prof. J. W. Crow, dealt with this phase of fruit-growing in a deeply interesting address entitled "The Influence of Bees in the Orchard," delivered at the recent Agriculture Short Course at the Ontario Agricultural College, Guelph.

In his opening remarks he stated that at a certain point, the two lines of agriculture, fruit-growing and beekeeping, meet, forming a bond of mutual interdependence. In its search for nectar and pollen, the bee forms an essential agent in the fertilization of tree-fruit bloom and of nearly all bush fruits.

Fruit pollen, being heavy and more or less sticky, is not carried by the wind to any extent. Although a few wild native insects may assist in the pollinating process, fruit growers are dependent almost entirely upon the hive or honey-bee. In the case of the apple, wind fertilization is practically negligible. Under favorable circumstances, this latter agency may be responsible for from five to ten per cent. of the number of blooms fertilized. Prof Crow remarked that he knew of a number of cases in which barren orchards had been brought into bearing in consequence of the introduction of colonies of bees to the neighborhoods in which the orchards were situated. It was true that bees might possibly be responsible to some extent for the transmission of bacterial disease of bloom. The gummy exudate material, laden with germs, was fed upon by bees, and in this way the bacteria were carried away by the bees. This, however, should not be held to be

the fault of the bees. It was the duty of the fruit growers to cut out the diseased or blighted portions of the trees, and so destroy the sources of infection.

Apple scab was usually found on the smaller half of a deformed fruit, because that side was weaker and incapable of withstanding disease attacks. The malformation of the apple was due to imperfect fertilization. A perfectly, pollinated apple was better nourished, was larger, and proved more resistant to disease. Prof. Crow described an experiment undertaken by him. Selecting fifty clutches of blossom, he cut them down to one blossom apiece, thus leaving fifty single blossoms. From each of these single blossoms he cut out four of the five pistils. He selected three other batches of blossoms, thinning the individual clusters down to single blossoms in the same way; but one batch he treated by cutting out three of the five pistils, the next, by cutting out two pistils, and the last batch, by cutting out only one pistil. All the blossoms in the four batches were pollenized at the same time and by the same variety. In the case of the blossoms with only one pistil remaining, the fruit all dropped at an early stage. Not an apple arrived at maturity. In the lot containing two pistils to each bloom, only two apples developed. In the two remaining cases, nearly the whole of the fruit developed. These results proved the importance of thorough pollination. As a pollination agent, the honey bee was by far the most effective.

Asking the beekeepers present how many colonies of bees were required for an eight-acre orchard, Prof. Crow elicited the reply from Dr. Burton N. Gates, Ph.D., of the Massachusetts Agricultural College, Amherst, Mass., that at least one colony was considered to be necessary for the complete pollination of fifty trees. Mr. Harkness, of Ueno, Ont., considered this proportion insufficient.

Orchard	Year	FIRST SPRAYING				SECOND SPRAYING				THIRD SPRAYING			
		Material	Applied	Cost	Per tree	Material	Applied	Cost	Per tree	Material	Applied	Cost	Per tree
E. W. M. Council	1911	\$10.60	7 gals.	\$8.95	17 1/2 lbs.	31 lbs.	\$7.50	5 gals.	33.10	21 gals.	49 lbs.	\$11.17	8 gals.
Georgetown, 47 trees	1912	7.50	6 gals.	6.00	25 1/2 lbs.	46 lbs.	9.70	6 gals.	13.40	33 1/2 gals.	77 lbs.	14.35	11 gals.
W. G. Stobo	1911	6.75	6 gals.	7.50	18 lbs.	37 lbs.	7.85	5 gals.	11.50	24 1/2 gals.	50 lbs.	11.40	7 1/2 gals.
Port Hope, 145 trees	1912	8.25	62 gals.	6.15	19 gals.	48 lbs.	8.61	4 1/2 gals.	11.40	23 gals.	57 lbs.	10.30	6 1/2 gals.
N. Nickoll	1911	4.50	40 gals.	7.50	18 gals.	32 lbs.	7.76	8 gals.	12.00	19 gals.	38 1/2 lbs.	8.81	9 1/2 gals.
Welcome, 72 trees	1912	4.50	38 gals.	3.75	12 1/2 lbs.	26 lbs.	5.10	6 gals.	12.50	11 gals.	31 lbs.	5.40	6 gals.
J. Stanley	1911	6.00	27 gals.	4.50	7 gals.	12 lbs.	5.05	5 1/2 gals.	10.60	11 1/2 gals.	24 lbs.	5.42	6 1/2 gals.
Howmanville, 71 trees	1912	11.00	41 gals.	7.50	20 gals.	54 lbs.	9.50	5 gals.	11.60	25 gals.	57 lbs.	10.30	6 gals.
W. H. Gilson, New- cenaite, 136 trees	1912	7.50	61 gals.	7.50	20 gals.	54 lbs.	9.50	5 gals.	11.60	25 gals.	57 lbs.	10.30	6 gals.

The cost of spraying the apple orchard, including labor and material, varies, according to the above figures, from thirty-nine cents to fifty-five cents a tree.

# A Talk on Perennial Borders

F. E. Buck, B.S.A., Central Experimental Farm, Ottawa

THE perennial border" is a phase which has been coined, as far as can be ascertained, within recent years. It is generally used to denote any type of flower border which contains a large number of perennial flowers. The term "herbaceous border" is practically synonymous with it, and is still used. The first term is preferable because for those borders which contain flowering shrubs as well as the herbaceous plants the term "herbaceous border" is much less exact.

## ORIGIN AND HISTORY

We get some inkling that perennial borders were not unknown to our ancestors of the age of Elizabeth from the literature of the period, and especially from Sir Francis Bacon's "Essay on Gardens." In brief their history might be dismissed by saying that they are neither of very ancient nor of quite modern origin. It may be interesting to note, however, that during the nineteenth century three types of residences almost unknown until then became very plentiful. These were the suburban villa, the city man's summer house, and the city mansion with its formal garden.

These types of architecture more than all others need the support of effective immediate surroundings. Borders in which permanent flowers would grow helped immensely to form the surroundings and consequently we find that in recent years a great growth has taken place in the popularity of perennial borders and also of perennial flowers.

## PERENNIAL FLOWERS

One authority says perhaps the most striking advance in modern gardening is the advance in favor of what are popularly known as herbaceous plants. . . They have been the means of encouraging thousands to take an interest in flower gardens who formerly did not do so. But love of the flowers pure and simple has also been a very great factor in stimulating their popularity. Of course a great many of the best perennial flowers are of recent introduction but it is interesting to note that many of the favorites were known one hundred and fifty years ago. The popularity of perennial flowers will make the perennial border much more popular in the immediate future than it has been in the past.

The form of perennial borders is vari-

able. All borders may, however, be here considered under four forms.

Form one.—The straight narrow border. This is generally found close to the house or by a boundary wall. It is particularly adapted to small lots and summer cottages.

Form two.—The straight wide border. This form is seldom used close to the house. It is generally seen to best advantage when placed close to main walks and when used in gardens of the formal type.

Form three.—The regular curved border. A very beautiful and perhaps the ideal form of the perennial border when rightly disposed. It appears to best advantage, perhaps, when placed a few yards back from a long curved walk.

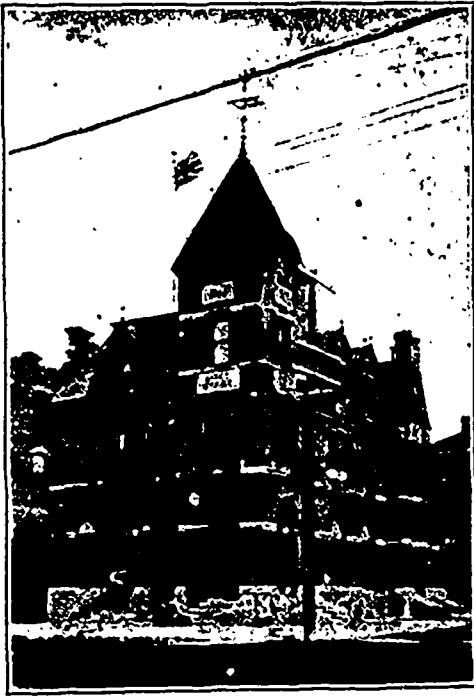
Form four.—The irregular border. This form looks best in the foreground of masses of shrubbery. It is irregular in both depth and outline.

Perennial borders have more than a single purpose to fulfil. It is a mistake to think that the main purpose of all perennial borders is to give a succession of bloom. That should be the purpose of one particular type, but there are



At the Central Experimental Farm, Ottawa. A View of One End of the New Perennial Border

This border is four hundred and fifty feet long by twelve feet wide. It was planted in the autumn of 1911 from plants raised at the farm, many of them from seeds sown the same spring. This view was taken August, 1911. The border should look at its best during the next few years. Its flowers last from April till October.



**The Bowmanville Post Office**

Notice the window boxes. These were provided by the members of the Bowmanville Horticultural Society.

many beautiful borders planted with quite another purpose. For simplicity I suggest but two classes, based on their purpose. In the first class I suggest putting all borders which resemble an ideal perennial border. It must contain therefore all "ideal types. Class two must contain all other types, or nearly all the others. For want of a better term let these be called "the attractive types."

The borders in class one, "ideal types," should always possess certain characteristics, which may not be required in borders placed in class two. Two such characteristics are continuity of bloom and good arrangement. And these two characteristics are required as outstanding features in all borders which are placed in conspicuous positions, for the purpose of giving color or landscape effect.

In class two, the "attractive types," I would place a large number of borders which are planted with no such purpose in view. The first type in this class is that found in the gardens of many amateurs. It is generally made by those who have certain flowers and wish to have them growing in their gardens. Such borders can hardly be placed in class one, but they are often effective, pleasing, and most attractive and ideal in their class. A second type is that made to strengthen architectural features and often found in the formal garden, or at the base of a terrace, or in front of a bare wall.

The dividing line between these two classes is "continuity of blooming sea-

son," which depends of course, upon the number and choice of the plants used. If, therefore, we wish to plant perennial flowers in our garden we should ask ourselves, "What do we want them for?" For their own sake? To emphasize the architectural features of the house? To give landscape effect? or what? For what purpose do we want them? This question of purpose must be kept in mind. We shall then get better effects in our gardens, and the satisfaction arising from definite achievement will be far greater.

#### DEFINITE INTENTION

Miss Gertrude Jekyll has a good paragraph on color effects which I will quote, as it gives the same advice put in a better way. It deals with color, a question I have not touched on, but shows that "definite intention" or a realization of "purpose" is the one important thing in our work with the flowers. She says in her most recent book, "I am strongly of opinion that the possession of a quantity of plants, however good the plants may be themselves, and however ample their number, does not make a garden; it only makes a collection. Having got the plants, the great thing is to use them with careful selection and definite intention. Merely having them or having them planted unassorted in garden spaces, is only like having a lot of paints from the best colorman, or, to go one step further, it is like having portions of these paints set out on a palette. This does not constitute a picture: and it seems to me that the duty we owe to our gardens and to our own bettering in our gardens is so to use the plants that they shall form beautiful pictures."

#### Making a Compost Pile

Wm. Hunt, O.A.C., Guelph, Ont.

To make a compost pile proceed as follows: Place a layer of sod with the grass side downward over about a square yard of level ground, then a second and third layer in the same way. On these place four inches in depth of either of the fertilizers named. Continue these successive layers of sod and fertilizer until the pile is three or four feet in height, finishing up with a layer of sod or soil on top. Fall or early spring is the best time to do this. Place wire netting over the pile to keep off chickens and animals. Throw a few pails of water on the pile in summer to hasten decomposition. Cut down with a sharp spade a portion of this from top to bottom of pile when ready for use, so as to get equal quantities of soil and fertilizer. It should then be passed through a coarse, three-quarter inch mesh sieve, or the material chopped or pulled to pieces before using, so as to retain all the fibry and organic part of the soil possible.

#### Preparing the Rose Bed

F. E. Buck, C.E.F., Ottawa, Ont.

What is the best method of preparing a rose bed on gravel with four to six inches of loam on top? I have been told that clay makes a good bottom. With plenty of clay close at hand, also plenty of cow or horse manure, I would like to know how to proceed.—T.

Roses belonging to the hybrid perpetual class, as a rule, do best on soils of a heavy type, such as the clays, while roses belonging to the hybrid tea class do best on soils of a sandy type. If you wish to grow roses from both these classes, if you will proceed as follows, you should have equal success with both classes on your type of soil. However, if clay is easy to procure, no harm would follow if some were added to the part intended for the hybrid perpetuals.

With both kinds of manure available, it would be best to use a liberal quantity of both kinds mixed in about equal proportions. This should be worked into the soil by trenching. Trenching is a term used to describe the best method of thoroughly preparing any kind of soil that the effects of such preparation may be beneficial over a period of years during which it is almost impossible to apply manure to any extent because the plants in possession should not be disturbed. It is thus described: "Trenching consists of digging the soil to a depth of from two to three feet. Commence by taking out a trench two feet deep across one end of the plot. The soil from the trench is wheeled to the opposite end and placed there in readiness for filling the open trench that will be left when the worker reaches the end. When the two feet deep trench is made the bottom spit of soil is simply dug over, not removed. Then the top spit (about twelve inches) from the plot of ground immediately behind the open trench is thrown in the bottom of the latter together with four or six inches of well-rotted manure. The second spit is placed on that, filling the open trench to its original level and leaving a second open trench two spits (or two feet) deep. The soil at the bottom of this is dug over, but remains in its place. If the whole of the bed or border is treated in this way an empty trench will remain at the end of the plot, this of course is filled with the soil wheeled alongside from the first trench."

If it is intended to plant roses in the bed this spring it will be well to save a good sized heap of the surface loam before starting the preparation and use it to fill in round the roots of the young roses at the time of planting, so it is never wise at any time to let roots come into contact with manure at the time of planting. A better way might be to prepare the beds this spring, grow flowers in them, or leave vacant, this summer, and plant the roses in the autumn.

## A First Prize Garden---"The Maples," Whitby, Ont.

Whitby's first prize garden is owned by Mr. E. Edmund Starr. Having listened attentively to the teaching of our worthy leaders in floriculture, Mr. Starr first carefully prepared his garden plan—with a view to adding to the attractions of "Beautiful Whitby," and at

sweet peas. Last season these were nine feet high, with an abundance of bloom. They formed an entrance to another walk leading to the rose garden. In the gladioli patch, where one of the accompanying illustrations was taken, over three hundred and fifty spikes were

Winsome, and Royalty. These have been very satisfactory. Black Beauty, Sylvia, Agnew, and Duchess of Cambridge have also been greatly admired.

Running north from the dahlia bed, a row of kocha stood guard along the pathway, with beans and asparagus in the rear. Returning to the eastward path the sweet peas are passed. The walk is bordered by lettuce, back of which is cress, the gladiolus showing with dahlias in the rear. Then came the vegetable garden. Not a weed was to be seen, though the generous rains had kept the hoe man busy. The order and design here displayed called forth much admiration throughout the season. Ornamental beets in three shades looked artistic along the pathway between gooseberry and currant bushes. Running north and south for fifty feet were rows of tomatoes, table beets, carrots, onions, parsnips, peas, snowball turnips, salsify, and radish, in the rear of which one saw corn (Golden Bantam) and potatoes.

### THE ROSE GARDEN

In the rose garden there was a well kept walk throughout. The rose bushes were in bloom from June until October. There were many choice varieties. Quince, pear, and apple trees thrived throughout the garden. The quinces were extra good last year.

Last year was Mr. Starr's first season as a practical gardener, and the thoroughness of his effort, with his methodical exactness, bespeaks still greater success in the future. J.P.S.

Light, hot, sandy or gravelly soils are greatly improved for rose beds by the mixture of loam and rotten cow manure.



Where the Sweet Peas Bloom in Mr. Starr's Garden

the same time providing luxuries for the table. After many years, lived in the city, the home garden appealed to Mr. Starr, who was instrumental in organizing the Horticultural Society of Whitby, and was its first president.

A double row of maple trees stand in graceful guard at "The Maples," from the Kingston Road north on the west side for over one hundred and fifty feet. There is also a single row along the south, front and east sides. The generous lawn space makes a fine setting for the home, with its wide colonial porch, directly in front of which is a row of Spiraea van Houttei.

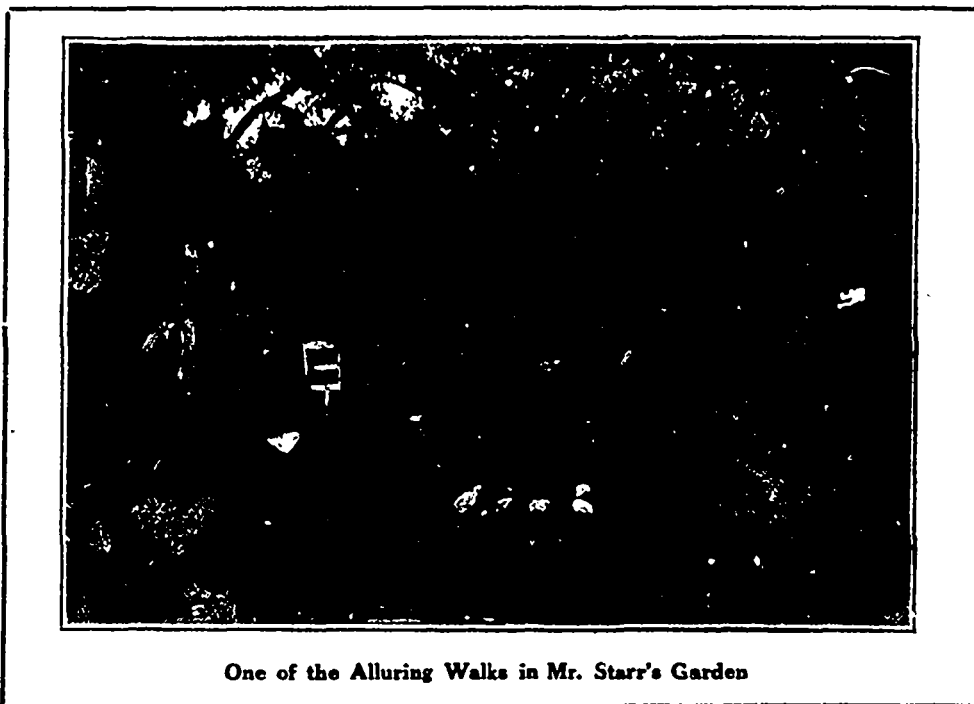
Crossing the lawn on the west side one passes through a vine-covered arched gateway into the currant garden. Here symmetric trimming promotes luxuriant growth and rare fruit. The neatly trimmed garden walks of green running north and south for two hundred feet and east and west for two hundred feet, add greatly to the attractiveness of the garden. Passing east along one of these well-kept walks one reaches the centre walk, running north. It has a hedge of grapes on the west over which one caught glimpses of a melon patch. Looking to the right one saw first the

gathered. North of the gladiolus grow the dahlias, the first row comprising Queen of Yellows at each end and Dreadnought in the centre. Then came the cactus varieties, Jackson, Floradora,



Among the Gladiolus in Mr. Starr's Garden on August 1st





One of the Alluring Walks in Mr. Starr's Garden

## Planting and Pruning Shrubs

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

**O**RNAMENTAL shrubs are either evergreen or deciduous, but by far the greater number belong to the latter class. Shrubs which lose their leaves during the fall, with the exception of the more tender kinds, may be planted at any favorable time during the months of October or November, or in April and early May. For many kinds the fall months are the best, but as the prospective planter is concerned at present with spring planting remarks pertaining thereto will be more in keeping.

The method of planting is as important as the time, and when small areas such as beds or borders are to be planted these should be thoroughly dug or trenched. It is important that the soil be worked deeply, for successful culture depends upon the formation of a healthy fibrous root system. If the soil is a heavy clay loam it is well to incorporate such materials as stable manure, humus, in the form of decaying leaves or straw, and lime rubble, as these tend to mechanically open the soil, render it porous, and upon decomposition to supply the necessary plant food.

Holes large and deep enough for the reception of the entire root system should be dug. When placing each shrub, be careful to spread out the rootlets so that they radiate toward the circumference of the hole, in the bottom of which the soil should be forked finely. Gradually work fine soil between and around the root fibres and at the same time gently move the shrub to ensure even distribution of soil and separation of the rootlets. After the root system is entirely covered tramp carefully to firm the soil. Give water if the weather at

the time of planting is dry or warm and finish the operation by filling the hole to the ground level and raking the surface finely. When it is desired to plant shrubs in lawns it is good practice to excavate much larger holes than the diameter of their root systems. If the soil is not of an apparently fertile nature it is well to mix with it leaf mould, semi-decomposed stable manure, or if possible, good loam. When planting, do not err by placing the roots on a hard impervious surface, but fork deeply to afford drainage. Place a layer of fine soil over the entire bottom, upon which spread the roots carefully in the manner advised for border planting.

### MULCHING

Newly planted shrubs should be mulched with straw in a half-decomposed state, or with decaying leaves to conserve the moisture in the soil if planted in the spring, or to prevent injury by frost if fall or winter planted. Rich, well-rotted manure should not be used as a mulch until the shrubs have made new fibrous roots, whose root hairs are capable of absorbing the food materials in solution which are rapidly formed in all fertile soils.

Many shrubs are annually killed by excessive applications of rotted stable manure as a mulch to soils already rich in essential food materials, especially those planted during the fall whose inactive roots are incapable of absorption, and must remain in a urine saturated soil until growth starts in the spring. These remarks on mulching apply also to trees which in transplanting often suffer injury to, or reduction of the root system. The folly of applying rich man-

ure to these will be obvious to many.

### ARRANGEMENT

The manner in which the shrubs are arranged is usually dependent upon the area at the disposal of the planter, or is purely a matter of taste. In the herbaceous border mixed shrubs make a splendid addition, provided they are properly placed, either as a background or to relieve a somewhat monotonous grouping of herbaceous subjects. When they are associated with herbaceous perennials, the aim of the planter should be to afford variety, and a succession of bloom through the entire season. To attain this, ascertain carefully the flowering period of any desirable species or variety and plant accordingly.

When it is desirable to make large plantations the genera are better grouped individually; for instance, a clump of *Syringa* (Lilac), *Viburnum* (Snowball), or *Hydrangea paniculata* will furnish a grander effect when arranged in large masses separately and flowering simultaneously than if dotted individually in mixed collections whose constituents flower at diverse times.

## Short Hints on Planting

Wm. Starr, O.A.C., Guelph, Ont.

Get the roots of all plants to be planted under the ground as quickly as possible. Half an hour's, or even a few minutes' exposure of the roots to hot sun and air will materially injure them. Heel the plants in temporarily in soil, or cover them up closely with damp, strawy manure, moss, or even old bags or sacking. Soil, however, is the best material.

Most of the fibrous-rooted perennials, such as campanula, helenium, rudbeckia, cerastium (Snow in Summer), phlox subulata (Moss Pink), and similar plants can be transplanted in spring. Plants that have fleshy or rhizome roots and bulbs, are best planted or transplanted in the fall. Lily of the valley and other garden lilies (*L. candidum*, *L. elegans*, and others) are best transplanted early in September. Lily of the valley is best set out in small clumps four or five plants in a clump, and the clumps about six inches apart, or they may be planted singly two or three inches apart.

The bulbous rooted lilies are also best planted in clumps, six or eight bulbs in a clump. The bulbs should be set about six inches apart and from five to six inches from the surface. Put three or four inches of strawy manure over them before winter sets in. Lilies should not be transplanted or disturbed until the bulbs get very crowded and the clumps too large, as they do not like to be disturbed very frequently.

Paeonies, *Dicentra* (Bleeding Heart), and German Iris are best planted early in October. They succeed much better than when planted or divided in the spring.

## Spring Gardening Suggestions

R. S. Rose, Peterboro, Ont.

IN laying out your garden this spring, do not look only at the vegetable side, but take into consideration the flower side as well. We all know that vegetables are a necessity, as the times go, but surely one can spare space at the border for some flowers, as every woman in the house has a knowledge of and loves plants as well as the added beauty that the flowers give to the rooms. No woman, if she can get them, would willingly be without them. So why not let her have them? When she sees them coming up, she will look after them, knowing what they will be to her and also to you during their time of bloom. So again I say, in laying out your garden this spring include some flower seeds in your order to your seedsman. To those who have not included these seeds in their order, I will try to give an idea of what I think would be advisable for them to get, with also plans of how this can be done and yet not take up too much space from their vegetable garden.

For a back yard garden of say thirty-five by fifty feet, make a three and one-half foot bed up both sides, and also at the end of your lot. On one side have a perennial border of Phlox as a background of all colors. In front of these can be put four o'clocks and stocks alternately with a front border of sweet alyssum.

On the other side have a background of golden glow, sunflowers, and hollyhocks, salvia and asters in front with a front border of pansies. At the end of the garden use sweet peas as a background, with a border of dwarf nasturtiums. Vegetables can be grown in the centre part of the garden.

Another plan could be adopted, such as a yellow background of golden glow and golden treasure, with asters in front at the back of the garden.

Along the whole side of the garden a bed four by five feet wide, with a background of sweet peas and morning glories. Dwarf nasturtiums or balsams can be grown at the foot of these, as they protect the roots of the vines from the hot sun and also help to keep in the moisture. In front a pick and come again bed can be planted with such flowers as stocks, zinnias, sweet suttons, phlox drummondii, gaillardia, wallflowers, centaurea, gypsophila scabiosa, pansies, and sweet william. These are all good annuals and bloom in profusion, giving beautiful flowers for picking. As a border mignonette, candytuft, and sweet alyssum go well together, and will also stand picking, or pansies and phlox drummondii could be planted alternately. A wild flower garden in the corner makes a splendid show, and one gets some good

perennials as well as annuals in the packages. All gardens should have a wild flower corner, where everything can be allowed to grow in massed profusion. The balance of the lot can be used as a vegetable patch or made into a lawn to suit one's self.

Then again one can have a perennial flower bed at the very end of your lot, which will not interfere with the vegetables. The plants that are mentioned hereafter are all good strong growers, and give abundance of flowers throughout the season. The beauty of a perennial garden is not only in its bloom, but that it practically grows by itself, and when one who has not the time to spend in the early spring season sowing seeds and so forth, the perennial flower bed will be found a perfect blessing. It requires attention in the spring by digging in the top covering of manure which is put on in the fall as a protection against frost. In the summer all that is required is to keep the earth loose and free from weeds. The small attention that is necessary will doubly repay you by the splendid showing the flowers will make during the whole season from spring to late frost. The bed shown should be from say thirty-five to forty feet long and by about five feet wide. The plants should be planted two feet apart each way. They should not be crowded, but given plenty of room to spread. You need not, of course, follow the plan just as I have given it, as I am only trying to show the beauty of a perennial bed and what can be done with it. The balance of the lot can be plant-

ed with vegetables or left in lawn as one pleases. With this kind of a bed, flowers can be picked for the table or given away to one's friends, as it does the plants good to keep them well picked and not allow the blossoms to go to seed.

There are lots of other kinds of plants that can be used if one goes over any of the good plant catalogues that all of the seedsman who advertise in The Canadian Horticulturist will be only too glad to send if you drop them a post card. The outlay for a perennial garden is heavier than for annuals, but it is there, and there to stay. And they need not be got all at once, but added to spring by spring as the fancy takes you.

### PLANTS FOR SHADY PLACES

If you have a shady nook in the garden the following plants would do well there: A background of Columbine (Aquilegia), with Monswood (Aconitum), Bleeding Heart (Dielytra or Dicentra), Foxglove (Digitalis) in front. Jacob's Ladder (Polemonium), Solomon's Seal (Polygonatum), False Solomon's Seal (Smilacina), Carolina or Indian Pink (Spigelia), Saxifraga Alpina, Primulas (Primrose), partial shade. Lilies of the Valley, Violets, Myosotis (Forget-me-nots), pansies, also do well in half shade.

There are many pleasing methods of training or growing roses. One is to take a long vigorous shoot of the previous season's growth, say of some perpetual rose, such as General Jacqueminot, bending it over and fastening the point of the shoot to the ground. This will cause every eye to break, and give you a short spur of growth, each surmounted with its brilliant blossom; an entire border treated in this way will give a perfect blaze of bloom.



8. Luxuriant Growth in the Garden of Mr. Geo. Vickers, Barrie, Ont.

## Growing Potatoes on a Commercial Basis

A. C. Parker, Manager St. John's Valley Farm and Fruit Land Co., Burton, N.B.

**P**OTATO raising may be divided into five sections: Selection of fertilizer and seed, selection and preparation of the soil, time and method of planting, cultivation and spraying, time and method of harvesting. The latter point I covered in an article in The Canadian Horticulturist last fall.

While the potato can be grown with fair success on a large variety of soils, still the ideal potato soil is a deep, sandy or gravelly loam, with sufficient humus to ensure retention of the necessary supply of moisture. It is from such soils the best quality of potatoes are obtained. The least favorable soil is a heavy clay, wherein the air does not circulate freely. A good clover sod, turned down in the fall, affords a good start for potatoes. Any sod land is preferable to old tilled land.

### HARROW IN THE FALL

After ploughing sod land intended for potatoes in the fall, it should have a thorough harrowing. This aids in killing weeds and also aids in the decaying of the old sod. Land harrowed in the fall will be in condition to work in the spring, sooner than that which was not harrowed.

In the spring, as soon as the land is sufficiently dry to work, it should be thoroughly harrowed. This harrowing should be repeated every four or five days until planting time. In this way the land will get much warmer, and a large proportion of the weeds will be destroyed.

The harrowing should be done with a disk harrow, as any form of a drag harrow brings to the surface too much of the sod. This is undesirable, as it interferes very materially with planting and after-cultivation.

### WHEN TO PLANT

Planting time varies on different soils and in different seasons. Unless you are growing for the early market, it is not advisable to plant too early. The majority of our potato growers plant too early. If seed and soil have been properly handled, and the proper method of planting followed, the potatoes will be up in from six to eight days. There is, of course, danger of delaying too late.

In the Maritime Provinces probably the best time to plant is the last week in May or the first week in June. Of course, this varies in different seasons. In some seasons the planting may be done better during the first and second weeks in June. I have seen large crops harvested which were planted the first week in July, but this is probably too late, as in only an exceptional season would a good crop be obtained by such late planting.

Any person growing potatoes on a commercial basis should have a potato planter. This is a great labor-saving machine, as it sows fertilizer, drops seed, and covers all at once. There are several good makes of this machine. The Aspinwall is, I consider, among the best. Anyone growing potatoes on a commercial basis should not try to get on without one of these machines.

Great care should be exercised not to plant too deep. A good many potato growers make this mistake. Potatoes should be planted on top of the ground with only enough earth over them to retain moisture. Two or three inches is sufficient. Some growers advise deeper planting. Potatoes will yield better if planted shallow. When planted deep it is almost impossible to dig them with a digging machine.

The care with which cultivation and spraying are done goes a long way towards determining the size of the potato crop. You cannot reasonably expect a good crop if you do not thoroughly cultivate. You must spray to keep bugs and rust from destroying the leaves of the plants.

### USE THE WEEDER

As soon as the plants make their appearance through the ground, we go over them crosswise with a weeder, and scratch them down, very nearly level.

Two days later we go over them again with the horse hoe and cover them up. After three or four days more this should be repeated with an additional cultivation. This kills all weeds and also makes the young plants strong, stout, and stalky.

In another week we cultivate and horse hoe again, with the hoe spread a little at the top. This is repeated in another week or ten days. If the ground is not too dry or weedy or hard, we do not do any more cultivating, but if either of these conditions exist we repeat again. If land has been properly worked before planting, the fourth cultivation will not be necessary.

Last year we sprayed with Bordeaux mixture, with arsenate for poisoning, with extra good result. We sprayed three times, using the regular formula for bordeaux and two pounds of arsenate to forty gallons of spray. This controlled the bugs completely, and I did not notice the least bit of foliage injury from it. In my opinion arsenate is a long way ahead of paris green for destroying potato bugs. It is almost impossible to raise potatoes successfully without spraying for rust. Rust is almost as bad a scourge on potatoes as the bugs. Rust can be successfully controlled by the use of bordeaux mixture. In some seasons it will be necessary to spray six to ten times to control it, but even at ten times, it will pay you for your trouble.

## Celery for the Home Garden

George Baldwin, Toronto, Ont

Prepare your trench in the following manner: Mark off your ground six feet wide by the length required to take care of the quantity you intend planting. Dig this out to the depth of eight inches, throwing the earth equally on each side. Fill this eight inches up with good rotten manure and dig it in thoroughly and deeply. To insure its being thoroughly incorporated with the soil tramp all over it and then dig it up again. Then level and rake it over, after which mark off with a string, the three rows, which should be eighteen inches from each bank, and eighteen inches between the rows. The rows should run north and south. Next get your plants which should now be about eight inches long, that is, four inches of tops and four inches of roots; take the shears and clip off about one-half inch of foliage and one-half inch of roots, and then plant eight inches apart in the rows. Be sure when planting that you do not have the roots turning upwards. Dibble your holes big enough to allow the roots to go down in their natural position, and above all press the earth very firmly around the roots. Give a good supply of water and

shade for a day or two with boards or paper.

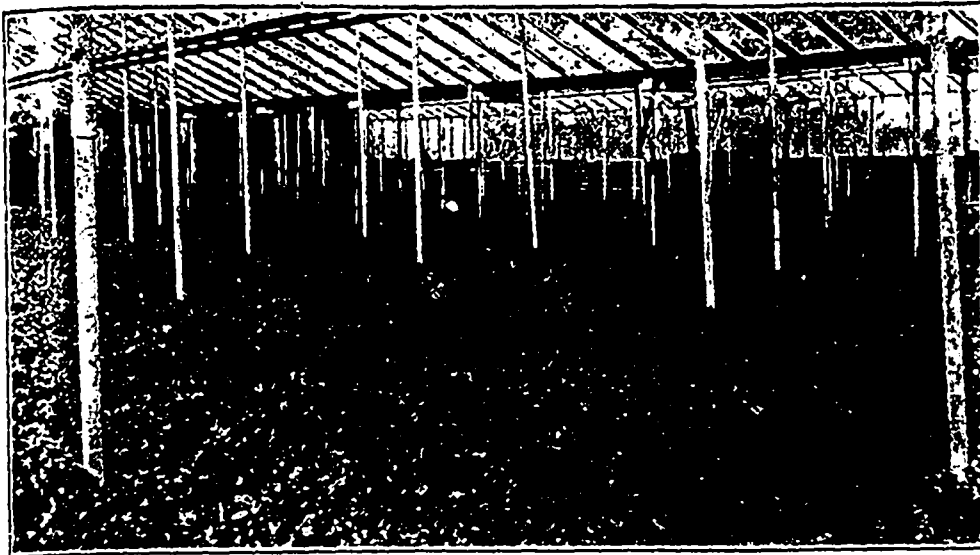
You can get the plants of the three varieties mentioned from seedsmen, but do not leave it too late in ordering. You had better order early than wait until the twenty-fourth of May.

### GROW SOME RADISHES

Along each side of your trench, you have a hill running the whole length probably a foot high. Level this off on top to about eight inches wide and sow radishes, which will mature long before you need the soil for earthing up purposes, in fact I get two crops of radishes off these hills.

### CULTIVATION

From this out (your rows being wide enough) run your hoe through one day, and water the next day. Take off the nozzle and hold the hose down close and give a liberal supply of water. Once a week give the rows a watering with liquid manure. By the end of July you will have some celery fit to pull. About the second week of July start the earthing up operations by drawing from the hills on either side and putting about four inches of earth around the stalks. D



Lettuce Grown by R. H. Ellis, Leamington, Ont., Spring of 1912

this by holding each individual plant firmly with your left hand and using your right to draw the earth, being very careful not to let any earth run in between the stalks.

**BLEACHING**

To thoroughly bleach the celery fit for table use, allow yourself ten days or two weeks, covering up within four inches of the tops of the foliage. Scatter a little sulphur or slaked lime over your bed twice during the season. Look occasionally for a green and yellow caterpillar. Don't squirt water on the foliage. Carry out the foregoing instructions and you will have celery fit to place before a king.

I recommend the earth instead of paper or boards for bleaching, because I have tried all these ways, and find the earth far preferable. It gives the celery a sweet nutty taste and the bleaching is more complete.

**Tomato Growing**

By an Amateur, Sarnia, Ont.

The following methods, as used by me, have proved successful in growing sufficient tomatoes for a small family on a plot of ground twelve feet square. The tomatoes were grown on a single stem, tied to stakes.

Procure stakes eight feet long. One way to do this is to get two inch planks at a saw mill, sixteen feet long. Have them sawn into strips two inches wide, then cut in halves and you have twenty-four uprights. Thoroughly enrich the ground. It cannot be too rich.

Dig trenches across the plot three feet apart, and one foot deep. Plant the stakes in the trenches two feet apart. When danger of frost is over plant a well grown tomato at each stake. If the tomato branches to the root cut all the branches but two leaving the main stem. Bend these branches down and cover with

earth. As the main stem grows up it: stake, keep filling in the earth in the trenches until the ground is level.

Each plant must be tied to the stake. Use the first tie about one foot above the level ground. After that, tie as the plant needs support. Use soft tying material such as candle wick, or strips of cotton. Do not wrap the tie cord round the plant. Wrap it round the stake, and pass it round the plant. Do not tie tightly.

As the plants grow they must be examined frequently so that all extra growth may be pruned out as early as possible. Branches and fruit will start from every joint close to the stem, and just as soon as the growth shows which is fruit and which is branch, the branch should be pinched out. The earlier this is done the more strength will be thrown into the stem and the fruit.

The stake will be about seven feet above the ground. In a good soil the plant should grow higher than the stake. After the plant is say two feet above the level ground the bottom leaves for the first foot can be cut off and then the ground can be frequently raked and kept clean.

Practically all vegetables are heavy feeders on the plant food in the soil, and so require lots of fertility, and speaking generally, stable manure gives the best results as a fertilizer. For such foliage plants as lettuce, cabbage and cauliflowers, a light application of nitrate of soda frequently about the plants, induces a quick, rapid growth, but care should be taken that the fertilizer does not come in contact with the plants, or they are apt to be killed by it.

Mildew is a fungus that develops rapidly in damp weather. Flower of sulphur dusted on the leaves when they are damp will prove an effective remedy.

**Questions on Tomato Growing Answered**

A. Walker, Macdonald College, Que.

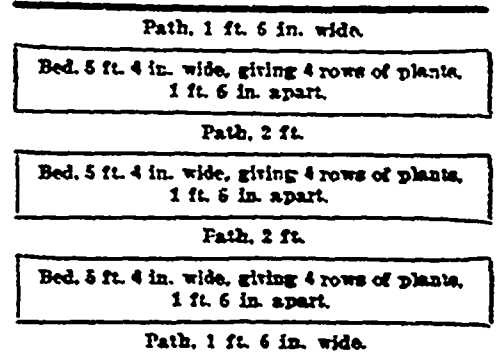
What are the best varieties of tomatoes and the best greenhouse construction for the growing of such a crop?—Subscriber, British Columbia.

Of the varieties we have tested here Livingston's Globe is easily the best for the following reasons: The growth is ideal in that it is not too gross and the foliage ample without being too dense. This is a good feature as you can plant such a variety closer. The fruits are very uniform in size and of excellent form. Very few are rubbishy or small, which one so often finds in other varieties. The color is a very pleasing pink.

The maximum amount of light is perhaps the most important feature to be considered in constructing houses for this crop, although the question of ventilation is of about equal importance. I would advise detached houses running east and west sufficiently far apart that no shade would be thrown from one to the other. Then by using continuous ventilation on top and both sides, you have an ideal house.

There are so many up-to-date constructions to-day that I fear if I advise any special one I will have the time of my life warding off the attacks of the others. Suffice it to say the wider the house the better air conditions. The pitch of a house should be governed by the section of the country in which it is built. In British Columbia I would say from 30 to 35 degrees would be ample.

As a guide regarding the width of houses being specially constructed for the crops, I should say that 23 feet would be the maximum interior width, made up as follows:



The eaves of house should be at least seven feet in order to have plenty of head room for plants on side beds. Solid beds close to the ground well drained serve as well as raised benches for the crop.

The weight of glass per square foot need not worry anyone, as all forms of construction are sufficiently strong to carry whatever weight of glass may be used in greenhouse construction.

**The Canadian Horticulturist**  
 COMBINED WITH  
**THE CANADIAN HORTICULTURIST  
 AND BEEKEEPER**

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.25 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

**CIRCULATION STATEMENT**

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 12,000 to 14,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912.....	10,437	September, 1912.....	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912.....	11,162
May, 1912.....	12,112	December, 1912.....	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each issue in 1907,	6,627
" " " " 1908,	8,885
" " " " 1909,	8,978
" " " " 1910,	9,867
" " " " 1911,	9,541
" " " " 1912,	11,657

April, 1913..... 10,849

Sworn detailed statements will be mailed upon application.

**OUR GUARANTEE**

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Refuses shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor by the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,  
 PETERBORO, ONT.

**CHANGING CONDITIONS**

Until recent years our agricultural colleges, experiment stations, departments of agriculture, and government organizations of farmers, fruit growers, vegetable growers, and allied interests have devoted their attention almost exclusively to gaining and disseminating information relating to the best methods of increasing crop production. There has been a general impression that the best method of ensuring prosperity for the farmer or fruit grower was to assist him in increasing his yearly production. Of late years this viewpoint has undergone a number of radical changes.

The rapid development of the great cities both in Canada and the United States and the bringing under cultivation in the west of immense areas of virgin soil have so complicated the modern system of marketing the products of the farm and orchard, and have resulted in the appearance of so many middlemen in one form or another, it is now becoming clearly recognized that increased production will not necessarily benefit the producer unless methods of marketing are also improved. It has so frequently happened that fruit growers, shipping on consignment, have had nothing left for themselves after paying the transportation charges on their fruit and the commissions of the middlemen that there has been a growing demand for a closer regulation and adjustment of railroad rates, and for the introduction of co-operative methods of marketing among growers.

In the United States conditions have become acute. They led to the holding last month in Chicago of the first "National Conference on Marketing and Farm Credits." It was called by the publishers of the leading agricultural and horticultural publications of the continent. No less than four provinces and twenty-eight states were represented by delegates. Not much was accomplished at this first conference beyond the formation of an organization, whose duty it will be to conduct investigations to ascertain methods of improving existing systems of marketing the products of the farm and orchard. This conference has drawn attention to the importance of the problem involved and more rapid improvement in our methods of distribution may be expected from now on. The middlemen and great transportation companies are on the defensive, and they will be wise if they prepare for increasingly thorough and searching public investigations of their methods.

**PARCELS POST**

The phenomenal success of the parcels post system in the United States since its introduction on the first of the year and the announcement by Canada's Postmaster-General that the Dominion Government purposes introducing a parcels post system in Canada raises the question of what system is likely to be adopted. In the United States what is known as the Zone system is in force. The cost of shipping parcels is determined by the number of miles they are carried. This system seems fair, but it gives a decided advantage to firms doing business near the centre of the country. In the United States, for instance, firms located in the Mississippi Valley are able to forward parcels to either the Atlantic or Pacific Coast states at about half the cost incurred by firms located in these latter states who find it necessary to ship goods across the continent.

A consideration of this character is sure to be of sufficient importance with many concerns to be the determining factor in inducing them to locate at points where they can obtain the full advantage of such conditions. In Canada there is no extra cost entailed in sending a letter three thousand miles as compared with such shorter distances, and strenuous objection would be raised to the making of any change in this system. It is to be hoped therefore, that the Government will endeavor to follow the same principle in connection with the proposed parcels post system.

**RAILWAY RATES**

To the old saying that "Figures cannot lie" there has been made the apt rejoinder, "No, but liars can figure." The defence of the railroad companies to the charges made by Mr. Donald Johnson, representing the Ontario Fruit Growers' Association, in his evidence before the members of the Agricultural Committee of the Dominion House of Commons, in which he claimed that Ontario fruit growers were discriminated against by railroad companies as regards the cost of transporting fruit to the markets of the middle West, appeared on the surface to be strong. The investigations, however, of Mr. G. E. McIntosh, the transportation agent of the Ontario Fruit Growers' Association, proved that Mr. Johnson's charges were well founded.

While the charges between Ontario points and Winnipeg are fair to the Ontario grower there is discrimination in the rates charged the western grower between Winnipeg and points farther west. Since the appointment of the Dominion Railway Commission Canadian fruit growers have succeeded in wringing many important concessions from the railroad companies. The pressing of the points now at issue between Ontario growers and the transportation companies should be all that is necessary to secure a further adjustment in rates that will be of benefit to the growers. Ontario growers are not asking that they shall be given any better rates than the growers of the Pacific Coast, but they request and will insist on obtaining rates that will be equally advantageous.

**THE UNITED STATES TARIFF**

The Democratic tariff bill that has received the approval of President Wilson and the leaders of the Democratic Party, and which is now receiving the attention of Congress has not gone so far as to place Canadian fruit on the free list, but has made some important reductions which will tend, should they be finally ratified, to result in the marketing of more Canadian fruit in the United States that has hitherto been the case. The reduction of the duty on apples from twenty-five to ten cents a bushel will be equal to a reduction from seventy-five cents to fifty cents a barrel. This will be sufficient to enable thousands of barrels of Canadian apples to find a market in the States.

The proposed drop in the duty on fresh vegetables from twenty-five per cent. to fifteen per cent. will be of most benefit to growers living near border points. Should potatoes be placed on the free list, as is now proposed, it will mean a loss to Canadian potato growers, particularly those in the Maritime provinces, and on the whole the horticultural interests of Can-

ada have much to gain and nothing to lose from the proposed changes in the United States tariff.

The Horticultural Societies Act of Ontario is probably the best act of the kind in force in any province of Canada or state in the American Union. A number of provinces and states make annual grants to horticultural exhibitions of one kind or another. None that we know of make annual grants to local horticultural societies based upon their membership and expenditures for horticultural purposes. State or provincial legislatures which desire to promote the horticultural interests of their people will do well to examine carefully the Horticultural Societies Act of Ontario.

**PUBLISHER'S DESK**

The annual meeting of The Horticultural Publishing Co., Limited, was held in Toronto on March 27th. The reports presented showed that great progress had been made and that the Company was in the strongest position in its history. A substantial addition was made to the reserve fund from the profits on the year's business. The Horticultural Publishing Company publishes The Canadian Horticulturist and The Canadian Florist, and is now commencing also the publication of The Beekeeper. The officers of the Company were all re-elected, and are as follows: President, W. H. Bunting, St. Catharines; vice-president, John H. Dunlop, Toronto; managing director and secretary-treasurer, H. B. Cowan, Peterborough; directors, A. W. Peart, Burlington; Hermann Simmers and P. W. Hodgetts, Toronto; Harold Jones, Prescott.

Starting with this issue The Canadian Horticulturist hereafter will be published in two editions. The first or regular edition will be called The Canadian Horticulturist, and will appear in exactly the same form as the paper has had in the past. The second edition will be called "The Canadian Horticulturist and Beekeeper." It will be mailed to those readers of The Canadian Horticulturist who are especially interested in beekeeping, and will contain features that will be of special interest to them. The cover of the second edition will differ from the cover of the first edition only in the addition of the word "Beekeeper." Some five pages of matter appearing in the first or regular edition of The Canadian Horticulturist will be replaced in this issue by an equal number of pages of matter relating to the beekeeping industry. The pages in the May issue of The Canadian Horticulturist that will be changed will be pages 129, 130, 131, 133, and 134. There will be no other change. Owing to the heavy expense involved in making the changes necessitated by the publication of this second edition the subscription price of The Canadian Horticulturist and Beekeeper will be \$1.00 a year and not 60¢ a year, which will continue to be the regular subscription price, for the present at least, of The Canadian Horticulturist. This second edition of The Canadian Horticulturist has been started as a result of the earnest solicitation of the officers of The Ontario Beekeepers' Association, who have appointed it their official organ and subscribed for it for all of their nearly eight hundred members. As there are some eleven thousand beekeepers in

Ontario alone, and as the great majority of these are interested in fruit growing, it will be seen that the new edition of The Canadian Horticulturist has a wide field in which to work. The advertisers in The Canadian Horticulturist will receive the full benefit of this departure as their advertisements will be published in both editions without change. Readers of The Canadian Horticulturist who would like to have their subscriptions changed in order that they may receive instead The Canadian Horticulturist and Beekeeper may have the change made upon request.

Have you noticed the "Absolute Guarantee" of our advertisers that we publish on the editorial page of each issue? Are you aware that The Canadian Horticulturist, with its companion publication, Farm and Dairy, are the only two publications in Canada that give such a guarantee of their advertisers? We take great pains to see that none but the most reliable advertisements are admitted to the columns of The Canadian Horticulturist. This involves the refusal by us of large volumes of business that readily find admittance to the columns of most other publications, but it enables us to give our readers the benefit of this guarantee. Read it and see how thoroughly your interests are protected every time you buy from one of our advertisers and tell them that you saw their advertisement in The Canadian Horticulturist.

Ask for what you don't see, is a good adage, and applies particularly well to a magazine. It is our endeavor as a horticultural magazine to keep our columns filled with advertising of interest to our readers, to be able to have them say, "When I want anything in the horticultural line, I only have to look among the advertisements in The Canadian Horticulturist." Sometimes, however, it is a difficult matter to get every line represented and so occasionally some of our readers write in with inquiries about certain articles which they do not find in our columns. We are glad to get such requests. During the next few weeks you will be requiring many articles in connection with your orchard garden, or house, some of which you may not find advertised. Do not be afraid to write to us. We are constantly in touch with reliable firms handling goods of nearly every description. Our motto is "Service," and we will always be pleased to supply you with any information available.

**International Score Card Competition**

A feature of the next meeting of the American Pomological Society will be a score card judging contest. The purpose of this work is to bring about a more uniform and systematic system of judging fruits in competition. First, by bringing together a comprehensive collection of fruits from all parts of the continent; second, by requiring all contestants to use the same score card values; third, by requiring each contestant to judge both varieties of his own section and those from distant sections, fourth, by submitting a full explanation of the scores made by contestants to the convention, together with an explanation of the values written into the score cards.

This ought to result in several distinct advantages to both the producers and the consumers. The one ought to learn what to strive for in producing a fruit; the other ought to learn what constitutes a

good fruit; and both ought to obtain a knowledge of the characters of fruits that are of particular importance and value. It is confidently expected that this step will inaugurate a distinct movement for better fruit, and that the growing, exhibiting, and marketing of fruit will receive a positive stimulus through the general introduction of a uniform score card practice in judging competitive exhibits. At present sixteen Agricultural Colleges have expressed hearty support of a plan to have teams of three from each of these institutions participate in the contest.

**SOCIETY NOTES**

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

**Perth**

The April meeting of the Perth Horticultural Society had a number of inspiring features for those who are interested in the elevating service in which the true friends of the garden are concerned. The membership has been showing a steady increase for a number of weeks. It is now beyond the two hundred mark. The merits of the cause are prized not only by the people of the town, where the majority of the membership is found, but by the people in the country nearby, and as far on one side as twelve miles, and on another side as far as twenty.—A. H. S.

**Peterboro**

The spring option list of the Peterboro Horticultural Society is as follows, each member being entitled to any one of the options, as well as to a year's subscription to The Canadian Horticulturist:

- No. One—One box Asters, mixed; one box Stocks, mixed; one box Phlox, mixed.
- No. Two—Three Paeonies, assorted colors.
- No. Three—Three Calla Lilies, white, yellow and black.
- No. Four—Six Dahlia Roots, choice varieties.
- No. Five—Six Geranium in four inch pots.
- No. Six—Six Salvia, in three inch pots.
- No. Seven—Twelve Groff's Hybrid Gladiolus, choice varieties.
- No. Eight—One Clematis Jackmani, three-year-old plants.
- No. Nine—One Dutchman's Pipe choice, four foot plants.
- No. Ten—Five Delphinium, or Perennial Larkspurs.
- No. Eleven—Five hardy Garden Phlox: new varieties.
- No. Twelve—One Boston or Whitmani Fern.
- No. Thirteen—One Kentia Palm.
- No. Fourteen—Five Herbert Red Raspberry, five Black Diamond Raspberry.
- No. Fifteen—Five Gooseberry Bushes; five Black Currants.

The annual convention of the Canadian Horticultural Society is to be held in Peterboro this summer and the local Society is planning to hold a Horticultural Exhibition.

The county of Grey (Ontario) has decided to make an exhibit of apples at the Ontario Horticultural Exhibition in Toronto next November.

# Transportation Charges Investigated

## A Comparison of Rates from Ontario and Pacific Coast Points to the Prairies

MR. Donald Johnson, of Forest, Ont., when speaking for the Ontario fruit growers before the Agricultural Committee of the House of Commons, last winter, complained of the discrimination in the rates to which the fruit growers of Ontario have been subjected by the railway companies in connection with western shipments of fruit. The matter later received a great deal of prominence in the press of the country. This led the western freight agents to publish statements of rates, disputing the claims of the fruit growers that there was any discrimination. The Ontario Fruit Growers' Association thereupon asked Mr. G. E. McIntosh, its transportation agent, to look into the matter. Mr. McIntosh has done so, and has reported as follows to Mr. P. W. Hodgetts, the secretary of the Association:

"In regard to the rates given out for the railways by Mr. Lanigan, and appearing in the Winnipeg Telegram of February 8th, in my opinion the rates are correct, and I do not think they have been publicly disputed by any representative of the Ontario Fruit Growers' Association, but just wherein lies the great preference to the Ontario shipper, as intimated by Mr. Lanigan, is a point not quite clear.

"The evidence given by Mr. Donald Johnson before the Agricultural Committee at Ottawa was to the effect that the Ontario shipper is called upon to pay a much higher rate to cover that territory lying west of Winnipeg to Calgary and Edmonton than the American or British Columbia shipper over the same trackage, and the following rates and mileage comparisons issued by Mr. Lanigan afford the proof:

gan to Calgary, at a rate of fifty-eight cents per one hundred pounds, would haul, say, two thousand tons, or nearly five times the load from Toronto to Winnipeg at fifty-three cents a hundred pounds, thus handling the Ontario shipments from, say, St. Catharines to Winnipeg at a greater profit than the American or British Columbia shipments to Calgary.

"No complaint is made of the rate from Ontario points to Winnipeg, nor do we think the British Columbia shipper is charged an excessive rate to Calgary because conditions demand it. Taking the above points into consideration, the rates are probably fair to both, with certainly no advantage or preference, as intimated, to the Ontario shipper.

"With Winnipeg, then, as an entrance to this market for the Ontario apple shipper, and Calgary an entrance point for the Western States or British Columbia shipper, all on a fair rate basis, we find the territory lying between these points as follows:

"The Okanagan shipper pays on a through rate sixty cents to Calgary and seventy-five cents to Winnipeg, while the Ontario shipper pays fifty-three cents to Winnipeg and one dollar and four cents to Calgary.

"The Okanagan shipper pays on a through rate fifteen cents per one hundred pounds for the haul of eight hundred and thirty-seven miles between Calgary and Winnipeg, while the St. Catharines shipper pays fifty-one cents a hundred pounds over the same rails.

"The Canadian Pacific Railway makes a charge of eight cents a cwt. for the haul of six hundred and fifty-seven miles be-

"Mr. Johnson's assertions regarding the territory here referred to, therefore, appear to be well founded. If the rates are to be based solely upon a mileage basis we must refer to the following:

	Miles.	Rate
Yakima to Fort William	1809	50c
Oshawa, Ont., to Regina	1632	57c
Hood Riv. to Port. Arthur	1906	40c
Brampton to Medicine Hat	1827	46c
Yakima to Montreal	3154	\$1 00
St. Catharines to Calgary	2223	\$1 04
Hood River to Montreal	3254	\$1 00
Forest, Ont., to Lethbridge	2178	\$1 00

"It is, therefore, obvious that the freight rates even on a mileage basis give no advantage whatever to the Ontario producer. Advantages or a preference over other shippers are not sought for. The Ontario producer realizes, however, that with seventy per cent. of the crop marketed last season going into the western market, that to retain such and meet the future competition when the large orchard acreage of the Western States and British Columbia come into bearing, they must or should have an equal chance to reach that market west of Winnipeg by an equalization of freight rates for that particular territory.

"Exception should also be taken to the statement of Mr. Chas. Dewey, freight agent of the Grand Trunk Railway, in the same issue of the Telegram, in which he claims Ontario apples are generally shipped lake and rail. Only a very small percentage is given the lake and rail routing, scarcely any that are billed west of Port Arthur, so that all-rail rates must be considered.

"In regard to the supply of refrigerator cars, Mr. Dewey says: 'The statement of Donald Johnson that the refrigerator cars in the service of the Company are fewer this year than last year is not true.' This statement of Mr. Johnson's was in reference to the supply of refrigerator cars in service on the Grand Trunk Railway for the year ending 30th June, 1912, and if we are to believe the sworn statements of the officials of that Company submitted to the Minister of Railways and Canals, Mr. Johnson's assertion is correct. The figures as therein reported for the Grand Trunk Railway for five years past are as follow:

Year	Ref. Cars
For year ending June 30, 1908	955
" " " " 1909	949
" " " " 1910	947
" " " " 1911	944
" " " " 1912	941

"If a mistake has been made in the compilation of this report, a gross injustice has been done the Grand Trunk Railway Company. It, however, is the only means whereby the public can get this information and is accepted as authentic until discredited by those compiling the figures.

"The Ontario grower is not endeavoring to raise a howl against the railroads. He realizes that some railway companies are endeavoring to keep up with increased demands on their equipment, but he also realizes that he has given too much attention to production and not enough to transportation and marketing. Improvements in packing, as suggested by Mr. Lanigan, is one of the important matters too long neglected, but this will no doubt be greatly improved the coming season and a change made from barrel to box package. The conditions for marketing west of Winnipeg is another. It appears to the average Ontario shipper just as Mr. Johnson stated before the Agricultural Committee, and as above figures would imply, viz., that the Ontario producer pays too high a rate west of Winnipeg compared with his competitors. (Sgd.) G. E. McIntosh

From	To	Miles.	Route.	Rate per 100 lbs.
St. Catharines	Winnipeg	1383	Lake and rail	46c
St. Catharines	Winnipeg	1383	All rail	53c
Kelowna, B.C.	Winnipeg	1228	All rail	75c
Yakima, Wash.	Winnipeg	1387	All rail	75c
Wenatchee	Winnipeg	1325	All rail	75c
St. Catharines	Regina	1740	Lake and rail	76c
St. Catharines	Regina	1740	All rail	83c
Yakima Wash.	Regina	1030	All rail	75c
Wenatchee	Regina	958	All rail	\$1.06
St. Catharines	Calgary	2223	Lake and rail	97c
St. Catharines	Calgary	2223	All rail	\$1.04
Kelowna, B.C.	Calgary	890	All rail	58c
Yakima, Wash.	Calgary	595	All rail	96c

"Even from the standpoint of total mileage from point of shipment in Ontario to destination in the west and from point of shipment in Washington or British Columbia to the Prairie markets, as here given, I fail to see the great preference our Ontario shippers are said to enjoy, if we but consider conditions as they exist.

"In this particular case, is it fair, however to draw a comparison solely on a mileage basis? Must we not rightly give some consideration to the conditions which help to make these rates? Take, for instance, the haul from Yakima or from Okanagan to Calgary: compare the costly nature of construction of that piece of railway with that from Toronto to Winnipeg: consider also the heavy expense over that mountain haul of keeping up auxiliary power, the enormous expenditure on snow sheds and other preventatives from slides, and finally consider the fact that the one hundred and eighty per cent. type engine which would haul, say, four hundred and eleven tons over that roadbed from Okana-

gan to Calgary, at a rate of fifty-eight cents per one hundred pounds, would haul, say, two thousand tons, or nearly five times the load from Toronto to Winnipeg at fifty-three cents a hundred pounds, thus handling the Ontario shipments from, say, St. Catharines to Winnipeg at a greater profit than the American or British Columbia shipments to Calgary.

"From Spence's Bridge to Medicine Hat a rate is given of seventy-nine cents and to Winnipeg eighty-five cents—six hundred and fifty-seven miles for six cents a cwt., but the Ontario shipper pays forty-eight cents for the same six hundred and fifty-seven miles.

"From Athol, Bonner's Ferry, and other Idaho points the rate to Winnipeg, Brandon, Regina, or Medicine Hat is seventy-five cents a hundred pounds. Ontario shippers pay between Winnipeg and Medicine Hat forty-eight cents; between Winnipeg and Regina thirty-four cents, and between Winnipeg and Brandon nineteen cents a hundred pounds.

"Another advantage these shippers enjoy over the Ontario shippers is the privilege of collecting car loads at concentration points within a radius of sixty miles at a rate of ten cents a hundred pounds.

## Georgian Bay Growers Awakening

C. J. Mitcnell, Clarksburg, Ont.

There is a new era dawning for the fruit growers of the Georgian Bay District, Ontario, and particularly the Beaver Valley. The advantages are unsurpassed by any other location in wide America. Already we have a few orchards that have been cared for, that are worth one thousand dollars an acre, but very few people know it. Large investors are more inclined to look far away, to British Columbia, Oregon and Washington for something, and overlook the opportunity right here in Ontario. There is no district in America as well situated for the growing of high-class apples. Lying on the South shore of the Georgian Bay, the climate is so tempered by the proximity of this large body of water as to insure against frost in spring and a sure ripening of the wood in the fall. These conditions are ideal and nowhere can they be excelled, abundant sunshine, and enough rainfall to make irrigation unnecessary. The soil is all that can be desired, when new, unsurpassed for richness, and perfect drainage, both of air and water.

This makes the Georgian Bay apples the best keepers in the world. They are also considered to be the best in flavor. Thus when properly grown they command the highest price in home and foreign markets. With all these advantages and cheap lands, the district only requires, to be known, to have a little more advertising, to make it one of the leading fruit growing regions of the country.

North America is the apple producing region of the world, and even it is limited to certain sections and locations. Until

recently the eastern states, and particularly New York produced more apples than any other section. The industry has followed immigration and gradually moved north and west, until to-day the east has to come north and west for its supply of apples.

Never in the history of any country has there been such a manifest change. The farmers of the east no longer devote time and attention to the orchard, hence the insect pests and fungi diseases have driven out the home orchard. There are probably more acres to-day than there were twenty years ago, but as most of the old orchards are not producing, planting will have to be kept going pretty extensively to keep pace with the demands of our people. When I say our people, I mean the United States and Canada, while the foreign markets are also increasing with astonishing rapidity.

The question has been raised, will there be over-production? The increase in population in the last fifteen years could eat the entire crop of 1909, which was an average crop, and not give the people one apple each a day, while the other sixty-five million would not get a single apple. I think this should clearly show that there is no immediate fear of over production, and that we have the market practically right at home.

The Beaver Valley contains about two hundred and eighty square miles of the best orchard lands in the world, which are now selling for from fifty to one hundred dollars an acre, according to location and improvements. This surely is a

## Douglas Gardens Oakville, Ontario

A few items from our spring planting list:—

- ANTHEMIS ..... 15c each
  - AQUILEGIA (Columbine) 2 sorts, ..... 15c each
  - ASTERS (Michaelmas Daisies) 6 sorts, ..... 15c each
  - ASTILBE (Spiraea) Jay. Com. Multi, ..... 15c each
  - ASTILBE—Gladstone..... 25c each
  - ASTILBE—Peach Blossom ... 30c each
  - ASTILBE—Queen Alexandra 35c each
  - BOLTONIA ASTEROIDES (False Starwort) ..... 15c each
  - CAMPANULA (Bellflower) 3 sorts, ..... 15c each
  - COREOPSIS—Grandiflora.... 15c each
  - DELPHINIUMS (Larkspur)... 15c each
  - GAILLARDIA ..... 15c each
  - HELENIUM—3 sorts ..... 15c each
  - HIBISCUS (Rose Mallova) 2 sorts, ..... 15c each
  - KNIPHOFIA—The everblooming torch lily ..... 15c each
  - PENTSTEMON (Beard Tongue) 2 sorts, ..... 15c each
  - PHYSOSTEGIA (False Dragon's Head) 2 sorts ..... 15c each
  - RUDBECKIA SPECIOSA ..... 15c each
- All the above are Hardy Perennials. Sent carriage prepaid.

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## Surplus Stock

We offer subject to sale the following stock, which we guarantee to be true to name, No. 1. stock in every respect, 5-7 ft. high. Price F.O.B. Pointe Claire, \$27 per 100.

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- 500 Fameuse
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snap, when compared with the far western high-priced orchard land and still higher cost of preparation and upkeep.

It is not in apples alone that the Beaver Valley excels. Plums, pears, cherries, grapes, and many kinds of peaches, as well as all varieties of the smaller fruits succeed to perfection.

A few years ago at the Canadian National Exhibition, I placed on the table in one exhibit the most complete and interesting display of plums ever made in Ontario, or perhaps in the world: One hundred and forty-nine different varieties, all named. There were European plums, American plums, and plums from far Japan. Besides, I had about thirty others which were either too early or too late for the show. I only mention this to show our possibilities. They all grew on my farm adjoining the village of Clarksburg. I have also fruited to perfection over fifty varieties of pears, including the leading kinds. There is no guesswork about this; everything has been tested and proved by years of experience.

Situated as we are on the highway of commerce, both east and west, over three thousand miles nearer the great markets of the world than our western competitors, besides having all the natural advantages possible, surely we should be up and doing.

The orchards of the future are bound to be large commercial undertakings carried on either by individual effort or by companies, mostly the latter, and in the most scientific, business-like and up-to-date method possible. They will not be a side line like our old home orchards, which must be considered a thing of the past. The future of the Georgian Bay District will be just what we make it.

## Romance in an Apple Orchard

L. H. Carey, Hamilton, Ont.

BEN DAVIS was an awful flirt. He was a TALLMAN and handsome, a native of SPITZENBURG, HOLLAND. He became hopelessly smitten on BELLFLOWER, who looked like a DUCHESS, dressed beautifully in a RUSSET gown. His attentions to her were so SWEET that he made the MAIDEN BLUSH.

Now she was engaged to another MANN. Although he was a BALDWIN, he was WEALTHY as a KING, and when he was advised of this he SWAAR, and with rage turned white as SNOW, and nearly took an APPLE-ptic fit.

He at once engaged a SPY, who soon informed him that he need SEEK NO FURTHER for her affections. He immediately left ONTARIO for a NEW-TOWN down on the ST. LAWRENCE, where he met a ROME BEAUTY, and now he declares there are NONSUCH as she.

## Items of Interest

Barn-yard Manure, Bulletin 246, of The Ohio Agricultural Experiment Station, Worcester, Ohio, deals with the production, composition, conservation, re-enforcement and value of barnyard manure.

Bulletin 252, of the same station, deals with the cultivation of early cabbage.

Shipments of fruit from St. Catharines have increased five hundred per cent. in ten years. Where ten years ago the Grand Trunk carried only ten cars of fruit, last year they carried over five hundred cars. This does not include shipments by express and other railway lines and steamers.

## A Season Saved Is One Year Gained

We still have a stock of most lines of fruits which we offer at attractive prices.

These trees have been dug and carefully heeled in readiness for immediate lifting and speedy packing.

Do not leave the orchard land empty. This summer's growth will bring the orchard one year nearer harvest, and double the value of the land.

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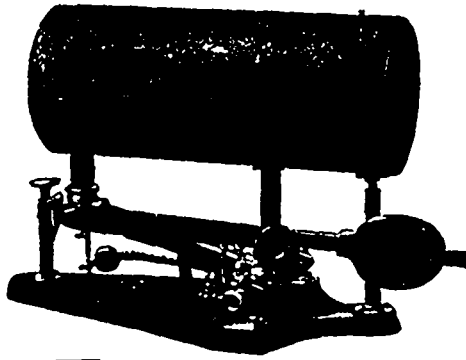
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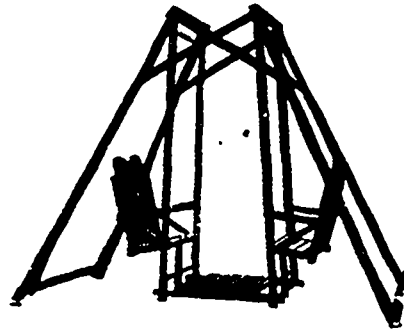
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It is fine for the youngsters and a source of enjoyment for the grown-ups too. It is inexpensive and helps you get the best of a summer's outdoor comfort.

**Made in Three Sizes at Three Prices**  
**Built Solid and Strong.**

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**Stratford, Canada**

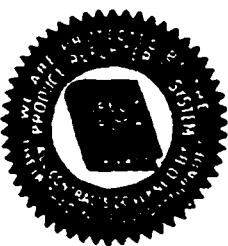
We make all kinds of Summer Furniture for Lawn and Verandah

## Fruit and Vegetables Solicited

**WE GET YOU BEST PRICES**

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine**. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



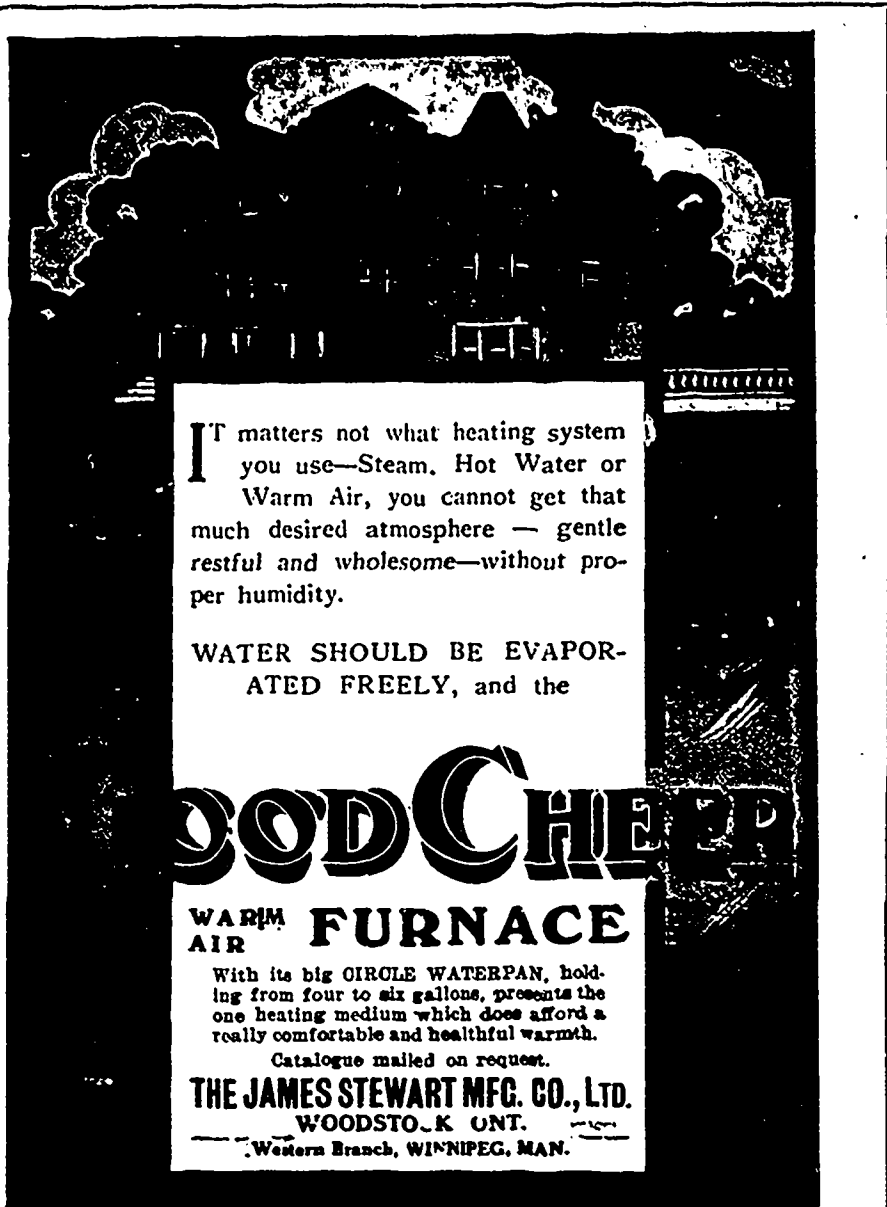
Branch Warehouses:  
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**IT** matters not what heating system you use—Steam, Hot Water or Warm Air, you cannot get that much desired atmosphere — gentle restful and wholesome—without proper humidity.

WATER SHOULD BE EVAPORATED FREELY, and the

**GOOD CHEER**

**WARM AIR FURNACE**

With its big **CIRCLE WATERPAN**, holding from four to six gallons, presents the one heating medium which does afford a really comfortable and healthful warmth.

Catalogue mailed on request.

**THE JAMES STEWART MFG. CO., LTD.**  
WOODSTOCK, ONT.  
Western Branch, WINNIPEG, MAN.

**Ontario Apples in the West**

Plunkett & Savage, Lethbridge, Alberta

The Ontario apples we have handled from time to time have given very poor satisfaction for the reason that they had not been properly taken care of during the growing season with respect to spraying and cultivation, as well as through not being properly packed. The only proper



**The Spring Snowflake**

(Lecojum Vernum)

way to pack apples to handle to advantage is in boxes with each individual apple wrapped in paper and the box paper lined.

We have received cars of apples from a shipper in the State of Washington who has frequently offered us one hundred dollars if we could find one apple in the whole carload with a worm-hole. When we take into consideration this offer, we believe there are very few apple growers or shippers in Ontario who would be prepared to make the same offer.

The fruit trees in Washington and the States generally are far better taken care of than in Eastern Canada, and we believe if the Ontario growers and shippers intend to retain the western market, they have got to wake up and use facilities necessary for keeping their fruit clean and free from defects.

**GOOD SEEDS FOR GOOD CROPS**



Reliable Merchants everywhere sell

**STEELE, BRIGGS' SEEDS**

Look for them—accept no other.

**Steele, Briggs'** are the best grown. No matter what you need in Seeds, this name stands for highest quality.

Behind every packet is the strongest seed reputation in Canada.

Thousands of successful growers everywhere use **Steele, Briggs' Seeds** year after year because they are sure of what they are buying. We retain control of our packets and supply them fresh each season.

Look for this box at your local store. If your local dealer cannot supply you, send in your order direct.

**STEELE, BRIGGS SEED CO. Limited**  
TORONTO, ONT. HAMILTON, ONT. WINNIPEG, MAN.

## IHC Wagons Are As Good As They Look

To really know the value of a wagon you must know of what material it is made, how it is built and about how many years of satisfactory wagon service you may expect. When you know all there is to know about IHC wagons it is safe to say that your next wagon will bear the IHC trademark—the stamp of quality and honest value.

Every piece of wood used in IHC wagons is carefully selected and air-dried. Only in air-dried lumber does wood retain its full strength and elasticity. All steel or iron is selected with the same care to secure the greatest possible strength. Thorough knowledge of the strain each part must stand is necessary because a wagon, like a chain, is no stronger than its weakest part. Every part of IHC wagons



The finishing touch, the thing that adds to the life and appearance of an IHC wagon, is pure paint. Cheap paint may improve the appearance of a wagon for a short time, but after that is a positive detriment. Only pure paint is used on IHC wagons. It fills the pores of the wood, prevents shrinking, swelling, warping and twisting, and acts as a wood preservative.

There are many other reasons why IHC wagons are such good wagons, why owners say they are the best and most satisfactory. Have the IHC local agent show you an IHC wagon, or, if you prefer, write the nearest branch house for catalogues.

**International Harvester Company of Canada, Ltd**

**EASTERN BRANCH HOUSES**  
 At Hamilton, Ont.; London, Ont.; Montreal, P. Q.;  
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 Built at Chatham and Petrolia, Ont.



## Petrolia Chatham

has the same relative strength. The men who build IHC wagons know why one part is built stronger than another, know the exact strain it will have to bear. This same thorough knowledge has enabled them to build a wagon of light draft, which puts the least strain on the horses, without impairing the strength or durability of the wagon.



## No Experience Needed

You do not have to be an expert gardener to be able to make a good selection of vegetable and flower seeds from Ewing's new 1913 Catalogue. Not at all. For

## EWING'S Reliable Seeds

listed in this Catalogue are all vigorous, "pure-bred" seeds of good varieties, each one of which is so clearly and accurately described that it is a simple matter to select those best suited for your particular garden.

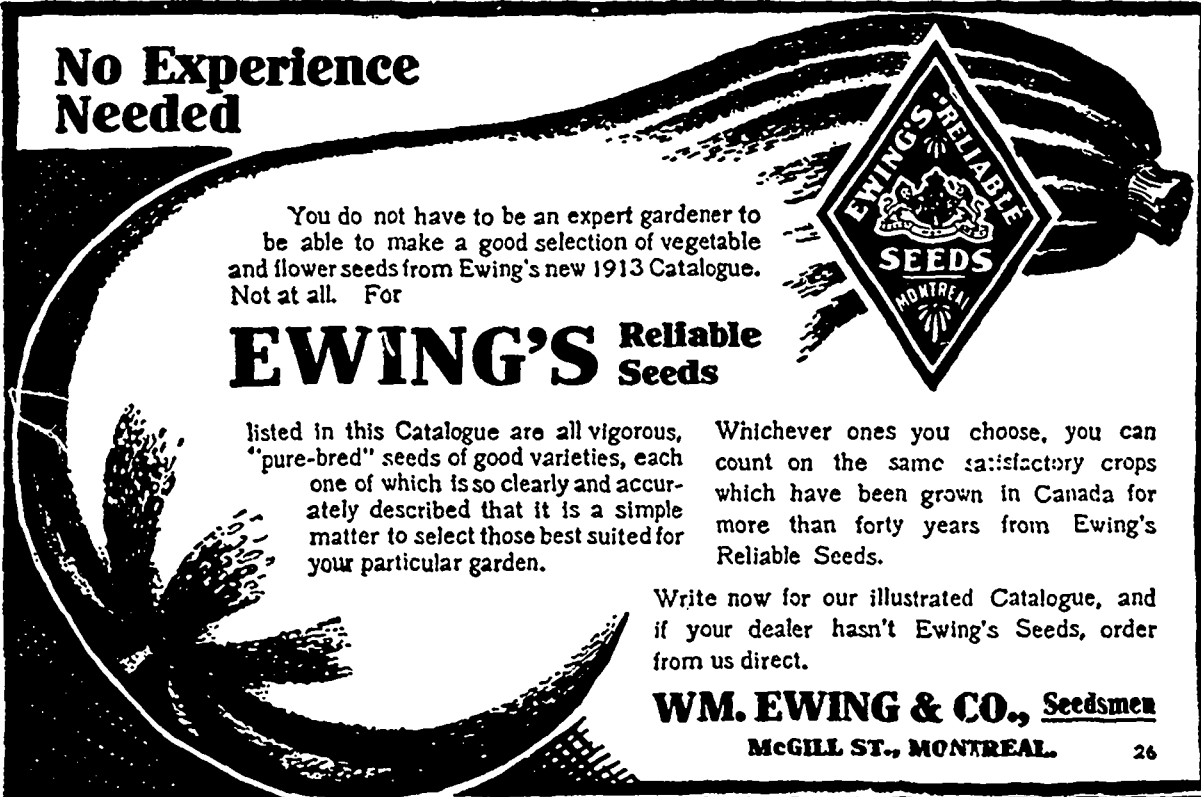
Whichever ones you choose, you can count on the same satisfactory crops which have been grown in Canada for more than forty years from Ewing's Reliable Seeds.

Write now for our illustrated Catalogue, and if your dealer hasn't Ewing's Seeds, order from us direct.

**WM. EWING & CO., Seedsmen**

**MCGILL ST., MONTREAL.**

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## BRIGHTEN UP

your home with the wonderful White Flame Burner. Makes your old lamp and lanterns give a brilliant soft white light better than electricity or gas. Saves weight and makes reading or sewing a pleasure. No flame to break. Reliable and economical. Satisfaction guaranteed. Delights every user. Complete Sample mailed to any address for 35 cts. or 3 for \$1.00. Money back if not satisfactory. Mail orders promptly filled.



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## BEZZO'S FAMOUS PRIZE ASTERS

Prizes at New York State Fair 1910-11; Berlin Horticultural Society 1911-12; Canadian National Exhibition, Toronto 1912.

Vick's Violet King, Rose King, Royal White, Royal Lavender, Royal Purple, Vick's Rochester, a lavender pink, Vick's Peerless Pink, Salmon Pink, small flower but very pretty; Improved Hohenzollern in white or rose; Improved Congo Pink; Late Branching White, Rose, Pink, Lavender; Early Branching White, Rose, Crimson, Lavender, Queen of the Market (very early) in white or pink. These are very truly the aristocrats of the Astor family. All plants sent by express (unless otherwise arranged) and guaranteed to arrive in good condition. Price \$1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders of \$2.00 and over. Special prices to Horticultural Societies. All plants cold-frame (not hot-bed) grown, and with favorable weather will be ready last week in May.

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# SIMMERS' SEEDS

## VEGETABLE SEEDS

No. 1

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Collection

Bean—Simmers' Giant Wax.  
Beet—Blood Turnip.  
Cabbage—Vandergaw.  
Carrot—Scarlet Intermediate.  
Celery—White Plume.  
Corn, Sweet—Cory.  
Cucumber—Chicago Pickle.  
Cucumber—Long Green.  
Lettuce—Simpson's Early  
Muskmelon—Montreal  
Green Nutmeg.  
Watermelon—Ouban Queen.

25 Pkts.

Onion—Yellow Danvers.  
Onion—Prizetaker.  
Parsley—Champion Moss Curled.  
Parsnips—Improved Hollow Crowned.  
Pepper—Sweet Spanish.  
Peas—American Wonder.  
Peas—Stratagem.  
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Radish—Scarlet Turnip, White Tipped.  
Salsify—Mammoth Sandwich Island.  
Squash—Summer Crookneck.  
Squash—Hubbard.  
Turnip—Purple Top, Strap-leaved.  
Tomato—Early Ruby.

And packet Wild Garden Flower Seed Mixture, also a copy of Simmers' Vegetable and Flower Garden (New Edition.)

Contains 25 packages of the best Vegetable Seed, sufficient to furnish vegetables throughout the year, and one packet of Flower Seeds, which we will send post-paid to any address in the Dominion of Canada for the extremely low price of \$1.00.

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## J. A. SIMMERS, LIMITED

BULBS SEEDS PLANTS

TORONTO, ONT.

## FLOWER SEEDS

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Collection

CONTAINS  
30 PKTS.  
CHOICE  
FLOWER  
SEEDS

Alyssum, Sweet—Little Gem.  
Balsam, Double—Mixed.  
Calendula.  
Canarybird Flower.  
Candytuft.  
Carnation—Marguerite  
Castor Oil Bean.  
Chrysanthemum—Annual sorts.  
Cosmos—Mixed.  
Double Japan Pink—Best Mixed.  
Echscholtzia.  
Everlasting Flowers—Mixed.  
Gaillardia—Annual.  
Godetia—Mixed.  
Gourds, Ornamental.  
Marvel of Peru.  
Marigold, Double—Mixed  
Mignonette.  
Morning Glory.  
Nasturtium—Tall mixed.  
Nasturtium, Dwarf—Mixed colors.  
Nasturtium, Tall—Lobb's mixed.  
Petunia.  
Phlox Drummondii—All colors, mixed.  
Poppy—All kinds, mixed.  
Portulaca—Mixed sorts.  
Scabiosa—Mixed sorts.  
Snapdragon.  
Sunflower—Many kinds, mixed.  
Sweet Peas.

## Congratulations

The February issue of The Canadian Horticulturist is a credit to the publishers, to the fruit industry and to Canadian journalism. It strikes that national note that we so much appreciate. The cover is a work of art as well as a good practical up-to-date picture of spring.

I used to wonder, when I was in Ontario, why some firms did not advertise power sprayers to the sleeping fruit industry of that province. Now I am pleased to see so many firms advertising and trust that they will each get a big enough slice of the trade to pay them for it. The circulation of The Canadian Horticulturist should climb at the rate of five hundred a month.—Chas. Webster, Armstrong, B.C.

## New Brunswick

In his address as president of the New Brunswick Fruit Growers' Association, Mr. C. N. Vroom, of Fredericton, spoke recently as follows.

The past year was not one of the most prosperous. While in some parts of the province the crop of small fruits and of apples were fairly good, the weather conditions generally were against us. This resulted in incomplete fertilization of the blossoms and a consequent small set of fruit, much of which was inferior in quality, and later in much fungus growth, which was not wholly controlled by spraying, although as is usual the fruit which was carefully sprayed showed to great advantage over that which was not so cared for.

The consensus of opinion among the members of the Fruit Growers Association, obtained by the Secretary, was against the holding of an Exhibition last year, and the Department of Agriculture in the absence of the exhibition, made exhibits of fruit in different sections, which attracted much attention, and gave a good advertisement to the fruit growing capabilities of the province.

The setting of new orchards is steadily increasing. Last year the association through its secretary, handled fifteen thousand trees which were distributed to members at cost, at a large saving of money to the members, and an assurance to them of good stock, correctly named. This, and the providing of spraying materials, have been important points in the association's work.

I hope that the association will arrange for the holding of an exhibition in the fall of this year. These exhibitions serve the double purpose of advertising the advantages of our province for the fruit industry, and of interesting our farmers in this special line of work, which I believe is the most profitable in which they can engage.

The Canadian Horticulturist has received recently from the Dominion Experimental Farm, Ottawa, two interesting bulletins, both by Mr. W. T. Macoun, Dominion Horticulturist. One is entitled "Apple Breeding in Canada," and the other "Hardy Roses, Their Culture in Canada." Both are well worth reading for.

The Canadian Horticulturist is one of the best papers published. I always keep my copies and bind them.—Wm. McSkimming, Guelph, Ont.

## FLOWER POTS

Hanging Baskets, Ferns Pans, Etc.



We have a large stock of all sizes on hand, and can ship orders without delay.

Order Now Before the Rush

Our pots are smooth and well burnt. We have our reputation to keep up.

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## Guaranteed Sprayers

Back of every Goulds Reliable Sprayer is a broad, strong guarantee of satisfaction. Quality is the watch-word in our factory, which is the largest and oldest in existence. A Gould's Sprayer goes right on successfully fighting insects and fungous enemies long after cheaper outfits have worn out. Thousands of satisfied users prove that Goulds Reliable Sprayers are the best for field crop and orchard work.

### Bigger Crops—Bigger Prices

That's what users the world over are getting with the aid of Goulds Reliable Sprayers. They are built on practical, "experience-taught" lines—built to spray easier, quicker and more uniformly than others. And they do it, too!



Every crack and crevice—every leaf and limb is uniformly sprayed with a Goulds Reliable Sprayer. All working parts are rust and chemical proof—reasons why they last. Made in 23 different types, for hand and power.

### Write for Free Book

Our new book—"How to Spray, When to Spray, Which Sprayer to Use"—is well worth reading. It's an education to every farmer and fruit grower—expert or novice. Write for a copy today. It's free.

THE GOULDS MFG. CO.  
17 W. Fall St., Seneca Falls, N. Y.



## EGG CIRCLE STAMPS

For neat Egg Markers for Circles or Individual Poultrymen

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**W. E. IRONS**

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## Ruff's Special Tomato Manure

A high concentrate of Acid Phosphate, Sulphates of Potash, Iron and Ammonia. One application of 3 ozs. per sq. yard will ensure a superb crop of tomatoes.

It builds up a more robust, dark foliaged plant for developing the fruit. There is an entire absence of superfluous growth. Ruff's Special puts the value into the basket instead of into a coarse plant, heavy with foliage and lacking fruit.

TRY IT AND SEE

### Prices:

5 lbs.	-	60c
10 "	-	\$1.00
25 "	-	\$2.25
50 "	-	\$3.50
100 "	-	\$6.00

Express paid on 5-lb. orders in Ontario. The rest are F.O.B. for cash with order.

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Forest Hill Road, Deer Park  
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## MAXWELL'S HIGH SPEED CHAMPION

Is the Washer for a Woman

In the first place, Maxwell's "Champion" is the only washer that can be worked with a crank handle at the side as well as with the top lever. Just suit your own convenience.

Another Maxwell feature—Lever and Balance Wheel are so accurately adjusted and work up such speed that the washer runs along even when you have stopped working the lever. There's no doubt about Maxwell's "Champion" being the easiest running washer on the market.

Write for new illustrated booklet if your dealer does not handle Maxwell's "Champion" Washer.

DAVID MAXWELL & SONS,  
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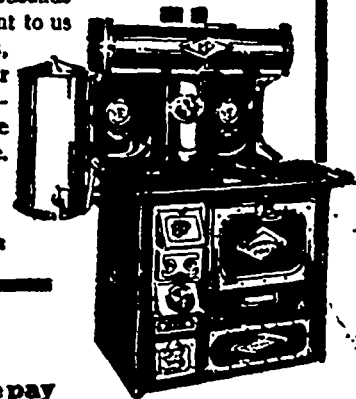
That's about \$20.00 isn't it? And you can save it by ordering direct from the factory (the biggest malleable range plant in Canada.)

Dominion Pride Range is the range you would choose at any price—a beautiful steel range with unbreakable doors, castings and lids of malleable iron—a range that saves coal—a range so solidly built that with care it will last a lifetime.

And you can secure a Dominion Pride Range by making a small payment with your order—the balance on terms to suit your convenience.

## Dominion Pride Range

Thousands upon thousands of Canadians have sent to us direct for their ranges, and we have yet to hear a complaint. Our unconditional guarantee goes with every range.



Let us send you our book "The evolution of the Cookstove"—an interesting history of cooking. It also gives a clear, simple description of the Dominion Pride Range—complete in every detail. Reading this book is like examining the range itself.

Send for a copy.

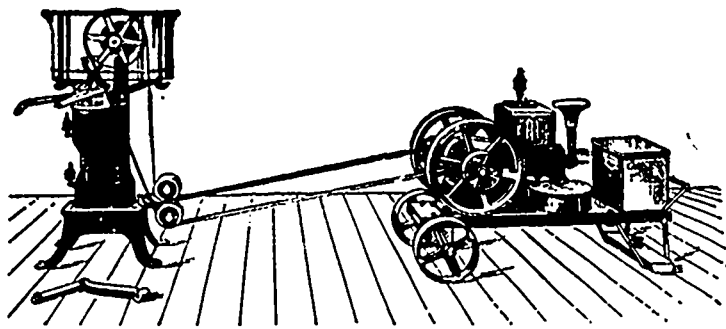
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Canada Malleable & Steel Range Manufacturing Co., LIMITED  
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Send a free copy of your book "The Evolution of the Cookstove."

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## Cream Separator Savings

**A**N IHC cream separator saves money for you in more ways than most people know. It saves cream because it skims practically all the butter fat out of the milk. It saves on the feed bills. Calves and pigs thrive on the sweet, warm skim milk that comes fresh from the separator. It saves fertility. The dairyman who feeds the skim milk to animals parts with a very small amount of fertility. The man who sells whole milk loses close to \$4.80 per cow per year in fertilizing matter. These three savings, while not all that a cream separator makes, are important enough to warrant the most thoughtful consideration.

## IHC Cream Separators Dairymaid and Bluebell

are also furnished as complete power outfits, as illustrated above. The engine is a one-horse power, back geared, hopper-cooled, IHC engine which can be detached and used to run any small machine. The separators are built for long life and skimming efficiency. They have heavy phosphor bronze bushings for bearings; a never-failing splash oiling system; trouble proof bowl spindle bearings; dirt and milk proof spiral gears which are easily accessible for cleaning. There are four convenient sizes of each style. Ask the IHC local agents who handle these machines for demonstration. Get a catalogue and full information from them, or, write the nearest branch house.

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BRANCH HOUSES

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A tonic and conditioner to keep horses, cattle, sheep and hogs healthy; vigorous and productive. Here it is!

### Pratts Animal Regulator

For forty years the stock owner's favorite. It has no equal. Costs little but is mighty in results.

25c, 50c, \$1; 25-lb. Pail, \$3.50

No use to have your horses "laid up." They should be at work. Remember that all sprains, bruises, sore or stiff cords and muscles are quickly cured by

### Pratts Liniment

25c, 50c, \$1

It also relieves rheumatism and neuralgia. Equally good for man or beast.

### Pratts Healing Ointment

or Healing Powder

should be kept on hand for instant use.

It is a household and farm necessity and works wonders on man or beast. Cures cuts, wounds, sores, scalds, burns, galls, cracked skin. Soothing and positive in action.

25c, 50c. Sample mailed for 2c

All of the above carry Pratts guarantee "Your money back if it fails"

Our products are sold by dealers everywhere, or

THE PRATT FOOD CO., OF CANADA.  
TORONTO, ONT. Ltd.

Stock Book FREE

## Fruit Growing in Quebec

By the President of L'Islet Horticultural Society

**F**RUIT growing is extending rapidly in the province of Quebec. There are many reasons for this, one of the principal ones being the splendid work that is being accomplished by our numerous fruit experiment stations. These are strategically located in various counties of the province.

The stations in operation this year are as follows, the name of the manager being given in each case:

Village des Aulnaies, L'Islet Co., Auguste Dupuis, manager; Rimouski, Rimouski Co., Rev. Fr. Henri; Caplin, Bonaventure Co., J. T. Bujold; Mansseau, Nicolet Co., Alcide Savoie; Gaspé Basin, Gaspé Co., Wm. H. Clark; Isle-Verte, Temiscouata Co., J. T. Bertrand; Notre-Dame de Lac, Temiscouata Co., Napoleon Morneau; Roberval, Lac St. Jean, Ursuline Convent; Ste. Henedine, Dorchester Co., Mr. N. Roy; Saint-Damien, Bellechase Co., St. Ignace de Loyola; Sainte-Famille, Montmorency Co., F. X. Gosselin; Charlebourg, Quebec Co., Etienne Paradis; Pleisisville, Megantic Co., George Savoie; Sainte-Adele, Terrebonne Co., Dr. W. Grignon; St. Theodore d'Acton, Bago Co., Auguste Lacoste; Beauceville, Beauce Co., Fr. Mariste; Saint-Pierre, Montmagny Co., J. Delagrave; Chateau-Richer, Montmorency Co., Jos. Cloutier; Saint-Germain, Kamouraska Co., Pierre Tardif; Saint-Leon, Maskinonge Co., Horm. Paquin; Victoriaville, Arthabaska Co., F. X. L'Abbe; Grand Mere, Champlain Co., Georges Chahoon; Rectory Hill, Megantic Co., Rev. Mr. Dickson; Shawbridge, Terrebonne Co., Boys' Industrial School; Saint-Anselme, Dorchester Co., Auguste Lavallee; Saint-Georges, Beauce Co., Louis Gendreau; St. Sylvestre, Lotbiniere Co., Louis Prieur; La Trappe, Two Mountains Co., Br. Leopold; Ste. Anne, Chateaufort Co., Thom. Will. Tremblay.

Then also there is the Village des Aulnaies Nurseries and Fruit Garden, established in 1860 by Aug. Dupuis, M.C.A. proprietor, Albert D. Verreault, Village des Aulnaies, Que.

Here were imported trees from Ontario, the United States, and France. The fruit that survived the severe winters were multiplied, and are now cultivated all through the north-east part of the province. Messrs. Chas. Arnold and Beadle, of Ontario, guided the first experiments, and now Mr. Beadle's successors, of The Canadian Horticulturist, continue to guide us in modern fruit culture, and we take pleasure in acknowledging it.

Mr. J. E. Caron, Minister of Agriculture, is also helping the industry, which has made great progress in the last few years in north-eastern Quebec. Twenty-four demonstration orchards in L'Islet and Kamouraska counties are in operation. Spraying and pruning demonstrations were made last year in over four hundred orchards in these two counties by government experts and explanations given each operation.

Two fruit cooperative associations, one at St. Anne Lapocatiere, with a cannery factory, and one at St. Valier, are giving satisfaction to the fruit growers. Ten thousand quart and gallon cans of preserved plums were sold at the St. Anne factory to the Canadian Pacific Railway Co. last winter. Car loads of Damson and Reine Claude plums were sold at Montreal in refrigerator cars by the cooperative society last fall. These sales have created enthusiasm in plum culture, and numerous

### OLD FASHIONED FLOWERS

For the Garden

Send for List of

### WESTLAND'S HARDY PLANTS

PAEONIES, PHLOX, IRIS, Etc.,

In many Beautiful and New Varieties.

ROSES, LILACS, SYRINGAS, MAGNOLIAS, Etc.

### MALCOLM WESTLAND

TAMBLING CORNER, - LONDON, ONT.

## BROWNIE No. 3



PICTURES 3 1/2 x 4 1/2

PRICE \$4.00

You can make good pictures with a Brownie Camera.

Made by Kodak workmen in the Kodak factories, the Brownies are efficient, durable, practical. Made on the Kodak plan, they are simple.

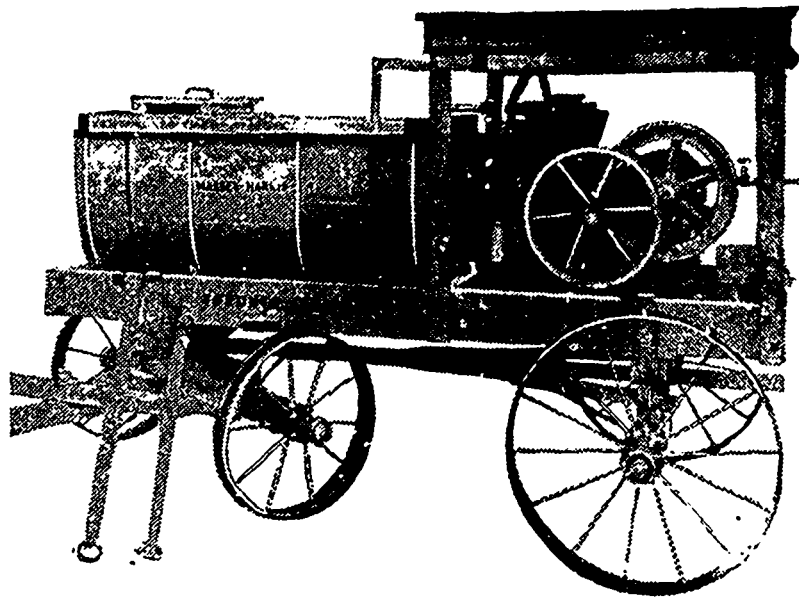
Take for instance the No. 3 Brownie. It is substantially made in every detail. Though it makes 3 1/2 x 4 1/2 pictures, no focusing is required. It's always ready. It has a carefully tested meniscus achromatic lens; is fitted with the Eastman Rotary Shutter for snap shots and time exposures, and with a set of three stops. There are two finders; one for vertical and one for horizontal exposures, and two tripod sockets. It loads in daylight with Kodak film cartridges for four, six or twelve exposures. The covering is a tasteful and durable imitation leather, the metal parts are heavily nickle-plated. Price, \$4.00.

With a Kodak or Brownie no dark room is required for any part of the work—loading, unloading, developing or printing. You can readily finish your own pictures or can safely send the film cartridges by mail to a professional finisher.

You can make good pictures with a Brownie.

Catalogue free at your dealers, or by mail

CANADIAN KODAK CO., Ltd. TORONTO



## The Massey-Harris Spraying Outfit

Makes Fruit Growing Profitable

An efficient and reliable Sprayer which enables you to spray effectively and get the best possible returns from your fruit land.

Every point in both design and construction has been worked out with the utmost care, and the record they have made in the great fruit districts of Canada and the United States is one of which we are justly proud.

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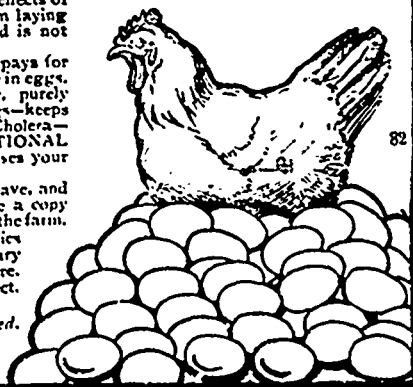
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Right now is the time to feed INTERNATIONAL POULTRY FOOD. Hens need the tonic effects of this wonderful egg producer to start them laying and to keep them laying. Ordinary feed is not enough to make hens lay regularly. INTERNATIONAL POULTRY FOOD pays for itself—over and over again—in the increase in eggs. It is not an ordinary food, but a tonic, purely medicinal. It actually produces more eggs—keeps fowls well and vigorous—prevents Chicken Cholera—cures Roup. Just feed INTERNATIONAL POULTRY FOOD and see how it increases your egg production. Write telling us how many chickens you have, and what other stock, and we will send you free a copy of our \$3.000 Stock Book. You need it on the farm. International Poultry Food and Poultry Remedies also International Stock Food and Veterinary Preparations are for sale by Dealers everywhere. If your Dealer cannot supply you, write us direct.

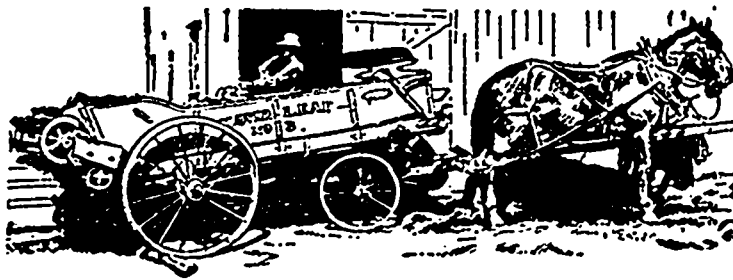
All our goods are sold under a spot cash guarantee of your money back if not satisfied.

International Stock Food Co. Limited TORONTO ONTARIO



SEE! Special offer on Page xvi. "Garden Library"





## An Unsolicited Testimonial

A CLEAR-EYED young farmer stepped up to a manure spreader demonstrator at the 1912 Chicago Live Stock Exposition and, pointing to one of the spreaders in the exhibit said:

"I own one of those machines. It is the strongest spreader I ever had on my farm, and I've had a number of different machines. I honestly believe that if I filled that spreader with soft coal it would spread the stuff for me. I wouldn't trade it for any spreader I ever owned or saw."

This unsolicited recommendation from a man who had used an I H C spreader, and therefore knew what it would do, carried weight with his hearers. They might have doubted whether an I H C manure spreader would spread soft coal—but there was no doubt in their minds that an I H C spreader had spread manure to this man's entire satisfaction. This is a typical case showing what users think about

## I H C Manure Spreaders

### Corn King and Cloverleaf

I H C manure spreaders are made in many sizes, running from small, narrow machines for orchard and vineyard spreading to machines of capacity for large farms. They are made with either endless or reverse aprons as you prefer.

The rear axle is placed well under the box, where it carries over 70 per cent of the load, insuring plenty of tractive power at all times. Beaters are of large diameter to prevent winding. The teeth that cut and pulverize the manure are square and chisel pointed. The apron drive controls the load, insuring even spreading whether the machine is working up or down hill, or on the level. I H C spreaders have a rear axle differential, enabling them to spread evenly when turning corners.

The local agents handling these machines will show you all their good points, and will help you decide on the one that will do your work best. Get literature and full information from them, or, write the nearest branch house.



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BRANCH HOUSES

At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Bayfield, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton



orchards will be planted this spring east of Quebec City, especially blue Damsons and Reine Claude trees on own roots (no grafting).

## The Outlook for B. C. Fruit Growers

In the April issue of The Canadian Horticulturist appeared a lengthy statement prepared by officers of the British Columbia Fruit Growers' Association, entitled "Marketing British Columbia Fruit." This article explained the reasons for the low prices that prevailed for fruit, and dealt with future prospects. Lack of space prevented the statement being published in

### They Liked It

Enclosed you will find three dollars for the enclosed five subscriptions. I let these gentlemen see the March Number, and they were so pleased with it that they asked me to take their subscriptions. I may send you a few more names later on. I find The Canadian Horticulturist a good advertising medium, and would like to see the number of subscribers twenty-five thousand by the end of 1913.—W. Walker, Port Burwell.

full. The concluding portion of this statement, which was signed by N. Crawley Ricardo, president and chairman of the directorate of the association, and by M. Winslow, the secretary, is as follows:

"The present condition of the fruit market is only temporary. The fruit and produce business is always cyclical, and subject to periods of depression, followed by like periods of high prices and great prosperity. The more we can eliminate extremes, the less reaction there is. British Columbia growers are in a particularly favored position. The population of the prairies, their own particular market is growing larger every year, and at a phenomenal rate of increase. The whole country now is being covered by a network of railroads, which will tend to give better transportation and better service. The experience which we have had, and which has, perhaps, been dearly bought, will enable us to get better distribution for our products. More knowledge in every step in production, in packing and distribution will better conditions; more advertising which every successful box of apples brings, through the satisfaction given to the customer, and the careful education of the general public on the subject of fruit.

"It is a fact often overlooked that the majority of fruit growers are getting returns from young orchards, and just now it is not so much the number of boxes to a tree, as the number of trees to a box which obviously enhances the cost of production. These same trees are cropping up, and it will not be long before we are getting far bigger tonnage per acre, at the same or a lower general cost of production.

"Freight rates are lower than they formerly were; transportation conditions, although not yet ideal, are better, and must not be forgotten that fruit prices for box fruit have steadily risen. Orchard returns and shipping returns must be taken over a period of years to enable one to arrive at an average price. Though prices

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