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Index for Canadian Horticulturist

AND

Canadian Horticulturist and Beekeeper

Feb'y 9 1917

VOLUME XXXVIII

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The Canadian Horticulturist

Vol. XXXVIII JANUARY, 1915 No.

Natural and Artificial Fertilizers--Their Characteristics

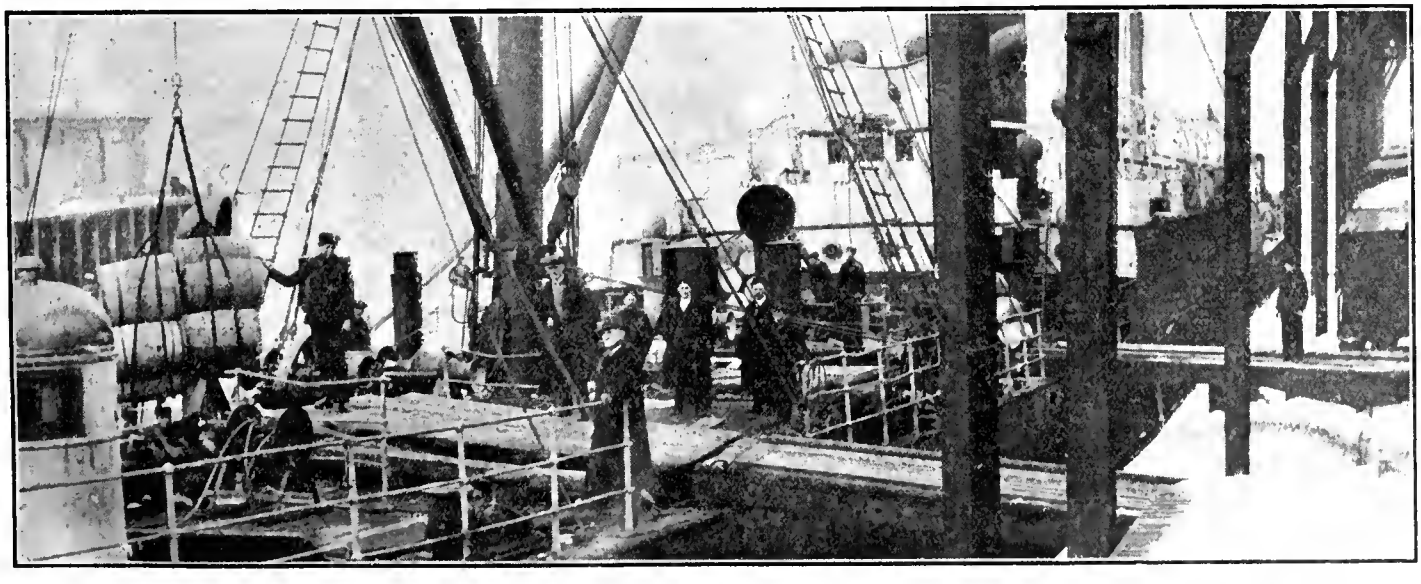
H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

ACCORDING to their nature fertilizers may be divided into two groups, namely organic and inorganic, the former being those of vegetable and animal origin, and the latter those of mineral origin. Fertilizers are known as natural or general, or artificial or special. General fertilizers contain all the essential constituents of plant food. Artificials with the exception of specials contain all or many, but specials while they may contain other constituents are valued chiefly or solely for one. The foregoing groups will for the purposes of this article be better understood if sub-divided into classes. In the general group we have (1) stable manure including straw and waste food, litter of various kinds, (2) the solid and liquid excreta of animals, (3) decomposing portions or whole bodies of animals, (4) green crops such as buckwheat and clover, (5) leaves, and seaweed. The artificial group gives us two distinct classes: class (1) artificial in the sense that the fertilizers which compose it are prepared, although of organic origin. To this class belong dried blood, guano, bones of various sizes, hair and wool, soot and charcoal; (2) nitrates, sulphates, phosphates, and other fertilizers of inorganic or mineral origin.

All fertilizers have characteristics which determine their usefulness for general or for special purposes. Natural manures are bulky, they open and lighten the soil, they add to its moisture (a) by the addition of urine, (b) by their conversion into water. They also add to the soil's fertility, for as plants, or as animals which feed upon plants they have obtained their food from the soluble constituents of the soil, once soluble, always so, thus when natural manures decompose extra soluble substances are returned to the soil. Natural manures are absolutely of no use as plant foods until they decompose. Upon decomposition the acids which are formed as a result of bacterial and chemical action in conjunction with mineral bases form inorganic solutions; in this form they are plant foods. Natural manures are generally characterized by slow decomposition; some portions of them may be visible in the soil for years. While they last, however, food solutions will be continually formed, a fact upon which much of their value is based.

We are told that in a ton of ordinary manure from horse and cow stables, we will find 1,275 pounds of organic matter, 225 pounds of mineral matter (ash), and 10 pounds of nitrogen. The ash will give 12 pounds of potash, 39 pounds of lime, and six pounds of phosphoric acid. It will thus be obvious when we understand that it is only necessary at any time to apply the four last mentioned elements to the soil that stable manure is a complete fertilizer. Urine as usually associated with stable manure is an exception to the slow decomposing natural manures; it provides 30 to 40 pounds of potash, and about an equal quantity of nitrogen per ton, both of these being in an immediately available form. Urine must be diluted with four or five times its volume of water before being applied. One ton of leaves from hardwood trees will furnish six pounds of potash, three pounds of phosphoric acid, and from 10 to 15 pounds of nitrogen. Leaves are, however, usually burned and the ash scattered to the winds, and the urine from the stable is allowed to drain away and be lost, thus two of nature's most valuable fertilizers are wasted. Nitrogen is the most costly fertilizer, yet thousands of tons are annually in the above manner sacrificed through carelessness.

The characteristics of the artificial group differ from those of the natural. It contains slow decomposing, and also soluble kinds. The slowly decomposing



Loading Nova Scotia Apples at Halifax for the British Markets. Nova Scotia Growers now Charter their Own Vessels. Chief Fruit Inspector Vroom Stands to the Left of the Gangway.

kinds of organic origin are similar in their action to natural manures; they, however, lack the bulkiness, but the soluble kinds including those for special purposes have a quicker and totally different action. Dried blood, bones of various sizes, wood ashes, ground hoofs, horns and similar organic substances belong to the former category, and to the latter the muriate and nitrate of potash, nitrate of soda, superphosphate, sulphates of ammonia and iron, and dissolved guano. Upon their characteristics depends the time for application; as a general rule fertilizers of slow decomposition are sown during the fall, and the soluble ones in spring when applied to outdoor crops.

Inspecting for Peach Diseases

Walter E. Biggar, Chief Fruit Inspector for Ontario

I WILL endeavor to describe the symptoms by which we identify diseased trees. We are sometimes asked if the disease Yellows always exhibits itself in the same form each year? I find it does not. In some cases the first symptoms of disease will be seen in the red spotting of the fruit alone, there being not the slightest evidence of disease in the foliage. The next season, the foliage may show disease first. The red-spotted fruit, if allowed to remain on the tree, will in the course of about two weeks, become as red as blood through the whole flesh of the peach. This is an advanced stage of the disease.

Sometimes the first sign of Yellows is a tuft of very slender twigs of a pale, willowy color, with leaves much smaller than would be found on other parts of the tree. These tufts will be found on the large branches usually not very far from the trunk, and in some cases on the trunk of the trees. Another symptom of the disease will occasionally be found in very tiny little buds or shoots starting out on the main branches usually not far from the trunk. These tiny shoots or spurs are generally not over an inch in length, with very slender, small, yellow leaves verging to pink at the edge of the leaf, and apparently a second or new growth which generally makes its appearance in July or August.

A symptom of disease in trees from two to four years planted, is a noticeable pale yellowing of the foliage in the branches in the centre of the tree first, and then spreading throughout the tree in the course of two or three weeks. In aged trees the disease does not show itself always on the branches in the centre or body of the tree, but more often on the branches well to the outside or top of the tree. Ordinarily the first symptoms of Yellows and Little Peach are identical, namely, a yellowing of the foliage at the base of the season's growth which spreads rapidly. The foliage soon begins to curl and cluster, excepting the tips of the branches which remain green and healthy looking until probably the next season after the tree has been affected, when the tips will become yellow.

After the Yellows reaches an advanced stage, it is readily identified from that of Little Peach disease. In the case of the Yellows, there is a premature ripening of the fruit, and quite often while the fruit is yet quite green, small swellings appear just under the skin of the peach (about one-quarter the size of a wheat grain), causing it to have a lumpy uneven appearance. The majority of Yellows-diseased trees have a peculiar,

A Northern Spy tree at Bethanbeck Orchards, Ltd., Waterdown, Ont., 36 years planted before pruning. The same tree after pruning is shown on page 4 in the department heading entitled "The Orchard in Winter."

bright red blotching on an occasional leaf. It needs a practised eye to distinguish between the blotches and the ordinary red leaves commonly found on the tree in the inspection season. I have never seen this peculiar red leaf on trees affected with Little Peach.

The effect of Little Peach disease on the fruit is directly opposite to what we find in the fruit of the tree affected with Yellows. The fruit on trees affected with Little Peach will seldom grow to more than one-third the size it would on a healthy tree, and will be about two weeks later in ripening, and will be found lacking in flavor, dry, and slightly bitter in taste.

The inspector must be able to identify the white-fleshed peaches from the yellow-fleshed by the foliage, as disease does not affect the foliage of the white-fleshed varieties and Elberta in the same way it does the yellow-fleshed peaches. Disease in the Elberta and in most of the white varieties will not be found curling or clustering, and will remain green for a considerable length of time after being diseased. The foliage will be seen to droop and the leaves on the tips of the branches slightly roll, making the tree have a wilted appearance.

In determining whether a tree is diseased by the fruit, care should be taken not to condemn a tree because the fruit is red just at the pit, for several varieties of peaches are always found highly colored near the pit, such as Barnards and Triumphs.

A PECULIAR CASE

Last season my attention was drawn to a very uncommon case of disease in a three-year-old orchard, where the disease made its appearance in the tips of the branches and did not extend more than six inches at first. The trees were allowed to stand not marked to allow us to watch the development of the disease. In three weeks' time it had spread downwards into the body of the tree, the foliage curling and showing a positive case of disease. In my experience as an inspector, covering a period of twenty years, I have never observed a case similar to this.

Root-gall will cause the foliage to become yellow, and is sometimes mistaken for disease.

Peach-borers, when working badly in the trees, will cause the foliage to look bad.

Peach Canker will cause a yellowing of the foliage, but usually will not extend to branches that are not cankered.

One would naturally suppose disease would more often be found on poor, impoverished soil than on rich, well-tilled land. This is not the case. Some of the most badly affected orchards I have seen were heavily manured, well drained, and well cultivated. In other cases, neglected orchards were found badly affected. From observation, I am inclined to believe that disease will be prevalent in orchards standing on soil where there is an excess of lime or where there is a soakage of water coming from a limestone formation into the orchards.

The most disastrous results from Yellows and Little Peach I have seen were in orchards where there was plenty of limestone or where limestone rock was close to the surface soil. The orchard I refer to contained a thousand trees or more, and the entire orchard was wiped out by disease within eight years after it was planted. From experience, I would say orchards standing near a large body of water (other conditions being equal) have less disease in them than

Note the Different Styles of Pack Here Shown in This Exhibit of Fruit at a New Brunswick Horticultural Exhibition

where they are a distance away from water. There are conditions which seem more favorable to Yellows and Little Peach in some localities than in others. I know of one particular section in the Niagara district where mildew is more prevalent than in any other part, and there Yellows and Little Peach are also oftener found than in places further away.

Throughout my experience inspecting for Peach diseases, I have found that orchards situated near what is commonly called the Mountain, which extends through the Niagara district, have always proved to be the most seriously affected with Yellows and Little Peach. At the base of the mountain, there are some sections where at some period of time there has been carried down by large streams of water, soil mixed with limestone. This covers an area of from eight to ten acres. Peaches planted on these places grow rapidly, but soon die out with Yellows. Again, about halfway up the face of this mountain there is a bench or ledge of land, in some places wide enough for planting an orchard. I have known several orchards to be planted on it, but not an orchard survived more than seven or eight years before the Yellows wiped it out. Again, orchards planted just on the top of the mountain are badly affected.

Along the face of the mountain there is more or less stagnant air. Immediately on the top there is good air drainage, yet the stagnant air from decaying vegetable matter on the face of the mountain is carried up to orchards on top by the north and north-west winds. I am undecided how to account for so much disease in this particular locality. Whether it is due to climatic or soil conditions I am not prepared to say. I am inclined to think that climatic conditions form the chief factor accountable for so much disease in this district.

Where diseased trees are promptly removed and burned, the disease will not spread very badly. If affected trees are allowed to remain standing for a month or more, there are nearly double the number of diseased trees the following year than there would have been had the diseased trees been removed properly.

From experiments carried out at the Vineland Experimental Station, it has been proved that diseased buds inserted in a tree will require two years before the disease will be visible in the tree. From this I would consider that it would be better to have an inspector examine the tree from which buds are being procured.

After the most careful investigations carried out by those who have made a study of the diseases of peach trees, none can tell us at what particular stage of development the disease spreads to other trees. As yet there is no proof that Yellows can be transmitted to healthy trees by bees carrying the pollen from one tree to another. It has often been said by fruit growers that diseased trees cut down and dragged through an orchard would spread the disease to other trees. I have never seen proof that such is the case, for I have taken badly diseased branches and brushed and whipped them against the foliage and branches of healthy trees and failed to innoculate the tree with disease.

One large peach grower seems to be of the opinion that Yellows is more prevalent following a season after a bad attack of Peach Curl, or Curl Leaf. If this were true, we would expect to find more disease in Elbertas than other varieties, because Elbertas are more subject to Leaf Curl than most other varieties. However, we do not find Elbertas more subject to disease than other varieties. All varieties are subject to Yellows, seedlings as well as others. If there is any one variety more susceptible than another to disease, it is the Triumph, and it is more difficult to identify Yellows in the Triumph when determining by the fruit alone than any other variety I know of.

In 1911, there were nearly 60,000 diseased trees in the Niagara and Fonthill districts, in 1912 25,000, in 1913 5,901, in 1914 3,000. The decrease from 60,000 in 1911 to 3,000 in 1914 is due to the splendid cooperation of the peach growers with the inspectors in promptly destroying diseased trees.

Notes on Fertilizers*

Prof. R. Harcourt, O. A. C., Guelph, Ontario

BONES form a very important manure, particularly on soils which show a deficiency of phosphoric acid or for crops that require considerable quantities of this constituent. They are valuable, as they contain nitrogen and phosphoric acid. Ground raw bones may contain about 30 per cent. of organic matter, with perhaps 3 to 4 per cent. of nitrogen and about 20 per cent. of phosphoric acid. Raw bones, however, also contain considerable fat. This ingredient is objectionable since it hinders the decomposition of the organic matter after the bones are applied to the soil, and it also renders it practically impossible to reduce the bones to a finely divided condition before applying. For this reason, and also in order to extract gelatine, they are submitted to the action of steam under pressure and thus robbed of their fat and some of the gelatine and brought into a condition to be easily reduced to a fine state. This steamed bone meal will contain 1 or 2 per cent. or under some methods of extraction even more, nitrogen, with from 20 to 25 per cent. of phos-

*Extract from Bulletin 220 recently issued by the Ontario Department of Agriculture.

phoric acid. The phosphoric acid is chiefly in the form of tri-calcic phosphate, which is insoluble in water; consequently, the finer the bones are ground the more rapidly the material will come into solution in the soil. Bones are particularly valuable for their phosphoric acid, and are usually classed as a phosphatic manure.

TANKAGE

Tankage is a nitrogenous product and consists chiefly of dried animal wastes from slaughter-houses. It varies somewhat in composition since it includes otherwise unsaleable parts of the carcass as bones, flesh, hair, hoof, horn, etc. The keratine substances do not decompose readily in the soil, consequently, while tankage may be approximately as rich in nitrogen as dried blood and meat meals, it is not so valuable because it does not give as quick returns. It usually contains a varying quantity of phosphoric acid.

DRIED BLOOD

Dried blood from our large slaughter-houses is frequently used as a manure. It is one of the richest of the organic nitrogenous materials in nitrogen and it is one of the best since its physical character is such as to permit of its very rapid decay in the soil during the growing season. It contains 9 to 12 per cent. of nitrogen and a small amount of phosphoric acid. Dried blood is frequently applied along with nitrate of soda when a fairly large continuous supply of the nitrogen is wanted throughout the growing season.

DRIED MEAT MEALS

This material is another source of high-grade organic nitrogen and consists of meat scraps, or of nitrogenous materials from the slaughter-houses. When relatively pure, it contains from 13 to 14 per cent. of nitrogen, and thus compares favorably with blood.

Put Wood Ashes on Acid Soil

Don't waste wood ashes. Apply them, as produced, to acid soils.

Wood ashes contain a large proportion of lime, which makes them of value in correcting acid soils. Oftentimes land intended for clover or alfalfa can be better prepared for the crop by a top dressing of fresh wood ashes, either hard or soft wood being equally satisfactory. Such a treatment will be of especial value on marshy and sandy soils.

If not allowed to leach out, wood ashes are also rich in potash, and so form a home source for a much needed element. Practically all of our potash supply has been imported into this country from certain of the countries of Europe now at war, which fact has caused considerable concern with many who purchase in large quantities.

When buying ashes, the purchaser should satisfy himself that the material is neither adulterated nor full of coal residue.

A Better Method Needed

F. C. Hart, Markets Branch, Dept. of Agriculture, Toronto

The situation this year reveals the necessity for a more systematic method of placing Ontario fruit on the western market. We have a central apple association taking care of the output of about thirteen fruit growers' associations in Ontario. There are, however, over fifty fruit growers' associations in the province and practically all of them have been seeking markets in the west. A proper distribution of the fruit is thus impossible, whereas, if our whole output were centrally controlled, cars could be sent to a distributing centre, say Winnipeg, and from there diverted by the central agency to the different cities where needed. The time during which the cars are on the way west is available for gaining the latest information as to under-supplied markets and for making sales.

By another year the central association should have many more local associations united with it. This would result in a more systematic movement of our fruit west and overcome many of the difficulties encountered this year.

Observations in a Peach Orchard

Wm. Armstrong, Niagara-on-the-lake, Ont.

The commercial peach growers of the Niagara district will ever remember the year 1914 on account of the total failure in peaches, except in a few orchards on the Niagara River at Queenston. This remarkable freeze of 1914 has taught us a valuable lesson in regard to hardy buds and the ability of some varieties of peaches to resist a low temperature in comparison with other varieties.

In my peach orchard of several thousand trees, two varieties came through the winter with practically no damage to buds, namely, the Triumph and Longhurst. Sneed, Carman, Old Mixon, and New Prolific were next best, with about thirty per cent. good buds. Yellow St. John, Golden Drop, and Fitzgerald had a light sprinkling of good buds. Jaques Rareripe, Niagara, Globe, Elberta, and Wheatland had a still lighter sprinkling of good buds. Early Crawford, Garfield, Smock, Reeve's Favorite, and Bell of Georgia had just an odd good bud.

It is now well known that Triumph and Longhurst are not desirable varieties. However, each of these can be very much improved by proper treatment. Each of these two varieties have the ability and habit of producing double buds at short intervals on twigs, consequently these twigs should be cut back to four or five buds. Certain branches should also be thinned out and other branches headed back, all with the object of distributing the buds evenly over the surface of the tree and also to ensure the just and proper quantity of fruit for any particular tree to produce in any one year.

We do this thinning and cutting back any time during the dormant season.

These two prolific and hardy varieties of peaches also require liberal feeding at least twenty-five per cent. advance on "Balanced Ration for Peach Trees," recommended by me in a former issue of The Canadian Horticulturist.

The Amateur's Orchard

Stable manure is a good mulch for apple trees, and may still be put on the ground about the trees.

Tramp the snow well about the trees. This will help to prevent injuries from mice under the snow.

Did you get first-class apples and small fruits this year? If not, why not? Find the reason and remedy it.

Cut and burn all dry or shriveled fruit remaining on the trees. It is diseased, and will cause you trouble next year.

Now is a good time to study the spraying proposition. Get books and bulletins on the subject. Write some of the sprayer manufacturers for their catalogues.

In pruning the apple trees plan to form shapely heads that will permit the sunlight to get into the centre of the tree. It will give better fruit.

Put grain, suet or meat scraps in the trees or on high stumps so that the birds may get them. If there are quails in the neighborhood, feed them. It pays to keep them on the place. They will eat grain scattered in open places.

Get the Government and Station bulletins on the subjects you are especially interested in. They may be had by sending a postal card to your Experiment Station, or the Provincial and Dominion Departments of Agriculture.

Cultural Methods in the Orchard*

Harold Jones, Prescott, Ont.

IN the early days of orcharding in Ontario, the soil, rich in humus and undepleted of its natural resources, gave satisfactory crops of fruit with trees growing in sod. As time went on, with intercropping of hay and grain, the soil became depleted of its humus and readily available plant food, and it became more compact and less able to hold moisture, until the trees declined in vigor and productiveness.

Many of these orchards were stimulated into vigor again by breaking up the sod and adding fertilizers mostly in the form of barnyard manure and giving cultivation through the growing season. This system, although it doubled the crop in many instances, gave unsatisfactory results in some cases. It appeared to extend the growth of the tree too late in the season and retarded the ripening of the wood and the trees were unable to endure the low temperature of winter without injury. Root killing was also observed on soils uncovered with vegetation when there is very little or no snow covering.

To obtain the good results of thorough cultivation and eliminate, as far as possible, the unsatisfactory results mentioned, cultivation should cease at or near the close of the growing season of the tree and the land should be sown to some cover crop. The length of time that cultivation may be safely continued varies in different sections of the province, but a study of the growth of the tree and the temperature in winter are the two factors to be considered when deciding to cease cultivation.

The season of growth in most woody plants extends scarcely to midsummer; most, if not all, of our native trees cease growing very early in the season. This is no doubt the reason why they endure the winter so successfully. Trees that complete their growth early in the season and mature their wood and terminal bud well are said to be "determinate" in their growth, while those of the opposite habit, like some of the Japanese plums, are said to be "indeterminate." It is, of course, apparent why plants of indeterminate growth are not hardy, as a rule.

It has been observed that practically all of our hardy apple trees are quite "determinate" in their growth, forming their terminal bud early in June. It has also been observed that the vigorous growth of a tree can be prolonged past its normal period by excessive cultivation and fertilization.

The active normal growth of the tree is completed early in June. Then it settles down to ripen and mature the newly made tissue and store up plant food in its cells for the early forcing of leaf and flower the following spring.

In the colder sections of Ontario cultivation should cease at or about the time that normal growth is completed, say the early part of June, and the cover crop sown. For some time after this the trees receive the full benefit of the cultivation before the cover crop has made sufficient growth to take up and hold the excess moisture and liberated plant food.

The cover crop to use is best determined by the character and the richness of the soil, and the vigor of the trees in the orchard. If the trees are growing slowly and the land is in a good state of tilth, it is advisable to use a nitrogenous crop, such as red clover or vetch, with applications of fertilizer. If on the other hand the trees are making a luxuriant growth and the soil is a heavy loam, some non-nitrogenous crop should be used, such as oats, rye, buckwheat, and others.

A good combination for most soils where the clovers do not make a good stand is six to ten pounds Dwarf Essex rape and twenty pounds of common vetch to the acre. The rape should be cut in September, when the vetch will then grow to cover the ground for winter. A cover crop in connection with cultivation is valuable in many ways. It improves the physical condition of the soil, prevents hard or clay soils from cementing or puddling, and holds the rains and snow until they have a chance to soak into the land. It prevents, also, alternate freezing and thawing of the surface, adds humus that improves the chemical and mechanical condition of the soil and renders locked up plant food available.

Some unfavorable reports have come to my notice where cabbages or rape were used as a cover crop. One case was at St. Henri, on the Island of Montreal, where cabbages were grown where the heads were cut for the Montreal market and the stalks and leaves left on the ground, where the fruit was under-sized and of very poor color. Another case has been reported by the District representative for Durham, where an orchard sown to rape and vetch gave under-sized fruit of poor quality. In other cases the results have been very satisfactory, notably in my own orchard and at the Central Experimental Farm, Ottawa.

*Extract from an address at the recent annual convention of the Ontario Fruit Growers' Association.

The Principles of Cooperation*

M. B. Davis, B. S. A., Central Experimental Farm, Ottawa

COOPERATION has been the scene of many wrecks and disasters, but these failures only serve as an indication of the pitfalls and snares to be avoided in a successful cooperative enterprise. Though particular cooperative ventures may fail, the time must come when others will succeed, because the principle which underlies the cooperative movement is sound, its necessity absolute, and its desirability an accepted fact.

It has been repeated by eminent men time and time again, that for every dollar the consumer pays for farm produce, the man who raises that produce only gets thirty-five cents. This indicates that there is something radically wrong in our present methods of distribution. And it is gratifying to learn that not only is the producer attempting to over-

*Extract from a paper read before the Quebec Pomological and Fruit Growers' Association.

Packing Fameuse apples for exhibition purposes at the Oka Agricultural Institute, La Trappe, Que. Rev. Father Leopold, the director of horticulture, stands the second from the left.

come this state of affairs by cooperative effort, but that the consumer likewise is, by a united effort, attempting to meet his brother, the producer, half way. By bringing the consumer and the producer together, by eliminating the unnecessary expenses of distribution and thus giving a fair profit to the producer on the one hand, and a good article at a civilized price to the consumer on the other hand, is the aim of cooperation.

THE MIDDLEMAN

Many people are constantly crying down the middleman, attributing all their troubles to this most unhappy man. Although agreeing that there are perhaps too many middlemen, I cannot agree that he is an unnecessary evil. The middleman is doing a perfectly legitimate business, and in most cases is doing it at as low a percentage of profit as he possibly can. He fills an important role in the commerce of our nation, and will always be amongst the important and potential elements of this country.

Competition among the middlemen is keen too keen in fact, and here is where the trouble lies in some respects. In a small town or in a locality, or section of any city, there is just so many thousand dollars' worth of business to be done. Now if this sum amounts to say fifty thousand dollars a year, and there are five men to divide it among, each on the average does ten thousand dollars' worth of business. Now each must live, and to live at all respectably he needs say two thousand dollars a year. This he must make out of his ten thousand dollars' business, or in other words, he must clear just twenty per cent. Supposing on the other hand that this business could be done by two men, each doing twenty-five thousand dollars' worth of business, then the net profits would remain the same, but the percentage would be less, in the latter case only eight per cent.

This illustration, although exaggerated, will serve to define the point in question that there are evidently too many middlemen. It is often related by some of our best theorists that this is an impossibility and that such a condition could not exist, for competition would prevent it, but he has only to investigate the amount of business done by some of our poorer storekeepers to be convinced that such is only too true. Not the elimination of the middleman then, but only the weeding out is, or should be, the aim of a cooperative movement. By such a movement the producer can, to a certain extent, control the price of his own produce, which will in time adjust the foregoing state of affairs. But this cannot be attained unless both consumer and producer reach out and meet each other in concerted and well directed efforts.

A good illustration of a cooperative society acting as both consumer and producer is found in the United Fruit Companies of Nova Scotia. Before the advent of cooperation in Nova Scotia, a large number of fertilizer companies did business in the Annapolis Valley, each company having general agents and a large number of minor agencies, all, of course, deriving their expenses and salaries from the profits on the goods they sold. In the small towns where perhaps a couple of carloads would be ordered, this quantity would be divided among many producers and the result would be probably not one large shipment would be sent to those places, but instead, a large number of small shipments would be sent, thus raising the freight rates and all overhead charges. Now that the farmers, or at least a large number of them, purchase their fertilizers through the organization, that institution can save all those extra charges and also obtain a finer price, thus giving to the consumer the same article as before at a much lower price by simply reducing or eliminating unnecessary distribution charges. So much for the purchase of supplies.

To be successful at cooperation, the persons interested must first learn that they must c-o-o-p-e-r-a-t-e, for the dangers of cooperation come from within and not from without. It is the petty jealousies of one member for another and the loose organization of the company that has been the downfall of those societies which have come to grief. If an organization is to succeed, every member must lay aside his own personal ambitions and possibly even sink his own personality in a common cause. At the start it may seem that the poor man or the poor grower is the only one who is making while the man who had established a reputation may for the first few years be a loser. But the ultimate end cannot help but be beneficial to all.

Fruit Notes

Most fruit growers are better off with two or three good market varieties than fifty doubtfuls. It is well enough known that what will grow successfully in one place will not do in another. Hence select what will do in any particular place. Three or four varieties are enough—a few early, some mid-season, and the majority late. Thus by having fruit coming in at different times, it helps out when gathering comes, prolongs the season, keeps the market from being flooded to a certain extent, and the grower can do with less help.

Currants are very easily propagated. If one wishes to increase their stock take a cutting of new wood about six inches long, plant it in good soil the end of August or early in the spring, and over seventy-five per cent. of them will make good bushes ready for planting out.—R. B. Whyte, Ottawa, Ont.

Fertilization of the Orchard *

M. B. Davis, B.S.A., Experiment Farm, Ottawa, Ont.

The question of properly fertilizing the apple orchard goes hand in hand with the topics of moisture and cover crops. Three elements of plant food are required by most soils and can be supplied either in the form of commercial fertilizers or in the form of barnyard manure. Which of these to use depends on the relative cost of each.

Where it is difficult to obtain barnyard manure, commercial fertilizers in conjunction with a cover crop will give just as good results as the manure. There is probably no better place for economic use of fertilizers than in the orchard, for here the humus content of the soil is maintained by the use of cover crops, and this is one thing that cannot be supplied by fertilizers of any kind.

AMOUNTS TO USE

The quantities to apply per acre will vary to a considerable extent with the condition of the soil. On old run out soils where successive crops of apples have been removed without any applications of fertilizers being made, the amounts per acre required will be comparatively large for the first three years. The best indication of the needs will be the trees. If the trees are not making much growth, indications are that considerable quantities of nitrogen will be required to give them a start. In the case of nitrogen, after the orchard has been brought into good condition, a very large part of the nitrogen required can be obtained by the ploughing under of leguminous cover crops. Until the trees show signs of vigorous growth, one hundred and fifty pounds of nitrate of soda, three hundred and fifty pounds of acid phosphate and one hundred pounds of muriate of potash per acre should be applied.

After the orchard has been put in good condition, and if leguminous cover crops are used, this may be reduced to an annual application of fifty to seventy-five pounds nitrate of soda, two hundred and fifty pounds of muriate of potash. If manure is used, it may be applied at the rate of six tons to the acre, which will supply about the same quantities of plant food per acre. If using manure, however, each year it would probably be better to leave out the leguminous cover crop every other year so as not to get too much nitrogen in the soil, for barnyard manure is generally fairly rich in that element.

*Extract from Bulletin 79, recently issued by the Dominion Department of Agriculture.

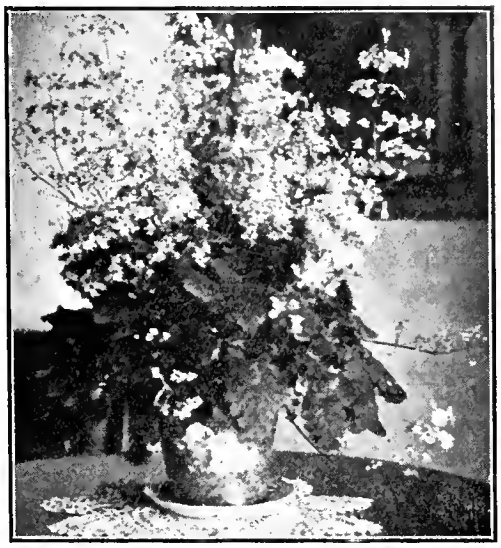
Flower Growing in the Home Made Easy

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

A SIMPLE WINDOW CONSERVATORY THAT HAS GIVEN EXCELLENT RESULTS

A side view of the conservatory. Observe the rods and turnbuckles.

The interior of Mr. Moore's window conservatory as photographed from the room.



A winter product of the conservatory which shows its possibilities.

AN invention which promises to solve many of the difficulties associated with the care and cultivation of plants in dwelling-houses, and which has been well tested by me in my home, has been recently patented in Canada. The device mainly consists of a sectional window conservatory which may be attached to or removed from any window in a few minutes. The various parts, top, bottom, front, sides, and sliding panels, when fitted together, form a snug little conservatory which, when not in use, on account of its sectional nature may be stored away in a small space.

The conservatory when attached rests on the window sill, and is held in place by turnbuckles with long rods which run diagonally from the bottom to the top across its sides, and hook into screw eyes fixed to the window frame. Ventilation is afforded by means of hinged sashes in the front and top sections. As the window sashes of the houses are not interfered with, the room as well as the conservatory may be ventilated at will.

The advantages to be derived from the use of these window conservatories are numerous. Situated outside the house, the plants receive the maximum of light. Thus they actually grow under greenhouse conditions. Under these conditions sickly plants may recuperate quickly, and during the greater part of the year it is possible to possess a window full of beautiful flowers, and this without crowding the limited space available in most homes. This latter feature, while in itself an attraction to the passerby, does not sum up the merits of the conservatory, for apart from its usefulness for plant growing purposes, its architectural lines commend its use on houses of cheap construction as well as on those of dignified architecture.

The conservatory is supplied with a heating system. Thus it is an excellent propagator, in which plants may be raised from cuttings or by seeds. The hot water heating system consists of a coil of piping arranged in such manner as to give the necessary heat. A boiler and expansion tank may in a few seconds be connected to the piping, or if the house is heated by hot water the heat may be supplied from this source. A small electric toaster with a dish of water is, however, just as effective as a source of heat.

This shows the heating system in place.

The bottom of the conservatory holds a metal tray with a drip plug. This tray collects the water which passes through the plant stand above it, which water being subsequently vaporised, causes a humid atmospheric condition. The conservatory affords a means of spraying or fumigating plants without discomfort or inconvenience to the inmates of the house, as the panels can for this purpose be opened or closed at will. The plants at all times are protected from poisonous gas fumes, and as atmospheric humidity may be controlled, a too dry atmosphere, which is usual in the modern house and very harmful to plant life, is precluded.

To all who are interested in any way in gardening, the invention should prove valuable. Vegetable crops, such as cabbages, cauliflowers, lettuces, radishes, fruits—tomatoes, cucumbers, melons, flowers—stocks, asters, balsams, pansies, larkspurs, petunias, may be quickly raised for transplanting purposes. Plants like geraniums, pansies, chrysanthemums, fuchsias, and begonias, may also be readily propagated from cuttings. The foregoing uses do not adequately cover the capabilities of the device. Beautiful bulbous plants—hyacinths, tulips, narcissus, and Chinese lilies—for room decoration, and salads for the table during the dark days of winter are all possible through the use of the conservatory.

Apart from the mere growing of these useful and beautiful subjects the opportunity which is afforded to children to raise plants, to study their habits, and to experiment in many ways, imparts to the invention a value in every sense educational.

Commercial Fertilizers For Flowers

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

My view with regard to commercial fertilizers and their use in connection with the general cultivation of flowers, based partly on actual experience and partly on observation, is as follows:

They are useful in connection with flower culture, and when used with definite calculation may be applied as a profitable investment as well.

They are not as necessary in the culture of flowers generally grown in small gardens, as crops grown for their edible parts, like fruit and vegetables.

They should not, as a rule, enter into any scheme for growing garden flowers successfully, and certainly should not be relied on to remedy the mistakes of a poor initial treatment of the soil or poor cultural methods. As auxiliaries, however, to good soil preparation, and good culture, they may be confidently relied on to produce certain definite results.

In the case of permanent plants, like roses, certain of the ornamental shrubs and occasionally herbaceous plants it is frequently impossible to apply enough food by means of barnyard manure, worked in around the roots, to keep the plants growing as we desire. In such cases by supplementing with a small quantity of bonemeal, or a complete fertilizer perhaps, the best of results will often result. Again in the case of house plants, a little commercial fertilizer, especially that sold in tabloid form if of a reliable brand, is much more useful and likely to be used by the householder, than other fertilizers. Liquid manure might be better, but is a less practicable proposition for the average person growing plants. Then again, there is the unquestioned usefulness and, in addition, the profitable side of the application of commercial fertilizers to commercially grown greenhouse crops, such as the rose and chrysanthemum.

The reason commercial fertilizers are not as necessary in the culture of flowers as in the culture of certain crops grown for their edible parts is because of the fact that unless the soil is naturally rich, or is well prepared in order to make it rich at the start, the plant will be incapable of producing that fine healthy growth which is the foundation for a crop of fine flowers. Moreover, it will probably suffer from insects and other troubles, and the application of commercial fertilizers will increase these troubles more frequently than not. The physical condition of the soil determines success more with flowering plants than with most crops. It has been proved that the addition of extra plant food in the form of commercial fertilizers to certain plants is practically wasted on them. With most herbaceous plants the number of flowers they will produce is of secondary importance and is not determined by feeding, while size is more often determined by selection and disbudding. To a few varieties of flowers these statements will not apply, but to most they do apply, and hence commercial fertilizers cannot be reckoned an important factor in the successful growing of flowering plants.

While commercial fertilizers have value in the case of some special crops of flowering plants, they are not as a rule to be recommended for such plants in general; the reason being that they cannot compete with barnyard manure in regard to the physical improvement of the soil upon which the general size and health of the plant depends, and, moreover, when plants are in the possession of normally good conditions there is seldom reason for feeding them on expensive foods as there would be with, say, a tomato or potato crop. Yet, on the other hand it must be kept in mind that even with flowering plants of garden type, commercial fertilizers are sometimes particularly useful. A case in proof occurred here only last year. A certain piece of land which had received some green manure the autumn previous and was in good condition was planted to gladioli. Just before they were due to blossom it became apparent that the soil was deficient in available nitrogen salts. Some nitrate of soda was obtained, dissolved in water, and the crop was given two applications of the solution. The leaves immediately changed tint and made that healthy growth which was responsible for the subsequent crop of flowers. Cases like this suggest that commercial fertilizers should be kept on hand and used with judgment when need arises.

A distant view of Mr. Moore's window conservatory is shown on the left. Note that it rather improves the appearance of the residence.

Orchid Notes

W. J. Jones, Brampton, Ont.

Cattleya Labiata, having finished flowering, should be given all the light and sun possible during the next two months so as to ensure a thorough ripening. Great care should be exercised is watering, as their treatment during their resting season depends entirely on their prospect for a good crop next season.

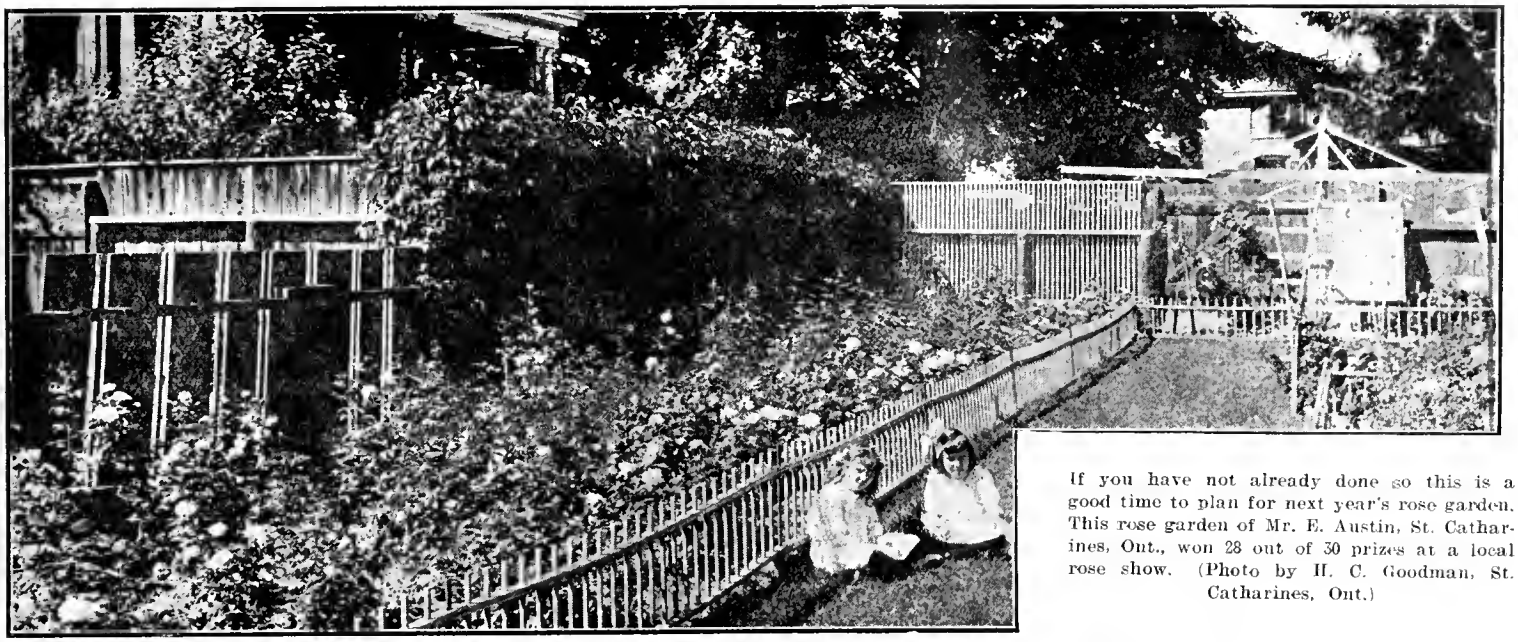
Cypripediums are making a fine show, and will continue to do so for some time. This is one of the finest winter flowering orchids, and one that is becoming more popular every day. This is owing to its usefulness for cutting, its long lasting qualities, and its almost unlimited number of varieties, especially the "Insigne" the "Leeanum" type, of which "Insigne" Sanderae still remains supreme.

Cypripediums are useful as a plant for basket or table decoration, as they will last two or three weeks in bloom. They should be kept fairly moist all the year.

Cattleya Trianae are giving a good showing of bloom, and will continue to do so for the next two months. These should be given all the light possible, a nice genial atmosphere, rather more water than for other Cattleyas, and plenty of ventilation whenever the weather is favorable for such, without causing draught.

The Cattleya is the most popular orchid commercially, but the spray orchid, such as the Oncidium, Phalaenopsis, Odontoglossum, etc., are beginning to find favor with the public, as shown by the fact that the demand for them is becoming greater year by year.

This is a good time to overhaul all orchids for scale and other insects. Give their surroundings, also, a good cleaning.



If you have not already done so this is a good time to plan for next year's rose garden. This rose garden of Mr. E. Austin, St. Catharines, Ont., won 28 out of 30 prizes at a local rose show. (Photo by H. C. Goodman, St. Catharines, Ont.)

The Sweet Pea--A Queen of the Annuals*

H. M. Lay, Walkerton, Ont.

MY experience in two seasons of fall-sown sweet peas is that on the whole they do well and are in bloom two or three weeks before those sown in the spring. While however, they will stand a good frost even after they are up some inches, they are apt to suffer if the severe frost catches them after a spell of earlier warm weather, so that it is well to plant the bulk of the crop in the spring. In order that this may be done as soon as the snow is off the ground, the soil should be prepared in the fall in the manner before described and left in a rough state over winter. With the aid of a line a small furrow is opened and the seeds are planted from two to four inches deep and from four to six inches apart. Devotees of the old method of sowing thickly in the manner of growing mustard and cress for salad are gradually disappearing, as the benefits of thin culture are seen. Each variety should be carefully tagged with its name or number for identification. To economize space the seeds are often planted in double rows a foot apart, but the single row affords more room for roots and with more air and light the plants will thrive better.

As soon as the seedlings are three or four inches high they should be kept in an upright position with small twiggy boughs until strong enough to seize the more permanent supports. As an alternative to fall planting, and in order to secure early flowers, many growers plant their seeds in pots and place in a cool greenhouse so that the plants may have a good start and be ready to put out in April or May. Very good results were obtained this year from a few sown in pots sunk in a hotbed. They bloomed about the same time as those planted in the fall.

Constant cultivation should now proceed between the rows as close to the plants as can be done without injury. As the soil is rich, there will also be a constant crop of weeds to remove.

SUPPORTS

Various supports are recommended. Some growers prefer long branches with plenty of twigs placed in the ground inclining outwards, so that looking at the row from the end it appears to be V shaped. This is in order to better support the top growth. Wire poultry netting is an excellent substitute for sticks, using two lengths of four foot netting. As it can be used year after year, it is a cheap mode of support. We have found very satisfactory a support made by using stakes two inches square from eight to ten feet high and planting them firmly in two rows a foot apart, allowing eight feet between each pair of stakes. The stakes at each end of the row should be well guyed. Strong twine is then carried along the outside of each row of stakes by means of screws or double-headed tacks. Screws are preferable, as the string can be tightened between each stake more readily. The rows of string are placed from four to six inches apart. If found necessary, a third series of strings can be used by attaching them to cross bars on the stakes about one foot apart. If the string is stout and is taken down and put away dry in the autumn, it should last several seasons. As we have had about two hundred yards of peas supported in this way, we find such little economies profitable. The rows should be from five to six feet apart in order to allow of proper cultivation and spraying between them.

As soon as warm weather commences, a heavy mulch of well-rotted manure should be spread on each side of the rows and well worked in around the roots of the plants. This will not only keep the ground from getting baked by the sun, but as watering is carried on, its manurial value will be great. A second mulching should be applied a month or six weeks later.

Many of the first flower buds usually fall off without opening, and when we have been eagerly waiting to feast our eyes on the new beauties of the season, this is somewhat disappointing. However, our alarm is soon dispelled by the subsequent abundance of bloom which the later buds unfold. By the end of July the only question is how to keep the peas picked, with such magical rapidity do they appear every day upon the vines. On no account must pods be allowed to form if a long flowering season is expected. After flowering is well under way, the vitality of the plants must be kept up by the application of liquid manure, at least once a week. It is advisable to use half a dozen kinds, using a different manure each time. The following are useful: Nitrate of soda, one-quarter to one-half ounce to a gallon of water, Sulphate of potash, one ounce, Sulphate of ammonia one half ounce, infusions of soot, guano, poultry, cow or stable manure diluted to the strength of weak tea. Put some of the substance in a small sack in a barrel of rainwater, allow it to soak for several hours, and pound with a rake or other garden tool.

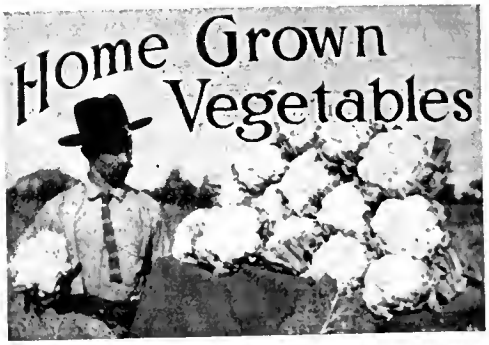
*Extract from a paper read during November at the annual convention of the Ontario Horticultural Association.

Asters as Grown by Mr. J. Gadsby, Hamilton, Ont. How Did Yours Compare With These?

It may then be applied with a watering can as desired. During the past hot season we found more response to animal than artificial manures .

WATERING

We are not satisfied unless blooms are produced with stems from ten to eighteen inches in length and with flowers from one and one-half to two and one-half inches across the standard. We cannot get this class of sweet pea unless they have plenty of moisture both above and below ground. A regular supply of water will tide them over a spell of drought, but no artificial watering will take the place of a sufficiently moist atmosphere. However, if we do not neglect them during the adverse period of drought when we can no longer take pride in their appearance, and if we do not lose patience, we shall find them after a good heavy rain once more returning to their spring-like form. If you have a copious supply of water in your hydrant and can stand the expense, a system of galvanized iron piping arranged along the rows with holes drilled in the piping every six inches and a hose coupling attached to one end of your system will do away with the labor of watering a large number of peas. We have only tried this on a single row, but found it a great labor saver. The past season was, however, an example of our helplessness without the beneficent aid of nature. Several prolonged spells of drought, commencing so unusually early as May, disappointed the hopes we had formed in the early spring of a very successful season. Other much more experienced horticulturists have told us that their experiments in sweet pea culture carried out under the most favorable conditions and with the help of skilled gardeners, have likewise been very disappointing this season. However, as one swallow does not make a summer we must not be downhearted but look forward to better fortune next year. Although under such conditions our peas may not be up to exhibition standard, we may be sure always of an abundant supply of delightful bouquets for ourselves and our friends.



The Amateur Vegetable Garden

Geo. Baldwin, Toronto, Ont.

IN outlining the possibilities of vegetable growing in a small space, by an amateur grower, the three principal points to be considered are the preparation of the soil, the selection of varieties, and proper cultivation. If the ground was not dug deeply and manured in the fall, do it just as soon as the frost will permit, using rotted manure or artificial fertilizer, or both, raking it over smoothly, having the garden raised a little higher in the centre, tapering off to the sides, so as to shed off heavy rains.

About the 10th of May, weather permitting, sow the seeds for onions, red, white and yellow "Southports" for preference, putting the rows eighteen inches apart, so as to permit cultivating in between, then two rows of beets, flat Egyptian being the best, two rows of parsnips, Hollow Crown, one row of carrots, Oxheart, and one row of carrots, Early Nantes. Take a rest until May 24th, and then recommence operations is earnest by putting out four rows of cabbage plants, two feet apart, and plants eighteen inches apart in the rows. Henderson's early summer cabbage is the best all-round cabbage for either early or late. Next put in three rows of Wardwell's Kidney Wax Bean, rows eighteen inches apart. Put in lots of beans, and thin out to eight inches apart. Next to this leave a space of four feet, and when you get more time, prepare a trench ready to receive celery plants June 1st. Next to this put in two rows of Telephone peas two feet apart, training them up sticks, chicken netting, or brush.

Now comes the tomato patch. Put your plants three feet apart each way. Stagger them in the rows, so that they will not shade one another. If your lot is twenty feet wide, this will give you six plants to a row, and having five rows you will need thirty plants, which is plenty for an ordinary family, if attended to and trained properly.

If your lot is fifty feet long, you still have nine feet four inches on which to plant two rows of Golden Bantam corn and two rows of Country Gentleman corn for late variety. Put the rows twenty-eight inches apart and the hills two feet apart staggered the same as for the tomatoes. Put in about twelve seeds to a hill and thin out to five, putting here and there two or three seeds of squash, cucumbers, or marrows. Sow some radish seed broadcast amongst the corn, which will be ready for the table before the corn shades it too much.

When your planting is all done, start at the top of the garden, cultivating and thinning out where necessary. Watch for cutworms and caterpillars. Throw the earth out of the celery trench along each side. Put in lots of well decayed manure in the bottom. Put in two rows eighteen inches apart, with the plants eight inches apart in the rows. Sow lettuce seed on top of one ridge and radishes on the other.

I have not mentioned the varieties of celery or tomatoes most suitable, for the reason that we have not yet decided whether we will make a hotbed and grow our own plants or buy them from the corner grocery. Both ideas have points in their favor. If you haven't got the time or facilities or feel you are not competent, buy from the store and plant whatever varieties you can get, but if you intend being an amateur in practice as

well as in name, by all means prepare a hotbed and grow the varieties which you know are the best, and what is more, get better plants. You will also gain about two months' growth with your onions, which will enable you to grow them to an exhibition size.

For celery, sow seeds of Paris Golden for one row and Rose-ribbed Paris for the other or late variety. Most tomatoes are good, but some are better than others, and I strongly recommend Chalk's Early Jewel, Earliana, and Beauty, the latter a beautiful pink variety. They should be trained up stakes. A description of this method, as well as of the proper attention to be given celery, and the making of a hotbed, will appear in these columns a little later.

You will notice that in the plan of planting here outlined the vegetables are graded according to height. Of course, you will have to be governed by your location, placing the tall-growing either to the west or the north. Cultivate freely right through the season. Do not water unless absolutely necessary, as once started it has to be kept up. When you water your plants, choose the evening for it.

Suggestions Concerning the Use of Fertilizers

IN greenhouses or for home gardening purposes the solubility of a fertilizer should be considered ere it is applied; those of little solubility or those partially soluble may safely be mixed with the potting soil. It would be just as wise, however, to use sugar as to mix nitrate of soda in potting soil and to expect it to be of use to the unestablished plant. Soluble fertilizers as a rule are wasted when applied to plants which are not in a condition to receive them. The solutions pass away as drainage.

Many artificial fertilizers are used in greenhouses, and while to benches or borders a top dressing of the soluble kinds may occasionally be given, it is not wise to afford them to potted plants in a crystalized form. It is a safer and better practice to dissolve them as required in water and to apply them through this medium. Nitrate of soda is a soluble fertilizer of great value. It acts and stimulates growth quickly; one-fourth of an ounce to one gallon of water is ample. Guano is more or less soluble, its nitrogen acts quickly, it is much safer to use than nitrate of soda, and may be applied at the rate of two ounces to an ordinary two and one-half gallon pail of water. Clay's fertilizer, a most excellent manure for general purposes, may be used in the same proportion as guano. For such stock as geraniums, cinerarias, calceolarias, cyclamen, begonias, primulas, and general florists' stock it is probably unexcelled. Diluted urine and soot water produce splendid results with greenhouse stock. The action of the former is characterized by vigorous growth and the latter by a resultant deep green color of foliage.

Clay's fertilizer, Thompson's vine and plant manure, guano, bone meal, soot, finely broken charcoal and dried blood, generally give good results when mixed with soil for benches, borders, or for potting purposes. A five inch pot full of any to a barrow load of soil will be sufficient. The first three being standard fertilizers of guaranteed analysis, are complete in themselves. The writer has refrained from mentioning other manufactured manures; there are undoubtedly many excellent ones on the market, and while not prejudiced in favor of any, he would, however, ask the grower to guard against using any fertilizer the analysis of which he does not know, or which cannot be guaranteed by the manufacturer. Adulterated fertilizers are too common; there is, however, one consolation they are not sold by reputable firms.

If the grower is in doubt a slow decomposing fertilizer should be used in preference to one of quick action. A general fertilizer should be well balanced, and should contain nitrogen, phosphorus, potash and lime. Nitrogen promotes growth, phosphorus aids the production of flowers, fruit and seeds; potash helps the plant to assimilate the elements of food, or in other words it aids digestion, and lime unites with elements in the soil rendering them available for absorption, and also in conjunction with these elements builds up the woody tissue of the plant.

Whatever fertilizer may be applied, we must remember that the degree of its solubility or of its constituents determines the rapidity of its effects, and the period over which they extend. Those of great solubility and, therefore, quick acting, must be sparingly and judiciously used. Happy is he who understands the great natural truth that all substances must be or become inorganic, and as such pass into solutions ere they can be absorbed as food by plants. Soluble fertilizers when applied in excess not only injure the plants, but often so change the food constituents of the soil as to render them for a time worthless, or act upon them so quickly as to cause a premature state of exhaustion.

Forced strawberries. The soil contained finely ground bones. Diluted liquid cow manure was applied twice a week.—Photo by H. J. Moore.

Floral Experiences

The Cyclamen requires very much the same treatment as the Gloxinia, except that they are rested during the summer months out of doors, re-potted in August, and brought into the window to get them in flower in winter or early spring. They are not subject to insect pests if they receive anything like the proper treatment.—Wm. Hunt, O.A.C., Guelph, Ont.

For small gardens, rather than attempt mass effects, I prefer to have many small clumps of plants blooming at the same time scattered through the border, and so placed that they will make good contrast or blend with the foliage of other plants not yet in bloom, and also among themselves give a variety and pleasing contrast or blending of color.—W. T. Macoun, Ottawa, Ont.

The paeony differs materially from many perennials in that it will continue to grow, yielding indeed the very best results each year, without replanting, for many years, while the foliage lasts from the day the leaf buds show above the soil in spring, until the plant is cut down in preparation for wintering, with an undimmed and unchanging beauty of color.—J. H. Bennett, Barrie, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited, PETERBORO, ONTARIO

H. Bronson Cowan Managing Director

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of The Ontario and New Brunswick Beekeepers' Associations.

REPRESENTATIVES

UNITED STATES
STOCKWELL'S SPECIAL AGENCY.
Chicago Office—People's Gas Building.
New York Office—Tribune Building

GREAT BRITAIN
W. A. Mountstephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests: The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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, $1.40 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 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 6,627
" " " " 1913, 12,524

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 his 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."

Rogues 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 pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST
PETERBORO, ONT.

EDITORIAL

A MANY SIDED PROBLEM

High land values hit the fruit grower both going and coming. Good fruit land is capitalized at high values. The producer who has purchased land during recent years is forced in consequence to allow so much for interest on his investment that only too often he has but little left from the sale of his fruit with which to defray his other necessary expenditures, and still allow himself a fair return for his labor and management.

In all new fruit districts, growers, while land values remain low, generally realize satisfactory returns on their investment as well as for their labor. This leads the speculator to become busy. Land is bought up, the section is boomed, land values are advanced and new comers are forced to pay high prices for their holdings. Such men, from the outset, have a burden to bear that only too often spells the difference between success and failure. A grower who obtained his land for fifty to one hundred dollars an acre, with money at six per cent., has to meet an interest charge of only three to six dollars an acre a year. When, however, land has been bought for five hundred dollars to one thousand dollars an acre, as has been the case with quite a little of the land in the Niagara District, this interest charge is increased to thirty and sixty dollars an acre. This is a permanent charge. It may not be seriously felt when crops are good, but when crops are poor, as in the case of peaches this year, it becomes a serious burden.

The difficulty of the situation is increased by the fact that every successful effort that is made to increase the returns per acre is quickly capitalized once more in the form of still another advance in land values. Take the situation as it has developed in British Columbia: At first fruit growers in British Columbia did well. Then land values were advanced. The labor return per acre was reduced in proportion. In time it was found that many growers were not obtaining satisfactory returns. Something had to be done. The government aided the growers by advising them as to the best varieties of fruit to plant, how to cultivate and fertilize their land, prune and spray their trees and pick and market their fruit. In consequence the production of fruit per acre was increased and financial returns were enhanced in proportion. Again the land speculator got busy and land values recorded another increase. Soon complaints began to be heard once more of the difficulty growers were experiencing in obtaining satisfactory returns.

To improve the situation cooperative methods of marketing crops were introduced in many sections to great advantage. No sooner, however, did the land speculator hear of it than land values were again advanced wherever successful cooperative associations had been established, and growers were soon confronted with the same old difficulty that had burdened them before. Now fruit growers in British Columbia are clamoring for an increase in the tariff on United States fruit in order that they may be enabled to once more earn interest on their investment and satisfactory returns for their labor. Without desiring to say anything against the justness of their claim we would like to predict that should the government grant the desired increase in the tariff the land speculator once more would seize the opportunity to boom British Columbia fruit lands and again advance their values with the result that in a few years conditions on the average would be no better than at present.

What has been said applies only to the production of the fruit. The grower is hit also, and heavily hit, by the high land values in our towns and cities. Tens of thousands of working people in our cities pay out twenty to thirty per cent. of all they earn in the form of rent. This so reduces their purchasing ability that in many cases they are unable to buy fruit at any price, even during periods when markets are glutted. Thus the outlet for the fruit market is greatly curtailed. Furthermore, the high rentals charged wholesalers and retailers who handle the crop impose an additional and heavy charge on the middleman that generally is completely overlooked by the grower.

This question of increasing land values in both city and country has not received the attention hitherto that its importance has deserved. Removing the taxes on improvements and increasing them on land values would help to solve the problem.

PROGRESSIVE SOCIETIES

More and more the horticultural societies of Ontario are becoming interested in civic improvement. Many societies are doing exceptionally valuable work along this line. It is a work which tends to bring the societies prominently before the public and thus to advertise what they are doing, and to increase their membership and favor with the public.

Elsewhere in this issue appears a number of reports from societies showing work which they have accomplished during the past year. Some societies have made a success of certain kinds of work while others have achieved equal success through putting forth their efforts in other directions. Every little while the time comes in the work of societies when new lines of work should be undertaken in order that the interest of their members and of the public may be maintained or increased. Those interested in the work societies are doing will do well to read these reports as well as other reports which we expect to publish in succeeding issues. For the sake of "Business as usual," as well as for the usual reasons let us all do what we can to make 1915 a banner year among the horticultural societies of Ontario.

SIGNS OF PROGRESS

For over a quarter of a century the growth of The Canadian Horticulturist has been so closely identified with the development of the horticultural interests of Canada, we feel we are well within bounds when we state that this issue of The Canadian Horticulturist is not without its significance. As the horticultural interests of Canada have increased in importance The Canadian Horticulturist has been enlarged and improved. The fact that one of the most forward steps we have taken in The Canadian Horticulturist is made with this issue is an indication that the horticultural interests of the Dominion have advanced sufficiently to make this improvement possible.

The leading horticultural districts of Canada are separated by great distances. The leading fruit districts of Canada, for instance, are in the Annapolis Valley of Nova Scotia, bordering Lakes Ontario, Erie and Huron, and the Georgian Bay, in Ontario, and in British Columbia. They

could not very well be more scattered. This condition has created peculiar difficulties in connection with the publication of a truly national horticultural publication. The population in the towns and cities of Canada also has been so small as to retard the obtaining of a strong circulation among people interested in the amateur growing of flowers and shrubs. Thus hitherto The Canadian Horticulturist has had to cater to both classes of readers in one publication in order to obtain the needed circulation.

With this issue we commence the publication of two separate editions, one devoted especialy to the interests of the commercial fruit grower and the other to those of the amateur fruit, flower and vegetable grower. While both editions will continue to contain considerable information relating to both interests, each will contain more articles of direct interest to its readers than it has been possible for us to publish for them in one combined edition in the past.

Gradually, as the horticultural interests of Canada continue to advance, each edition of The Canadian Horticulturist will be strengthened as well as our third edition, which is devoted especially to the apicultural interests. In time we expect that each edition will grow into a separate and distinct publication. Thus it will be seen that it is our intention to see that The Canadian Horticulturist keeps step with the progress of the horticultural industry, and to do all within our power to promote its development.

PUBLISHER'S DESK

Our front cover illustration this month shows the greenhouse of the Trafalga Institute, Montreal, Canada. Note how free this house is from any obstructing material which would tend to keep the light from the plants. There has been a vast improvement in the style of greenhouses erected during recent years. The illustration reveals a number of these improvements.

* * *

Readers of both the first and second editions of The Canadian Horticulturist this month will, we feel sure, be pleased with the material they contain. There are more articles related directly to fruit growing in the first edition and to flower growing in the second edition than we have ever published before in The Canadian Horticulturist. We have already received many indications from our readers that they are pleased with our arrangement to publish The Canadian Horticulturist hereafter in editions devoted especially to certain subjects. The success of both our first and second editions is already practically assured A special effort has been made to make the illustrations unusually helpful.

* * *

Owing to the immense amount of work involved in completely re-arranging the mailing list of The Canadian Horticulturist so that the first edition might be sent to fruit growers and the second to amateur fruit, flower and vegetable growers, this edition of The Canadian Horticulturist has been delayed somewhat later than usual. Now that this re-arangement has been completed there will be no occasion for a similar delay in the future. Readers of The Canadian Horticulturist who have not as yet advised us which of the two issues they prefer to receive are requested to do so at as early a date as possible.

The February issue of The Canadian Horticulturist will be our Fourth Annual Spraying Number. The front cover will depict a full page spraying scene. Throughout the issue special illustrations relating to the spraying of fruit, flowers and vegetables, as well as timely interesting articles dealing with the same subject, will be published. In these annual spraying numbers we aim to give special information relating to advanced spraying practices. Don't miss this issue. Advertisers are reminded that last year the crush of advertising was so great that it was found impossible to give our best attention to advertisements received at the last moment. Get your advertisements to us, therefore, as early this month as possible.

What Horticultural Societies are Doing

That many horticultural societies in Ontario are doing exceptionally good work was shown at the recent convention of the Ontario Horticultural Association in the report of Superintendent J. Lockie Wilson. Among the society reports presented were the following:

CLINTON.

Interest in the work of the society is growing rapidly. The membership has increased from 159 to 180 during the year. The civic improvement movement has met with the enthusiastic approval of members of the society and citizens generally. In the spring the society organized a Board of Health and succeeded in getting the back yards in the business portion of the town in a clean and sanitary condition. Premiums were distributed and several barren places in the centre of the town reclaimed, as well as keeping in order those already in hand.

Select Your Issue

There are still a number of readers of The Canadian Horticulturist who have not advised us which edition, the first or the second, they desire us to send them. The first edition of The Canadian Horticulturist is devoted especially to the commercial fruit interests. The second edition is devoted more to the interests of the amateur fruit, flower and vegetable grower. Practically all of our readers are more interested in either one subject or the other. Will you kindly advise us, therefore, without delay, which of the two you prefer to receive hereafter and we will arrange to send it to you.

DRYDEN.

This is a new society with a membership of 77. Two hundred trees were planted on one of the streets of the town. Special prizes were given for lawns, gardens, and tree planting on private property, for the best kept street in front of residences, and for beautifying public property.

DUNDALK

A flower show was held in August, which created great interest and enthusiasm. There were no restrictions as to entry, and consequently a number of outsiders were secured as members. There were twenty-nine classes for flowers in pots, not counting specials, and thirty three for cut flowers.

DURHAM.

We held a successful exhibition. Monthly meetings were held where papers on horticultural subjects were read and discussed. We planted trees and shrubs around some of the churches and distributed plants and shrubs to members.

FORT-WILLIAM.

Our membership increased from 125 to 136, and there was a marked improvement in the annual flower show, not only in the number of exhibits, but in the quality. At our first show, three years ago, there were only three spikes of Gladioli on exhibition, this year were entered fourteen exhibits of this flower, of a very fine grade of excellence. Exhibitors allowed their flowers to be sold for the benefit of the Patriotic Fund. Under the supervision of the City Council volunteer labor has plowed up all the vacant property obtainable, to be allotted to applicants for garden purposes next spring. There are already more than sufficient applications for these plots. It is confidently expected that we will have a Garden City next year.

GALT.

Our society planted a number of flower beds in the spring in conspicuous places. These were instrumental in transforming what otherwise would have been unsightly spots into places of beauty, and were a source of pleasure to visitors, as well as to residents of the town. A campaign for beautifying the town has been carried on for the past three years, and has been the means of awakening a keen interest in it here, and as a result our membership has increased about thirty per cent. There are now two hundred and forty-one members.

Great interest is also shown by the school children of the town, among whom 1,500 packages of flower and vegetable seeds were distributed last spring. The result of their work, as shown by their display of flowers and vegetables at the annual exhibition, was a great surprise and delight to all who saw it. The interest taken in the school children's flower and vegetable garden plot competition was most encouraging, there being over eighty competitors. Some of the designs were most original and artistic. In all, eighty-two dollars were distributed in prizes among the children.

GRIMSBY.

Each member of our society received two hybrid tea roses, and the Canadian Horticulturist. A lecture was given in May. We held a rose show in June, exhibits very fine. Last fall the society distributed to each member Narcissus bulbs, which were purchased in Holland. We have a Civic Improvement Committee.

GUELPH.

Window boxes were placed on the principal public buildings and in front of the public library. A lecture given by Rev. G. W. Tebbs last spring was very well attended, and created much interest. The meetings of the directors were well attended, and besides the usual business, the increasing of assessments on account of landscape improvements was discussed and a resolution in regard to same placed before the city council and published in The Canadian Horticulturist, causing a deal of comment by societies in different parts of Ontario. The membership has been increased from two hundred and sixteen last year to two hundred and thirty-eight.

As a result of the lawn and garden competition, there has been a great improvement all over the city in the manner in which lawns are kept, and an increase in floral display, both in quality and quantity, and also a better selection of plants. This great improvement is due to the work of the Horticultural Society.

British Columbia Apple Week

R. M. Winslow, Provincial Horticulturist and Sec'y B.C. Fruit Growers' Association Victoria, B. C.

DURING the first half of November the Horticultural Branch of the British Columbia Department of Agriculture successfully inaugurated special apple selling campaigns for the purpose of promoting the consumption of British Columbia apples. These special campaigns were advertised as "British Columbia Apple Weeks," and were held in Calgary, Vancouver, and Victoria. The British Columbia Fruit Growers' Association assisted by paying part of the cost in each case.

Earlier in the year the association had distributed 100,000 booklets on British Columbia Fruit, which brought a very considerable response, but were not considered sufficiently specific to meet the particular difficulties of the apple market as it stood in the month of October. Our apple crop was about twenty per cent. greater than in 1913, which had previously held the record. The Prairie markets were very largely on a consignment basis with prices ruling low and American apples being offered at very low prices in the coast cities. The Federal advertising campaign had directed public attention to apples with remarkable success, but the advantage of the campaign was largely accruing to barrelled apples from eastern Canada. It became obvious, too, in late October, that our apples would not keep as well as usual, and must go into immediate consumption.

Under the circumstances, it was a problem to focus the demand on the apples of British Columbia and to secure the movement of our crop at reasonably firm prices. As against the imported fruit there was the opportunity to appeal for support for the Canadian product, and in British Columbia, support for the product of our own provinces. This appeal was widely made and heartily responded to. The British Columbia Apple Weeks have left a deep impression on the consuming public and on the trade even outside the radius of the cities which participated.

The essential feature of the "Apple Week" idea, as we carried it out, is concentrated publicity of such volume as to greatly stimulate apple sales and consumption,not only for the particular week in question, but for more permanent results as well.

The Okanagan United Growers' through their manager, Mr. R. Robertson, cooperated especially in this work, though all British Columbia fruit received a benefit, about fifty per cent. of the apples sold during the Apple Weeks coming from other sources.

In Calgary the Markets Commissioner of the Horticultural Branch, Mr. J. Forsyth Smith, was in charge. The successful organization of the campaign, both in general and in detoil, is to be credited to his efforts. The wholesalers and retailers readily cooperated in the plan and especially contributed to extensive newspaper advertising, to which the association gave twenty-five per cent. Apple lithographs were used in the street car advertising to excellent effect. The newspapers contributed liberally of their news and editorial space.

Some Calgary wholesalers estimated their sales at double, others treble normal consumption, and sales have been on a high level ever since. Other cities in the Prairies have requested similar campaigns next year.

The Vancouver Apple Week, November 2nd to 7th, had not only the support of the Department, but was largely supported by the Vancouver Industrial Bureau, all of the wholesalers, the great majority of the retailers and Vancouver City Market. Newspaper advertising, news items and editorials were here a considerable feature, but even more than in Calgary the retailers' window-dressing competition put the British Columbia apples themselves in all their beauty before the eyes of all consumers. The Apple Show staged in the commodious Exhibition Hall of the Vancouver Industrial Bureau attracted tens of thousands of visitors. In the Vancouver City Market 4,500 boxes of British Columbia apples were staged and sold to customers who came to see them. The retailers, thanks to a special effort on the part of the wholesalers, were more generally interested than at Calgary or Victoria.

Though Vancouver had been using American fruit in the proportion of two to one of British Columbia apples, the Apple Week campaign very largely reversed this. During Apple Week itself, British Columbia apples were sold ten to one of American.

In Victoria the campaign was limited to a three-day period, but proved equally successful and permanent in its results. Newspaper advertising was the largest feature, but special features on the programme of a series of patriotic concerts proved most valuable publicity. A retailers' window-dressing competition aroused great interest, and an apple parade was an unusual but striking feature. During the week sales of British Columbia apples were as four to one of American, completely reversing the previous situation.

Apple Week advertising has certainly brought home to the average consumer the genuine superiority of the British Columbia apple, and quite aside from any question of patriotic motives, there is a much more pronounced desire for British Columbia fruit than has ever been previously experienced. The hearty cooperation of wholesalers, retailers and public bodies to stimulate the sale and consumption of British Columbia apples has been a surprise and a most gratifying one to the growers. Such Apple Weeks can be carried out in future years with much less effort for organization and at much less expense, though the expense was comparatively light, and certainly with even greater results.

The editor of the Calgary "Herald" voiced the opinion of the general public of all three cities, when he wrote the following: "The British Columbia Apple Week in Calgary was a wonderful success. Never before in the history of this city have the people bought apples in such generous quantity, and never before have they been given such splendid opportunity to make their purchases. In the results of the exhibition there are at least two lessons not likely soon to be forgotten. So far as the people are concerned, thousands have been converted to the apple eating habit—a habit they will not willingly abandon. As for the apple growers, they have learned a wonderful lesson in the value of judicious advertising. The Apple Week campaign was wisely planned. Every agency necessary for its success was made use of and there was no skimping at any point. Calgary to-day eats British Columbia apples, and eats them in immense quantities. So long as the growers continue to ship in the fruit and the price is right, Calgary will be a British Columbia apple centre."

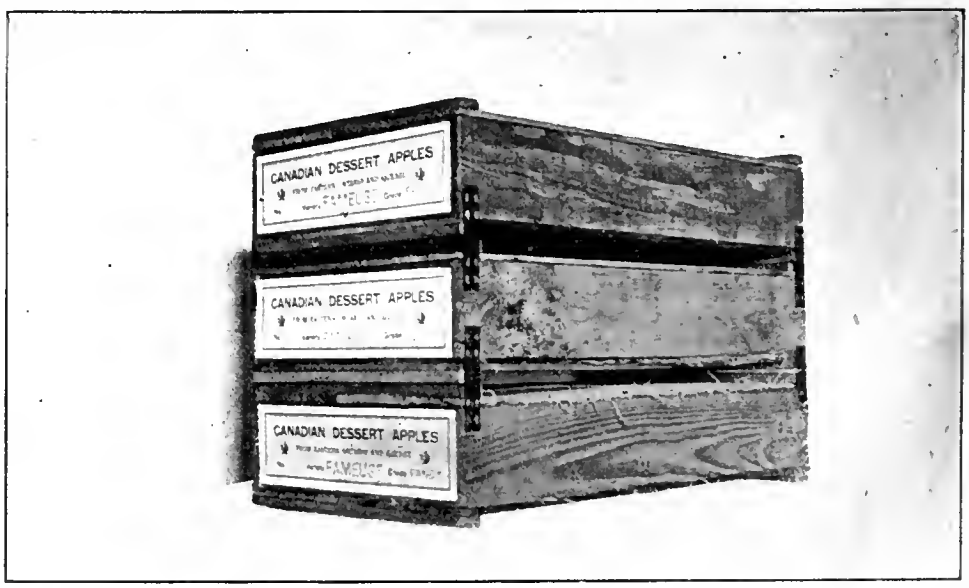
The Apple Week idea has come to stay. The plan secures greatly increased consumption of fruit; standard prices; moderate margins for retailer and jobber; every cent for the grower that the market conditions will stand., and above all, better health to all consumers and the satisfaction that comes from eating British Columbia apples.

Fruit Packing Schools

P. W. Hodgetts, Director of Horticulture, Toronto, Ont.

I would like to call attention to the apple box-packing schools for which instructors are supplied by the Fruit Branch. Last year we ventured to predict that the season of 1914 would see one of the largest apple crops that America had ever produced, and that, therefore, only the best fruit well packed would bring remunerative returns. This forecast has, in the main, been borne out, and, of course, greatly accentuated by war conditions. For the coming season, even if the war is over, it will in all probability again be a case of only well-packed No. 1 fruit bringing a reasonable profit.

A packing school is not a demonstration of how to pack, but an opportunity for those wishing it, to learn how to pack by actually doing the work themselves under a compe-



Method of Crating Three Single Layer Fruit Cases. Note the Iron Clips on the Side

MID-WINTER SALE CATALOGUE

Every page is filled with bargains—every article *dependable Simpson merchandise* marked *closer to cost* than ever before. To get the most for your money *you need this book.* Send a post card to-day.

We pay delivery charges. We give a one-day service.

THE ROBERT SIMPSON COMPANY LIMITED
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ORCHID GROWERS. The Finest Stock in the World.

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Useful New Invention

Enables Anyone to Play Piano or Organ Without Lessons

A Detroit musician has invented a wonderful new system which enables any person or a little child to learn to play the piano or organ in one evening. Even though you know absolutely nothing about music or have never touched a piano or organ you can now learn to play in an hour or two. People who do not know one note from another are able to play their favorite music with this method without any assistance whatever from anyone.

This new system, which is called the Numeral Method, is sold in Canada by the Numeral Method Music Co. of Canada, and as they are desirous of at once making it known in every locality, they are making the following special free trial and half-price offer to our readers.

You are not asked to send any money until you have tried and are satisfied with the new method. The Numeral Company is willing to send it to you on one week's free trial, and you will not have to pay them one cent unless you desire to keep it. There are no express charges to be paid, as everything will be sent by mail. Simply write a letter or post card to the Numeral Method Music Co. of Canada, 246A Curry Hall, Windsor, Ontario, saying "Please send me the Numeral Method on seven days' free trial." If you are satisfied after trying it, the Method and fifty different pieces of sheet music will cost you only $5, although the regular price of these is $10. You should not delay writing, as the Numeral Company will not continue this special half-price offer indefinitely. Later on the Method and fifty pieces of music will be sold at the regular price.

tent instructor. These schools will be conducted on practically the same lines as last year, except that it has been found advisable to shorten the length of the course from three days to two.

At least ten pupils must be guaranteed for each school. It is specially requested, also, that there is not more than twenty pupils taking the course at once. If more than twenty are enrolled, the representative is requested to organize two schools of two days each, or else notify the Fruit Branch in sufficient time so that two instructors may be sent.

A fee of one dollar, to be collected by the Government representative, will be charged for each pupil taking the course. The money so collected will be put up in five proportionate amounts as prize money for the five best packers. The last afternoon of the course will be given over to the pupils to pack a box for this competition.

The Fruit Branch will supply boxes, wrapping and lining paper, and will pay accounts for hauling and rent of halls. The local district representatives are requested to procure sufficient apples, at least a barrel for every two pupils.

The American Civic Association

The magnetic power of the word Washington was responsible for the presence of six Canadians at the tenth annual convention of the American Civic Association. Several of the Canadian delegates made important addresses. The presence of Mr. Thomas Adams, one of the Canadian delegates, late of London, England, who is at present civic adviser to the Conservation Commission of Canada, was particularly appreciated. He contributed to the programme on two out of three of the regular sessions, and in addition delivered several addresses before other Washington associations.

Important addresses were also delivered before the association by Mr. Arnold W. Brunner, Mr. George A. Parker, Mrs. John T. D. Blackburn, Mr. Mark H. Daniels, Mr. J. B. Harkin (Canada), Mr. Clarence J. Blanchard, and Mr. J. Horace McFarland, the well-known president of the as-

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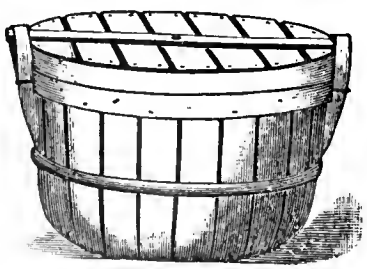

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sociation, all of whom are experts in their several fields of effort for better housing and living conditions.

Every session of the association brought into strong evidence the urgent need for the united and persistent effort of such organizations as this one in order to direct aright the daily increasing consciousness, which the public is gradually acquiring, with respect to the terrible folly of allowing any town or village, however small, to develop in a haphazard fashion. The convention, in addition to focussing attention on the needs of the growing towns and cities, was fortunately additionally valuable in calling attention to the proper development of the natural park, the playground for city children, and national highways, besides other related subjects.

Those who were present appreciated the value of the work of the association, as well as of those which are related with it by similar aims, and which were duly represented by accredited delegates, such, for instance, as the Ontario Horticultural Association, which was most efficiently represented by Mr. J. Lockie Wilson of Toronto, and the Rev. A. H. Scott, Perth, Ont.

Other Canadian delegates were Mr. W. B. Burgoyne, St. Catharines, Ont.; Mr. J. B. Harkin, Ottawa, Ont.; Mr. F. E. Buck, Ottawa, Ont. The association elected Mr. J. Lockie Wilson as one of its vice-presidents, and Rev. A. H. Scott as a member of the executive board for 1915. The secretary is Mr. J. B. Watrous of Washington, D.C.

Enterprise Rewarded

Sir George E. Foster, writing in the Weekly Report issued by the Department of Trade and Commerce, quotes the progressive policy of Organized Fruit Growers of the Annapolis Valley as an example of what can be done by Canadians in foreign markets when sufficient enterprise is shown.

Sir George E. Foster writes as follows:

As an instance of what can be done by direct representation the Department has received news from Buenos Aires of a successful trip made by Mr. Foster M. Chute, a representative of the United Fruit Companies of Nova Scotia, Limited.

Last year the United Fruit Company made a trial shipment to Buenos Aires with satisfactory results. This season Mr. Chute by his personal visit has been enabled to open up business relations with the principal cities of South America for Nova Scotia apples. He has done exceedingly well and has made connections which will be of lasting benefit to the apple trade of Nova Scotia. A shipment of 10,056 boxes, 65 half barrels and 4,683 barrels has been placed at remunerative figures.

This is published as a hint of the possibilities of the South American market, and secondly as to the advisability of direct representation. Good stock, well assorted, well packed and preserved, commands good prices in South America for those who are enterprising enough to go after it.

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Short Courses of Instruction

Prof. J. W. Crow, Guelph, Ont.

A short course in fruit growing and a course of instruction in apple packing will be held as usual this year at the Guelph Agricultural College. The dates this year will be as follow: Short course in fruit growing, January 26th to February 6th; first course in apple packing, February 1st to 6th; second course, February 8th to 13th.

This is peculiarly a time when many who are engaged in fruit growing and many who intend to become so, are desirous of instruction. If it were necessary to urge upon readers of The Canadian Horticulturist the worth of these courses, we could furnish abundant testimonials from those who have attended previous classes as to their very great value. Mr. F. M. Clement, formerly of Macdonald College, and now Director of the Ontario Horticultural Experiment Station at Jordan Harbor, will assist the writer in the lecture work of the fruit growing course.

I would like to have readers of The Canadian Horticulturist note that the packing schools are largely separate from the lecture course in fruit growing. The packing work consists of actual practice at both box and barrel packing, if desired, always under the supervision and instruction of experts. Mr. W. F. Kydd and Mr. Leslie Smith of the Fruit Branch will have this work in charge this year as formerly.

The Nova Scotia Fruit Growers' Association will hold their annual meeting at Middleton on January 20th, 21st, and 22nd, 1915. Prof. F. C. Sears, of Amherst, Mass., is expected to address the association on the "Future of the Apple Market." Other subjects for discussion are: "Orchard Heating," "Pre-cooling of Fall Fruit," "Spraying," and "Fertilization."

I enjoy The Canadian Horticulturist, and find it very instructive.—A. E. Ward, Oakville, Ont.

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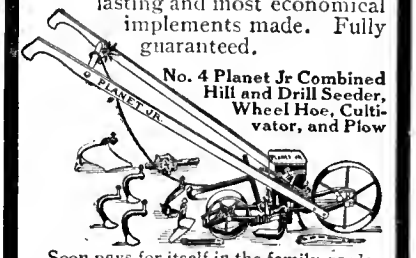

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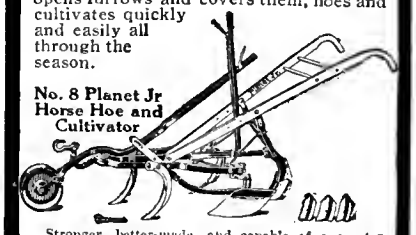

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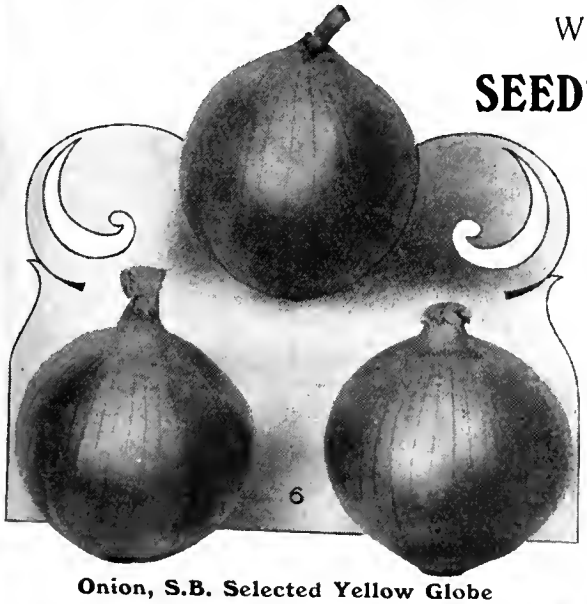

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Fruit Market Reports

D. Johnson, Fruit Commissioner, Ottawa

Since about the first of October, the fruit commissioner's office has been receiving from various sources and distributing to the public, frequent telegraphic reports upon the fruit situation from all points of view. At the centres of production, for instance, the Annapolis Valley, the Lake Ontario counties, Georgian Bay, the Okanagan Valley, and elsewhere, services of the fruit inspectors are employed. They were instructed to acquaint themselves thoroughly with the conditions in these localities, the manner in which the fruit was being harvested, the grades which were being shipped, the likelihood or otherwise of fruit going to waste, in fact, any information which they might consider of value. Similar reports are obtained from reliable sources in some of the states across the line. In this way the fruit commissioner is continually in touch with the main features at the points of production.

Messages are also received from the inspectors in the large distributing centres. They are in close touch with the conditions in these markets and are able to give information regarding the demand for fruit, the wholesale prices, the grades which are arriving, etc. This information is distributed at frequent intervals to the producer, who is in this way able to size up the general market situation. Besides these reports from Canadian markets, cables are being sent from London, Liverpool, Manchester, and Glasgow. All such messages, whether they be by cable or telegram, are supplemented by frequent and more lengthy reports by mail, which have been found to be of great use.

For the distribution of all this information, the columns of the daily press have been a most effective medium. Special efforts, however, have been made to send this information direct to all cooperative associations and to larger shippers. Anyone, in fact, who is desirous of receiving these reports direct from the commissioner's office, can do so by making application.

Fruit Inspection in Nova Scotia

G. H. Vroom, Chief Inspector for the Maritime Provinces

The work of fruit inspection in Nova Scotia was conducted in a different way last year than in former years. The custom heretofore has been to place most of the inspectors at Halifax, and the fruit was inspected between the cars and the ship's hold as the former were being unloaded. Last season all but two of the inspectors worked in districts where the fruit was grown and at the fruit houses along the railway lines.

Each inspector was allotted a section to look after. He travelled from place to place inspecting any fruit which he found packed and gave instruction and demonstrations in places where the actual packing was being done. During the fall, when the fruit was being gathered, the inspectors visited orchards and packing houses and gave instructions in packing and grading fruit. They also inspected the packages, most of which were barrels.

The section assigned to each inspector was not so large that he could not go over it every few days. This enabled him to keep very close tab on the fruit packed and shipped from his section. In addition to the Annapolis Valley, which produces the bulk of the Nova Scotian crop, considerable fruit is grown in the south of the province, in the counties of Lunenburg, Queens, Shel-

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burne, and Yarmouth. One inspector was assigned to this section where there was quite an amount of educational work to be done.

The inspectors at Halifax looked after the local market and were at the dock when steamers were being loaded with fruit for export. If a car happened to escape the outside inspectors in the orchards, or if they had reason to believe that certain brands which they had not seen required attention, they notified the Halifax inspectors, giving the car number, and when it arrived at the ship's side it was inspected before going on board.

Clean Packages Essential

E. H. Wartman, Montreal, Que.

It is too common a sight yet at the port of Montreal to see barrels of apples coming from cars that have been in the coal trade, and later used unswept to receive apples. Imagine how they look coming from such cars on a wet day, rolled on floors of sheds that have accumulated sticky dirt. In addition to this, many are stencilled in a way that appears to be merely a daub. One cannot help remarking what a dirty package these are for anyone to present to the trade on the other side of the Atlantic. Although the fruit may be clean and of good quality, one looks on a package of this kind with suspicion. It would be quite a task to make these packages look presentable for a high-class trade; in fact, this trade would go by such packages, and those who buy them would expect them to obtain them at bargain prices, which the shipper cannot afford to take.

Fruit inspectors and cargo men are always on the alert to give advice to heads of steamship sheds to keep packages clean that arrive clean. I do not want to infer that much of this class of package arrives, but it is still in evidence. A few barrels in some shipments look as if they had lain in orchards in wet weather for some time. The evidence consists of part of the farm, in the form of mud, still sticking to the barrels. You will always find barrels of fruit exposed in this way will absorb moisture on the fruit that will cause fungi germs to develop before the fruit becomes dry enough to resist. A word to the wise is sufficient

A Town Planning Adviser

The work of "Town Planning" has progressed rapidly in Canada. Several of the provinces have adopted legislation which makes it possible for municipalities to do something, while from one end of the Dominion to the other there is ample evidence to show that the people are alive to the fact that our towns and cities can and should be planned upon better lines.

At the International Town Planning Conference held in Toronto in May last, the Canadian delegates met and passed the following resolution: "That this representative gathering of Canadian delegates at the International City Planning Congress held in the Convocation Hall of Toronto University on Wednesday, May 27th, 1914, desires strongly to pray the Commission of Conservation, in view of the very practical cooperation and interest in the aims and objects of the present International City Planning Conference happily promoted by it, to further continue its good work by the creation of a special Bureau of City Planning and Housing in connection with the activities of the Commission of Conservation to act as a central body to encourage and cooperate with provincial and other housing and town planning bodies."

This widespread interest and the wish of the people to do something has created the demand for someone to guide and wisely direct action in this scientific work. It has been felt that the work is surrounded with difficulties and calls for a leader who is more than a mere landscape architect or one who can plan a city beautiful—one who, while possessing the faculty to grasp the æsthetic, can direct the work of town planning upon practical lines, meeting the many difficult and intricate problems which surround the question in such a manner as to bring the whole of the work within the range of practical and economic municipal possibilities.

In the belief that the subject is one truly within the sphere of national conservation, the Commission of Conservation has secured the services of one who is considered as the highest authority upon the subject, perhaps, in the world. Mr. Thomas Adams is peculiarly fitted for the important position of adviser to the commission in matters connected with town planning and housing, for he brings to his duties great knowledge and depth of sympathy and a width of outlook, coupled with a wealth of experience in all these matters which eminently fit him for a task of such magnitude

For the past four and a half years Mr. Adams has filled the position of town planning expert of the Local Government Board of Great Britain, where he has been responsible for all the preliminary work under the Act of 1909, and the Commission of Conservation has been most fortunate in securing his services for a period of at least three years.

I cannot do without The Canadian Horticulturist and I cannot see how you can issue such an excellent paper for the money. It is getting better every year.—J. B. McArthur, Paisley, Ont.

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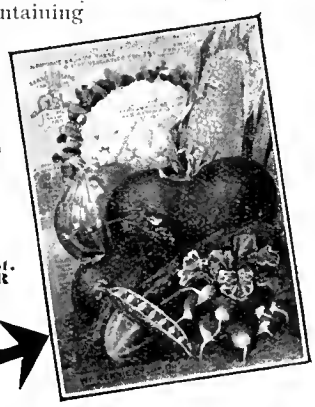

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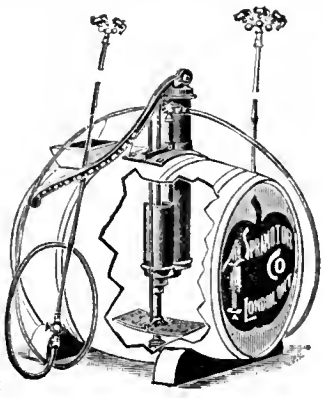

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Determining Cost of Production

G. E. McIntosh, Forest, Ont.

The average fruit grower is not a merchant. He is a producer, placing on the market a product that has an average valuation in Ontario of $12,000,000. As such he should have a clear knowledge of his business and be in a position to know and know definitely, not only the cost of production, but every detail in connection with that business. Business methods applied to the orchard would permit the grower to know exactly the minimum price at which he could market a barrel of apples or a basket of peaches and not incur a loss. Might it not thus help to determine the price at which the grower's fruit should be sold, just as every other substantial producing business considers cost, adds a reasonable profit, and thus determines the selling price. In other words would it not put the grower in business for himself on a business basis.

In all lines of manufacturing, the first and most important thing to know is the cost of production. Why is it not equally as important in the orchard? Perhaps you did not make as much money last year as you thought you should, and yet how many can tell just why they did not? You have some idea, perhaps, but few have records to verify that impression. I believe there is a way it can be done in the fruit business with as great results as in any other busines, and I venture to say the work of keeping such records would not be too cumbersome to apply to the orchard.

Your business methods should furnish guiding information. At the close of a day or a week or a month you should know the standing of your orchard in a business sense. It should enable you to keep a close check on your business. You should be able to run your orchard more profitably, and to buy or sell more intelligently. A business method which would furnish up-to-the-minute records without delay and extra work should cost but a trifle, and should not require a college student to perform the work. The cost of production is one of the branches of orchard work which is not receiving proper attention. How is the improvement to be made?

Notes by an Inspector

E. H. Wartman, Dominion Fru't Inspector, Montreal, Que.

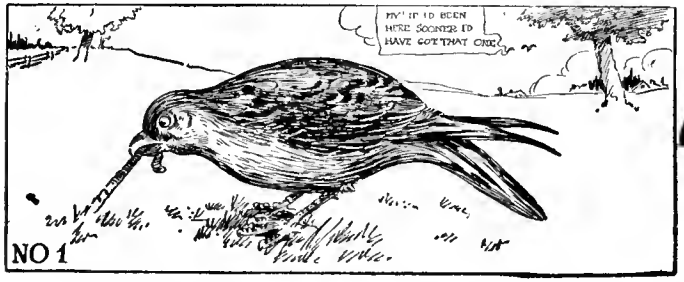
One noticeable characteristic of the season's trade in export apples at the port of Montreal during the season of 1914 was the strong eight-hooped barrels used, which landed fruit in good condition. Handling from cars to sheds was done with unusual care, and therefore there were less broken packages than ever before.

The grading and quality of fruit was very satisfactory in most cases, and especially fine in the standard box, which in most cases were wrapped. Unfortunately, apples in barrels for the last steamers were, in many cases, frosted and looked badly, having been rolled in a frosted condition. In some shipments as high as ninety per cent. were slack by frost.

One very noticeable mistake is seen in over-pressing. This causes the fruit to be wasty. The juice is squeezed out at the bruised spots and makes the pulp cockey, and necessitates a cutting away or waste. It also causes early decay. This destruction by over-pressing is not necessary, as many cars put up by skilled packers have landed in England quite tight in the barrels, and showing very slight marks by

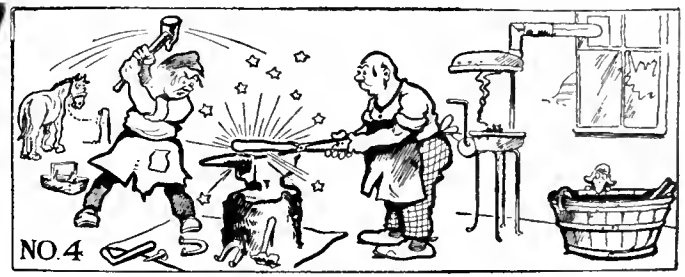
(Concluded on page 22)

What Well-known English Proverbs Do These Pictures Represent?



FREE

$5,000.00 in Prizes Given Away



GRAND PROVERB CONTEST—ENTER TO-DAY

TO THE READERS OF THE CANADIAN HORTICULTURIST:

"Everywoman's World," Canada's great home magazine, is conducting this contest for its friends and readers in celebration of the birthday of the publication.

The extent of the prizes, their great value, and the very interesting nature of the contest, mark this as one of the finest opportunities that has ever been available to readers of The Horticulturist. Answer proverb picture No. 4 at once and get the full set of proverb pictures and complete prize list. We hope that the $500.00 first prize and some of the other fine major prizes will be won by clever readers of The Canadian Horticulturist.

FIRST PRIZE
$500.00 IN CASH
Grandest prize ever offered by any Canadian Magazine.

Can You Guess the Answers to the Above Pictures?

This is the most wonderful opportunity ever offered by a great magazine, to its friends and readers. $500.00 in cash is the first prize that you can win. Other magnificent prizes, almost equaling it in value, make a total prize list aggregating over $5,000.00 in value. Send your entry TO-DAY.

How to Enter This Great Contest.

One of our clever cartoonists has compiled a series of twelve Proverb Pictures, each one representing a well-known Standard English Proverb. We have chosen two of these pictures from the set - Numbers 1 and 4 - which are shown above, and they are the only ones of the series which will be published in this paper. In order to start you correctly we will tell you that picture Number 1 represents that well-known English Proverb "The Early Bird Catches the Worm." Now what proverb does picture number four represent?

You obtain entry to this great Contest by sending us the correct answer to picture Number four. This starts you on the road to sharing in this stupendous distribution of prizes. If your answer is correct we will write and tell you so and send you

FREE—A Fine Book of Standard English Proverbs and the Series of Twelve (12) Proverb Pictures, Completing Contest

The publishers of Canada's greatest monthly magazine are conducting this great contest. Therefore contestants are assured of its absolute fairness and squareness. In order to give an equal chance to every competitor we have published a fine book of standard English Proverbs and all the proverbs represented by the series of twelve pictures have been chosen from this book. Answer proverb No. 4 correctly and this fine book will be mailed to you free. With it you will receive the complete series of twelve proverb pictures which complete the contest. Thus, there will be no waiting or delay. All the pictures will be presented to you at once and you can set to work with the remaining 10 pictures, and find the answers that can win you your share of these wonderful prizes.

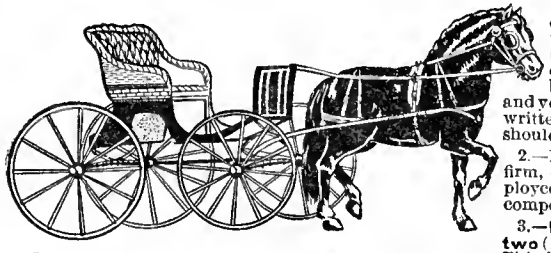
The senders of the winning answers, chosen by the judges in accordance with the conditions of the Contest (see simple rules below) will be awarded the magnificent prizes shown on the prize list to the right.

2nd Prize
$450.00 Upright Piano.

Prizes are provided for everyone successfully solving the twelve Proverb Pictures—Every Contestant will be pleased.

This stupendous Contest is being conducted by the Publishers of "Everywoman's World," solely with the object of introducing Canada's greatest home journal into new homes and to new readers. In addition to the fine standard book of English Proverbs, and the series of proverb pictures, each contestant will receive a free copy of the current number of **EVERYWOMAN'S WORLD.** This is sent to you without charge because the publishers know that once this magnificent journal is introduced into the homes of the intelligent people who will enter this great contest it will be wanted every month. There is no other monthly magazine published in Canada like "Everywoman's World," and you will be delighted to have the people in your home become acquainted with a magazine so live, bright and entertaining. Remember you do not have to be a subscriber in order to compete, nor are you asked to subscribe to "Everywoman's World" or spend a single cent of your money. This great contest is absolutely free of all expense.

Read Carefully the Simple Rules Governing Entry to the Contest.



3rd Prize—Magnificent Shetland Pony, Cart and Harness Complete. Value $250.00.

1.—Write on one side of the paper only, your solution to proverb picture No. 4, and give your full name (stating Mr., Mrs., or Miss) and complete address. Anything else but your answer to picture No. 4 and your name and address should be written on a separate sheet of paper and should be confined to fifty (50) words.

2.—Members and employees of this firm, or relations of members or employees are absolutely excluded from competing.

3.—**Enclose with your answer two (2) two-cent stamps (4 cents.)** This is to pay postage on the Book of English Proverbs, complete series of pictures, illustrated prize list, and free copy of Everywoman's World, which we will mail to you.

4.—Different members of a family may compete, but only one prize will be awarded to any one family.

5.—All letters must be fully prepaid in postage.

6.—The Judging Committee will consist of five (5) prominent Toronto business men whose names will be published in due course. Prizes will be awarded to correct or nearest correct answers in accordance with handwriting and general neatness and contestants must agree to abide by the decision of the judges.

7.—Contestants will be asked to show the copy of Everywoman's World, which we will send, to three or four friends or neighbors who will want to subscribe.

8.—As soon as your answer is received and found correct we will write advising you and send you the complete series of proverb pictures and the Book of Famous English Proverbs, together **with a copy of the current number of "Everywoman's World."** Address your letters personally To **Chas. C. Nixon**, B.S.A., Vice-President

The $5000.00 List of Prizes to be Awarded Includes:

The $500.00 CASH, First Prize
$450.00 Upright Piano
$250.00 Shetland Pony and Cart
$150.00 Columbia Grafonola and Records
$100.00 Diamond Ring
$ 75.00 Kitchen Range
$ 50.00 Singer Sewing Machine
$ 45.00 1915 Cleveland Bicycle
$ 35.00 Ideal Kitchen Cabinet
Genuine Waltham Men's Watches
Genuine Waltham Ladies' Watches
$ 15.00 Vacuum Carpet Sweeper
Solid Gold Pearl Lavalier and Chain
97-piece Dinner Sets, Sets of Books, Carpet Sweeper, Toilet Sets, Clocks, Leather Goods, Solid Gold Birthday Rings, China Tea Sets, Sold Gold Jewellery, Cut Glass, and a host of other Prizes for Men and Women too numerous to mention here.

WE WILL SEND YOU THE BIG 4-page ILLUSTRATED PRIZE LIST

Get the complete set of Proverb Pictures to-day. There's a satisfying prize for every qualified competitor successfully solving them.

CONTINENTAL PUBLISHING CO., Limited, Publishers of "Everywoman's World," Dept. C. H. TORONTO, CANADA

"Concerning The Shortage Of Potash"

"I HAVE have been asked to say a few words to my farmer friends concerning the shortage of potash. Now, friends, although the European war has put a stop to the shipment of Potash Salts from Germany, here is really no immediate cause for worry.

Government experts in the United States and Canada, and the experts in the fertilizer companies, have been busy finding ways and means of overcoming conditions arising from this potash shortage. They have entirely succeeded. And the new booklet on

Harab FERTILIZERS

shows exactly what to do in every case where more potash is needed than the fertilizers contain.

DAVIES' Fertilizers

have won a big reputation, and you may prefer to use them. If so, The Ontario Fertilizer Co. will gladly supply you.

Don't mistake me, friend, and think that Harab Fertilizers contain no potash this year. You can obtain Harab Fertilizers containing up to 3% potash. Where fertilizers containing above that amount are required, other fertilizing agents are necessary and are obtainable from the Ontario Fertilizer Company.

If you will fertilize your crops according to the directions given in this new Harab Fertilizer Booklet, you will get excellent results. If you will take my advice you'll write for a copy right now.

Yours for bumper crops
Progressive Jones"

The Ontario Fertilizers, Limited
WEST TORONTO, CANADA

the tightening of the screw press. Although some apples from refrigerator cars have landed frosted, yet the most frost was seen in the box car.

It was a most unusual shipping season for regular steamers. Lack of steamers, and overdue steamers caused by storms off the coast, caused the shippers of perishable fruits most anxious moments. The shipments are the smallest since I became an inspector in 1901.

An Experiment in Thinning*

F. M Clement, Vineland, Ont.

An experiment conducted at the Vineland Experiment Station during the summer of 1914, in the thinning of apples, is of special interest. Forty-six trees in our old orchard were admirably adapted to such an experiment. The varieties were largely Baldwins and Greenings, and this year as a whole they were heavily loaded. Twenty-six of the trees were selected at regular intervals and thinned, care being taken to leave the fruit well scattered over the tree and in as perfect balance as possible. An average of 3,191 apples were removed from each tree. We aimed to leave only one apple to a spur and often not that if there was any likelihood of the fruits touching each other when they had attained full size.

The work was done from July 8th to 16th, when the fruit was about the size of a shelled walnut and smaller. Thinning shears purchased from E. A. Franz, Hood River, Oregon, at a cost of thirty-one cents a pair, were used to cut the stems rather than pulling off by hand. Five and three-quarters days for two men or eleven and a half days for one man, were required to do the work, at a cost of one dollar and seventy-five cents a day. This is an average cost of seventy-seven and four-tenths cents a tree. The fourth of this time was used in picking up and counting the apples, which is equal to nineteen and three-tenths cents a tree, leaving fifty-eight and one-tenth cents net for the commercial thinning of the tree. The twenty-six thinned trees yielded a total of forty-eight and seven-tenths barrels of firsts, including fancy, fifteen and one-tenth barrels of seconds, and twenty and six-tenths of culls. The culls included all the windfalls. This gives an average of 2.46 barrels a tree, which are worth $1.90 f.o.b., or $4.66 per tree f.o.b. The twenty unthinned trees yielded 25.4 firsts, 23.6 seconds, and 23.7 culls including windfalls. This again is an average of 2.46 barrels per tree. At $1.90, the return per tree is exactly the same for thinned as unthinned. The firsts sold the seconds, but on an estimate of $2.25 for the first and $1.70 for seconds, we have a return of $5.20 for the thinned trees and $4.86 for the unthinned trees, a gain of 34 cents per tree in favor of the thinned. A fairly accurate record of the time required to pick and pack the thinned trees gave again an average of six minutes per tree in favor of thinned trees, for four men, or twenty-four minutes per tree for one man. This at $1.75 per day is worth seven cents making in all a gain of 41 cents in favor of the thinned. The net cost of thinning was 58.1 cents per tree all told, making a cash loss of 17.1 cents per tree.

Three other factors we must consider: First, A share of the firsts were fancy and might have been sold for more money if sold alone; second, it is doubtful if it is good policy to put seconds on the market at all this year when there is an abundance of first and fancy. Their value is really less

*Extract from an address delivered at the recent annual convention in Toronto of the Ontario Fruit Growers' Association.

than I have given them. Third, The effect on the crop for another year. This latter factor cannot be answered now but the experiment is laid out to extend for a period of years and will be reported on from time to time.

Marketing Problems Demand Attention*

D. Johnson, Dominion Fruit Commissioner, Ottawa

THE marketing of apples at the consumers' end has made no progress in the last fifteen or twenty years. There has been no effort on the part of the producer to get closer to the consumer. This was strongly brought to our attention a few days ago in the city of Ottawa. A carload of apples was bought in Prince Edward county at 25 cents per barrel on the trees. The apples were picked and loaded by the buyer in bulk form on board the car, piling the apples some 2½ feet deep. They were shipped 150 miles and sold to the retail trade in Ottawa at $1 a barrel. These apples were turned over to the consumers at from $2 to $3 a barrel.

The fruit arrived in good condition and was just the class of apples that the great majority of the consuming public of our cities are looking for. They would keep well on into the winter and would meet the needs of the great bulk of our consumers; but the fruit should have been placed straight to the consumer instead of to the horde of pedlars, hucksters, etc., who largely control the fruit trade of our cities.

The great question for the fruit growers in Ontario to consider is how we can bring the products of our orchards to the consumer at the least possible cost. Money and energy expended in this way will bring greater results to the province as a whole than large plantings of orchards at the present time.

A step forward in the organization for handling our apples should be taken. We took advantage of the opportunity a short time ago of pointing out in the press the chance for municipalities, charitable institutions, factories, etc., to go to the orchard districts and buy their apples direct from

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

GREAT CROPS OF

STRAWBERRIES

And How to Grow Them

IS the most beautifully illustrated and most complete strawberry book ever written. It teaches the **Kellogg Way** of doing things and tells the whole strawberry story from start to finish. It explains how the famous Kellogg Pedigree plants are grown on the great Kellogg plant farms in Idaho, Oregon and Michigan, and pictures and describes all the best varieties, including the ever-bearing kind.

OUR FAMILY STRAWBERRY GARDEN

Whether you have a small garden or a big farm, you should grow your own strawberries. Kellogg's Big Red Strawberry garden will produce all the delicious strawberries your entire family can eat, summer and winter. You can have shortcake, strawberries and cream, preserves, jam and canned berries the year round for less than one cent per gallon. Our Book gives full information.

STRAWBERRIES

Yield more dollars per acre and give quicker returns than any other crop. Get our 64-page book and learn THE KELLOGG WAY, and make **$500 to $1200** per acre. The Book is FREE.

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Summer and Fall Bearing and all Berry Fruit Plants

We are headquarters for Summer and Fall Bearing Strawberry Plants, Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Ornamental Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, etc. The very finest stock at rock-bottom prices! 32 years' experience.

Our catalog contains valuable information for fruit growers. Send for it today—it's free.

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Now Is The Time

of year to think about greenhouses. Spring will soon be here, the busy season for flower growers and the time for propagating.

Perhaps you need more room—a new house. Perhaps your old ones need overhauling, heating or ventilating systems may be defective or out of date.

Look over your plant carefully, and you are sure to see where it needs new life and improvements.

Then get in touch with the Glass Garden Builders Limited.

With all thoughts turned to the "Made in Canada" idea, it is well to know that it is entirely a Canadian Company.

The members of the Company are men whose names are known throughout Canada as an assurance of the best workmanship and most modern design in greenhouse construction.

The Company has already constructed houses for J. H. Dunlop, at Richmond Hill, and many smaller private growers.

Upon request we will gladly furnish you with suggestions, plans, and estimates covering your requirements. Write us.

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Dept. B - - 201 Church St., TORONTO

SPRAY SPRAY

ANNUAL

February Spraying Number

PUBLISHED FEBRUARY 1st

This is the largest and most important issue of the year, dealing almost wholly with the Fruit interests of Canada.

Advertisers should reserve special space and use their biggest and spiciest copy in it.

As usual a full page cover design and a splendid selection of special spraying articles are being secured.

FORMS CLOSE, JANUARY 15th—25th

Send in Copy Early

RATES—Page - $42.00 Quarter Page - $10.50

Half Page - $21.00 One Inch - $1.40

SPRAY SPRAY

THE CANADIAN HORTICULTURIST

PETERBORO, ONT.

The Fruitland Nurseries

are now prepared to book spring orders for all kinds of Fruit and Ornamental Trees, Shrubs and Vines at lowest prices. Send for price list.

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Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
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HON. JAS. S. DUFF
Minister of Agriculture
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are also high-grade. It's merely a choice between them and Harab Brand. Either brand will make your soil yield larger profits.

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LIMITED
WEST TORONTO, CANADA

the producer. These apples could have been placed on board car at the least possible cost, in bulk form, and conveyed to the cities, and given to the consumer at a much lower price than he is paying. Last week the city council of Ottawa imported a car of apples from western Ontario, some 400 miles distant, giving the apples to the consumers at a price of $1.30 for the contents of a barrel delivered in their cellars. A single notice in the papers was sufficient to sell the car before it arrived. Thus the producer got a fair price for his apples and the consumer got his fruit at less than half what he was paying for expensive packages when he bought through the regular channels of trade. This year at least twice as many apples could have been used had transportation charges and the net profits of the producer been the only costs to the consumer. This question opens a great field for operation, and I trust that the thought and energies of our progressive growers and organizations will be concentrated on an effort to eliminate the cost of operation between producer and consumer. Something along the line worked out by the city of Ottawa would, I am sure, be worthy of most careful attention. If we do not take some steps to increase consumption, over-production will soon result.

Our Cooperative Fruit Growers' Association made the mistake during its first year of operation of not watching its pack of fruit closely enough. The result was the fruit did not realize more than individual packers were able to obtain for their apples, and our pack got a black eye, which gave us quite a set-back. The following year we improved our pack and succeeded in obtaining 50 cts. a barrel more than individual packers and our pack was so superior to theirs we had no difficulty in disposing of it in considerable quantities.—A. E. McMahon, Aylesford, Nova Scotia, speaking at the last Dominion Fruit Conference.

A free short course in horticulture will be held at Macdonald College, February 8th to 12th inclusive. It is intended to give practical information on fruit growing and vegetable gardening to business men and farmers who have not the time to devote to a longer course. In addition to the regular lectures, considerable time will be given to a discussion of different subjects and the answering of questions.

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10 Days FREE—Send No Money

We don't ask you to pay us a cent until you have used this wonderful modern light in your own home ten days, then you may return it at our expense if not perfectly satisfied. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests at a number of leading Universities show it

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common coal oil, no odor, smoke or noise, simple, clean, won't explode. Three million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed.

$1,000.00 Reward

will be given to the person who shows us an oil lamp equal to the new **Aladdin** in every way (details of offer given in our circular). Would we dare make such a challenge if there were the slightest doubt as to the merits of the **Aladdin? GET ONE FREE.** We want **one user in each locality** to whom we can refer customers. To that person we have a special introductory offer to make, under which one lamp is **given free.** Write quick for our 10-Day Absolutely Free Trial Proposition and learn how to get **one free.**

MEN WITH RIG MAKE $100 TO $300 PER MONTH DELIVERING

The ALADDIN on our easy plan. No previous experience necessary. Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 34 lamps out of 41 calls." Thousands who are coining money endorse the Aladdin just as strongly.

No Money Required

We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory.

MANTLE LAMP CO., 408 Aladdin Bldg., Montreal and Winnipeg, Canada
Largest Manufacturers and Distributors of Coal Oil Mantle Lamps in the World

Johnny-on-the-Spot

"Johnny-on-the-Spot," on skids or on truck, will take care of all your chores—pumping, separating cream, pulping, churning, washing, etc

Stop wasting your time and energy in useless drudgery. Let "Johnny-on-the-Spot" do it—one of the famous Gilson "Goes Like Sixty" Line—a high quality engine at a low price. WRITE FOR CATALOGUE AND FULL PARTICULARS. ALL SIZES.

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FOR
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At this Christmas season our good facilities will enable us to get you top prices for your Fruit, Vegetables and General Produce. We have a large connection on the Toronto market as well as branch warehouses at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. Competent men are in charge at each point. Our branches form a ready outlet in time of congestion on the Toronto market. We never have to sacrifice your interests.

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88 Front St. E., TORONTO, Ont.

The Use of Capital by Cooperative Associations

F. C. Hart, Markets Branch, Department of Agriculture, Toronto, Ont.

As a class, farmers in the past have shunned borrowing money. A man who borrowed money was apt to be looked upon as inefficient. This was due perhaps to the fact that expensive modern machinery was not required in farming and a comparatively large capital unnecessary.

With the growth of farming as a business, however, and the introduction of more and higher priced implements, capital, as it is in any business, became necessary. To wait till this capital is accumulated from the annual profits of the farm is a slow process, and especially when the machinery for producing extra profits is lacking. And so the farmer to-day, like the business man, borrows money for productive purposes. This basic principle is that the borrowed capital should be used in such a way as to return not only interest and depreciation, but something over to pay back the capital.

In Ontario, farmers are so using large amounts of capital and have become business men in the true sense of the word. This is an encouraging fact when we come to consider the formation of cooperative societies for business purposes.

When a group of men is formed for carrying out the business operations of organizations, capital is necessary. There are two ways of securing this capital: First, by gathering together the cash savings from the individuals in the group; second, by using the credit of the members. The first is accomplished by selling shares in the company or association, the members paying for the same in cash. Joint stock companies are formed on this basis. The cash so obtained is put to the uses intended, and the earnings are returned in the form of a dividend in proportion to the capital invested. Where capital is raised for a cooperative association in this way the returns on the capital are fixed at the usual rate of interest, and extra profits are returned to the members in proportion to the business each gave to the association.

The second method of raising capital in a cooperative association by the credit of the members is accomplished by taking a joint and several note of the members, or by individual notes. These notes are placed with the bank or other lender, as collateral, and form a line of credit. By this system the actual cash of the members is not used as capital. This presupposes, of course, that the capital so acquired is put to paying uses.

The disadvantage of the share system as applied to cooperation is that interest must be paid on the capital whether it is in use or not. The cash has been accepted by the association, and interest must be paid on it. If this interest is six per cent., and if part of the year the money is lying in the bank at three per cent., a certain loss results. By the note system interest is paid on capital only while in actual use. When the money is not in use, the notes are redeemed. And so long as the association is a paying enterprise, the individual member does not need to have cash in the bank to meet his note: Simply his credit is used.

In acquiring capital for cooperative associations, certain factors must receive attention. The most important is that the loan must be repaid. The business for which it is to be used must be productive. If the business to be undertaken is unsafe, it is unwise to borrow capital under any conditions. Another factor of importance is that provision should be made for depreciation, where the capital is used for tools or buildings which deteriorate. This depreciation account should amount to the full value of the tools or building by the time they would have to be renewed. For instance, if a spraying outfit bought with such capital will last for ten years, one-tenth of its full value should be put aside each year. In other words, the equipment should pay for itself within its lifetime.

A third important factor is the rate of interest. This should be as low as possible. The difference between five per cent. and seven per cent. is, of course, only two dollars per one hundred dollars a year, but this small difference is important in any going concern. Under the note system of raising capital, the security offered is of the best, and should command a low rate of interest. Suppose twenty farmers form an association and borrow five thousand dollars. If each farmer has unhampered resources to the value of say eight thousand dollars, the security behind the five thousand dollars borrowed would be twenty times eight thousand dollars, or one hundred and sixty thousand dollars.

Many cooperative associations in Ontario are endeavoring to do business without capital. Where limited transactions are undertaken, this may work to their entire satisfaction, but where the business undertaken has been previously carried on by a capitalized concern, the association may find itself at a disadvantage in the details of its business. With eggs, for instance, the storekeeper pays cash on delivery. If the egg circle is not able to do the same, dissatisfaction of one kind or another is sure to result. In either case the eggs must pay a profit on capital, and it is just a question as to whether it is the merchant's or members' capital that is to be used. Under certain circumstances endeavoring to run a business without capital would appear to be unbusinesslike.

When a permanent outfit is required by an association, such as a storehouse by a fruit association, the difficulty is presented of determining the equity each member has in the building. A non-cooperative method of meeting this difficulty is to form a subsidary joint stock company to own and control the building. If, however, a cooperative association cannot be so organized as to own permanent equipment, cooperation will not go very far. The difficulty could be met by creating a reserve fund, into which each member pays, irrespective of when he joins the association. His equity in the equipment is then but a matter of bookkeeping, and if at any time he wishes to withdraw from the association, his share, less depreciation, can be returned to him.

In any well-conducted business, capital is necessary. If borrowed, it should be used only for productive purposes. These purposes should ensure interest, depreciation, and a return of the principal within a reasonable time.

Our readers will be gratified we are sure with the manner in which the proposal made in the November issue of The Canadian Horticulturist to have "The Apple" recognized as the national dish of Canada, has been approved in influential quarters. That it has already met with the sanction of Sir Geo. E. Foster, Minister of Trade and Commerce, of the Dominion Fruit Commissioner, the Ontario Fruit Growers' Association, and the Ontario Horticultural Association, means much. Watch the progress of this movement and put in a word for it wherever you can.

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Over-Production of Apples Threatened*

D. Johnson, Dominion Fruit Commissioner, Ottawa

During the past season, it has been my privilege to travel some fifteen thousand miles among the fruit-growing districts of Canada and the western States. A great deal of that distance has been covered by motor among the orchards and farms, so that I have had a fair opportunity of judging the extent of our orchard lands. I knew before that Canada had some twenty-five million fruit trees, but had never realized what these figures meant until I came in contact with the orchards. Then it was pressed home to me that, unless consumption was greatly increased, there was a day not far distant when Canada would be face to face with over-production.

In the famous Annapolis Valley of Nova Scotia not more than fifty per cent. of the apple trees are bearing, and those that are bearing are still young and far from yielding their maximum of fruit. The orchards are situated in a valley some one hundred miles long and an average of about six miles wide. In this valley apples are the main product of the land, and the good care that the growers are giving their trees assures us that Nova Scotia will yet produce twice as much, and perhaps four times as much, before many years. New Brunswick is also planting, and on the sloping bank of the St. John River are thousands of acres of young orchard that are not yet producing. Quebec is forging to the front once more, and many acres of Fameuse and McIntosh Red are there producing an apple of superb quality and appearance. With conditions in Ontario we are all more or less familiar. We know that in some districts plantings have greatly increased, while in others San Jose Scale had wiped the orchards out of existence; but I think you will agree with me that one-half of our 10,000,000 apple trees are not yet bearing. It is only necessary to drive up and down the concessions of the fruit producing districts to be convinced that our orchards are just beginning to produce.

British Columbia was a great surprise to me. I had often heard of the orchards there, but when brought face to face with them, it was a revelation. I travelled hour after hour through solid orchards, kept in a state of perfection seldom seen in Ontario. It is true that they are only producing some one thousand carloads of apples this season, yet this is only a beginning, as two-thirds of the trees are under five years of age, and the other third practically only beginning to bear. The north-west States of Washington, Oregon, and Idaho are in a like position, producing now some fifteen thousand cars. In view of these facts, I can only ask you, as I have asked myself time after time: What of the future? The answer, to my mind, is the extension of markets and the use of modern advertising to increase consumption both at home and abroad, and also the adoption of some cheaper method of handling the fruit from producer to consumer in order to give the great bulk of our population a chance to eat apples, which is, of course, only another method of increasing consumption.

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

Horticultural Work in British Columbia

R. M. Winslow, Provincial Horticulturist, Victoria, B.C.

Out of the grant made under the Agriculturist Instruction Act to British Columbia for the fiscal year 1913, the sum of five thousand dollars was set aside for demonstration work in horticulture, and one thousand dollars for fruit packing competitions. The department conducted twenty-five schools, giving a course of five days practical instruction in the pruning of tree and bush fruits, and the expenses of the schools at Sardis, Haney, Metchosin and North Vancouver, were met out of the vote. The work of the expert in charge of cold storage, pre-cooling and fruit transportation investigations, was also assisted out of this vote, especially by the employment of an assistant, Mr. J. M. Creelman.

In the fiscal year 1914 expenditures on the following objects have been made: Five acre plots have been selected at Lawn Hill, on Graham Island, for the Queen Charlotte Islands; at Bella Coola, to serve the Valley of that name; and at Terrace to serve the Kitsumkalum-Lake District on the Skeena River. On the Graham Island plots special attention has been given to the amelioration of Graham Island lands by drainage, liming and fertilizers, and demonstrations in experimental work in growing agricultural and horticultural crops on such land. At Bella Coola demonstration and experimental work with vegetables and small fruits formed the principal activity, and the plot at Terrace has been conducted on much the same lines.

An assistant to P. E. French, an assistant, to M. S. Middleton, and an assistant to A. H. Tomlinson, are also being paid out of this grant. These under-graduate summer assistants are occupied in demonstration spraying, pruning and general orchard inspection and instruction work. This grant has also been used to a slight extent, in connection with the fruit packing schools and in carrying out a series of top-grafting demonstrations in the Okanagan Valley.

Prize money has been paid for fruit packing competitions and for exhibits of packed fruit by packing school pupils.

Apple packing contests were held at ten fairs, Vernon, Summerland, Nelson, Salmon Arm, Armstrong, Creston, Nakusp, New Denver, Cranbrook and Trail. The object of these contests was to still further stimulate a keen interest in rapid and high-class fruit packing.

The pupils of twenty-four fruit packing schools made exhibits at eighteen different fairs; each pupil's exhibit consisted of five boxes of apples and five different packs. These exhibits were the objects of special attention by the fruit judges at these fairs, because it is partly on the results of the same that the fruit packing school diplomas are granted. Prize money provided under the act is an additional incentive to a perfect exhibit. A total of four hundred and ten dollars was spent under this section.

The Canadian Horticulturist is one of the most concise, practical, and helpful publications that I have ever read.—Jas. M. Bryson, Moore Park, Toronto, Ont.

The Canadian Horticulturist is steadily improving, and I do not want to be without it.—W. J. Wilcox, Salmon Arm, B.C.

The Canadian Horticulturist

Vol. XXXVIII FEBRUARY, 1915 No. 2

What Lime and Sulphur Has Done for the Fruit Grower

Walter E. Biggar, Chief Inspector of Fruit Pests, Hamilton, Ont.

HOW do the fruits grown at the present time compare with those grown twenty years ago? They are absolutely superior in size, color, and in keeping quality. What has brought about this change, and how have we succeeded in getting eighty or ninety per cent. of the fruit No. 1 where formerly only thirty or forty per cent. would grade No. 1.? By the application of scientific methods in treatment, care, cultivation, and spraying.

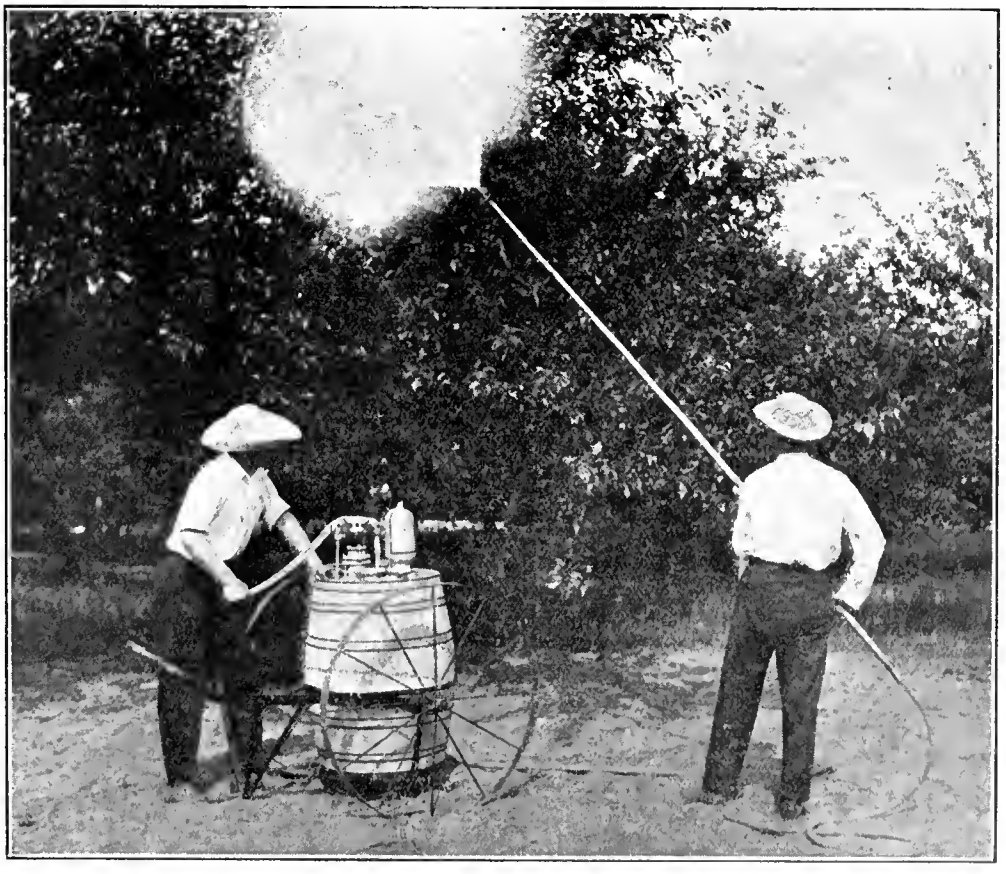
By an intelligent system of pruning, we have increased the size and added to the color of our fruit. By knowing the life history of the insect pests and diseases which affect our trees, we know what remedies to apply and the season to apply them in order to effectually rid our fruit from disease and pests. This leaves the tree free to devote all its vigor to growing the fruit to perfection.

We can not expect a tree to grow as perfect fruit when its leaves, which are the lungs of the tree, are riddled and half eaten away by shot-hole fungus, as we would a tree with good healthy foliage. Neither can we expect pears or apples, which are attacked by scab and dwarfed and cracked by disease, to be of much value. We have learned that the remedy must be applied before the tree has reached a certain stage in the season's growth, for if delayed a few days or a week later, we need expect but little benefit from the remedy used. We can effectually control curl leaf in peaches by applying lime and sulphur spray before the terminal buds swell, but if spraying is delayed a week after the buds swell, the remedy fails.

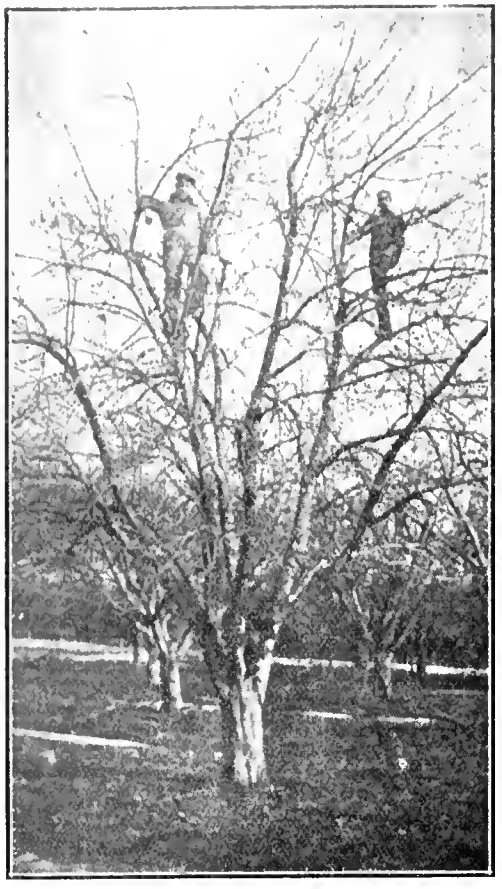
The beneficial effects on fruit trees derived from the use of lime and sulphur are wonderful. By spraying with lime and sulphur we not only rid our trees of San Jose Scale, but also destroy tent caterpillar, canker worm, and oyster shell scale, and also prevent fungus disease from attacking the foliage for a while after. One can easily distinguish from the foliage alone, the sprayed from the unsprayed orchard. The foliage on the sprayed orchard will be dark green and will remain on the trees later in the fall than it will in the unsprayed orchard. Once an orchard gets infested with San Jose Scale, is neglected and not sprayed, it will seldom live for more than three years. Orchards that have been kept well sprayed, although known to have been badly infested with scale fifteen years ago, are good, healthy orchards to-day, free from scale, and bearing good crops of fruit.

The kinds of lime and sulphur sprays most extensively used are the concentrated or commercial lime and sulphur and the home-boiled. The home-boiled lime and sulphur is prepared by using fifteen pounds of sulphur and twenty-two to twenty-four pounds of fresh lime, boiled for one hour or an hour and a quarter. This quantity is sufficient with hot water added to make forty gallons ready to go on the trees, and is preferably used while hot. Orchards where this mixture has been used for a number of years have been found remarkably free from San Jose Scale. The concentrated or commercial solution can be used for orchards badly infested with scale by adding one gallon to six or seven of water, and for orchards not infested with scale one gallon to twelve gallons of water.

In order to obtain the full benefit from lime and sulphur, the following rules should be followed: Scrape off all loose bark and thoroughly prune the trees. If it is an old orchard and the trees are tall, prune them to make them low-headed trees. Then spray thoroughly, covering every branch. If the orchard is infested with scale and not thoroughly sprayed, the scale will gradually increase and finally destroy the orchard. In short, work that is but half done is not done at all. Where growers have neglected to spray at the proper time or have not sprayed at all, I have seen plum orchards almost entirely stripped of their foliage by shot hole fungus, except perhaps a few leaves on the tips of the



An easily operated, easily moved spraying machine useful for small orchards. The E. C. Brown Co., Rochester, N.Y.



A Spy tree before dehorning—No. 1.

branches. Flemish Beauty pears have been so badly attacked by scab as to render the crop unsaleable.

The following is a list of diseases that can be effectually controlled by spraying with lime and sulphur at the proper time: Strawberry and raspberry rust, pear scab and apple scab, mildew and brown rot on grapes, blister mite, gooseberry mildew, cherry and plum rot, shot hole fungus on plums, pears and apples, curl leaf on peaches.

The fruit growers of the Niagara district place great value on lime and sulphur as a remedy for insect pests and diseases because it has put thousands of dollars in their pockets. It saves the crop for the grower when other means fail.

It is much better for the tree to put the spray on just before a rain than after the rain has gone. You see, you have to wait three or four days after the rain, and by that time disease may have got started. A rain coming at the right time has a very favorable effect when you are spraying for leaf curl.—Prof. L. Caesar, O.A.C., Guelph, Ont.

I have faith in the future of the fruit industry of Ontario, but if that faith is to be justified we must have a greater measure of cooperation.—P. W. Hodgetts.

Sprays and Spraying*

Paul Fisher, B.S.A., Burlington, Ont.

SPRAYING is an insurance. Some years it pays better than others, but it must be done every year for best results. After spraying for five or six years, we find that each succeeding year the various apple pests are more easily controlled. For instance, during the earlier years of operation we found it good practice to bandage the trees with loose sacking. This was to trap the worms of the codling moth. Of late years we have discontinued this practice because the number captured has not been great enough to justify the trouble.

Scraping the trees destroys a large number of insects and facilitates spraying. This should be done every third year. We use a rather dull hoe and put on considerable pressure.

Before we change from the old standbys, lime-sulphur and arsenate of lead, we must have a cheaper or a more effective agent. We have used soda-sulphur for a couple of years and never could see any difference between the trees sprayed by it and those on which lime-sulphur was used. Soda-sulphur is a more active agent than lime-sulphur, therefore is more apt to burn. As I see it, the soluble article has no advantage over the lime, and there is slightly more danger of burning. Where it can be purchased more cheaply than the latter it would be worth a trial. At Burlington, both materials are practically the same price. Prof. L. Caesar has experimented to some extent with a mixture of soluble sulphur and hard soap for the control of aphids, and has had good results. If future experiments confirm his results, there may be a market for soluble sulphur. Lime-sulphur is useless for the control of this pest, which is increasing of late years. Black Leaf Forty is efficient for this purpose, but very expensive.

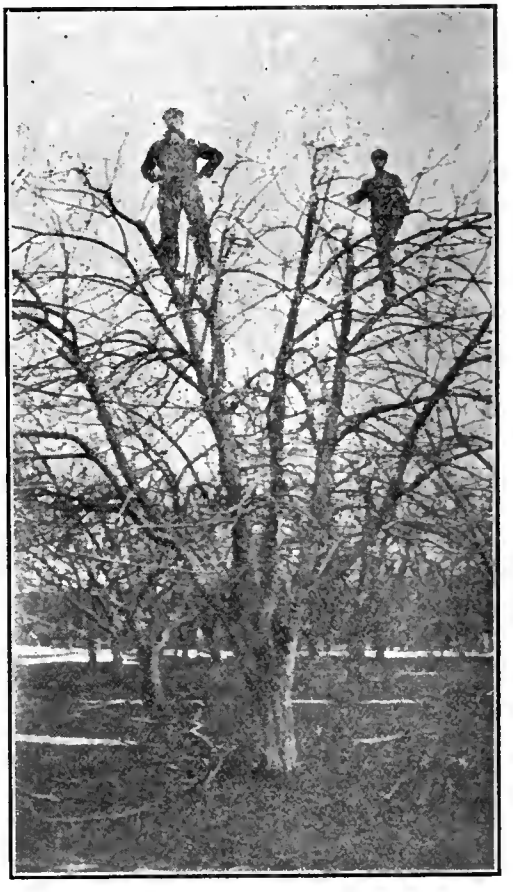
Of late years arsenate of lead has been put up as a powder. According to Prof. Crow's experiments, it is just as efficient as the paste and somewhat easier to mix in a barrel. Mixing is usually a rather difficult business, and this is a decided advantage. We have found that an old churn makes an excellent mixer.

We bought our first spraying outfit ten years ago. It lasted six years. At present we have two sprayers, a power and a hand one. We will soon need two power machines. For poles we have found that a quarter-inch gas pipe is just as good as the bamboo rods. The former cost four cents per foot, the latter two dollars to four dollars a rod. The practice of spraying a small tree with a long pole instead of a short one is often adopted in order to escape the necessity of buying an extra bamboo pole. A gas pipe is cheap enough to allow buying plenty of them, of different lengths.

We always use angle nozzles. They are the only satisfactory kind. For first spraying we like a nozzle that makes a fine spray. For the second spraying, one with more driving force is necessary. It is impossible to make the second spraying thoroughly effective without using a tower. All spraying is made easier by its use. We built our own tower much more cheaply than it could be purchased from the supply company. We have found it an advantage to put a few handfuls of loose lime in the spray. It is thus possible to make sure that each tree is thoroughly covered.

REDUCING THE COST

Filling the tank is an important matter. Anything that will reduce the time taken for this purpose will materially reduce the cost of spraying. At the request of a manufacturing firm we gave the rotary pump a trial. It works well when it does work, delivering twenty-one gallons a minute. But it doesn't always work. The company had a mechanic on hand, so the fact that it was



The same tree after dehorning—No. 2. Both photographs by R. S. Duncan, B.S.A., District Representative, Port Hope, Ont.

*Extract from an address delivered at a fruit institute meeting held at Port Hope, Ont., Jan. 27th.

A home-made scaffold and barrel spray pump in the orchard of W. L. Hamilton, Collingwood, Ont.

not always in running order was not due to our inexperience. The trajectory type of pump works more slowly, only delivering about twelve gallons per minute. It is, however, more satisfactory.

The first spraying cost us from twelve to fifteen cents a tree and the second from eight to ten cents a tree. It is money well invested. However little spraying you do, it will pay. The more thoroughly you do it, the better it will pay.

Improvement of Fruit Through Bud Selection*

L. B. Scott, Bureau of Plant Industry, Washington, D.C.

IT is not many years ago that well-known investigators were conducting their seed corn experiments and showing the results that could be accomplished by careful seed selection. That movement, like all pioneer movements, was at first ridiculed, but the investigators kept on, undaunted, and now those who a few years ago ridiculed the idea of careful seed selection are among its most enthusiastic advocates.

In the field of vegetatively propagated plants, marked improvements in yields and in improved types have been secured by a careful selection of cuttings or buds. Dr. B. T. Galloway, now Dean of the College of Agriculture at Cornell, but formerly of the United States Department of Agriculture, and Mr. P. H. Dorsett, of the Department, have shown that by a careful selection of cuttings, from productive violet plants they can materially increase the number of flowers per plant. They have kept performance records on each plant, counted the numbers of flowers, and by carefully selecting cuttings from those plants which produced the greatest number of flowers they have secured a very productive type of violet. Similar results have been accomplished with roses, carnations, potatoes, and many other vegetatively or bud propagated plants.

Why, then, when corn growers, tobacco growers, florists, vegetable men, and many others are securing marked improvements in yields by selection, should fruit growers work on the assumption that "all horticultural practices are based on the precedent of centuries" and that there can be no improvement of varieties by careful bud selection? Fortunately all fruit growers and all investigators have not worked on that assumption. Within the last few years the Department of Agriculture has carried on a series of investigations with citrus and deciduous fruits, to see if marked variations did not exist, and if by careful bud selection, whether or not very productive types could be secured.

While we have published but very little of our results to date in government publications, Prof. L. C. Corbett, in charge of all the Horticultural and Pomological Investigations of the Department of Agriculture, has given us permission to give, in a general way, a summary of our results, and outline methods whereby orchardists can study their individual tree differences and secure their own records.

The first investigations were commenced with Washington Navel oranges, near Riverside, California. The writer became associated with this work in June, 1911. In July, 1913, our staff was augmented by Mr. C. S. Pomeroy. In addition to the Department of Horticulture, Michigan Agricultural College, Prof. A. V. Stubenrauch, head of the Division of Pomology, University of California, and a number of prominent fruit growers and nurserymen, both citrus and deciduous, in various parts of the country.

The principles we have found underlying this study are just as applicable to deciduous as to citrus conditions. After considering the citrus investigations we will take up our deciduous work, and lastly the methods whereby a fruit grower may find out for himself just what his individual trees are doing.

CITRUS INVESTIGATIONS

We have, roughly speaking, under observation 1,000 Washington Navel trees, 200 Valencia orange trees, 400 Eureka lemons, 200 Lisbon lemons, and 100 Marsh seedless grapefruit trees.

Our work naturally divides itself into three parts:

First, A study of the differences as they occur among individual trees under the same conditions. This includes a difference in type and a difference in production within each type.

Second, Can these differences be propagated?

Third, Will these differences be consistent from year to year in the budded trees?

Let us take up the first part of our work. Formerly, a Washington Navel was thought to be a Washington Navel, a Baldwin apple a Baldwin apple. We have found in the case of the Washington Navel that instead of one type there are eleven distinct types, and these types are as distinct from each other as the white race is from the black. These types occur as tree sports, limb sports, and individual fruit sports. So far, eleven types of Valencias, five of Eureka lemons, five of Lisbon lemons, and five of Marsh seedless grapefruit have been found.

You are not citrus growers and not especially interested in citrus crops, so we will not tire you by a description of each one of these types. We do not, however, want to contrast for you two of the prominent Eureka lemon types. This will show better than any attempted definition of ours just what we mean by types.

First, take the standard open Eureka lemon type of tree, any time you look at that tree you can see fruit in all sizes from blossoms up to fruits ready to pick. That is just the condition you wish to have in a lemon tree, fruit coming on during each month in the year. A six-year-old tree of this type will bear from five to six packed boxes of fruit scattered throughout the year. The lemons from this type of tree grade as high as ninety-five per cent. or higher first-grade or fancy fruit.

Now, right by the side of this tree is a dense, rank, growing, unproductive "shade tree" type of Eureka lemon. All the fruit comes at one time in the fall,

*The results set forth in this address, which was delivered during December before the annual meeting of the Kansas State Horticultural Society, we desire to call to the special attention of Canadian fruit growers.—Editor.

Two four-year-olds at Bethanbreck Orchards, Ltd., Waterdown, Ont. On the right is a two-year-old Alexander bearing thirteen apples.

just the condition you do not want to have in a lemon tree. A six-year-old tree of this type will bear not more than one packed box of rough, poor quality fruit, and this fruit is all borne at one or two picks in the fall. The lemons from this type of tree grade as low as one per cent. or lower first-grade or fancy fruit, and practically all go with a third-grade or culls.

Look at the difference. Both trees are healthy, vigorous ones—one produces five boxes of fine quality fruit in a year, the other, one box of poor, almost worthless, fruit. We hope we have made ourselves clear on this matter of types. A variety is made up of a number of types, some worthy of propagation, others not.

Now, in addition to these variations in types, there is a great individual tree variation within each type. Take two standard Washington Navel trees growing side by side. One produces ten boxes of oranges, the one next to it four. These differences are consistent from year to year. Both receive the same care, the same fertilizer, the same pruning, the same culture. No matter how much attention you give the four box tree you can never bring it up to the standard of the ten box tree. One is inherently a heavy producer, the other is not.

You will ask, "How have you found out these variations?" They are not the result of "swivel chair observations." We pick each one of our trees separately, grading the fruit, counting and weighing the fruit in each grade. These records are kept in special performance record blanks, following the tree through from year to year, and keeping a yearly series record.

We will discuss the blanks more in detail when we take up the deciduous fruit work. We can turn to our notes and show you the actual amount of fruit, the numbers, weights and grades of fruit borne by each of our trees for the last five years. Our work is not based upon theory but upon actual observation in the groves and orchards.

Now we come to the second part of our work: the propagation of these differences. In the citrus work we only use or recommend for use for bud wood bearing, wood with the fruit attached, because we believe the fruits on a limb can be taken as a guide as to what we can expect the buds from that limb to produce. One or two examples will suffice to show that these differences can be propagated.

One striking bud sport that we found was a limb on a standard Eureka lemon tree. This limb produced striped fruits and variegated foliage. Buds have been taken from this limb and show in the budded trees the same variations in fruits and foliage as the original limb.

Three years ago at Corona, California, the National Orange Company, on whose property some of our experimental work is located, decided to rebud three thousand of the unproductive or "shade tree" type of Eureka lemon out of their 200 acres of Eureka lemon trees. This is the type we referred to previously as being a shy bearer, bearing a few poor quality fruits in the fall. We selected the buds for this rebuilding from as good productive type trees as we could find without having actual performance records to base our judgment on. These trees came into bearing last year, and every one of them were productive type trees. This year as three-year-old rebuds they are bearing four times as much fruit as they formerly bore as large unproductive trees. Just think what that means. In three years time the worthless, unproductive type has been replaced by a valuable productive type, which bears four times as much fruit as it formerly bore.

Now, take the third part of our work. Are these differences consistent from year to year? We can show you whole groves in which the buds were selected from unproductive trees, and the budded trees have been consistently poor producers from year to year. We can show you other groves where the buds were taken from productive trees and these budded trees have been consistently high producers from year to year.

We have three and four years' records on some of our own budded trees and in every case differences in type and differences in production, could be propagated, and were consistent from year to year in the budded trees. *(To be continued)*

A Eulogy on the Apple

R. J. Messenger, Lawrencetown, N S.

This afternoon I cut an orange in two equal parts crosswise and emptied the contents with a spoon into that region from which food scarcely ever returns. It was a good orange, of just the right acidity and fuller of juice than most. Feeling unsatisfied after this experience, and having no more oranges at hand, I picked up a Northern Spy, and without any preliminaries of peeling or coring, bit into it. Now, when I eat apples, I generally destroy three or four at a sitting, and generally choose out the four first before work begins for the following reasons: I like to begin on the poorest of the lot and finish up on the best, then as my appetite fails the fruit gets better and my interest and enjoyment keeps up until the end.

Now, when I took up the Northern Spy after finishing the orange, I expected an unfavorable drop in enjoyment, but I was surprised to find that the apple tasted good.

In the orange the juice was good, but the remaining pulp was useless. Now, the pulp of the apple remained with the juice through a thorough mastication and lost none of its delicious, spicy juiciness in the operation. Long live the apple. It is healthful, delicious, and appetizing, and forms the best and most eatable part of pies, puddings, dumplings, and sauces that should be a daily part of our menu. It is easy of production, can be kept almost the year around, and is being increasingly appreciated.

While the Northern Spy is a leader

The Apple—The National Dish

The following resolution was adopted unanimously at the annual convention of the Nova Scotia Fruit Growers' Association held in January:

Moved by H. Shaw,

Seconded by R. J. Mesenger,

"Whereas, there has been during the past year an agitation in the press and elsewhere regarding the necessity of adopting a national dish or edible, and,

"Whereas, the fruit interests of the Dominion in various ways have expressed the wish that the apple should be given the place of honor

"Therefore, Resolved, that this Nova Scotia Fruit Growers' Association recommend the selection of the apple as a national dish or fruit."

for dessert purposes, the following list in their season is hard to beat:

Gravenstein—September - November.
Wealthy—October-December.
Wagner—November-January.
Bishop Pippin or Bellefleur—December-January.
Grim's Golden—January-March. Also the McIntosh.

The Great Spy answers for the rest of the season. We are going to raise more apples than ever.

Cherry Fruit Flies*

Prof. L. Caesar, Provincial Entomologist, O.A.C., Guelph

OUR experiments, continued over two years, have shown us that cherry fruit flies can be controlled in a remarkably easy and cheap way by poisoning the flies before they can lay their eggs. It is fortunate that this is so because no other method seems to give any good results; for instance, cultivation is useless as a control measure. The following then are the steps necessary for success in destroying the pest:

First, Cut down and burn any cherry trees near the orchard that are growing wild or the fruit of which is not worth picking. This is to prevent the flies from breeding in these.

Second, Watch for the first signs of the flies on the leaves. This will be about a week before the Early Richmonds begin to color, or about June 7th, and, as soon as any are seen, spray all the trees whether sour or sweet, early or late (unless they are very early) with two and one-half or three pounds arsenate of lead (paste form) to forty gallons of water sweetened with one gallon, or nearly one gallon, of cheap molasses. Apply the spray to the under side of the leaves and try to cover most of these. Move the rod quickly, as there is no need of making the spray drip. Forty gallons should cover both sides of about fifty moderately large trees. Spray, if possible, both sides the same day. In about ten or twelve days give all the Montmorency, Morello, and other late, sour and sweet cherries another application of the same mixture, omitting this time the early varieties. as these will be getting too ripe. If the spray has been applied to the under surface of the leaves both times, it will stand a good deal of rain without all washing off, but if several heavy rains should happen to come and remove most of it, it would be wise to give another application. We did not, however, find this necessary either in 1913 or 1914.

POINTS TO KEEP IN MIND

One thorough application will not suffice for the first year.

It is of the utmost importance to make the first application early, just as soon as the first flies appear, or about the end of the first week in June in the Niagara district. The flies have to be killed before the eggs are laid, and if the application is delayed, success will not be obtained.

It is often wise the first time to spray plums, pears, or other trees in among the cherries, because the flies rest and feed on the leaves of these, especially if they are on the sunny side of the orchard and can be killed there as readily as on the cherries.

Try to get your neighbor to cooperate with you if his orchard is near yours, because the flies move about considerably.

If the work is done well the pest should be completely destroyed in the orchard in two years, and the sprayings may then be omitted for some years until it is found to have come in again from other orchards.

In 1913 Mr. G. J. Spencer and I sprayed one of the worst infested Montmorency orchards in the province. Two applications were given with the mixture mentioned at the times stated. As a result, neither we nor the pickers found a single wormy cherry on the hundred trees treated, nor on the few neighboring check trees. The flies from these had flown over to the sprayed trees and been killed. A neighboring orchard, a quarter of a mile away, was so badly infested that most of the Montmorencies were not picked.

In another orchard of over one hundred trees we sprayed half the trees and left half not sprayed. The result was that on the sprayed half from one to thirteen per cent. were wormy, on the unsprayed from ten to forty per cent. This showed that the spraying helped greatly, but it also showed that the flies from the unsprayed half had, when ready to lay eggs, flown over and deposited in the sprayed trees.

In 1914 the worst two orchards we had seen the previous year were chosen. Each had over one hundred and fifty trees, most of them late sour varieties. These had been so badly infested in 1913 that very few cherries in either had been picked, hence there were numerous flies to infest them this year. Two applications were given to each. In one of the orchards the sweetening was left out for the second application.

In both cases the results were about ideal: The pickers found no wormy cherries. My assistant, Mr. Shipton, and I in one orchard found about two dozen wormy cherries on May Duke and Morello, but none on the Montmorency. In the other orchard neither of us found any, but when the cherries were being stored by the owner's wife, a very rare one contained a maggot. So few were these that they would not amount to more than one in a basket, which was less than one-third of one per cent. Neighboring check orchards had from forty to ninety-nine per cent. wormy. It was, therefore, clearly proved that in even the worst infested orchards almost every fly could be killed by the poison.

CONCLUSION

We feel perfect confidence in recommending every cherry grower who has found any of these maggots in his cher-

A power spraymotor at work with one man above and one on the ground in a St. Thomas, Ontario, orchard

*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.

A simple spraying machine for small orchards. The E. C. Brown Co., Rochester, N.Y.

ries to use the sweetened poison in the manner and at the time outlined. If he does this thoroughly he will obtain almost totally maggot-free cherries. The spraying will also help against the Plum Curculio. Our experiments lead us to believe that arsenate of lead alone will also give good results, but as the cost of adding the molasses is not great and as the flies are known to be fond of sweet substances, it is advisable to add this.

A test with lime-sulphur and arsenate of lead showed that the lime-sulphur interfered with the results. We, therefore, recommend not using a fungicide with the poison in either of these sprays. As the result depends largely on having no infested trees near by, we also recommend strongly that the useless trees be cut down and neighbors be asked to co-operate in freeing their orchards of the pest. Two years, as we have said, should almost exterminate the flies; in fact, there will be very few after the first year, but they would soon increase unless they were treated the second year. Our observations show that honey bees are not attracted by the mixture, and that there is no danger to bees of any kind provided that molasses and not sugar is used in making it.

We can well afford to have what we call a propagating bed of strawberries, where each spring we can select from the most promising looking plants a few good, strong, vigorous well-developed plants. Set them out, restrict their plant making to a certain extent and grow from them. Their vigor is thus maintained and they make a strong growth.—W. J. Kerr, Ottawa, Ont.

Spraying the Small Fruit Garden

IF you desire to have success in the production of fruit in your garden do not neglect to spray. If your garden or orchard is a small one it is not necessary to buy an expensive spraying outfit. Many of the knapsack spraying devices or barrel pumps are well adapted for use in the garden and often much more than pay for their cost in one year through the increased yield of high-class fruit their use makes possible .

Spraying is really a form of insurance. Unless you spray you run the risk of considerable loss. The operation is as essential as any of the other processes necessary to the production of good fruit. Before you commence to spray be sure you know what you are spraying for. This means that you should try to acquaint yourself with the life history of the pests you are spraying to prevent. The best means of doing this is to write to some of the Agricultural Experiment Stations, such as those at Guelph or MacDonald College, or to the Departments of Agriculture at Toronto and Ottawa, or in any of the other provinces, and ask for their bulletins, dealing with the spraying of the orchard and garden.

There are a few simple points that should always be borne in mind: Sprays recommended for the dormant season should never be tried when the trees are in leaf. Never spray when the trees are in bloom. A day's delay at this time will not materially affect the result of the spray. Bees and many other insects are very numerous when the trees are in bloom and accomplish a good work in fertilizing the flowers. A spraying compound thrown on them will lessen the amount of fruit set in destroying the honey bees.

The amount of spray to apply will vary with the size of the tree. A tree having a spread of twenty-five feet in full leaf will require at least four gallons. The person just learning to spray ordinarily does not put on a sufficient amount but stops before even half of the required amount has been given. This is one of the main reasons why spraying is not as successful as it should be in the hands of the beginner.

Currants and gooseberries have a number of insect pests. The imported currant worm or currant saw fly, can be easily controlled by the use of arsenicals. Give the first application just before the blossoms appear and again soon after the fruit has set. This should be composed of two pounds of arsenate of lead to forty gallons of diluted lime sulphur or of bordeaux mixture. All the inner and lower leaves should be covered. If a second brood is seen to be present use hellebore one ounce to one gallon of water, without delay. Only fresh hellebore should be used.

Green plant lice or aphids often attack the leaves of currants and sometimes gooseberries as well. One of the best means of control is the use of Black Leaf 40, a tobacco extract. It should be used with lime sulphur as soon as the eggs have hatched which is a day or two before the buds burst. A second application, combined with the lime sulphur or bordeaux mixture, just before the blossoms come out, will mean that these insects will give little further trouble. Red spiders sometimes cause considerable trouble, but are easily controlled. The lime sulphur spray is an effective remedy especially when the under surface of the leaves is well covered.

Raspberries and blackberries are frequently troubled with "worms." Spray with lead arsenate, two pounds to fifty gallons of water, up to the time the fruit sets, but after that use hellebore which may be applied either dry or with water. Hellebore may be mixed with three or four parts by weight of flour and dusted on the insects or it may be mixed with water at the rate of one pound to twenty-five gallons, and used as a spray. Use only a strictly fresh article.

Spray strawberries when growth begins and later as often as necessary, and again after picking the fruit. Use bordeaux mixture for rust or leaf spot. Use four pounds of copper sulphate and four pounds of lime for fifty gallons.

Grapes should be sprayed more frequently than most other varieties of fruit. It is often advisable to spray them when the first leaves are one-third grown, just before the blossoms open, just after the fruit sets, again ten to twenty days after the fruit is set, and possibly a fifth application ten to twenty days after. For the first spraying for mildews and black rot use Bordeaux mixture. Add lead arsenate four pounds and molasses one gallon to fifty gallons for flee beetles, if needed. On the second spraying use Bordeaux mixture for mildews and black rot. Use lead arsenate three pounds and molasses one gallon to fifty gallons of water, or Bordeaux mixture for grape root worm, rose chafer, berry moth, and curculio, if needed. Use the same sprays for the third and fourth spraying.

Prevention is better than cure, and the best way to prevent the worms from getting your currants is to spray with Paris green when they are in blossom, using a teaspoonful of the powder to a gallon of water. Spray the lower part of the bushes near the ground, as the worms commence to eat as soon as they come out, their first nibble will be their last.

Peach Canker*

W. A. McCubbin, St. Catharines, Ont.

IN order to add the weight of experimental evidence to these observations work has been carried on during the last two years by the writer with the object of finding out by the culture method what fungi were present in active cankers and to determine by inoculation whether any of these were capable of forming cankers in healthy limbs. The account of this work is to long to be given here, but will be published later in bulletin form. Briefly, of the half-dozen fungi obtained from cankers only one occurred with any frequency, and it was apparently the Cytospora already mentioned. This was then inoculated into peach limbs. At the same time two or three of the other cultures were also used for inoculation, as well as the Brown Rot fungus obtained from rotting peaches.

As was expected, only the two, the Brown Rot and the Cytospora, showed a clear and unmistakeable power to induce canker conditions in the limbs, i.e., they killed the tissue about the point of inoculation, set up a copious gum flow, and stimulated a pronounced callus growth around the wound.

CAUSE ESTABLISHED

It would seem then that the cause of canker is fairly well established to be due to either or both of the two fungi mentioned. It still remains to account for the enlargement or extension of the canker from year to year. There is a good deal of evidence which goes to show that while a canker may be started by one of these fungi, neither is likely to extend it after the first year unless the surrounding tissue is first weakened in some way. And the only reasonable explanation which will account for such weakening is that the callus around the incipient canker is stimulated by the presence or by the action of the fungus into late and abnormal growth, and hence entering the winter in an unripened condition is killed by winter cold. The fungus is then able to invade the injured area and the canker spreads. The mass of evidence which can be brought forward to support this view is large and will have to be given in detail elsewhere. but I believe that the freezing of the immature callus is a very important factor in the enlargement of cankers on the peach.

In order to prove beyond question the possibility of this process of canker formation, I froze some three or four cankers in late summer (September 17) with artificial cold, using a cylinder of carbon dioxide for the purpose. In each case the tissue was destroyed and a callus has since formed at the edge of the dead area.

According to the evidence in hand at present, the process of canker formation may be summed up as follows:

A fungus (either Brown Rot or Cytospora) establishes itself in a dead or dying twig, a wound, crack, or borer hole, and kills a small area of the living tissue. There is a stimulation of the healthy tissue around this area which results in the formation of an excessive callus growth. This callus enters the winter in an unripened condition and is killed by freezing. In the following spring the frozen area is invaded by the fungus, and the process is repeated.

It is possible that with further study some slight modification may have to be made in this conception of the origin and spread of Peach Canker, but at present it seems to fit without any disagreement all the facts known to me.

PREVENTION AND CURE

I am unable to state definitely what proportion of our cankers is due to each of the fungi mentioned but I think I am safe in saying that far the greatest number arise from twigs killed by Cytospora. In dealing with this fungus as well as with Brown Rot, it must be remembered that though the spring spray will destroy all surface spores it will unfortunately not reach the fungus in its habitat under the dead bark. It remains here unhurt and forms countless spores in the minute pimply pustules which may be seen on almost any dead peach limb. It is necessary then in clearing an orchard of this fungus, to get rid of all dead twigs and branches as soon as possible. In the same way no Brown Rot or mummied peaches should be allowed to remain on the branches. A little extra care will be needed at pruning time to effect this result.

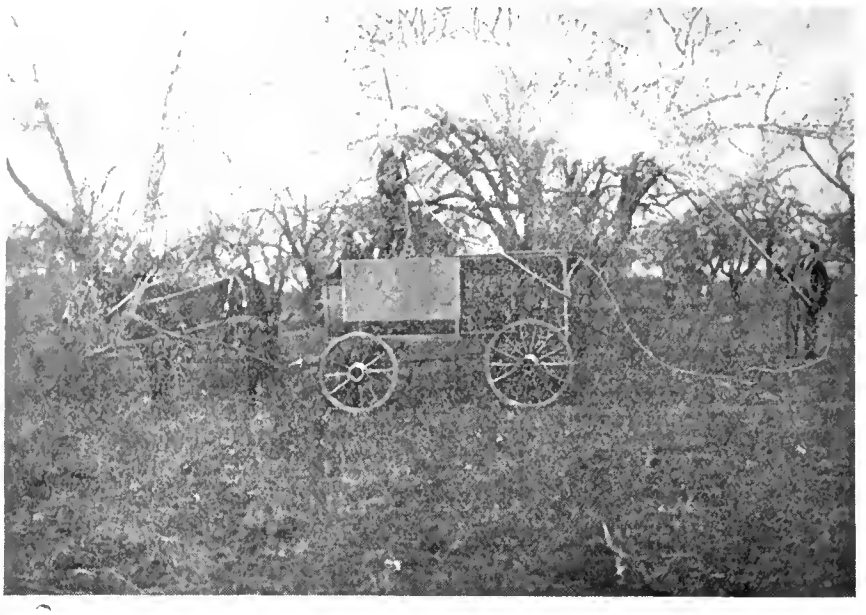
In the light of what has already been said regarding the cause of canker, and the treatment of cankers already formed can be outlined with some confidence.

It would be absurd of course to try to treat cankers on the smaller limbs, but where a canker involves a trunk or main limbs it is well worth while to get it to heal up. The main object is to put the canker into such a shape that the callus around it will grow sufficiently hard and mature to resist the winter. The best way to do this is to clean out all the gum, dead wood, and bark, to allow access of the sun and air, and to keep it as dry as possible. After a rain is a good time to do this, as the gum is then soft, and it should be done early enough in summer so that the wood will ripen before fall. After cleaning it is well to wash or brush out the canker with an antiseptic solution (corrosive sublimate 1-1000) and when dry to give it a coat of ordinary lead paint. The corrosive sublimate destroys all fungi in and about the canker and the paint prevents them from invading and rotting the dead heart wood afterwards.

This treatment costs for labor and material about five cents a canker, and has given excellent results in the experimental work carried on during the last three years by the writer, as well as in actual practice by some of the Niagara peach growers themselves.

During the "Apple Week" campaign conducted recently in Vancouver and other western cities to increase the consumption of apples, prizes were offered for the best display of apples made by grocers and dealers in the market. The illustration shows the first prize exhibit made in the city market.

*Continued from December issue.



How much of the mixture really stays on the trees? There's naturally a big waste, but it can be wonderfully reduced by using an even pressure machine with good nozzles in favorable weather. The illustration shows a Gould power sprayer.

Spraying Experiments in Nova Scotia

DURING the last three years Mr. G. E. Sanders, Field Officer in charge of the Dominion Entomological Laboratory at Bridgetown, N.S., has been investigating the life-histories of the Budmoth and Green Fruit-worms and studying methods of control. The Budmoth constitutes the most serious insect pest of the apple orchards in Nova Scotia, causing more loss probably than all other insects combined. This investigation is now practically concluded and not only has the best method of combatting them been determined, but the educational and demonstration work that has been carried on has resulted in a very encouraging increase in spraying with significant results. A publication giving the results of this investigation is in course of preparation; in the meantime it is desirable to state briefly some of the conclusions.

Most of the spraying experiments were carried out in the orchard of Mr. R. S. Eaton at Kentville, N. S. Spraying work under the Branch's direction was also carried out in other orchards. At Kentville, the Budmoth infestation in the check (unsprayed) plots was: 20.5 per cent. in 1912, 47.4 per cent. in 1913, and 59.5 per cent. in 1914. The spray mixtures varied and were put on in different series as regards time of application. The best results were obtained with two sprays, the first applied three days before the blossoms opened and the second immediately after the blossoms fell; spray formula used was: Lead arsenate five pounds, commercial lime sulphur two and one-half gallons, and water one hundred gallons. The orchard in which the chief experiments were carried on was close planted with Wagners, a variety very susceptible to Budmoth injury. In 1914 the infestation was reduced to twenty-two per cent. after two years' spraying, the unsprayed plots showing an infestation almost three times as great; the spray, therefore, kills about two-thirds of the insects.

The Budmoth, as its name implies, affects the buds and the blossom clusters suffer severely from its attacks, the set being reduced very materially. It was found that the reduction in set due to Budmoth was about thirty per cent. The injuries, however, are not confined to the buds for in the fall the young larvae frequently fasten the leaves upon which they are feeding to the apples and damage the latter by feeding upon them, producing scars which reduce the grade of the fruit. A considerable percentage of the apples which would grade Nos. 1 and 2 are reduced to No. 3 and culls from the Budmoth injuries.

The value of the educational campaign for spraying, where none is carried on and intelligent spraying where sprays are applied without sufficient knowledge of the methods of attaining the objects in view, was illustrated by a recent examination of the apple pack of one of the fruit companies in the Annapolis Valley, where special efforts are being made by Mr. Sanders to get more people to spray. The results set forth in the table published on this page speak for themselves.

Owner.	Grades in Percentages. Nos. 1 and 2.	No. 3 and Culls
G. E. S.	91.4	8.5
L. W.	90.3	9.5
G. W. S.	89.5	10.3
R. J. B.	87.4	12
W. L. C.	60.9	39
G. G.	56.2	43.7
S.	35.2	64.6
E. M.	34.7	65.2

Sprays.*	Grades in Percentages. No. 1.	No. 2.	No. 3.	Culls
2, 3, 4, 5	62.6	28.8	1.9	6.6
1, 2, 3, 4	60.8	29.5	2.7	6.8
2, 3**	80.1	9.4	4.3	6
2, 3, 4	67	20.4	4.1	7.9
None	29.7	31.2	23.4	15.6
"	43.7	12.5	25	18.7
"	17.6	17.6	13 2	51.4
"	20.8	13.9	18	47.2

*Spray:—No. 1. Semi-dormant; No. 2. Before blossoms open; No. 3. Immediately after blossoms fall; No. 4. Two weeks later; No. 5. Ten days later.
**This is the best spray for Budmoth.

Operating for Black Rot Canker

Paul Fisher, Burlington, Ont.

Trees with black rot canker should be treated in the same manner as bad teeth. Remove the diseased parts. Canker gets a start in slight wounds and causes the death of many trees. It can be cured by cutting out diseased parts, disinfecting and painting the wounds. We have used coal tar as a paint and disinfectant with good results. However, injurious effects sometimes follow the use of this material. It is safer to use corrosive sublimate as a disinfectant and paint with white lead.

The disease is perhaps our most serious pest. It pays to control it by surgical methods. Prof. L. Caesar took a hopeless orchard belonging to the London Asylum, cut out the cankers, disinfected the wounds, and it is now like a new orchard.

The Jonathan is a variety which we find succeeds best in districts with long and warm growing seasons, with high temperatures during the hottest six weeks, and usually on the Pacific Coast, under irrigation. Jonathan, we found, however, to do well, and sometimes very well in districts apparently not nearly so well suited as the most favored ones. In our own Okanagan Valley, where such points as Kelowna have a growing season of two hundred and one days, eleven thousand five hundred and seventeen heat units, and a temperature for the six hottest weeks of sixty-six degrees F., the Jonathan is bearing heavily and producing fruit of high color and excellent dessert quality. Because of the rather shorter season, the keeping quality is much improved, giving us a season up to the end of January under ordinary storage. In cool seasons, however, even in our most favored sections, the Jonathan may be below grade in both quality and appearance. On the whole, our Jonathans would be largely confined to the Okanagan, Thompson River, Similkameen, and Kettle River districts, and preferably in warm locations and in good deep soils.—R. M. Winslow, Victoria, B. C., Provincial Horticulturist.

What House Plants Need to Help them Thrive

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

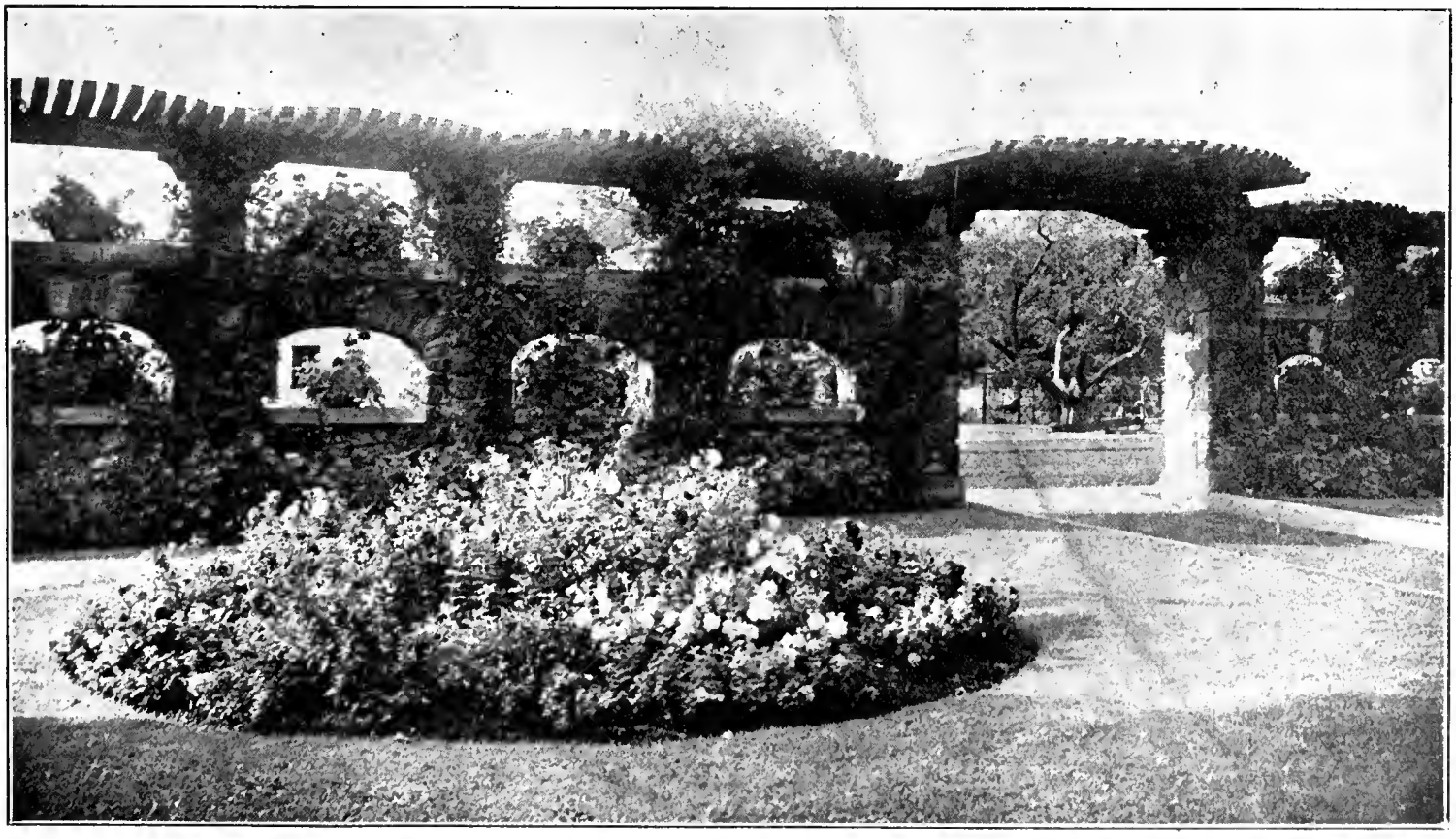
THERE is no home to which some plant is not adapted, and while conditions for its growth may not be ideal, its culture is not impossible. Ignorance of cultural details even in a proper environment has resulted in the elimination of many house plants which otherwise would have endured and become a source of attraction and of pleasure to their owner. Plant culture demands the application of intelligence. Commonsense methods are necessary for success.

Many times the question has been asked, Are such substances as cold tea, tea leaves, coffee grounds, cigar ash, castor oil, and beef steak of any use as plant food. To all such questions there is but one answer. Their harmful effects more than offset any fertilizing value they may have. They are of no use to the plant until they decompose, and when this occurs the percentage of fertilizing elements is so small as to practically render their use ineffective. They may lie upon the surface of the soil for weeks, and so prevent aeration. This will cause an unsanitary and evil-smelling condition, and probably an acid condition of soil. All such substances should, for the sake of sanitation and cleanliness, be relegated to the garbage waggon or to the incinerator. If to the latter, the ash, in conjunction with that from the rest of the home garbage, may in small quantities be mixed in the potting soil or used as a garden fertilizer.

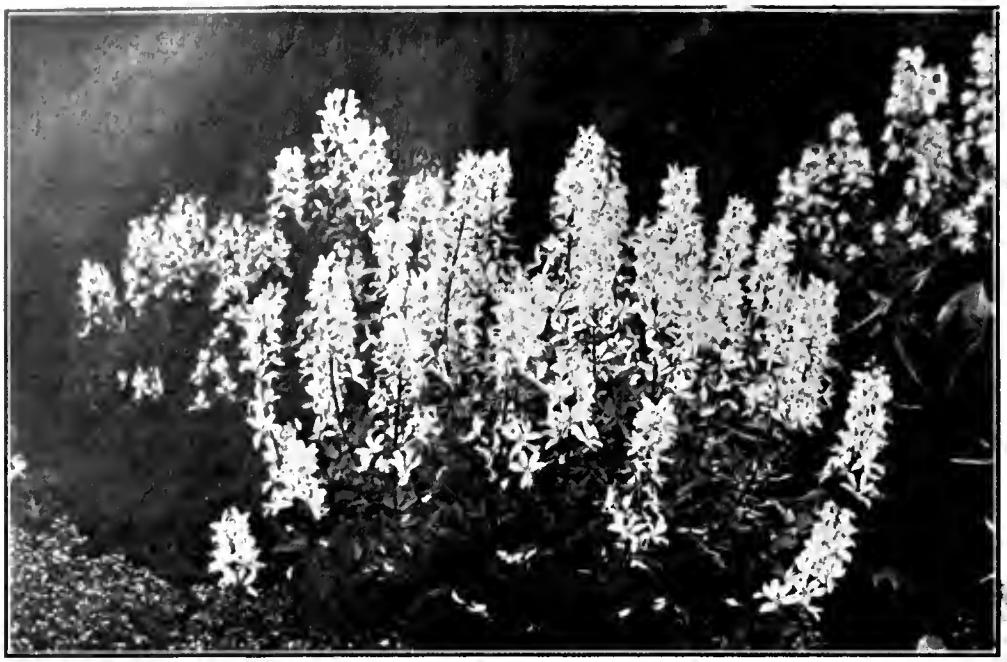
Negligence in cultural details is likewise a derogatory factor. The rooms must not be stuffy, the windows must on favorable occasions be opened, the blinds should not be drawn until dark, or left down too long in the morning. A fairly even temperature must be maintained. Atmospheric humidity must be created by placing pans of water on the radiators, stoves, furnaces, or near the registers. Cleanliness is also essential, neglect of this will result disastrously. Plants breathe through the pores of their leaves, one-half of their food material is absorbed in this manner (carbon). They should, therefore, be sprayed or sponged to remove the dust which clogs the pores, remembering at all times that it is as necessary to clean the under surfaces as the upper surfaces of the leaves. The surroundings must be cleanly and wholesome. The dictionary indicates that surroundings are but the environment. The scientist says environment governs or influences development and growth. To neglect the foregoing conditions must be to court failure, as these are the things which constitute environment.

Much depends upon the selection of house plants. If they are intended as permanent subjects those of the distinctly florists' type should not be purchased. The florist grows certain plants for special purposes at special seasons. The majority of these subjects will not endure long under dwelling-house conditions, they have probably been forced rapidly in a high temperature, and humid atmosphere (conditions which cannot be duplicated), to say nothing of abundant light. The florist does not guarantee their permanency, it would be unreasonable to expect him to do so. He will supply you with permanent subjects if you seek his advice.

Such plants as cyclamen, cinerarias (senecios), Primula sinensis, P. stellata, azaleas, and Begonia Gloire de Lorraine belong to the strictly florists' class, and are only temporary subjects. Plants of a more permanent character, and, therefore, more suitable as house plants, are Aspidistra elatior, and A. elatior variegata, Ficus elastica (the rubber plant), Araucaria excelsa (Norfolk Island pine), and A. excelsa glauca, Fatsia japonica, Begonia gracilis alba, geraniums, fuchsias; many of the cacti, the Christmas



This beautiful wall is a feature of the garden of Mr. A. W. Austin, Toronto, Ont. On the wall, which is only two years old, are Virginia creeper, Boston ivy, English ivy and wild cucumber. The wall is about 1,000 feet long. Other illustrations of this garden will be published later.



This beautiful flower, the Dictamus Fraxinella, is a hardy herbaceous perennial. The plant has to be three years old before it will flower. When rubbed the leaves emit a fine odor, like that of a lemon peel.

cactus (Epiphyllum truncatum), Howea (Kentia) forsteriana, and H. Belmoreana, two beautiful palms; the Boston fern, Nephrolepis bostoniensis, with many of its charming varieties, such as Scottii and Whitmanii. The foregoing list, although incomplete, will afford an idea of the difference between temporary and permanent decorative subjects, and perhaps preclude disappointment to the purchaser.

HOME CARE OF PLANTS

Having chosen your plants, observe the following suggestions. Learn them by heart. Light is essential to green plants in that through its influence they are alone able to assimilate their food. Plants can only perform their functions within certain limits of temperature. Keep an eye on the thermometer, there is a temperature called the potimum, at which the absorption of food materials and consequent assimilation (under the influence of light) and growth proceeds more rapidly than at any other time. The most favorable average temperatures are 55-60 degrees F. by night, and 60-70 degrees F. by day.

Fresh air is necessary , for from it the plant extracts its carbon and some of its oxygen (carbon dioxide); without oxygen it cannot perform its life functions. Do not forget this, but when opening the windows do not create draughts which chill. It is better for cold air to be warmed by contact with that of the room ere it reaches the plants, therefore, ventilate carefully. Keep the atmosphere charged with moisture; it prevents excessive transpiration of water through the plant cells, especially at night. Transpiration should be reduced to a minimum at this time, as only during daylight is it of great importance in promoting growth.

Plants rest at night, and while resting their food is digested, the starch they have formed by day is changed in the leaf cells to sugar, this being the first step in the formation of organic food material. Pay careful attention to the many details of potting, watering, spraying, and fertilizing; it is worth while, as it will lead you to a study and eventually to a love of your beautiful plants. You will soon understand their requirements, and learn from experience much more than can be taught by word of mouth or scrawl of pen.

Simple Sprays for House Plants

John Gall, Inglewood, Ont.

The necessity of spraying to keep down insect pests in connection with all horticultural pursuits, becomes more apparent every year. It is even more so with the house plant on account of the more unnatural conditions of its surroundings, such as a dry atmosphere produced by artificial heat and lighting, or perhaps an impure atmosphere produced by gas fumes from stoves or gas jets. The most frequent insect pest of house plants is the aphis, commonly called green plant louse. Then we have the red spider, thrip and many others. For convenience and economy, I would recommend as a preventative to the amateur grower the following sprays: Dissolve one ounce of any kitchen soap in a gallon of water. To this add a half cupful of coal oil, keeping this well irritated with the syringe while application proceeds. This simple remedy is a wonderful cleanser of foliage.

It is a good idea to spray frequently with tepid water under pressure as a preventative against insect pests.

The spraying or syringing of plants should be a distinct and separate operation from the watering proper. If the two operations, watering at the roots and spraying, are attempted at the same time, neither of them can be done successfully. Either the plants are soddened with too much water or perhaps missed altogether. Water the plants at the roots as required first, then do the spraying after. I have seen batches of small plants and many fine specimen plants badly injured by careless application of spray. A fine spray, thoroughly applied so as not to miss any part of the plant, is better than a heavy application only partially applied.

If the foliage of plants in bloom has to be sprayed, it is best to spray from underneath rather than over the top. The moisture will then reach the part of the foliage where insect pests are usually found, and it will not injure the blooms so much as overhead spraying. An angle nozzle on the syringe that will give an up-cast spray is the best for this purpose.

For the application of liquid insecticides, I would recommend the rubber sprinkler as illustrated. It is one of the best appliances for spraying a small collection of plants. It is convenient, works well, and is of moderate price.

In spraying operations, as with everything else in connection with horticultural operations, do not neglect doing it until it is too late. "An ounce of prevention is worth a pound of cure," and when spraying, spray thoroughly.

A Simple Spraying Device for House Plants

Garden Reminders

This is the time of year the windbreak of evergreen is enjoyed.

Blue or white spruce trees on the lawn are attractive now.

Have you noticed the cheerful effect of dogwood and golden willow on warm days?

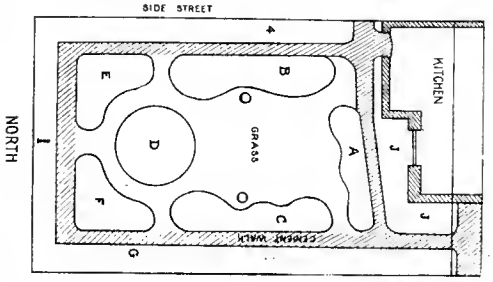
Repair the sash and frames for hot beds. They may be started up the latter part of February.

Put plenty of broken pottery in all pots over four inches in depth when potting or repotting plants. This will ensure good drainage, which is always essential to plant growth.

Simple Arrangement of a Home-made Garden

THIS is the season when the most of us are making our plans for the gardens that are to be next summer. Fortunate are we if we have had the privilege of visiting the gardens of other successful amateur floral enthusiasts, and thus obtaining pointers and suggestions for our own guidance.

The garden of Mr. Thos. H. Taylor, of Charlton Ave., West Hamilton, Ont., is one which has given its owner much pleasure and satisfaction of that character that always hopes for yet better



The arrangement of Mr. Taylor's garden.

things in the future. In the hope that this garden would furnish inspiration for other enthusiasts The Canadian Horticulturist herewith publishes a description of its main features:

The garden is thirty-five feet wide by fifty-four feet deep, and has a small extra extension at the side of the kitchen. It has an area of approximately two thousand square feet, and is laid out as shown in the accompanying diagram. This diagram may not agree with all the photographs, some of which were taken before the rearrangement of the garden, as shown in the diagram.

A border four feet wide is located along the west and north fences and one three feet wide along the east side. Eighteen years ago, when the property was purchased, there was not a blade of grass in the yard.

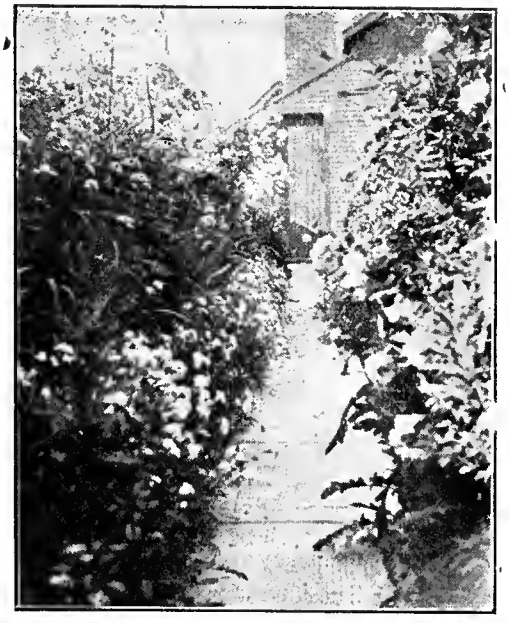
METHOD OF PLANTING

The east side of the garden being on the side street, the west and north fences form the background. They are screened by planting close to them lilacs, spireas, syringas (mock oranges), and several climbing and vigorous bush roses. In front of these a row of h.p. roses, with a few dwarf growing roses in the foreground. In the shaded portions near the house, violets, ferns and columbine are used to fill in other spaces, while in the more open situations, valerian veronica, searlet flax, white pinks, Scotch pinks, Armeria, (sea pink), Canterbury bells, and sweet william are used. The low growing plants are placed along the edge of the border.

At the north-west corner, where the west and north fences meet, a heavier screen of foliage obtains by planting a peach, a purple leaved plum and a Japanese tree-lilac. Bed F is located before this mass of foliage and is planted to a large extent with perennial phlox in a number of colors, with several moss and h.p. roses in the background, also lemon and Candidum lilies, paeonies and Yucca in the foreground. The border is of Armeria or sea pink, which makes the break between the grass and the plants very nicely.

Bed E is somewhat similarly planted but with less prominence of perennial phlox and the addition of several clumps of delphinium. In a general way, the inner beds are planted with moderately tall plants on the centre line, an occasional delphinium being used in the wide portion of these beds. Bed A is bordered with forget-me-nots; Bed C, with the Scotch pinks.

The front view of Mr. Taylor's verandah, showing a border of shrubs.



The rear walk to the ash house, which is a grapery.

The round bed D has several vigorous roses for a centre. Around them are a number of varieties of more moderate growth, with a border of white pinks, alyssum and white candytuft. Any blank spaces in the spring are filled in with snapdragon, mignonette and a couple of double petunias.

Bed J, being in the shade of the house, is planted almost entirely with ferns, violets, orchids and columbine. A bush rose, a clump of delphinium and a dentzia, are used against the brick wall.

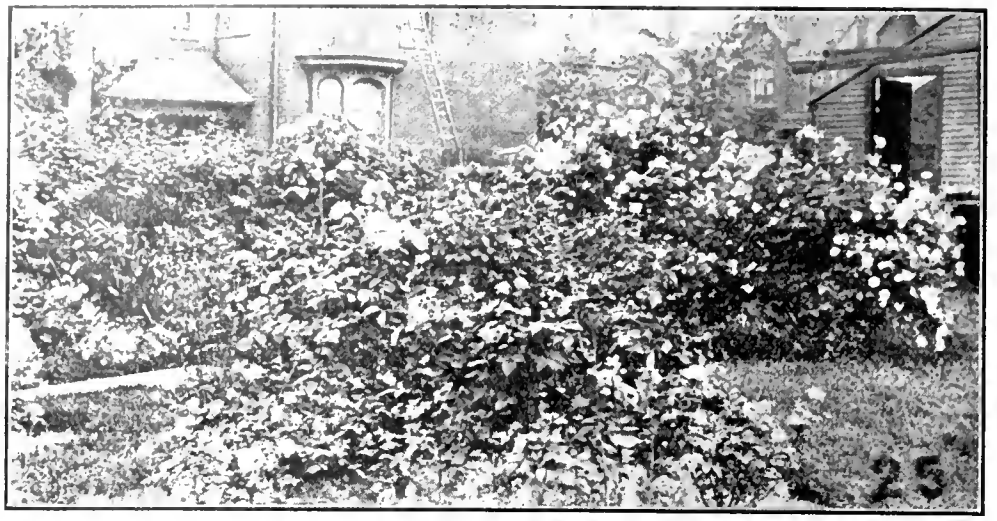
The border H has several bush moss and climbing roses, miniature sunflowers, spireas and syringa, along the fence, and an inner planting of a half dozen clumps of iris and perennial phlox, also valerian, lemon lilies, paeonies and millefoil.

The circles half way down the diagram comprise a Madame Plantier and John Hopper rose left from previous plans.

While it has not been possible to follow the usual rules as to planting in all cases, owing to changes from original plans and the inadvisability of moving some few plants or shrubs, nevertheless the general effect is most pleasing.

The rose has been made perhaps the chief feature of the garden, Mr. Taylor being very partial to that flower. Many flower loving friends, who call yearly, especially in rose time, express their delight at the scene. One is amply repaid for any trouble taken, when the beautiful buds begin to open.

All of the plants and shrubs mentioned have been successfully grown. There have been disappointments some times, a cherished plant would not winter or would die off for some other reason, but



Some of the rose beds which are a feature of Mr. Taylor's garden.

Mr. Taylor has bought or planted others or more hardy ones, until after natural growth the shrubs and plants are crowding one another, notwithstanding the fact that friends are made happy each year with baskets of surplus growth. Business interests occupy much of Mr. Taylor's attention, but his garden is ever a source of deep satisfaction and recreation.

Feed the House Plant

John Gall, Inglewood, Ont.

If you desire a good house plant, you must feed it. In the first place, a soil should be used that will return its feeding properties for some time, and for this purpose bone meal should be used when potting. This dissolves into plant food gradually, and therefore produces a supply for a considerable length of time. Always use the finest bone procurable, and the action will be quicker.

Many plants require a loose, open soil, which soon becomes depleted owing to the water easily draining through, carrying with it the food necessary for the continuance of growth and life to the plant, and in this case other methods must be employed.

Occasionally a little household ammonia in soft water can be used as a stimulant, but great care must be taken not to apply it too strong, and only to growing plants in good condition.

There are many kinds of plant foods on the market, full directions as to their use are generally supplied on the packages. Never give a plant liquid manure or stimulant when the soil is dry. Never use hard water if possible; rain water is best, and if none on hand use tepid water, not hot.

An excellent plan for feeding plants is to soak them in a tub of water, with some liquid manure mixed with it. This gives a little more trouble, but it thoroughly impregnates the soil with plant food. Put enough liquid made from old cow manure into a tub of soft water to make it the color of tea. Plunge the pots into this to just below the rim, and allow them to soak for about an hour; then lift out and allow to drain for a short time before putting into their respective places. They will not require water for a day or two, or even more, according to the temperature of the room.

Strong plants can take up much more food, and take it oftener than the weaker ones; therefore, be careful not to overfeed the weaker ones. With these injunctions use judgment, and commonsense, and success should be yours.

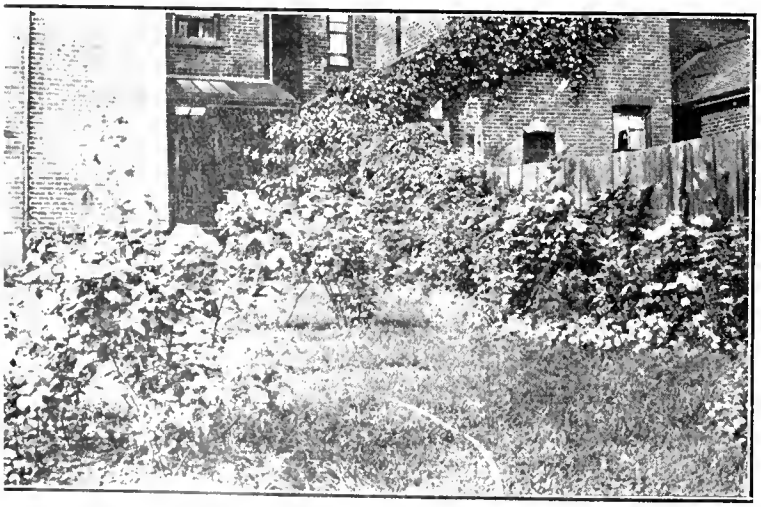
Start Begonias Now

B. C. Tillet, Hamilton, Ont.

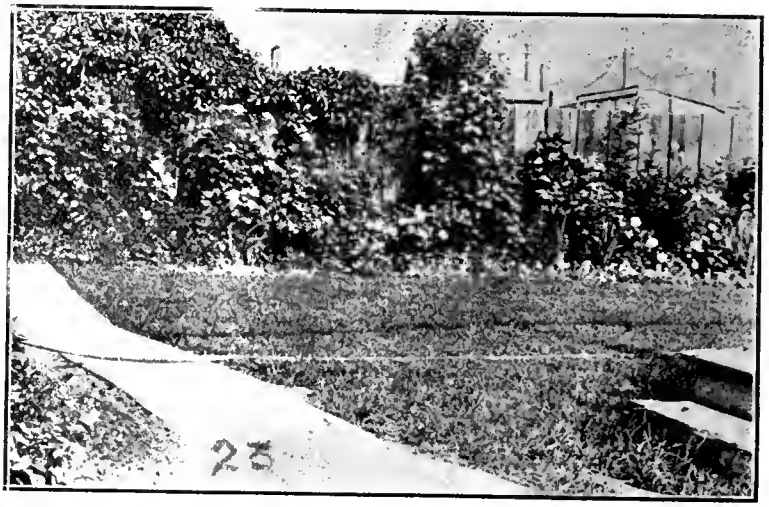
Some of the finest begonias can be raised cheaply from seed, and if this is sown in boxes now it will produce flowers in September. The soil should be coarse below, with plenty of drainage underneath, and very fine and even on the top. It should be firmly pressed down, well watered, and left for twenty-four hours. The seed is very small and should be sprinkled very thinly on the surface and lightly pressed with the palm of the hand. Do not cover it with soil. Cover the boxes with glass to check evaporation. The boxes should be placed in a glass house where there is some heat.

The seed takes some little time to germinate, but watering should not be necessary until the seedlings appear. The glass should then be raised, otherwise the tiny seedlings are liable to damp off. Plenty of fresh air and light, very careful watering, and a fairly high temperature are the chief points in the cultivation of seedling begonias. They may be grown entirely in pots, or about the middle of June planted in the open ground.

Lilacs could be trimmed so as to assume a tree-like shape. I do not consider it advisable to do so, as they are very liable to be broken down by snow and ice storms in winter. They look best grown in a balloon-shaped shrub. Wm. Hunt, Guelph, Ont.



A part of Mr. Taylor's perennial border is here shown edged out with old-fashioned pinks. In the left foreground is a bed of roses.



This illustration shows a view of another part of the perennial border in which Mr. Taylor takes much delight.

Possibilities of the Hotbed

Geo. Baldwin, Toronto, Ont.

The location for the hotbed should be facing south and shielded from the north by a fence or hedge. Make your frame of two-inch plank and of such a size as will enable you to use sash six feet long by three feet wide. Make your beds according to the number of sashes required.

Procure a sufficient quantity of fresh horse manure and pile it in a heap. When it starts to heat, turn it over into similar heaps twice in six days. Four days after the last turning it should be ready for use. Level it off to a depth of eighteen inches and place the frame on top. Be sure to tramp the manure down well in layers, then put the sash on, and leave it for three days. At the end of that time tramp the manure down again and put six inches of fairly good soil on it, having the top of the soil not more than six inches from the under side of the sashes, sloping the whole six inches in six feet, so that the rain will shed off.

In four or five days the bed will be ready for the seeds. Make sure that the heat is not over eighty degrees, then rake it over and level the soil, sowing the seeds in rows four inches apart, running north and south in shallow drills. Regulate the heat by raising the sash a little at the north end. Close up the bed at sundown and cover it with mats or straw at night. See that the frame is banked up to the top with more manure on the outside. As soon as the young plants appear, more air should be given so that they will not become spindly or damp off. Water only at noontime when absolutely necessary.

A cold frame is made in precisely the same manner, except that no manure is used. It can be used for the same purposes as a hotbed, but germination takes longer. Its principal use is for hardening off plants that have been raised in a hotbed or greenhouse before putting them out into the open garden. By starting your hotbed the early part of March you will have good stocky plants by May 24, which is the date for planting out.

SEEDS TO SOW

The next question is what seeds to sow:

3 kinds of onions—Red, White, and Yellow Southports.

3 kinds of tomatoes—Chalk's Early Jewel, Earliana, and Beauty.

2 kinds of celery—Paris Golden and Rose Ribbed Paris.

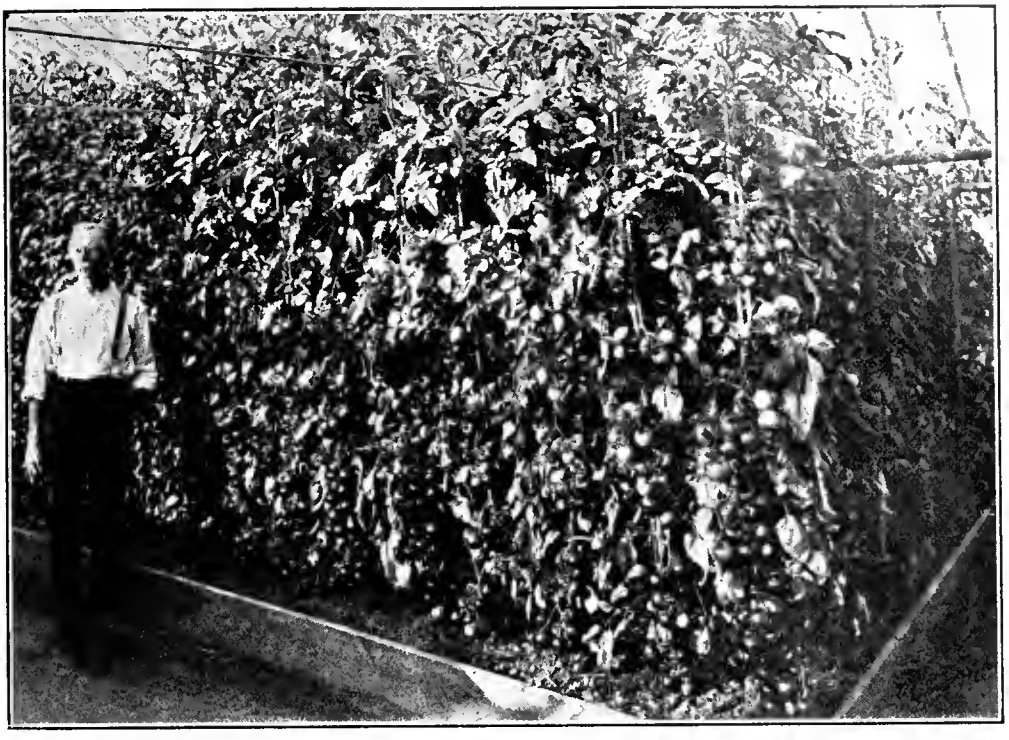
1 kind of beets—Early Flat Egyptian.

2 kinds of lettuce—Nonpariel and Grand Rapids.

2 kinds of cabbage — Henderson's Summer and Glory.

1 kind of cauliflower—Snowball.

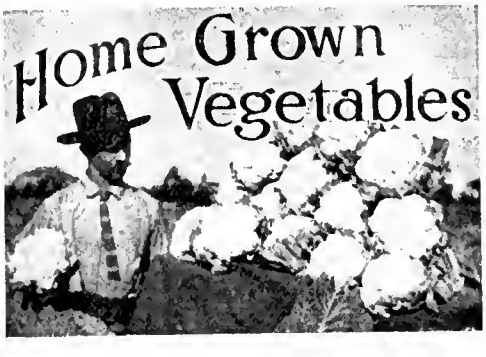
1 kind of parsley—Curled variety.



The tomato plants grown last spring by Mr. E. S. Hodges, of Simcoe, Ont., were spaced one foot apart in the row, and in June attained a height of nine feet. They carried fruit from the bottom to the top, the average plant having a dozen trusses. There was about 15 to 18 lbs. of fruit to a stem. Has anyone in Ontario beaten this?

1 kind of cucumber—White Spine or Long Green.

It will assist greatly to transplant the following two or three times in the cold frame before putting them out in the open—onions, tomatoes, and cabbage. The others will do all right by just thinning them out and stirring the soil around them. Outside of the extra work attached to making one's own hotbed, the advantages are vastly superior to relying on florists and corner groceries for what they have got left over. There are also a number of flowers which require to be raised early, such as salvia, cobaea, marigolds, salpiglossis, phlox, stocks, asters, zinnias, petunias, and others. If you include satisfaction with cost, the hotbed wins out easily.



Sprays for Vegetables

To obtain the best results from spraying operations, three points must be safeguarded: Use only properly prepared mixtures, use them at the right time, and apply them thoroughy. Most of the failures in the application of spraying mixtures result from neglect to watch some one of these three points. So much valuable information is now available in bulletin form on the preparation of spraying mixtures and concerning their application that there is little excuse for any one to go far astray in their use.

To destroy asparagus beetles, spray with arsenate of lead after the cutting season is over. For asparagus rust, use the Resin Bordeaux mixture after the cutting season is past, two weeks later, and again two weeks later. For the cabbage worm use arsenate of lead plus the resin lime mixture whenever the worms appear, and again before the worms become abundant.

The cucumber beetle can be controlled by application of arsenate of lead applied as soon as the insects appear, and repeated whenever necessary. Arsenate of lead may be used to control tomato worms, and should be applied when the worms appear. For the potato beetle, use paris green 1-50 or arsenate of lead 4-50 as soon as the beetle eggs hatch. Repeat the application whenever necessary. Potato blight is controlled by the use of Bordeaux mixture when the plants are two inches high. Give successive applications at intervals of two weeks during the growing period.

I used Soluble Sulphur last season on an orchard badly infested with scale. It was used on the bare wood with the best of results. After the foliage came on I did not use soluble sulphur, so cannot give an opinion of its value for later sprayings.—J. C. Harris, Ingersoll, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited.
PETERBORO, ONTARIO

H. Bronson Cowan Managing Director

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of The Ontario and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests: The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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, $1.40 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 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the samnle copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	12,966	August, 1914	11.905
February, 1914	12.983	September, 1914	11.610
March, 1914	12,960	October, 1914	11.622
April, 1914	13.362	November, 1914	11,532
May, 1914	13.284	December, 1914	11.545
June, 1914	13.073		
July, 1914	11,871	Total	148.713

Average each issue in 1907, 6,627
Average each issue in 1914, 12,393
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 his 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."

Rogues 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 pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST
PETERBORO, ONT.

EDITORIAL

THE LIMITED DEMAND FOR FRUIT

The more we study this question of finding a market for our increased production of fruit, the deeper the problem becomes. At one time the common impression was that if we could only obtain a rapid express and freight service at reasonable rates the solution would be about attained. While much remains to be accomplished in this direction, enough has been effected to reveal the fact that even if we had perfect transportation arrangements the problem of an adequate market would continue to be as pressing as ever.

For some years the cry against the middleman has been growing. Proof has frequently been furnished that there are middlemen who at times, by combining to manipulate prices and in other ways, have been able to appropriate too large a proportion of the sale price of their fruit for their own advantage. Nevertheless, careful investigations have revealed the fact that such cases are the exception rather than the rule. When fruit growers have attempted to establish their own distributing agencies in the large cities the expense of operation has generally been so great as to force the abandonment of the enterprise. Retailers, such as Mr. Clark, of Toronto, who spoke at the recent annual convention of the Ontario Fruit Growers' Association, generally make out a surprisingly strong case in proof of their contention that they are not making an unduly high profit on the fruit they handle. Thus we are being led to look for other factors in the situation.

At the Dominion Fruit Conference held last summer a remark was made by Mr. Elmer Lick, of Oshawa, which deserved to receive more attention than it did. Mr. Lick said: "The disquieting feature that confronts us when we attempt to find an outlet for our apples is the large percentage of the people in our cities who are unable to buy fruit at any price." Mr. Lick was right. Here, then, is a new problem for the fruit grower to face. What is the cause that makes such a large and increasing percentage of the residents in cities in all countries, including Canada, too poor to buy fruit "at any price?"

This question can't be answered by pointing to any one cause. There are a number of causes. Anyone who makes a thorough and careful investigation, however, is pretty sure in the long run to discover that there is one cause that stands out above all others. It is the land question.

Without our realizing it, the land in our urban centres has become monopolized. This land year by year is increasing in value enormously. In one year the assessed value of the land in the city of Toronto alone increased over fifty-five million dollars. This is such an immense sum we cannot realize what it means. Where does this money come from? It does not drop from heaven, as some people would seem to think. Instead, it comes out of the pockets of both producers and consumers.

A laboring man in Toronto earning twelve dollars a week who has a family, has to pay out directly from twelve to fifteen and even sixteen dollars a month in rent. This represents one-quarter of all he earns, even when he is working full time. When he is out of work it means much more. But this is only a small part of the burden he bears. Every time he buys food, concealed in the price he pays for it is a charge made by the grocer or butcher to help him to pay his store rent. Back of that again is another similar charge added previously by the wholesaler or jobber. So it is with everything he buys, from clothes to household furniture and medical attendance. It is safe to assume that the average working man pays out more than half of all he earns to those comparatively few men who own the land comprised within the limits of the city in which he lives. How can he afford to buy fruit under such conditions?

What is the remedy? Take all possible taxes off industry, such as buildings and improvements, and add them on to land values. In Toronto there are some two thousand acres of vacant land that is held out of use for speculative purposes and immense additional acres that are only partly used. Were taxes taken off buildings and placed on land values, it would become more profitable to build houses, idle land would be forced into use, houses, stores and factories could be built more readily, more work would thus be created for men out of work, rents would fall to a more reasonable basis, working men would have more money, and the possible purchasers of fruit would be increased materially in number. The more you study this problem the closer you will find it comes home to the fruit grower.

A TIMELY APPOINTMENT

The Dominion Conservation Commission is to be commended upon the wisdom it has displayed in the appointment of a town planning expert. The number of people who desire to see their municipalities grow and expand upon modern lines in which civic beautification is a prominent feature, is increasing rapidly. Hitherto these people have not known where to turn for advice and guidance. The Conservation Commission has recognized the opportunity for service thus presented and has undertaken to furnish the assistance needed.

In Europe town planning has been reduced to a science. Plans for development along approved lines are prepared years in advance and are followed with care. In Canada we have begun to realize of late that we have been falling behind the times. It is encouraging, therefore, to see this recent sign of progress.

The fruit growers of California set an example to fruit growers elsewhere throughout the world in the matter of successful cooperation. The annual report of the California Fruit Growers' Exchange for the year ending August 31, 1914, shows that the Exchange handled eleven million two hundred and sixty-two thousand one hundred and eighty-five boxes of citrus fruits, including over ten million boxes of oranges and one million one hundred thousand boxes of lemons. These shipments made a total of twenty-eight thousand one hundred and ninety-three carloads. This fruit sold for nineteen million two hundred and forty-six thousand seven hundred and fifty-seven dollars, or an average of one dollar seventy-one cents a box, freight on board. The delivered value of the fruit equalled almost twenty-nine million five hundred thousand dollars. The operating expenses, including everything, amounted to only four and one-quarter cents a packed box, or one and three-fifths per cent. of the gross sales. The success of the California Exchange indicates the possibilities that lie before the apple growers of Canada. Al-

ready our growers are beginning to reach up to them.

Many fruit growers sold their apples last fall for lower prices than was at all necessary. They became frightened over the reports of a large crop and disorganized markets and swallowed without discount the tales told by buyers about the low prices being paid. Thus buyers were enabled to use the old trick of quoting the lowest price one grower was willing to take for his crop and using it to beat down the prices of other growers. Thus prices were forced to a lower level than conditions warranted. This is only another indication of the necessity that exists for greater cooperation among fruit growers.

The Nova Scotia Fruit Growers' Association has given its hearty support to the proposal to have the apple recognized as the national dish of Canada. When the British Columbia Fruit Growers' Association falls into line—which possibly it has done already—the movement will have spread from coast to coast. What organization will be the next to help the movement along?

The fruit transportation officer of the Ontario Fruit Growers' Association has reported that claims made by fruit growers against railway companies for amounts as large as fifteen hundred dollars have remained unsettled for as long as five years. This situation is a serious one. The Dominion Railway Commission should be given power to settle such cases out of court and in a summary manner.

PUBLISHER'S DESK

The publication of The Canadian Horticulturist in special editions is meeting with the hearty approval of our readers. Because we are able to give them more information on the subjects in which they are specially interested the change is proving satisfactory both to the fruit growers and amateur flower growers. This edition we consider one of the strongest issues of The Canadian Horticulturist we have ever published. We hope our readers will enjoy it as much as we have enjoyed preparing it for them.

Next month's issue of The Canadian Horticulturist will have some particularly interesting features. In the fruit section there will be a continuation of the very important article in this issue by Mr. L. B. Scott, Bureau of Plant Industry, of United States Department of Agriculture. There will also be an article on the planting of trees by Prof. Clement, of the Vineland Experiment Station, one on Inter-cropping in the Orchard, by Mr. W. T. Macoun, Dominion Horticulturist, and another on the fertilizer situation, brought about by the war, by Prof. R. Harcourt, of the Guelph Agricultural College. In the floral section Mr. J. McPherson Ross, of Toronto, will contribute an article, illustrated by diagrams, showing how small gardens can be laid out to the best advantage. This article will include a description of what three neighbors accomplished by tearing down their partition fences and uniting their backyards into a common garden. Mr. George Baldwin, of Toronto, will furnish an illustrated article dealing with the starting of seed under sash and in the window. Mr. John Gall, of Inglewood, will also provide a timely, helpful, illustrated article. As usual the illustrations will be a feature of the issue.

There are a large number of very interesting advertisements in this issue of The Canadian Horticulturist. Look them over with care. Our advertisers have been endeavoring to anticipate your needs, and we believe you will agree with us that they have met with a considerable degree of success.

The fine collection of vegetables illustrated under our departmental head, entitled "Home-Grown Vegetables," are the product of the garden of Mr. J. A. Williams, R. R. No. 5, Peterboro, Ont. As the illustration indicates, Mr. Williams has met with distinct success in the growing of cauliflower. He grows mostly the Early Erfurt and Early Snowball.

SOCIETY NOTES

Calgary

The Calgary Horticultural Society early this year arranged a programme of meetings for the months of January, February, March and April. These meetings will be held every two weeks, and it is the intention of the directors to have them as practical as possible.

The 1914 Flower Show held by this Society last August, was the largest ever held in Calgary, in fact in Western Canada. There were 1,263 entries in all classes and prizes to the value of $1,441.00 were offered.

During the past year a sister organization came into existence in the Vacant Lots Garden Club. This club has accomplished a vast good in converting the unsightly vacant lots of the city into profitable gardens. There are several hundreds of these lots cultivated and it is the aim of the club to have a thousand such gardens throughout the city in 1915. The Horticultural Society alloted the Vacant Lots Garden Club space at their flower show and the produce staged by them was of a high standard.

Our membership is not as large as perhaps some of the Eastern Societies, we having only one hundred and sixty actual members; however, we hope for greater achievements in the future, and with the cooperation of the afore-mentioned Club we are out to make Calgary a horticultural centre in Western Canada.

The annual general meeting of the Society was held on December 8th, when the folowing officers were elected: Hon. president, R. G. Bennett, K.C.M.P.; president, C. P. McQueen; 1st vice-president, A. Calhoun; 2nd vice-president, T. S. Purver; hon. secretary, W. R. Reader; secretary, H. L. Fyfe; treasurer, Thomas Bellew; and fifteen directors.

Hamilton

The directors of the Hamilton Horticultural Society have arranged to hold a series of meetings the third Thursday of each month, beginning with January. Among those who will address the meetings are: Mr. William Allen, gardener to Sir Edmund Osler, The Craigleigh Gardens, Rosedale, who will give an illustrated lecture on "Bulbs." Mr. Jas. M. Bryson, gardener to Mr. J. T. Moore, of Avoca Vale, Moore Park, Toronto, who will give an illustrated lecture on roses; Mr. J. Goatley, late head gardener Sutton Place, Lord Northcliffe's noted gardens, whose subject will be "Hybridization and Improvement of Plants." Later on we hope to have Mr. Goatley speak on soils and manures, raising and growing plants from seeds, and also other subjects which he is fully competent to discuss.

The board also announces that Mrs. Hendrie, "Holmstead," will receive the members for a garden meeting in the spring, at which gathering it is expected that the Provincial Superintendent, Mr. J. Lockie Wilson will be present.

St. Thonas

At a recent meeting of the directors of the St. Thomas Horticultural Society, the use of vacant lots for gardens was discussed. President Bennett pointed out that much of the vacant property in the city might be converted into gardens instead of being left, as at present, a dumping-ground for tin cans and growth of noxious weeds. These lots, if placed at the disposal of working men who are not fortunate enough to have garden space, could be improved, and at the same time help to solve the high cost of living. Attention to this matter was left to a committee.

Through the kindness of the Civic Parks Committee, the cut flowers from the Municipal greenhouse have been placed at the disposal of the society and will be sent once a week to the sick, especially the stranger within the city's gates, and those to whom flowers are a luxury.

The suggestion that the tulip be the society's official flower, was adopted after considerable discussion. Other flowers were suggested, but on account of the easiness of growing the tulip and its popularity in St. Thomas it was felt this flower was the most acceptable.

Dundas

The Dundas society had its annual meeting on January 14th, with a membership of one hundred to start with, and prospects of adding one hundred more soon. We have sent in the necessary papers to the Government, and now are a regularly constituted horticultural society, with the following officers: President, F. E. Lennard; 1st Vice-President, F. D. Suter; 2nd Vice-President, W. A. Davidson; Secy.-Treas., Jas. A. Kyle. Directors: Henry Bertram, John Walker, Rev. J. B. Hamilton, Mrs. (Dr.) Bertram, H. W. Simpson, W. F. Moore, C. M. Foster, Mrs. S. King, Mrs. John Douglas.—J.A.K.

Horticultural Association Officers

Some errors having appeared in our list of officers of the Ontario Horticultural Association, published in our December issue, we herewith publish the full correct list:

President, J. H. Bennett, Barrie; 1st vice-president, Rev. G. W. Tebbs, Orangeville; 2nd vice-president, Dr. F. E. Bennett, St. Thomas; secretary and editor, J. Lockie Wilson, Toronto; treasurer, G. A. Hesson, St. Catharines. Honorary directors, Rev. A. H. Scott, Perth; W. T. Macoun, Ottawa; H. L. Hutt, Georgetown; W. B. Burgoyne, St. Catharines. Directors—R. B. Whyte, Ottawa; W. Jeffers Diamond, Belleville; R. Whorley, Haileybury; T. D. Dockray, Toronto; James Ogilvie, Hamilton; Wm. Hartry, Seaforth; R. W. Brooks, Brantford; Dr. J. A. Bothwell, Stratford; J. Methy, Sandwich.

The Pre-cooling of Canadian Fruits*

Edwin Smith, Supt., Fruit Cold Storage, Grimsby, Ont.

THE pre-cooling of fruit for shipment is commonly supposed to be a practice of recent origin. Pioneers are not often heard about, and this is true with the people who started the work of cooling fruit before shipment. The first man to develop pre-cooling as a special process in the fruit shipping industry was Mr. Parker Earle, of Cobden, Ill. Like all pioneers he met with a great deal of grief in developing new methods for tender fruit shipments. After repeated losses in the latter sixties in attempts to ship strawberries to Chicago and Detroit in the then crude type of refrigerator cars, he constructed a cooling house in his packing shed at Anna, Ill. By leaving his berries in this house for twenty-four hours to cool off, then sending them to Chicago by express, he found that they arrived in much better shape than those which were sent as soon as picked. He then went to Chicago and secured what was then the best refrigerator car that had been made, the old Tiffany car, built to carry dairy products. After cooling the berries in the cooling house they were placed in the car and sent to Chicago. The venture was a complete success from the start and resulted in placing on the Chicago market more solid and better-keeping berries than had ever before been seen there.

The date of this first successful shipment was 1872. Rapid development in the refrigeration of fruits for transportation proceeded from this date, but not until after Harold Powell, of the United States Department of Agriculture, started his notable investigations and employed pre-cooling for the shipment of Georgia peaches to New York in 1904 did we commonly hear of the much-used term "pre-cooling."

The results of Powell's experimental trials and demonstration in California were so effectively brought to the attention of the railroads and shipping organizations that not only did they start the erection of large pre-cooling plants, but they also took steps to remedy their handling methods so that the possibilities of successful orange shipments to far-off markets mounted to undreamed-of heights and popularized the expression "pre-cooling," so that it has ever since received widespread attention. Since then pre-cooling has been applied to the shipment of practically all tender fruits from various districts in North America.

DEVELOPMENT IN CANADA

The need of improving transportation facilities has been felt in various fruit districts in Canada for a long time. Excessive losses in shipping tender fruits from Ontario to the western and maritime provinces, losses in exportation of fall apples and pears from Nova Scotia, losses in prairie shipments of small fruits from the Lower Fraser Valley and peaches from the Okanagan Valley, British Columbia, have all called for discussion, investigation, and remedy, in which the word "pre-cooling" has been heard more or less frequently. This has led to early attempts at cooling fruits at Grimsby, Ontario, with various trial shipments to the west; the establishment of the St. Catharines Cold Storage and Forwarding Co. took place and started western shipments. In 1912 the Government of British Columbia appropriated funds to carry on pre-cooling investigations and in 1913 installed a pre-cooling plant having a capacity of two cars per day in the warehouse of the Summerland Fruit Union.

Owing to a failure of plans of fruit growers in the Niagara Peninsula whereby a large central pre-cooling plant for the district was being promoted active attention of the Dominion Government was called into this field and by the latter part of 1913 the erection of an experimental cold storage for pre-cooling was started at Grimsby, Ont., under the direction of Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner. This plant was completed previous to and initiated during the fruit season of 1914.

TYPES OF PRE COOLING PLANTS

There are two general types of pre-cooling plants using distinctive systems, viz., car pre-cooling and warehouse pre-cooling. With the former a blast of cold air is blown through a loaded refrigerator car for several hours previous to shipment, while with the latter, or warehouse type, the fruit is placed in a cold storage room, cooled down to from 38 to 40 degrees Fahr. and then loaded in an iced car in a cold condition.

With either type of pre-cooling plant one of two general sources of refrigeration may be used—ice or mechanical refrigeration. The modern method of using ice is with the Gravity Brine System, in which the temperature of the brine is cooled to from 0 to 10 degrees Fahr. by rapidly melting ice with salt about the primary coils in an insulated tank. The primary coils being connected with the secondary coils in the cold storage or in the "coil-room bunker." a circulation of cold brine is immediately set up as soon as the brine in the upper or primary coils becomes more dense from becoming cold. The process of mechanical refrigeration is based upon the condensing of a vapor (ammonia, carbon dioxide, or sulphur dioxide) to a liquid by the use of pressure and cold water, and then evaporating the liquid in coils placed in the cold storage or in the "coil-room bunker." The term mechanical is derived from the mechanical compressor used to place the vapor under great pressure.

WAREHOUSE PLANTS

In designing the Grimsby plant the type selected was of the warehouse design using ice as a refrigerating medium in a Cooper Gravity Brine System. The warehouse type was selected for the following reasons: (1) The car pre-cooling plant is not economical since a large part of the refrigeration is lost through connections with the car, leaky car doors, vents and insufficient insulation in refrigerator cars. The warehouse plant is well insulated, and self-contained, with a minimum loss of refrigeration through transmission; (2) The car pre-cooling plant is not efficient because faulty connections and misdirected air currents that are unavoidable in cooling a loaded car, result in cooling unevenly throughout the car. In a warehouse the cold air is evenly distributed through perforations in a false floor and false ceiling, so that all fruit is cooled evenly and thoroughly to from 38 to 40 degrees, with no possibility of freezing fruit in one part of the room and having it at a temperature of from 45 to 50 degrees in another.

(3) The car pre-cooling plant causes delay between picking and cooling, as the car has to be loaded and shipped to the pre-cooling plant before the cooling can be started. A few hours in the heat before pre-cooling means the shortening of the life of the fruit several days. If too much haste is used to overcome this, the fruit is roughly handled and the car poorly loaded, which will more than undo the benefit of pre-cooling. With the warehouse type the fruit is cooled as soon as packed and loaded while cold. Capable experts who load cars day after day at a pre-cooling warehouse ensure careful and secure loading; (4) The car pre-cooling plant is not wholly adaptable to the cooling of deciduous fruits. To cool a car in four hours, it is necessary to have the blast of cold air near 10 degrees. Peaches, plums, and tomatoes will soon freeze at this temperature. If a longer time than four hours is taken, the capacity of the plant is cut down and congestion follows; (5) A warehouse plant offers the opportunity of assembling cars of fruit during the dull season, making shipments of tender fruits possible that would be impossible with the car pre-cooling plant; (6) The warehouse pre-cooling plant is used as an apple and general cold storage after the pre-cooling season. This greatly lessens the heavy overhead expense of a plant which would otherwise be used but a few weeks during the summer.

HOW FRUIT IS HANDLED

With our present arrangement fruit is brought in from the orchards as soon as picked and packed, loaded from the drays to specially designed trucks, which are then run into one of the four pre-cooling rooms. Each room holds considerably over a carload of boxes or baskets loaded on trucks, and has a perforated floor and ceiling through which a circulation of cold air is blown from the coil room by means of large sixty-inch fans. Electric thermometers are placed in the bottom and top tiers of fruit packages, and as soon as the fruit is entered the doors are closed, the fans set in motion, and cooling is started. By means of the electric thermometers the temperature of the fruit is taken from the outside, and as soon as sufficiently cooled for shipment (38 to 40 degrees), loading takes place.

Fruit once cooled down must not be exposed to the warm air until it reaches the market, consequently a cold corridor extends from the pre-cooling rooms with an adjustable vestibule to the refrigerator car door. Through this the trucks of cold fruit are run directly into the cold car, thus preventing exposure, rough and unnecessary handling of packages and greatly cutting down the work and time necessary for loading.

THE PAST SEASON

Although handicapped by not having a peach crop to handle, the season of 1914 was an active one at the Grimsby plant. The first experimental shipment was made by the Dominion Department of Agriculture, July 16th, when 2,277 baskets of Montmorency cherries were pre-cooled and shipped to Winnipeg, arriving there in splendid condition on July 22nd. The fruit was sold on commission by the Scott Fruit Company for 60c per basket. At the same time other sour cherries were selling in Winnipeg markets for from 38c to 42c. This speaks for the superior quality of the pre-cooled fruit.

From this time on the growers and shippers took advantage of the plant and thirty-five cars of cherries, plums, pears, tomatoes

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

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and other fruits were pre-cooled and shipped west at freight rates.

As a cold storage plant, great savings were made during the whole season. In one case during the raspberry season when the canning factories were unable to receive berries that had to be handled at once, as much as 4½ cars of fruit was brought to the plant, placed in a low temperature for two or three days until the factories were again in shape, and thus avoided a certain loss of over $3,000.00. In another instance a shipper, who was exporting Bartlett pears to Glasgow, was unable to get his refrigerator space on the ship owing to the requirements of war shipments. The pears were held for three weeks in perfect condition and the shipment made on a later boat.

An interesting experiment was tried in handling Red Astrachan apples. These apples usually go out at a fairly low price, but between their season and that of the

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All varieties: Each 5c, 10—25c, 100—$1.25.

Not less than 25 of one variety at 100 rate.

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All varieties: Each 12c, 10—$1.00.

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SALVIA — BONFIRE: Sage Clara Bedman, brilliant scarlet, a very effective and gorgeous bedding plant. 10c each, 10—75c.

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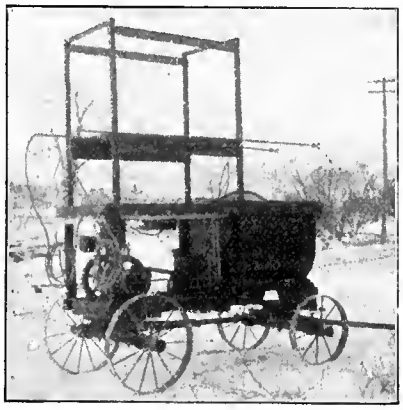

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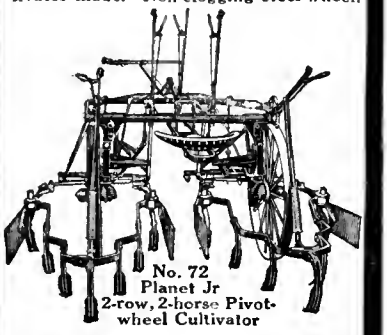

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Duchess there is a scarcity of early apples. This shipper placed his apples in cold storage prior to August 15th, then marketed them as they were demanded by the trade during the latter part of the month, making a neat gain on the transaction. Similar trials were successfully made with tomatoes, and with the shipping of ripe tomatoes.

SCIENTIFIC EXPERIMENTS

In addition to the commercial use of the plant the experimental cold storage laboratory that occupies a portion of the building has been used for scientific investigations connected with the cold storage and pre-cooling of tender fruits. In this laboratory we have three different constant temperatures, and here we are making records on the behavior of all our tender fruits.

The scientific part of our Grimsby work is of great value to the grower. To illustrate this, I will cite our work with tomatoes. We are running tests on the Earliana, Chalk's Jewel, and Danish Export, picked at three different stages of ripeness, stored at 32 degrees, 39 degrees, and 45 degrees. These are stored in eight different kinds of packages.

We have found that the Earliana and Chalk's Jewel are of little use for cold storage. The first variety will store in fair condition for three weeks, while the latter but little over a month. It is useless to try to store a tomato that is cracked or injured in any way. The most of our varieties in Ontario are too subject to cracking about the stem end. A small-sized tomato stores better than a large one. For storage the tomato needs to be picked when turned to straw color, earlier than this it will not color before it softens upon removal, and if picked riper it will soon become soft in storage.

We have found that tomatoes wrapped and stored in the four basket plum crate of British Columbia keep better than when stored in open baskets. Placing tomatoes in woodwool proved better than wrapping, while storing in a box having a sawdust filler kept the tomatoes in the best shape, especially where they were cracked. The value of this work is to be seen at once when I cite a grower who came to us and wanted to cold store a carload of tomatoes till Christmas time and get the big prices paid for hothouse tomatoes. Our records at the time did not encourage him, and I talked him out of it. He would have lost the entire car had he stored the varieties of tomatoes grown.

Ontario Won the First Prize

For two years in succession the Ontario Department of Agriculture has captured the sweepstakes prize at the New York State Horticultural Society's exhibition for the choicest three boxes of apples grown anywhere on the American continent. The second win took place at the recent exhibition of the society held in Rochester. The coveted prize was won against all comers. The prize apples were Northern Spys, grown and packed by Mr. W. L. Hamilton, Collingwood, a member of the Fruit Branch staff. Mr. Leslie Smith, of Wellington, another employee of the Department, received second highest score. This sweepstakes competition was the only part of the prize list open to competition from fruit grown outside the State.

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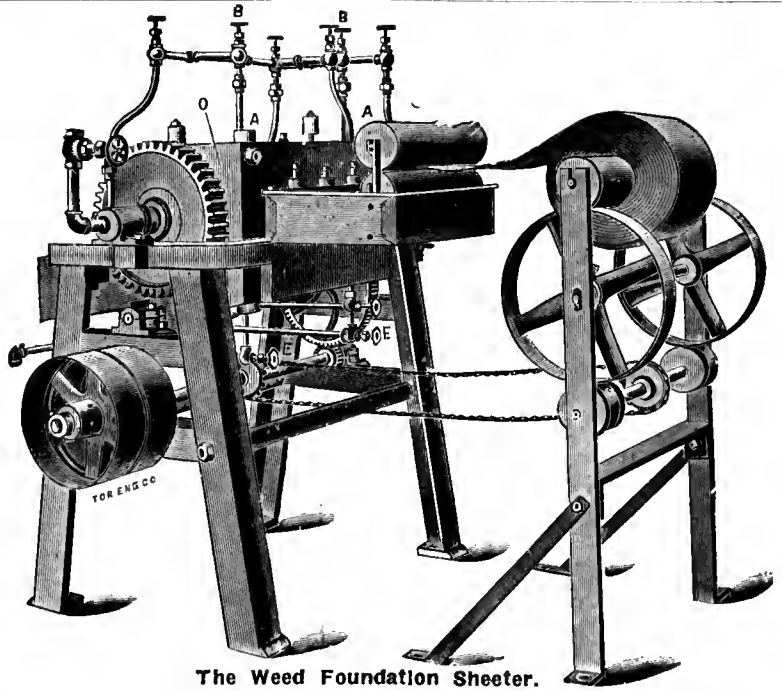

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We spray with a pressure of one hundred to two hundred pounds, and spray three times, according to directions laid down in the bulletin issued by the Ontario Department of Agriculture. There is positively no doubt about the efficacy of Soluble Sulphur. Its great convenience and absence of waste also add much to favor its use. Lime is invariably used as a marker.

When writing advertisers kindly tell them that you saw their advertisements in The Canadian Horticulturist.

STRAWBERRIES

I have large quantities of pure bred plants, especially selected and sprayed of the following varieties.

PARSONS BEAUTY GLEN MARY
MICHIGAN TIGER POKOMOE

Also

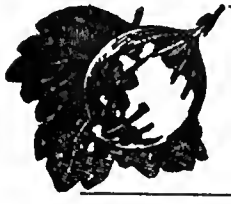
HERBERT AND CUTHBERT RASPBERRIES

Prices:—Strawberries, $10.00 per 1,000
Cuthbert Raspberries, $20.00 per 1,000
Herbert Raspberries, $30.00 per 1,000

Special Prices on Quantities. Terms, Cash with Order

References—Bank of Nova Scotia, Broadview and Danforth Branch, Toronto, Ont

MRS. PATE, 140 Cambridge Ave., TORONTO, ONT.



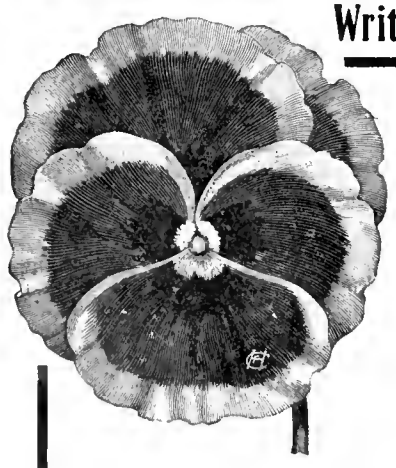
SMALL FRUITS

Gooseberries, Red and Yellow; Currants, Red, Black and White; Raspberries, Red, Purple and Yellow; Black Berries, Grape Vines, Strawberries, Rhubarb, Asparagus, Roots, etc., etc.

Ask for Price List

W. FLEMING. Nurseryman, OWEN SOUND, ONT.

Write for This Seed Catalog TODAY



DUPUY AND FERGUSON'S NEW 1915 CATALOG IS AN AUTHORITY ON SEEDS

EVERY farmer, horticulturist or planter should have a copy of our 1915 Seed Catalog. It is fresh from the press and will be sent to you FREE upon request. We believe it is the handsomest and most complete seed catalog published in this country. It tells the plain truth about D. & F. high-grade seeds that grow. The descriptions are accurate, absolutely correct and free from exaggeration.

D. & F.'s HIGH-GRADE SEEDS ARE THE BEST MONEY CAN BUY

You can make no mistake when you choose D. & F. Seeds. They are carefully selected by our experts for strength and purity, and will grow. We guarantee satisfaction. Order a sample assortment from our Catalog and test their qualities for yourself. You will always plant D. & F. Seeds for you will find they are the best that can be procured. Write for our FREE Catalog to-day and get REAL seed satisfaction.

56 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, Sept., 1914, to Mr. F. S. Watson, on products grown from D. & F. seeds.

DUPUY & FERGUSON, 38 Jacques Cartier Square MONTREAL

Nova Scotia Fruit Growers' Association

THE fifty-first annual meeting of the Nova Scotia Fruit Growers' convention was held at Middleton, January 21-22. A. E. McMahon, of Aylesford, was made the new president. Many of the old men were absent this year, and for this we were sorry.

The necessity of advertising the Nova Scotia apple was one of the principal subjects of discussion. P. F. Lawson of Berwick, who accompanied the first Belgian relief ship, and incidentally made a tour of the apple dealing centres of England, told us that Nova Scotia fruit should be advertised more. Years ago Nova Scotia fruit had a pretty bad name in the English markets, but thanks to the United Fruit Companies in putting on the market a consistently good pack, this fruit was rapidly growing in favor. Since the Government were hard up, he unfolded a scheme whereby the fruit growers themselves could bear the expense of an advertising campaign.

He distributed a number of pledges for the members to sign, each promising to give a certain number of barrels of No. 1 apples to be sold and the proceeds applied to a fund to be used for advertising purposes. Mr. Lawson was appointed to make a canvass of the Valley soliciting pledges of this kind. Premier Murray, who was present, intimated that the Government would help out the scheme so raised by adding to it an equal sum.

Messrs. Smith of Ottawa and Flack, chief fruit inspector for the prairie provinces, dealt with the pre-cooling of fruit and state of markets in the west respectively.

Messrs. Saunders and Brittain, Dominion and Provincial Entomologists, gave reports of work done during the year in controlling injurious insects and plant diseases.

Beekeeping claimed a session. Mr. Baker of Amherst showed that a good profit could be made from bees by treating them intelligently. He kept his bees in a dark cellar during the winter and fed them on sugar syrup, having taken away all the honey in the fall. He places the hives on their summer stands in April.

Mr. Hogan treated the subject from the point of view of the bee as a pollenizer, giving the results of experiments to show that blossoms set much better where there were lots of bees near an orchard.

Fruit Commissioner D. Johnson of Ottawa gave us a good old-fashioned talk on various topics, commending a vigorous advertising campaign of the apple, and saying that while he considered that there was danger of over-production in Ontario and the west, the condition was not so marked in the maritime provinces because of their nearness to the Old Country markets. He highly commended the efficiency of the United Fruit Companies of Nova Scotia.

Prof. F. C. Sears, of Amherst, Mass., gave us the best and most comforting talk of the convention. The professor labored efficiently for many years in horticultural work in our province, and we were all glad to see him back again. In taking up the question of the future of the apple industry, he cited the large planting of the last ten years. Against this factor, however, he claimed that we should place the loss of trees through old age and neglect as almost wiping out the score. The population also was increasing, and therefore the

consumption was becoming greater. As an antidote for over-production, he cited the necessity of first grafting or planting better flavored varieties. A man will eat two or more good apples where he would only eat one poor one. Second, a better package; third, better grading; fourth, better distribution to avoid the danger of glutting markets; fifth, the marketing of better stuff in the local markets; sixth, giving more attention to by-products, such as the making of boiled cider, apple syrup,

Spraying the Orchard

Many fruit growers on average sized farms find it difficult to get a spraying machine suitable for their purpose. The large, heavy power machine is too large and costly and besides it is difficult to use in the soggy ground in the spring. The most satisfactory all purpose machine is a medium priced, light, yet strongly built one that will give every satisfaction in use.

One of the most popular sprayers on the market is the Junior I.X.L. Power sprayer, which meets just these requirements. Although only introduced in Canada during the last two years it has already demonstrated its superior qualities and a large number have already been sold.

The whole machine is constructed very simply. It can be used on a wagon truck or sled and is easily handled by two men.

The most interesting feature is the unloading valve. It is very simple, consisting of only four parts. It is positive in its action and relieves the motor of about 90 per cent. of the load when the spray nozzles are closed.

This sprayer is sold only by the Canadian Sprayer Co. of Trenton, Ont., who will be glad to forward full information upon request. (advt.)

BRUCE'S SEEDS For 1915 Established 1850

Like the Highland Regiments of the British Army, of whose glorious record we are so proud, Bruce's Seeds have established a record **"SECOND TO NONE"**. The name Bruce in connection with Seeds sets the standard for quality. For 65 years we have served the Canadian Farmer, Gardener, and Amateur so well, that from a small beginning this business has grown to large proportions, doing business from coast to coast, and outside Canada.

Our success is owing to our thorough knowledge of the business and the requirements of this country, attained through our long experience, and to the extreme care exercised in every department; to the excellence of our stocks, which are unequalled in quality, and our high-class growers who have been in the business for generations; also to our thorough testing for germination, our careful system of packing and our prompt attention to orders. In seeds more than anything it pays to buy the best; do not buy Seeds you know nothing about; cheap Seeds are dear, if you obtain them for nothing.

Our 112 page Catalogue of Seeds, Plants, Bulbs, Poultry Supplies and Garden Implements, full of valuable information, is now ready and will be mailed free to all applicants.

JOHN A. BRUCE & CO. LTD. Hamilton, Ont.

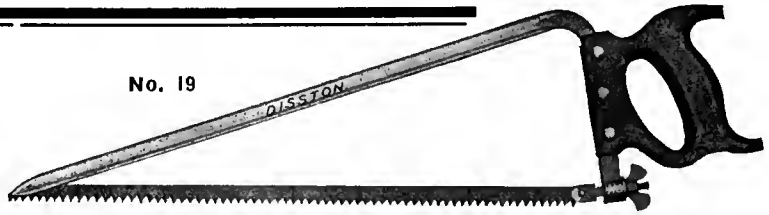
PURE SEED POTATOES
FOR SALE

A quantity of Davies' Warrior, Green Mountain, Noxall and Pats Choice. Four of the heaviest yielding main crop white potatoes.

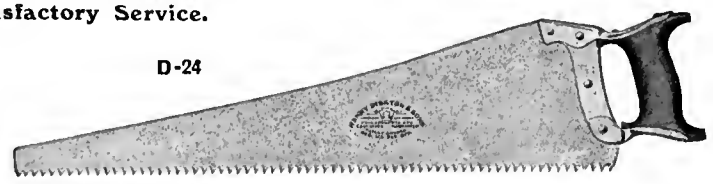
Write for Price List

PORT ELGIN FRUIT GROWERS' LIMITED
PORT ELGIN, ONT.

DISSTON Pruning Saws



—a line comprising styles and sizes for every requirement, all backed by a reputation for Highest Quality and Satisfactory Service.



DISSTON 1840 1915 JUBILEE

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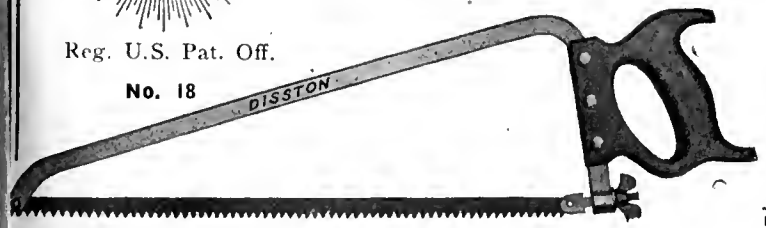
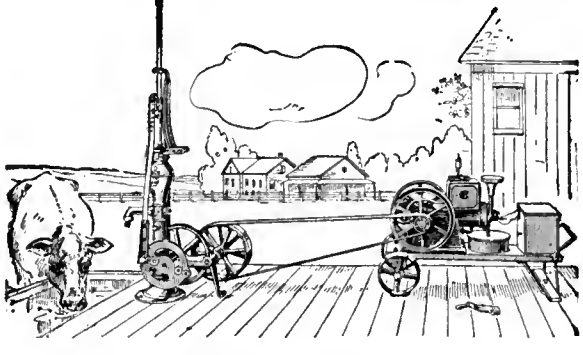


Don't wait until the last moment and then be forced to use whatever saws your dealer may have left in stock; make your selection ***now*** and get the saws exactly suited to your requirements.

Our Pruning Saw Catalog will help in your selection. Write today for a copy.

HENRY DISSTON & SONS, LTD.
2 FRASER AVE., TORONTO, ONT.

International Harvester Oil and Gas Engines



BUY an International Harvester engine, take care of it as any machine should be cared for and a dozen years or more from now it will still be working for you.

It will save you and your family endless hours of hard labor in pumping, sawing, grinding, spraying, running separator, etc.

Buy an I H C engine. They last longer, burn less fuel, are simpler, and give you most power. Here are a few of the reasons: Offset cylinder heads, large valves, accurately ground piston and rings, heavy drop forged crank shafts and connecting rods, etc. Best material and construction mean the best engine. I H C engines are built in all styles, and in all sizes from 1 to 50-H. P. They operate on low and high grade fuels.

Not every local dealer handles I H C engines. The one who does is a good man to know. If you do not know who he is, we will tell you when you write us for catalogues.

International Harvester Company of Canada, Ltd

BRANCH HOUSES

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

vinegar, evaporated fruit, etc., from the poorer grades; seventh, cutting out middlemen as much as possible; eighth, introduction of stock to eat up waste; ninth, attractive advertising. If we advertised the apple as patent medicine is advertised, we could not raise enough to supply the demand. Tenth, demonstrations of methods of cooking and using apples.

A resolution recommending the apple as our national dish or fruit was passed unanimously.—R. J. Messenger.

Cooperative Associations

D. Johnson, Dominion Fruit Commissioner Ottawa

This year above all seasons has justified the existence of cooperative associations. These associations have had their ups and downs. They have had their encouragements and discouragements, and have passed through good seasons and bad seasons. While this may be their history for the past few years, yet it is a fact that they have increased the sales of orchard lands in the districts in which they are established, in many cases one hundred per cent., and have caused their members to take a keener and more intelligent interest in their orchards. Production has been more than doubled, and growers have realized for their apples about fifty per cent. better prices than were formerly paid. This has been the history of cooperative associations in the past. Their record in 1914 will be even more striking.

It has been my privilege this season to examine the packs of most of the associations, and nearly all have reflected credit upon the organization. Growers who are fortunate enough to be members of these associations have been able to market their apples through their associations, either by f.o.b. sales or on consignment, in carload lots, in such a way as to make a fair profit on the season's operation. In some districts I have seen large crops of fine apples wasting in the orchards or being devoured by the hogs, while apples of no better quality from orchards in the same district are being sold at from $2 to $2.50 per barrel f.o.b. shipping point by the cooperative associations to which the grower belonged.

In the early days of cooperation some ten years ago, when the late Mr. McNeill first started to preach cooperation among the fruit growers of Canada, he was severely criticised in some places, and the ground was taken that the buyers would be put out of business. But the history of the movement for the last few years has proved that the local apple buyers were unable to take the risk of handling fruit to the same extent that an association could.

Whitby

The Whitby Horticultural Society last year joined with the Town Council in a clean-up day, and shared the expense with them. A hyacinth show was held in February. The blooms displayed were from bulbs distributed by the society in the fall. The show was most successful, adults and children showing. The prizes consisted of rose, hardy and climbing, for spring planting. We have succeeded in interesting a large number of the children in the growing of flowers and vegetables. We held a fall show in September, at which there was a good display of flowers and vegetables. The members received The Canadian Horticulturist, also plants, seeds, and bulbs. An interesting address was given in September. The work of the society has been brought before the citizens by notes in the press almost every week.

What a few Prominent Fruit Growers of Ontario Say of Soluble Sulphur

Leamington, Ont., Oct. 5th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Re Soluble Sulphur.

Gentlemen:—

In reply to yours of 30th ult., would say that I have interviewed nearly everyone who used your Soluble Sulphur last Spring, and they one and all say that apparently it did as good work as the Lime-Sulphur Solution, and was a great deal easier to handle, and they would not like to go back to the Lime-Sulphur Solution.

We expect to handle three times as much Soluble Sulphur next Spring as we did last Spring, as everyone who used it has nothing but praise for it.

Yours very truly,
(Sgd.) P. FALCONBRIDGE,
Erie Co-operative Co., Limited.

Dept. of Agriculture, Office of District Rep.
Stirling, Ont., Oct. 5th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

Having used your Soluble Sulphur in our demonstration orchards for the past two years, we take great pleasure in stating our perfect satisfaction with results produced. We are highly pleased with the absolute cleanness and perfection of our fruit, and consider Soluble Sulphur the best spray we can use.

Yours very truly,
(Sgd.) A. D. McINTOSH,
District Representative.

Ingersoll, Ont., Oct. 10th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

Your favor to hand. I tried your Soluble Sulphur this past Spring on an orchard badly infested with the Scale, this application was made before the leaves came on. The results are highly satisfactory, as good as any I have ever seen, and I intend using the same next year on this scale-infested orchard. I did not use the Soluble for the later applications, so cannot speak definitely for the later spraying.

Yours very truly,
(Sgd.) J. C. HARRIS.

Wellington, Ont., Oct 8th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

Referring to yours of recent date regarding Soluble Sulphur. I am pleased to say that I have used entirely in all my spraying this season, your Soluble Sulphur. I have had a good experience in all makes of spray materials, being for quite a while a district manager of a large fruit Corporation, using them in all stages of spraying. Though I have used your Soluble Sulphur for a short time, it does not take long to form a conclusion. I am satisfied that it has given entire satisfaction and it is surely a good fungicide, light to handle, very easy and quickly prepared. I find nothing you say about Soluble Sulphur exaggerated, and I therefore have no hesitation in recommending it to all who grow fruit. I feel confident when once used by any orchardist, always used.

Yours truly,
(Sgd.) D. G. JACKSON.

Sir Wm. Mulock Farm,
Armitage, Ont., Oct. 12th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

Your letter of recent date received. In reference to Soluble Sulphur: I have used it for the past two seasons and I am well pleased with the excellent results which it has given. The ease of handling, mixing, saving of labor and freight, which is quite an item, and other advantages, make it the most popular spray.—I remain,

Yours truly,
(Sgd.) J. M. KELLY, Foreman.

Wellington, Ont., Oct. 5th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

I have used your Soluble Sulphur for two years, this year 700 lbs. I am perfectly satisfied with results. Last year I used half Lime-Sulphur Solution and on the other half of orchard Soluble Sulphur, with the result that I have cut out everything but Soluble. I used it fourth spray for fungus spot after it had started. I find that it cleaned up everything I sprayed; the few trees left unsprayed fungused. This applies to McIntosh, Snow, and Ben Davis. I will want 1,000 lbs. next year.

Yours truly,
(Sgd.) L. K. SHOURDS.

Como, Que., Oct. 5th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

In reply to your letter of the 30th. I must say that I have found your Soluble Sulphur the best spraying mixture I have ever used. We have had the very best of results from it. We have a very large crop of apples, the largest we have had in years, and I am very glad to recommend your Soluble Sulphur as the best spraying mixture on the market. I will favor you with future orders.

(Sgd.) JAMES HODGSON.

Glen Leven,
Lorne Park, Ont., Oct. 15th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

In reply to your letter of Sept. 30th re Soluble Sulphur. I might say that we used two 100-lb. drums of your Spray mixture this year for the first time and with great success. Those here who have been using the Lime-Sulphur and never had any experience with the Soluble Sulphur seem to have the opinion that this Spray does not give as good results as the other spray, but I feel convinced that anyone, after using one drum of Soluble Sulphur, will find no equal in any other spray materials on the market to-day. The cost of freight is so little and the saving of labor is so great that even these two items give it so many advantages over the Lime-Sulphur.

We will again place our order with you for the coming season, and would strongly recommend this mixture as a sure, safe and economical spray for the fruit grower. —I remain, Yours truly,

(Advt.) (Sgd. A. F. MILES.

Paris, Ont., Dec. 5th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

As to Soluble Sulphur.

First—We had no burning worth mentioning, clean foliage, which is mostly on the trees yet, which shows that they must be healthy.

Second—The fruit seemed to have a bloom and finish that surprised me a little when we came to harvest it.

Third—The apples hung on well and grew to large size.

Fourth—As to that new spot that affected the apples this year. I could see no difference in any of the sprays that was noticeable.

One thing about Soluble Sulphur is that it must be applied strictly according to directions and like all other sprays done thoroughly and at the proper time, then all things being equal it will give equal or a little the best results. In a word, haphazard spraying is about so much time and money wasted.

Yours truly,
(Sgd.) C. W. GURNEY.

Arkona, Ont., Nov. 25th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Sirs:—

Replying to your favor of 20th inst., re Soluble Sulphur, beg to say that there should be a fair demand here for it next Spring. Any spraying done with it was very satisfactory. We used it on our own peach orchards, and results were good.

Yours truly, (Sgd.) BROWN BROS.

Winona, Ont., Nov. 28th, 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

In reply to your inquiry re SOLUBLE SULPHUR. Having just taken over an apple orchard of 14 acres which was badly infested with SAN JOSE SCALE, year 1913, not one apple of the crop which was not peppered with Scale and not fit for sale. Using your SOLUBLE SULPHUR this Spring on this orchard, 10 to 40 and 2 to 40 lbs. Summer spray, I had this Fall nearly 700 barrels of No. 1 apples and sold at a good price. I claim it will control SCALE better, cheaper, and prefer it to all other materials on the market as yet. I intend to use it again this Spring. I would advise anyone having San Jose Scale in orchards to give this a trial this coming Spring.

If directions for using SOLUBLE SULPHUR are followed out, no fear of burning.

I found it much more convenient to handle than Lime-Sulphur, and have found it more effective in every respect.

Yours respectfully,
(Sgd.) R. H. LEWIS.

NOTE.—Mr. Lewis was for years Chief Government Scale Inspector.

Georgetown, Ont., Dec. 1st., 1914.

Niagara Brand Spray Co., Ltd.,
Burlington, Ont.

Dear Sirs:—

Answering your inquiry just to hand. We used the SOLUBLE SULPHUR as a Fungicide almost exclusively in twenty-one different orchards last Spring, and the results were so satisfactory in every instance that we will use it exclusively next season. It is more convenient and can be used with less waste than the liquid solutions.

Yours truly,
(Sgd.) A. MALLINSON CO., LTD.
A. Mallinson, Mgr.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

PRIZE DAHLIA ROOTS

15 for $1.00 by express not prepaid, or 15 by parcel post for $1.15, field grown roots. Special price for lots of 100 or more.

GEO. E. EGERTON
112 Chalmers St. GALT, Ont.

SKINNER SYSTEM OF IRRIGATION
TRADE MARK

THE RAIN MACHINE

Write for six books on Indoor and outdoor irrigation.

THE SKINNER IRRIGATION CO. DEPT. R., TROY, OHIO

STRAWBERRY GROWERS ATTENTION

For choice, well selected stock of all the standard varieties of strawberry plants, send us your order. List Free.

ONTARIO NURSERY CO., WELLINGTON, ONT

Progressive Jones says:

"Be Sure to Use Well-Mixed Fertilizers"

ONE day a man said to me, "Jones, why don't you tell the farmers to be sure and use well-mixed fertilizers?"

Well, I thought I had done so, but perhaps I didn't do it often enough. You see, friends, it's important to use well-mixed fertilizers. Otherwise, your fertilizers will be strong in some places and weak in others, and crops fertilized with it will show uneven growth. Now, I've been at The Ontario Fertilizers Limited's factory and have seen

Harab FERTILIZERS

being mixed. I have never seen a more thorough job. Every pound of the fertilizer is in exactly the right proportions. And the fertilizer is finely ground and in good dry condition. It is in the very best possible shape for use on the field.

DAVIES' Fertilizers

are preferred by many farmers. They are excellent, well-mixed fertilizers. The Ontario Fertilizers Limited will supply you with either Davies' or Harab brand. Just state your preference. Also ask for either the Harab or Davies' Fertilizer booklet. Either is free on request.

Remember, friends, that cheap fertilizers are poor investments. You need the very best you can get. And if there are any better fertilizers than Harab Fertilizers, I don't know their names.

The year of 1915 will be a year of high prices for farm produce on account of the European war. Make up your mind to make your land yield bigger crops than ever before. That means fertilize.

Yours for bumper crops,

Progressive Jones

The Ontario Fertilizers Limited, West Toronto, Canada

24

Fruit Trade Conditions

"Thousands of barrels of apples were left on the trees last fall. At present there is about two weeks' supply of this article in the chief Canadian cities." This statement was made by P. J. Carey, of the Dominion Fruit Division, when speaking at the recent annual convention of the Northumberland and Durham Apple Growers' Association. The chief cause, in his opinion, was that the growers who never paid any attention to the marketing end of the business were helpless when a buyer didn't come around to purchase the fruit. The old plan of depending on the local buyer was giving away to cooperative marketing. Conditions this year should accelerate the transition.

Cheaper apples have resulted in an increased number of purchasers of apples. This could not help but create a stronger market in the future. The prospect of the export trade is not particularly bright, but the home market can handle all Canadian apples.

The quality of workmanship shown in the pack has become poorer of recent years. This is perhaps also due to the fact that more inexperienced men are packing the apples. A neatly packed barrel is a great help in selling the fruit. It should be remembered that over-packing is the chief complaint of the western buyer. When packing for the domestic trade his rule is to fill the barrel to within one-half to one inch of the top of the stave. Proper racking is ninety per cent. of good packing.

British Columbia Packing Schools

F. M. Winslow, B.S.A., Provincial Horticulturist

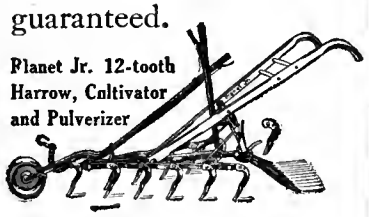
Instruction in the packing of fruit under the Department of Agriculture of British Columbia is largely confined to apples, because instruction in apple packing may be given during the winter months when the most capable instructors are free for such employment. The general principles of apple packing taught in the packing schools reacts very favorably and immediately on the packing of the other tree fruits of the same district.

Apple packing schools were first inaugurated by the Department in the early months of 1911, and thirteen classes were held. The course of instruction consisted of twelve lessons of three hours each in practical packing, and the number of pupils was limited to sixteen. The local organization which arranged for the school, guaranteed a minimum of twelve at a fee of three dollars each. The cost of the hall, its lighting and heating is usually borne locally, but the other expenses are carried by the Department. The three dollars fee from each pupil pays about two-fifths of the actual expenses of operation. The plan first of all in use has been retained since. In 1912, thirty classes were held; in 1913 forty-one, and in 1914 thirty-seven. The demand for these instructions has not dropped off as was expected. This is partly accounted for by the continual progress being made in fruit packing with which growers desire to keep informed, and partly to the increasing standard of perfection of the instruction given by the Government packing schools.

Pamphlet Number Nine of the Dominion Experimental Farm on "Hardy Roses," gives valuable information on rose culture. It is procurable free on application to The Dominion Horticulturist, Ottawa.

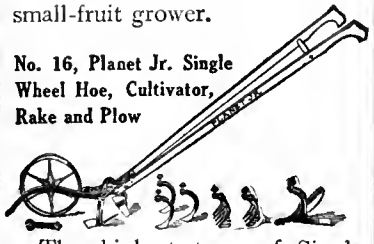
Planet Jr. Harrow-Wheel Hoe

Planet Jr. tools save time, lighten labor, and get bigger, better crops at less cost. Designed by a practical farmer and manufacturer with over 40 years' experience. Last a lifetime. Fully guaranteed.



Planet Jr. 12-tooth Harrow, Cultivator and Pulverizer

Stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Non-clogging steel wheel. Invaluable to the market-gardener, trucker, tobacco, or small-fruit grower.



No. 16, Planet Jr. Single Wheel Hoe, Cultivator, Rake and Plow

The highest type of Single Wheel Hoe made. Light, but strong, and can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Indestructible steel frame.

72-page Catalog (168 illustrations) free

Describes 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it.

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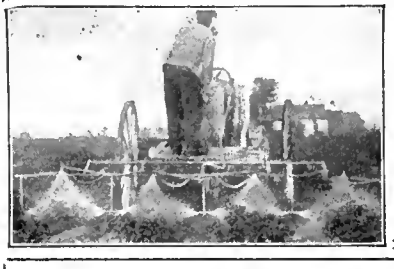

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All the leading varieties, and novelties not yet introduced into America; including Silver Challenge cup and Medal collection (England). Some varieties having three-fold standard! All Canadian grown seed and guaranteed *true to colour*. You will be astonished with the large and perfect blooms, and the shades of colour will delight. We have blooms from June till end of September.

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"Gautby's Ideal"; a variety not yet introduced into America, but which has yielded us astonishing results. The fruit is perfect, smooth and does not revert to "type." The plant is a great heat and drought resister and a heavy bearer. Many years have been spent in perfecting this variety.

Further particulars, see cut etc., on page 37 of this issue.

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VALUABLE PREMIUMS TO THE MOST SUCCESSFUL GROWERS

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Sweet Peas .....Pkgs. .....Silver Challenge or Medal ..... Special.

(Price and Number)

.....Ordinary .....Colours .....

Tomatoe; just put a mark opposite price....tear this out, with your name and address below....then pin necessary amount to same.

Name ....Address .. ..

To— ....

HILLSIDE FRUIT FARM, Box 646, SIMCOE, ONT.

Nova Scotia Problems*

F. W. Bishop, President, N.S. Fruit Growers' Association

Nova Scotia can and must produce better apples. Or, to put it another way, Nova Scotia must produce fewer poor apples and must cease altogether from exporting inferior fruit. This is not a matter of sentiment; it is a matter of business, of dollars and cents.

We must begin at the beginning to do things properly. We must exercise great care in the selection of our young trees. We must plant them in the most desirable locations and as they should be planted. Then we must take care of what we plant. There are far too many neglected young orchards in Nova Scotia. A neglected orchard is a public menace. We must learn how to prune, how to spray, how to thin, and not trust to haphazard methods. And we must learn and should learn at once how to pick and handle our apples. It would seem that we are so familiar with apples that we do not stop to realize what a delicate organism an apple is. It is not too extreme to say that apples should be handled as carefully as eggs, some varieties of apples even more carefully than eggs.

We are apt to hire a picker of apples and think we must rush him at top speed to get the value of our money. It is all right to try and make him work rapidly, but never, under any consideration, allow him to sacrifice care for speed. It doesn't pay. Learn to be "cranky" about the way your fruit as handled. Get it to the warehouse in perfect condition and don't be afraid to go into the warehouse occasionally and see that the careful handling is kept up. See that the barrels are well filled not over filled), see that they are well shaken down and that careful, judicious pressure is applied. Put up a kick if you see a head being driven in with an adze or if you see a barrel of apples thrown down roughly and given a kick which sends it spinning half the length of the warehouse. It will be these little exhibitions of carefulness amongst our growers that will help us to complete the conquest of the apple markets and to hold the ground we attain.

I want to say something about the pack. It is improving. The time was when Nova Scotians didn't have a good name as apple packers. Now only some Nova Scotia packers have a bad name. Oftentimes the bad pack is not malicious, but it is the result of carelessness. We cannot be too careful. The careless packer is unjust not only to himself but to us all.

When a manufacturing concern finds that improved machinery and increased skill of its employees makes it possible to double its product that concern does not become alarmed, but goes out and in modern business style forces its way into new markets and builds up and increases the demand for its goods in the new markets. The Nova Scotia apple industry is in the position of such a manufacturing concern. There is a great chance to increase the demand of Nova Scotia apples in the old markets and there are new markets to be reached and developed. The question is: Whose duty is it to bring about that increased demand and to discover these new markets?

*Extract from an address delivered at the recent annual convention of the Nova Scotia Apple Growers' Association

Newcastle

The following shows the work undertaken by the Newcastle Horticultural Society during 1914: The members were given flowers, fruit, bulbs and shrubs to the value of $1 each. Ordinarily they would pay at least $2 for them. We also distributed about 2,000 bulbs to our members. We planted one hundred trees on the streets. Around the public school were planted trees, and a Boston ivy vine. Shrubs and flower beds were planted at each of the three churches, and Boston ivy vine. Around the Seymour power house were planted some trees, three flower beds and some shrubs. Window boxes were placed on the post office windows.

We held a school children's public market during the summer months every Saturday morning. The seeds were donated by Mr. R. S. Duncan, B.S.A., the District Representative. The children received their choice of either flower or vegetable seeds, raised the plants and sold the product at the market, keeping the money so earned. The Society judged the things displayed and gave marks for them. We had seventy-seven members last year, and held nine meetings, including three public meetings, which were addressed by Prof. Hutt, of Guelph, Mr. Geo. Baldwin of Toronto, and Mr. Starr of Whitby.—A. Coldwell, Secretary.

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A Free Trial Package is Mailed to Everyone Who Writes.

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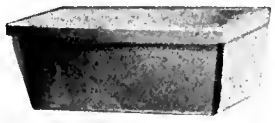

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Engine, Pump and Pump Gear, mounted on Heavy Steel Beams and cannot get out of alignment.

Phosphor Bronze Bearings used throughout.

The best and most up-to-date Outfit money can buy.

We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

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Last year we sold a large quantity of Black Naples plants to leading fruit growers, and are looking forward to an increased sale for the coming year. We are prepared to sell No. 1 2-year-old plants at $45.00 per 1,000.

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SCOTTSVILLE, NEW YORK

The Quebec Pomological Society

THE twenty-second annual meeting of the Pomological and Fruit Growing Society of Quebec, was held at Macdonald College in December. Among papers read and addresses given were the following: Distribution of Fruits, C. W. Baxter, Fruit Branch, Ottawa; Lessons from the 1914 Crop, Rev. Father Leopold, La Trappe; Transportation of Fruit, D. E. McIntosh, Forest, Ontario; Life of Trees of Different Varieties of Apples in the Province of Quebec, W. T. Macoun, Dominion Horticulturist; Public Handling of Fruit, F. W. Grindley, Fruit Branch, Ottawa; Inter-cropping the Young Orchard, Prof. A. MacLennan, Macdonald College; Commercial Lime-Sulphur and Arsenates of Lead, Mr. Newton, Montreal; Experiences with Fire Pots, M. B. Davis, Assistant to the Dominion Horticulturist; Preserving our Surplus Fruit, D. J. Wood of the Quebec Department of Agriculture. The closing address was delivered by Mr. D. Johnson, Dominion Fruit Commissioner.

In all the addresses the most salient point emphasized was the great need for more cooperative effort. Much evidence was available to show that the province of Quebec could produce large quantities of valuable fruit, more especially of the Fameuse and McIntosh varieties of apples, and that to successfully market the possible crops, cooperation was necessary. In the concluding address, Mr. Johnson traced briefly the history of cooperation in Ontario and offered suggestions for the organization of cooperative societies.

Efforts were also made to initiate cooperative work with other societies, so as to secure the holding of a combined exhibition in Montreal, and also annual meetings where each society could conduct its own work and hold joint meetings where general methods could be discussed. This was presented in a motion by Dr. Harrison, principal of Macdonald College, and Rev. H. A. Dickson of Rectory Hill, Quebec: "That the executive be instructed to ascertain the possibility of bringing about cooperation with the horticultural, florists', and vegetable growers' societies of the province, with the object of holding a provincial flower, fruit, vegetable and honey show in the city of Montreal, similar to that held in Toronto." This proposition was strongly approved by the convention and the executive was instructed to take the necessary steps, and to prepare a report for the summer meeting.

RESOLUTIONS

Among the resolutions passed were the following:

Whereas, the work in connection with better transportation facilities for fruit, carried on by the Ontario Fruit Growers' Association, generously assisted by the Ontario Government, has been Dominion-wide in its effect, therefore, be it resolved that the Pomological and Fruit Growing Society of Quebec desires to bring to the attention of the Honorable Minister of Agriculture and Mr. D. Johnson, Fruit Commissioner, the necessity of federal aid in furthering that work.

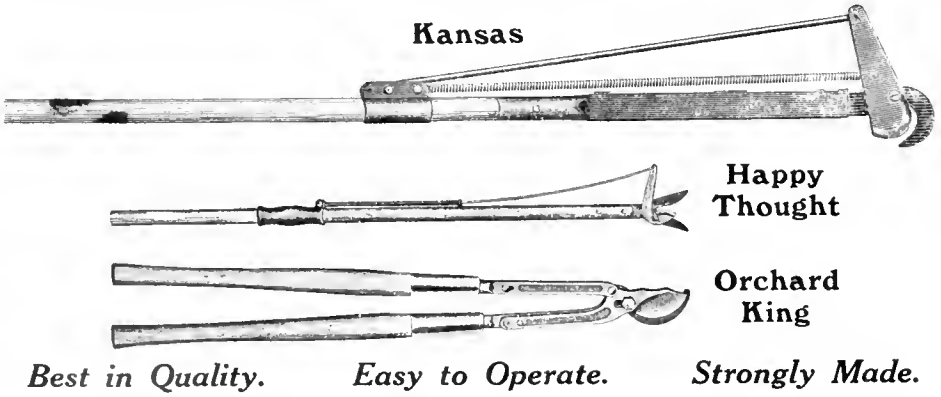
Whereas, this Society approved of the terms of Bill 85 (respecting the transportation of fruit and other produce) introduced in the last session of the Dominion Government by Mr. J. E. Armstrong, therefore, be it resolved that we urge the support of same by the several members of Parliament from Quebec constituencies.

Resolutions of regret were also passed on the death of the late Alexander McNeill and the late Dr. William Saunders.

A feature of the convention was an exhibit made by the Division of Horticulture of the Central Experimental Farm, which included a large number of seedling apples originated and propagated by W. T. Macoun, and an exhibit of corn showing progress being made in the efforts to secure an early, hardy variety of sweet corn.

The officers elected for the ensuing year were: President, R. A. Rousseau, Actonvale; vice-president, Prof. Lochhead, Macdonald College; secretary-treasurer, Peter Reid, Chateauguay Basin; directors: G. B. Edwards of Covey Hill, C. E. Slack, Abbotsford, J. P. Hitchcock, Massiwippi, Rev. H. A. Dickson, Rectory Hill, T. A. Raymond, St. Vallier, A. Roy, L'Ange Gardien, F. T. Gosselin, St. Famille, Rev. Father Leopold, La Trappe, and R. Brodie, Montreal.

Patented Tree Pruners



Best in Quality. *Easy to Operate.* *Strongly Made.*

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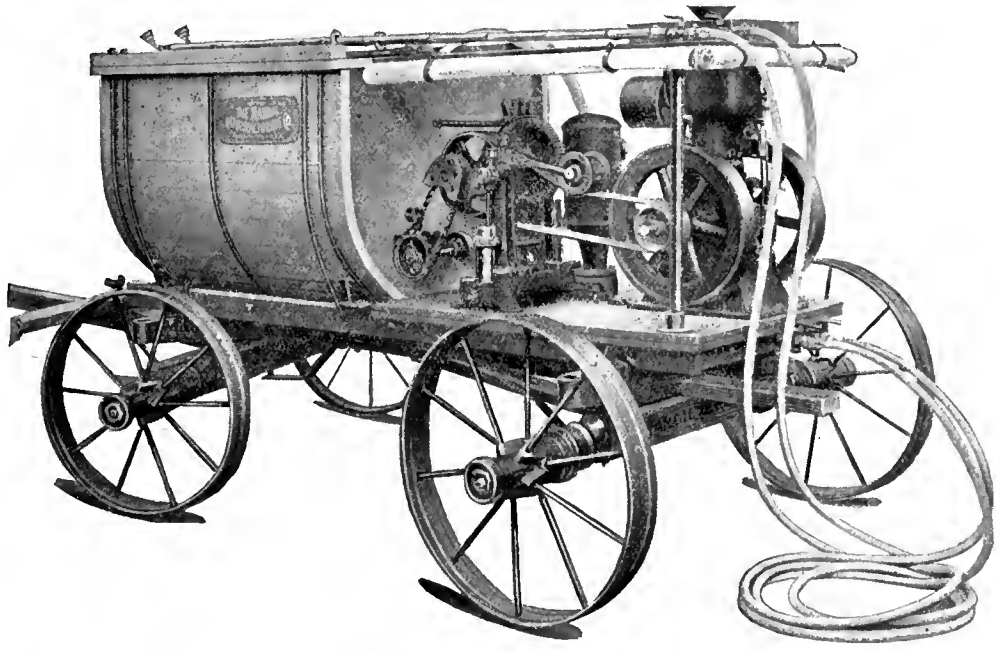
Making Peaches Pay

At the recent convention of the New York State Fruit Growers' Association, held in Rochester, N.Y., Senator Orlando Harrison of Maryland, spoke on peach growing, and also expressed some original ideas about the conduct of agricultural colleges. He contended that the colleges do harm in this respect that the growers place too much dependence in them, and sacrifice their own initiative. The parchment given the agricultural student at his graduation should, he contended, be withheld until the student has had three years' practical experience in state orchards and shown the practicability of his theories.

The epitome of success in making peaches pay, as given by Senator Harrison is: Right soil, sandy loam, timely pruning, opportune spraying with right materials, proper packing, fruit left on trees until ripe, full packages that are good from top to bottom, placed on markets where high-grade goods are wanted.

"Keep culls out of the market," advised Senator Harrison. "In Maryland we urge the use of the soft fruit for pies and similar purposes. This idea should be encouraged by all horticultural bodies."



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THE SPRAYER WITH THE TROUBLE LEFT OUT

Hardie Sprayers are simply common sense applied in an uncommon way

We first found out what a Sprayer had to accomplish to be perfectly efficient—next found out what interfered with securing perfect efficiency—and then removed the interference. We knew when we did that and got that fact before the growers, their common sense, level-headed intelligence and good buying judgment would take care of our sales. More than 36,000 satisfied users have proved we were right.

The Hardie line is complete, embracing a full line of Hand and Power Sprayers. The best grade of spray hose; brass and aluminum lined extension rods; nozzles and other accessories.

For 15 years the word "HARDIE" has stood for the best of everything in Sprayers.

The Hardie Power Sprayers are entirely **free from experimental risk** and are made in several sizes and styles. **They excell not in some little detail, but all the way through from the engine to the nozzle.**

FRAME:—High Carbon Pressed Steel, weight only 85 pounds. 10 times as strong as common structural iron used by others.

TANKS:—200 gallon heart Cypress, the wood eternal.

AGITATORS:—Rotary type running in bronze bearings, lubricated with grease cups.

ENGINE:—The Ideal, Type "M," without question the best gasoline engine made in this country. Enclosed crank case. Manganese steel crank-shaft; ground piston; ground cylinder and ground rings; large Tungsten Steel Valves, easily got at for regrinding; special sprayer Carburetor; High Tension Magneto. An engine of high efficiency. Especially designed for spraying by R. E. Olds, the world's greatest gasoline engine expert.

PUMP:—The Hardie Pumps are made in several sizes. They are the lightest, and yet the most powerful pumps made; so simple and accessible that they can be taken apart and put together again in a very short time. Our pumps are constructed of the very best material and workmanship. The plungers are driven from a Manganese steel crank-shaft. All bearings are babbitted, except the bearings on the crank-shaft, which are phosphor bronze. We do not use set screws, but our gears, pulleys, etc., are fastened with Woodruff Keys. They have large bell metal ball valves; plungers that run between two soft packings, which keep the metal of the plunger from coming in contact with the metal of the cylinder. Both our Triplex and Duplex Pumps are made in two sizes—2 in. and 2½ in.

PRESSURE REGULATOR:—The Peerless Pressure Regulator used on our pumps is without question the best device made for the regulating of the pressure. It not only holds the pressure to the dot, but takes the load off the engine when the nozzles are closed.

ACCESSORIES:—Our Angle Cut Offs, Stay-There Hose Couplings, Spray Hose, Bamboo Rods and Aluminum Nozzles are all the best on the market.

We carry in stock at Burlington a full line of these famous sprayers. Also a full line of spray hose, spray rods, and nozzles; engine and pump repairs, so that you can purchase a "HARDIE" and know that in case of an accident there will be no annoying delay in getting repairs.

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make the meals so much more tempting—as well as much more healthful and less expensive.

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Town Planning as means of Civic Improvement

TOWN planning and civic improvement were one of the principal subjects discussed at the meetings of the Dominion Conservation Commission, held in Ottawa during the latter part of January. One of the most important addresses was delivered by Mr. Thomas Adams, town planning adviser to the commission. Mr. Adams, who is one of the best authorities in the world on town planning, said in part:

"My short experience of Canadian conditions leads me to think that our chief difficulty in improving housing conditions and securing rational town planning will be caused by the system of selling, developing and assessing land which prevails in some parts of the Dominion, and which in the matter of feverish speculation has no parallel in the older countries. Apart from that, our problem will be a comparatively simple one to deal with.

LAND EVILS IN CANADA

"The difference between the value of building land and agricultural land is greater in comparatively small towns on this continent than in more crowded and rapidly growing towns in Great Britain. Such high values encourage unhealthy conditions and tend to create and maintain slums. They help to lower production by keeping large areas of good farming land in idleness around the fringes of our towns, and by attracting men off the land during periods of boom.

"The original owners of the land do not benefit as a whole from these high values, as it means that the money which is available for investment in land is invested in restricted areas, and a large proportion goes into the pockets of speculators having no permanent interest in the use of the land. The question of the valuation of land for rating purposes is rendered complex and difficult and the provision of improved and extended means of transit round cities and towns is discouraged. On all grounds the matter is one which should be the subject of careful enquiry."

MUNICIPAL DEPARTMENT

Mr. Adams urged the creation of a department of municipal affairs corresponding with the local government board of Great Britain whereby the best expert advice would be placed at the disposal of municipalities and expenditures on municipal projects and improvements would be subject to the approval of a central provincial department. In Alberta such a department already exists.

Such a department is needed in the provinces of Canada to secure uniformity of administration and procedure, the employment of skilled advisers, the linking up of public health, housing, highway, boundary extension and town planning administration, the proper control of public utilities, the framing and application of sanitary and other bylaws on sound principles, wider powers to municipalities, and the efficient and impartial presentation of municipal accounts.

The need of city and town councils to proceed with the preparation of topographical and detailed maps of their areas, was urged. In spite of the war, Mr. Adams believes that town planning and housing reform should go on—go on with even greater vigor than heretofore. He said:

"The incoming stream of emigration has practically ceased to flow, thereby temporarily suspending urban expansion; we are face to face with a slump in real estate, and are free from the injurious effects of gambling in fictitious land values which characterize periods of boom; and we have presented to us in an unusual degree the evils of bad housing conditions which show at their worst during periods of slackened employment. If only sufficient attention can be diverted to the subject on the part of public men in the provinces and the cities, no time could be more appropriate for getting to work.

"The work of town planning would be greatly facilitated and assisted if the commission were to have a collection of maps, plans, diagrams, etc., exhibited in different cities throughout the Dominion."

Nova Scotia Resolutions

At the convention of the Nova Scotia Fruit Growers' Association, held the latter part of January, the following resolutions were passed:

Whereas, recognizing the great work that is being done by G. E. Saunders at Bridgetown, in the Dominion Entomological Department in behalf of the Fruit Growers of Nova Scotia, and,

Whereas, recognizing the inefficiency of the temporary building now in use,

We recommend the Dominion Government to erect a permanent building for the carrying on of this work.

A committee consisting of Messrs. F. H. Johnson, A. E. McMahon and Arthur Harris, was appointed to interview the Government regarding the procuring of a permanent entomological building for the Valley, as set forth in the foregoing resolution.

Whereas, it is recognized that an opportunity exists in Great Britain, to greatly increase the demand for Nova Scotia apples,

And, whereas, immediate action would take advantage of the great wave of Empire loyalty now in evidence,

Therefore, Resolved, that the Nova Scotia Fruit Growers' Association appoint a committee of five with authority to collect a fund, and to cooperate with the Government (if thought advisable), and prosecute a vigorous publicity and sales promotion campaign in Great Britain.

A resolution was also passed recommending that the apple be selected as the national dish of Canada.

The treasurer's report showed the balance

WISCONSIN INCUBATOR AND BROODER BOTH FOR $13.90

130 EGG INCUBATOR
130 Chick Brooder
BOTH FOR
$13.90 Freight and Duty PAID

If ordered together we send both machines for only $13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. **Ten year guarantee—30 days trial.** Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of $13.90 is for **both** Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.

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ı December 31, 1914, was $193.65, compar-
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ls, assistant-secretary, F. W. Foster;
easurer, G. W. Munro; auditors, W. M.
lack, J. Elliott Smith.

County Vice-Presidents same as last year
ith the exception of the following: Lunen-
ırg, J. W. Hebb; Yarmouth, H. W. Corn-
g; Queens, Jos. Smith.

Executive Board—President, Vice-Presi-
ent, Secretary and Messrs. S. C. Parker,
. L. Palmer, W. S. Blair and Wm. O'Brien.

Publicity Committee—President, Secre-
ry and S. C. Parker.

Representatives to N. S. Farmers' Asso-
ation—A. Fitzrandolph, Bridgetown, and
. S. Shaw, Berwick.

Committee to Work up Advertising Cam-
aign Fund—A. E. McMahon, F. W. Fos-
r, S. C. Parker, E. H. Johnson, J. E.
haffner.

The sum of $150.00 was voted out of the
ssociation's funds to secure the services
P. F. Lawson to act as Secretary to the
dvertising Committee.

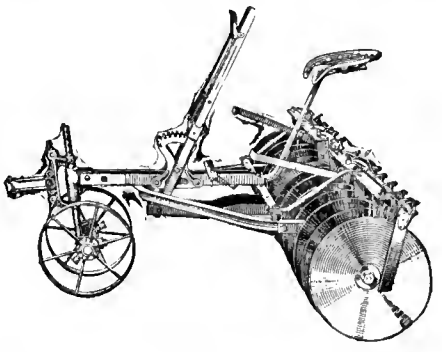
Niagara Fruit Growers

The annual meeting of the Niagara Pen-
sula Fruit Growers' Association was held
ıring January. President Brown in his
ldress, referred to the absence of some
the directors at the front. He referred
the success of Ontario apples at the New
ork State Fair, and to the establishment
the Government pre-cooling plant and
e Welch Grape Fruit Company, as addi-
ons to the welfare of the fruit-growing
dustry.

Officers were elected as follows:: Presi-
ent, R. H. Dewar; 1st vice-president, R.
roderick; 2nd vice-president, Hamilton
leming; 3rd vice-president, S. H. Ritten-
ouse; 4th vice-president, David Allan; sec-
tary-treasurer, Carl E. Fisher.

It was decided to hold the annual conven-
on on February 17, 18 and 19. A commit-
e was appointed to prepare a program.

Deering Tillage Implements



WHEN disked with a Deering disk harrow the ground is so prepared that it stores away and holds the moisture from snow and early rains, liberating it to the roots of your growing crops at the time when they need it most.

Deering disk harrows are built to do this work as it should be done. The frame is strong enough to stand up under the strain of penetrating and pulverizing hard ground. The bearings are as nearly dust and dirt proof as disk bearings can be built.

The full line includes every style of disk and smoothing harrow and the best line of drills and cultivators built. See the Deering local agent for full information about the line, or send to us for catalogues.

"The Disk Harrow," a book which illustrates and explains the proper preparations of a seed bed, and gives examples of the value of disking—32 pages of valuable information—is yours for four cents to cover postage and packing. Write for it.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

RENNIE'S SEEDS ALWAYS GROW

THE BEST VEGETABLES AND THE FINEST FLOWERS

CANADA'S OPPORTUNITY—Every foot of fertile soil in Canada must be sown and cultivated to its limit this season. The world needs all the products of the soil we can grow during 1915. While our supplies are large, we advise ordering seeds immediately in case of shortage, as the demand will be enormous.

A Copy of Our New Seed Book—FREE—write to-day

WE ARE AGENTS FOR:

Cyprus Incubators	Cyprus Chick Food	Cyprus Laying Mash	Short Cut Alfalfa
" and Brooders	" Developing Food	" Growing Mash	Zenoleum Disinfectant
" Poultry Foods	" Scratching Food	Pigeon Food	Pratt's Poultry Foods, etc.

WRITE FOR PRICES

WM. RENNIE CO. LIMITED Head Offices and Warehouses: Adelaide and Jarvis Sts., TORONTO

BRANCHES: 190 McGill St., Montreal, Que. 1138 Homer St., Vancouver, B.C. 394 Portage Avenue, Winnipeg, Man.

Potato Profits

depend largely on how the crop is planted. Every skipped hill is a loss in time, fertilizer and soil. Every double wastes valuable seed. It means $5 to $50 per acre extra profit if all hills are planted, one piece in each. That is why

IRON AGE *100 Per Cent Planters*

often pay for themselves in one season on small acreage. They also plant straight, at right depth, 12 to 24 inches apart. With or without fertilizer distributor. Ask your dealer to show you this Planter and write us for booklet, *"100 Per Cent Potato Planting"*

The Bateman-Wilkinson Co., Limited, 465 Symington Ave., Toronto, Can.

Brown's Auto Sprays Mean Big Crops

Finer fruits, more, better vegetables. Auto Spray No. 1—here shown—destroys bugs, prevents blight and disease. 4 gal. capacity. Fast working, economical. Throws mist-like spray or powerful stream. Cannot clog. 40 styles—hand or power. Get low prices and valuable Spraying Guide FREE. Address

Write For Free Spraying Guide

The E. C. Brown Co., 862 Maple St., Rochester, N.Y.

FLOWER POTS

We have a Large Stock of all sized

FLOWER POTS
FERN OR BULB PANS
¾ AZALEA POTS
and
RIMLESS PANS

Orders Filled Promply. Send for Prices.

The Foster Pottery Co., Ltd.
HAMILTON, ONT.

Catchy Apple Slogans

Last fall prizes were offered in Calgary for the best slogans descriptive of British Columbia apples. Hundreds of witty sayings and rhymes were handed in for consideration. The awards were as follow:

First:

"B.C. apples for dessert
Keep you healthy and alert."

J. G. Innes, 1413 Fourth Street, North-west, Calgary.

Second:

"Lots of apples, fewer ills;
Fewer apples, lots of pills."

—H. Seal, 707 Thirteenth Ave. W., Calgary.

Third:

"An apple a day
Keeps the body O.K."

—Mrs. C. de Bruyne, 532 Twenty-third Avenue West, Calgary.

Fourth:

"Eat B.C. apples, ripe and red,
You'll still be here when the rest are dead."

—Mrs. A. J. Sketchley, 113 Bellevue Avenue, Calgary.

Fifth:

"If healthy and robust you'd be,
Call in 'Doc.' Apple from B.C."

—Maurice Spires, 452 Twenty-second Avenue, North-west, Mountview, Calgary.

The judges exercised the right to make slight verbal alterations in some of the winning couplets.

The general excellence of the contributions will be gathered by the following examples of slogans, that only missed winning prizes by narrow margins:

"Nature's Health Insurance—the B. C. apple." "B.C. apples, heart's delight, good for breakfast, noon and night." "North and south, and east and west, B. C. apples are the best." "B.C. apples, red and sweet, cure all ills from head to feet." "Apples large and apples small, B.C. apples beat them all." "Apples that in B.C. grow, keep you well from head to toe." "An apple when I go to bed, this paints my cheeks, the maiden said." "A B.C. apple every night, ensures a breakfast appetite." "Give the hard-worked 'Doc.' a rest, eat B.C. apples, they're the best." "Eat more apples, Adam fell for them, why not you?" "An apple at morning, at noon, and at night, makes young and old healthy and happy and bright." "If I could have but wishes three, they'd be three apples from B.C." "If you want rosy, red-cheeked tots, of B.C. apples feed them lots." "The luscious fruit that tempted Eve, was a B.C. apple, I do believe." "See Rome and die, eat apples and live." "B.C. apples, nature's best, will now and always stand the test." "Here's to the apple from sunny B.C., the best that's grown and M.I.C. (made in Canada)." "To rear a boy life's cares to grapple, spare the rod, but not the apple."

Apple Trees for Highways

A petition signed by several thousand taxpayers in Calhoun County, Michigan, was presented to the Board of Supervisors at their October session, asking that $1,000 be appropriated each year for the planting and care of fruit trees along the highways where State Reward Roads have been built This petition was endorsed by the Central Fruit Growers' Association, the Horticultural Society, and the Battle Creek Chamber of Commerce. The Supervisors authorized a committee of three to recommend a practical plan of planting, and to suggest a variety of fruit trees that would be most advantageous to the climate.

This plan of utilizing the land bordering the highways for the growing of fruit was suggested by the late C. W. Post, founder of the Postum Cereal Co., Ltd., of Battle Creek. His idea was not only to devise a means of beautifying the highways, but at the same time produce a revenue towards the up-keep of the roads, as the fruit trees would soon produce a fund from the sale of fruit, and in time would be the means of furnishing fruit at a very small cost to the wage-earners in the district.

The South American Market

The apples sent by the United Fruit Companies of Nova Scotia last fall to the Argentine Republic have apparently made a big hit. The Buenos Ayres Herald has published some interesting articles concerning them. One of these published under the heading "Trade with Canada Promises Well," reads as follows:

"Judging by the success which has attended recent shipments of Canadian apples to Buenos Ayres, there should be a big future before the fruit trade between this country and the Dominion. We have received a sample of a consignment of apples shipped to Mr. Brougham by the United Fruit Company of Nova Scotia, and no better fruit could be wished for, even from the famous orchards of the great apple growing maritime Province. It is well graded, and packed with due care, the result being that it has arrived in first-class condition. In reckoning up its wealth the Province of Nova Scotia counts among its staples so many million barrels of apples and if the export trade in this fruit is vigorously pushed, so far as South America is concerned, there is no reason why both countries should not materially benefit—South America by obtaining regular supplies of delicious fruit at reasonable prices and Nova Scotia by securing the money that is available here for the right goods."

Manitoba

The annual volume recently issued by the Manitoba Horticultural and Forestry Association is somewhat unique. In former years it was the plan of the association to publish an annual report. During the past year the association undertook to present its members with an eight-page bulletin once a month, dealing in each issue with timely topics in regard to tree, shrub, fruit or flower growing. At the same time extra copies of these monthly bulletins were reserved to be bound at the end of the year, together with a business report, into an annual volume. The year 1914 has been by all means the best year the association has ever had, the paid-up membership being now over the 200 mark. The secretary of the association is Prof. Brodrick, Manitoba Agricultural Society, Winnipeg, who will be glad to communicate with any one as to membership or other horticultural matters.

Farming in Nova Scotia does not produce millionaires. As in the time of Longfellow's Evangeline, the poor are still rich but when the war stress comes most farms can raise enough mixed produce to make each farmer comfortable in the actual necessaries of life. The coast farms have rich fishing grounds, while the inland ones are well supplied with hay, grain, fruit, vegetables and poultry. Certainly meat is high, but pigs, cows and sheep are raised for sale, and in some old time farms the women still make the under-clothes from the fleece of their own sheep, also socks and mittens.

The IXL Junior

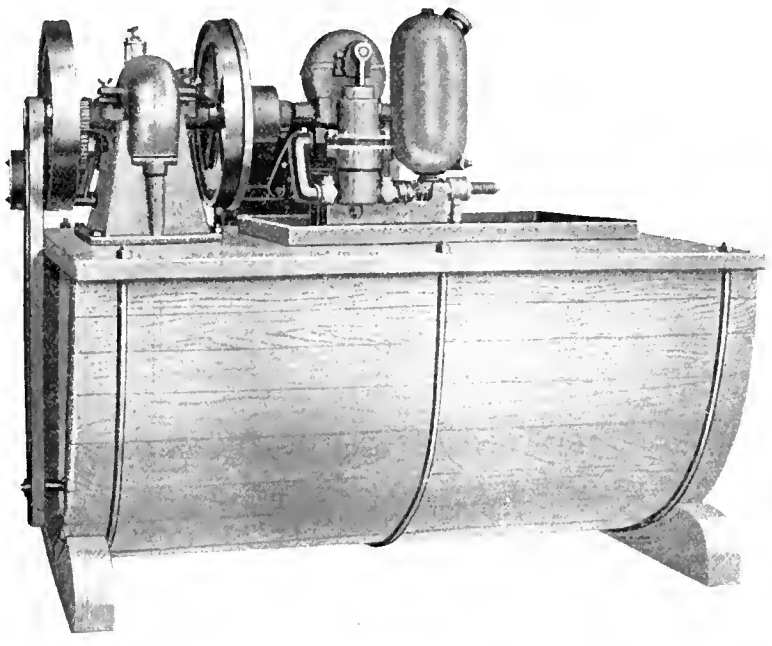
Automatic Power Sprayer

Guaranteed for Five Years

100 gal. Sprayer
$150.00

150 gal. Sprayer
$160.00

200 gal. Sprayer
$170.00



This Sprayer consists of a 2½ h.p. Engine, Cypress Tank, Gear Driven, Vertical Cylinder Pump, two 25-ft. Leads of Hose, two Variable Spray Nozzles. Complete in all detail

THE JUNIOR was originally designed to meet the demands of the average farm or small orchard where an investment of from $200 to $300 in a large power sprayer was not thought advisable. It has however, in two years proven so efficient, so economical and so well adapted to large as well as small orchards that it has practically displaced large mounted machines wherever shown. In design it is simplicity itself, all unnecessary parts being eliminated.

THE MOTOR.

A 2½ h.p. "Brownwell" air-cooled engine. It is designed with good care and attention to detail. All the running parts being especially large and strong. All parts are made of the highest grade tool steel. It can be removed from the sprayer in 3 minutes by the removal of four bolts, thus being readily available for all farm work, such as cream separating, churning, pumping water, straw cutting.

THE PUMP.

Double cylinder, vertical, guided plunger type, driven with worm gears, running in oil. It is silent and smooth in action and ample in bearings. All valves are instantly accessible for removal or cleaning, and the simple packing is indestructible.

THE UNLOADING VALVE (Patented).

Is absolutely new in principle, consisting of **four parts only.** It will not clog, and maintains a steady pressure. When the spray nozzles are closed it maintains the pressure as well as immediately relieving the engine of 90% of its load.

AGITATOR.

Belt driven, of the latest double-propeller style.

TANK.

Is constructed of cypress, furnished in 100, 150, and 200 gallon sizes.

WEIGHT OF MACHINE.

It weighs from 450 to 500 lbs., according to the size of the tank. It can be readily carried on a stone-boat or light waggon. As it is compact and light enough to be handled by two men, it can be easily stored when not in use.

PUMP CAPACITY.

5 gallons per minute.

PRESSURE.

It applies easily 1,000 to 1,200 gallons per day at a pressure of from 200 to 250 pounds per square inch.

An absolute guarantee accompanies each machine. *For full particulars write or wire*

The Canadian Sprayer Co.

TRENTON - - - - - ONTARIO

FREE LAND
FOR THE SETTLER IN
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL
Director of Colonization
Parliament Buildings., TORONTO

HON. JAS. S. DUFF
Minister of Agriculture
Parliament Bldgs., Toronto

DAHLIAS GROWN IN CANADA

Ten giant prize winners, including the famous "Jack Rose" and "Souvenir de Gustave Doazon" for $1.00. Fifteen choice varieties, all correctly named, $1.00. Twenty varieties, all different, $1.00. Send for price list.

G. L. DOUGLAS BUCTOUCHE, N.B.

GARDENERS' GLOVES

Sheep-shin gloves, steam and fireproof asbestos tan. Just the right glove to protect your hands during the spring work.

10-in. gloves, 50c. per pair, prepaid. 10-in. one finger nitt, 25c. per pair; 4 pairs $1.00, prepaid. 12-in. one finger mitt, gauntlet cuff, 40c. per pair, prepaid.

"I have used Davidson's gloves and have found them superior to all others." JOHN GALL, Weston.

N. F. DAVIDSON, Man'f'r., INGLEWOOD, Ont.

The Fruitland Nurseries

are now prepared to book spring orders for all kinds of Fruit and Ornamental Trees, Shrubs and Vines at lowest prices. Send for price list.

G. M. HILL BOX 42 FRUITLAND, Ont

Spraying Pays

BECAUSE it saves your original investment so that it can produce at a profit each year.

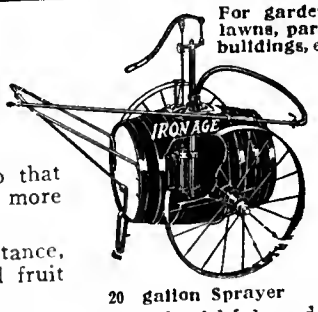
BECAUSE it keeps trees and plants healthy so that they not only produce regularly but you get a larger, more uniform and better quality crop.

BECAUSE only sprayed trees, for instance, produce uniformly good fruit, and good fruit brings a fair price at any time.

BECAUSE it keeps stock quarters healthful and prevents infection and spread of disease. An ounce of prevention beats a pound of cure any day.

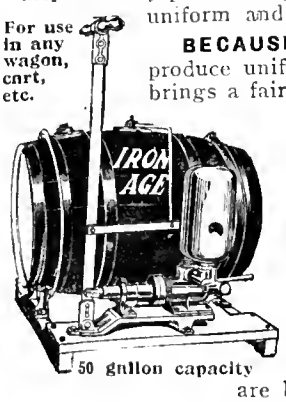
It not only pays to spray, but it pays to do it thoroughly, with first class machinery and with the right machine for each purpose.

For gardens, lawns, parks, buildings, etc.



20 gallon Sprayer

For use in any wagon, cart, etc.



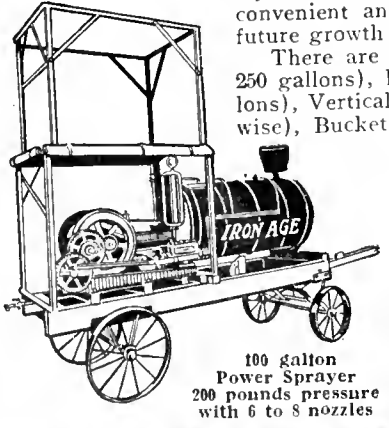
50 gallon capacity

IRON AGE Sprayers

are built with that choice in view—a large number (70) of styles and combinations, most of which can grow to more convenient and more efficient uses, and greater power, for future growth in your spraying operations.

There are in this line Power Sprayers (50, 100, 150 and 250 gallons), Horizontal Barrel Sprayers (20, 50 and 100 gallons), Vertical Barrel Sprayers (50 gallon, mounted or otherwise), Bucket, Knapsack and Hand Sprayers, and Traction Sprayers for field use in row crops.

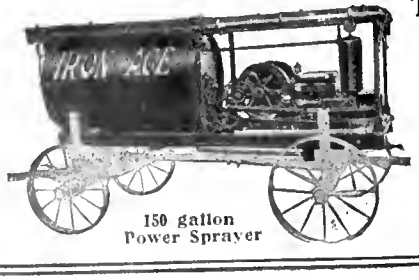
Outside Pumps, high pressure, bronze ball valves, hemp packing, all parts easily got at, solutions touch brass parts only, thorough mixing, a fine system of straining sediment, nozzles that put the spray on as it should be and nozzle strainers for further protection—these things characterize Iron Age Sprayers throughout.



100 gallon Power Sprayer
200 pounds pressure with 6 to 8 nozzles

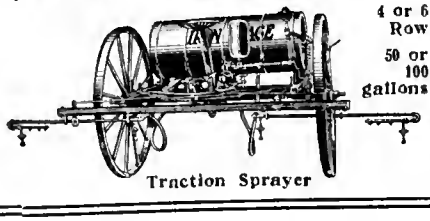
We have agencies in all parts of the country with the most intelligent dealers. See the nearest one and in the meantime write us for "Spray" booklet and a spraying guide

THE BATEMAN-WILKINSON CO., Ltd.
466 Symington Ave., WEST TORONTO, Ont.



150 gallon Power Sprayer

For field use



4 or 6 Row
50 or 100 gallons
Traction Sprayer

Over-Production a Possibility *

D. Johnson, Dominion Fruit Commissioner, Ottawa

I travelled over all the fruit-producing districts of Canada during last year, and was amazed at the huge plantings which exist. I knew before that Canada had some 25,000,000 fruit trees, but had never realized what these figures meant until I came in contact with the orchards, and it was pressed home to me that there was a day not far distant when Canada would be face to face with over-production. In the famous Annapolis Valley of Nova Scotia, not more than fifty per cent. of the apple trees are bearing, and those that are bearing are still young and far from yielding their maximum amount of fruit. In this valley apples are the main product of the land, and the good care that the growers are giving their trees assures us that Nova Scotia will yet produce twice as much and perhaps four times as much before many years. New Brunswick is also planting, and on the sloping bank of the St. John River are thousands of acres of young orchards that are not yet producing. Quebec is also forging to the front once more, and many acres of Fameuse and McIntosh Reds are there found producing an apple of superb quality and appearance.

CONDITIONS IN ONTARIO

With conditions in Ontario we are all more or less familiar. We know that in some districts the plantings have greatly increased, while in others San Jose Scale has wiped the orchards out of existence. Nevertheless, the fact remains that one-half of our 10,000,000 apple trees are not yet bearing. It is only necessary to drive up and down the concessions north of Lake Ontario and Lake Erie and east of Lake Huron to be convinced that the orchards are just beginning to produce.

British Columbia was a great surprise to me. I had often heard of the orchards there, but when brought face to face with them it was a revelation. I travelled hour by hour through solid orchards, kept in a state of perfection seldom seen in Ontario. It is true that they produced only some 1,000 carloads of apples last season, yet it is only the beginning, as two-thirds of the trees are under five years of age and the other third practically only beginning to bear. The north-west States of Washington, Oregon and Idaho are in a like position, producing now some 15,000 cars. In view of these facts, I can only ask you, as I have asked myself time after time: "What of the future?"

I do not wish to throw cold water on the fruit-growing industry, but it is time for us to take stock of the future and see where we stand. Unless we can greatly increase consumption ,there are enough fruit trees planted in Canada to supply its needs for many years to come. Let us take care of the trees we have, produce the finest grade we can, and I believe there is a fair return assured under normal conditions. Some will not agree with me; they will say I am discouraging orchard-land booms and depressing the price of land. It may be said that we have many thousands of acres yet unplanted. Nevertheless, my advice is to curtail planting until such time as the consumption of fruit increases to meet the plantings of the present day. If we are going to have two or three times as much fruit in the next ten or fifteen years as we have at the present time, it is going to take no prophet to tell the final outcome.

*Extract from an address delivered last fall at a meeting of fruit growers in Lambton county, Ontario.

The Law Covering Weights of Vegetables

Attention is called to a recent amendment of the Inspection and Sale Act, styled Chapter 36 of the Statutes of 1914, which came into force on the 1st of January, 1915.

Section 337 of the Inspection and Sale Act is repealed, and the following is substituted therefor:

"337.—A bushel of any article mentioned in this subsection shall mean, unless a bushel by measure is specially agreed upon, that number of Dominion standard pounds of such article which is shown in this subsection opposite the name of such article:

Article.	Weight in Dominion Standard Pounds
Artichokes	56 lbs.
Beans	60 lbs.
Beets	50 lbs.
Carrots	50 lbs.
Onions	50 lbs.
Parsnips	45 lbs.
Potatoes	60 lbs.
Turnips	50 lbs.

"2.—A bag of any article mentioned in this subsection shall contain that number of Dominion standard pounds of such article which is shown in this subsection opposite the name of such article.

Article.	Weight in Dominion Standard Pounds
Artichokes	84 lbs.
Beets	75 lbs.
Carrots	75 lbs.
Onions	75 lbs.
Parsnips	65 lbs.
Potatoes	90 lbs.
Turnips	75 lbs.

Section 19 of the Amendment repeals Section 356 and the following is substituted therefor:

"356.—Every person who sells or offers for sale by the bag any of the vegetables mentioned in subsection 2 of the section 337 of this Act shall, in case any bag of such vegetables sold or offered for sale by him does not contain at least the number of Dominion standard pounds required by the said subsection, be liable, on summary conviction, to a penalty not exceeding twenty-five dollars for a first offence, and for each subsequent offence to a penalty not exceeding fifty dollars."

Copies of the Act and of the Amendments may be obtained from F. C. O'Hara, Deputy Minister of Trade and Commerce, Ottawa, Ont.

Spraying Apparatus from $6.00 Up

We make the world-famous SPRAMOTOR in many styles and sizes, to fit every need. If you have felt the want of a spraying outfit, you need a SPRAMOTOR—the machine that won 100 Gold Medals and First Awards all over the world.

Here's a straight, free offer that puts you under **no obligation whatever**, and will benefit you. The

Spramotor
It isn't a SPRAMOTOR unless we made it.

catalogue is published with a valuable treatise on Crop Diseases, fully illustrated.

Write us, giving some particulars of what you could use a spraying machine for, and we will mail the book at once, together with full details of a SPRAMOTOR best suited to your case. Don't put it off—write to-day.

MADE IN CANADA—NO DUTY TO PAY.

SPRAMOTOR WORKS, 2213 King St., LONDON, CAN.

AT LAST! Just the Outfit You are Looking For

The Most Practical, Efficient and Simplest High Pressure POWER SPRAYING OUTFIT ever offered

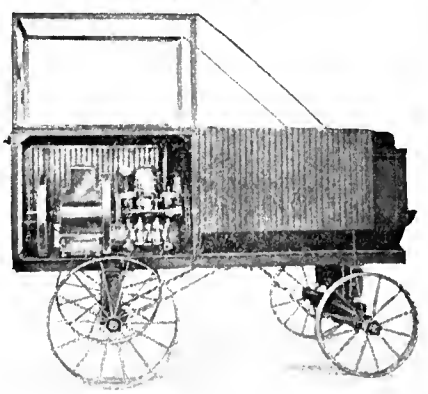
"Goes Like Sixty"

Light Weight

High Pressure

Direct Geared

No Racking Pump Jack



100% Service

Engine can be used for other work all the year round.

Truck makes a capital farm wagon.

Sills of channel steel, with steel platform.

Do not buy a Sprayer until you have investigated the "Goes Like Sixty" Power Sprayer. Send for Sprayer Catalogue to-day.

GILSON MFG. CO., 244 York St., GUELPH, ONT.

True to Name Free From Disease

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can buy.

Kelly Trees are sold at Growers' Prices

Shipped direct from our own nurseries in Dansville, N.Y., and guaranteed sturdy, free from disease and True to Name.

For 35 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price.

Write for our catalogue TO-DAY, and get our prices.

KELLY BROS. Wholesale Nurseries
305 Main Street, DANSVILLE, N.Y.

You'll never regret planting Kelly Trees.

Classified Advertisements

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. —W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS. — Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices. H. W. Dawson, Ninety Colborne St., Toronto.

FOR SALE—CONSERVATORY, situate in the town of Owen Sound, in the County of Grey, and Province of Ontario, containing 5 acres of land, 3 greenhouses, 22½ ft. x 150 ft., fully equipped and in a splendid location. There is only one other florist in the town, which has a population of 12,000. For terms, apply to W. H. Smith, Owen Sound, Ontario.

HONEY WANTED

A QUANTITY OF HONEY WANTED—Montgomery Bros., Merchants, Deloraine, Man.

POULTRY

FREE—We will give free to any person interested in stock or poultry one of our 80-page illustrated books on how to feed, how to build hen houses; tells the common diseases of poultry and stock, with remedies for same; tells how to cure roup in four days; tells all about our Royal Purple Stock and Poultry foods and remedies. Write W. A. Jenkins Mfg. Co., London, Canada.

MISCELLANEOUS

250 ENVELOPES printed with your name and address, 90c postpaid.—Pearl Card Co., Clintonville, Ct.

The South African Market for Apples

D. McKibbin, Canadian Trade Commissioner, Johannesburg, S. A.

THE experience of one of the largest of the South African importers of Canadian apples should be of value to Canadian growers and shippers of fruit. This dealer's first venture with Canadian apples was made during the South African War. The first shipment was a dead loss. The second was a little more encouraging. The third shipment netted a fair amount of profit, and his profits have increased with each succeeding year since then.

In his first shipment he was guided by the advice of shippers catering to the London market; and his shipments were comprised largely of the far-famed Northern Spies, Greenings, Baldwins, and Golden Russets. Although these varieties were in favor at Covent Garden among South African consumers they were not in demand. The opinion was expressed that the consumer was at fault and that "what was good enough for London was surely good enough for Cape Town." The Cape consumer should be educated to the superior merit of the Spy, the Greening, the Baldwin and the Russet. The second shipment, therefore, was again comprised principally of these varieties, together with a few barrels of Kings. Of this shipment the Kings alone were sold.

The Spy soon spots and decays when exposed to the humid atmosphere of the South African ports. And in the dry atmosphere of the up country markets it soon shrivels and depreciates in appearance. In a lesser degree the same strictures apply to the Baldwin. As for the Greening and Golden Russet, except with regard to the Canadian and American community, which is very small in South Africa, these and other varieties lacking in color have no sale.

Guided by this experience, the importer in question made up his next shipment for the most part of Kings, and, as already stated, made a fair amount of profit. His present shipments are comprised of King, Gravenstein, McIntosh, Snow, Fameuse, Gainey, and Swaar varieties in barrels, half barrels and boxes; and a few hundred boxes of Baldwins, Ben Davies, and Golden Russets for regular customers.

This shipper inspects the fruit on the trees in the maritime provinces as well as in Quebec and Ontario. He then buys only that which has been Government inspected and selects the best quality, for which he pays the highest market prices. That he is able to do this is largely due to the fact that the apples can be landed in South Africa in prime condition, due to the excellent cold storage chambers with which the Canadian-South African steamships are provided, and just at a time when no other apples are on the market. Prime high-colored varieties of Canadian apples have an exclusive market in South Africa during the months of October, November, December, and the early part of January. The prices commanded range from thirty shillings a barrel at Cape Town to fifty-five shillings a barrel in Johannesburg wholesale.

Big Ben

Made in La Salle and Peru, Ill., by Westclox

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To start the chores ahead of the sun, and keep the work ahead of the seasons — Big Ben.

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The Canadian Horticulturist

Vol. XXXVIII MARCH, 1915 No. 3

Irrigation: With Special Reference to the Skinner System

F. M. Clement, Director Horticultural Experiment Station, Vineland Station, Ont.

THE practice of irrigation is not a something to take the place of the natural rainfall, but rather a supplement to it. Irrigation water must be as carefully conserved as natural water, or the cost of continual applications will be out of proportion to the returns.

Water is essential to the growth of all plants. Sunshine, air, and plant food or soil are the other essentials, and if any one is lacking the plant will die. Where the annual precipitation is less than twenty inches, under average conditions of wind and sunshine, dry farming practice or irrigation methods are necessary for maximum yields. The annual precipitation in Ontario for fifteen years has averaged 30.75 inches, made up as follows: March, April and May, 7 inches; June, July and August, 8.45 inches; September, October and November, 8.06 inches; December, January and February, 7.06 inches. The best growing months are the months of heaviest precipitation, but still the rainfall is not heavy enough to allow for evaporation, seepage and run off after heavy showers and at the same time supply the plant. The rains of spring and melted snows of winter must be saved. An effort should be made to conserve to the fullest extent in the soil the maximum amount of water favorable to plant growth. The rains of summer will supplement this and irrigation water will supplement still further.

The Skinner system is an expensive one to install, and consequently can be used most successfully only with crops that lend themselves to intensive culture. Some crops, especially truck crops, require more water than others, even more than nature can supply where the best methods of conservation are practised. Celery and other truck crops stand first among the vegetables and strawberries among the fruits. The Skinner system being an overhead system constructed so as to imitate to some extent the natural rainfall necessitates considerable initial outlay. The water must either be elevated to a high reserve tank and the supply taken from there or sufficient pressure must be maintained by the pump to ensure a steady flow.

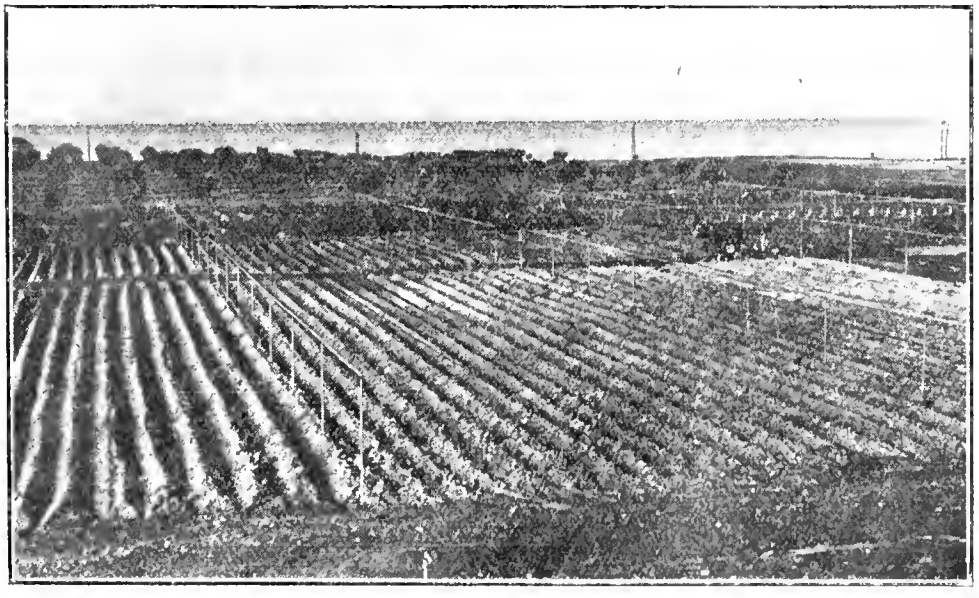
Our supply is taken from the farm water system, which is connected with a large underground air pressure tank. The pump, when running steadily, is capable of lifting seventy-five barrels of water per hour and maintaining a uniform pressure of thirty pounds. This continued for ten hours will supply approximately 750 40-gallon barrels, which is a little more than an inch of water to the acre (acre-inch). With thirty pounds pressure, the nozzles will throw a stream of water about thirty feet on a still day, where it breaks and falls like rain. The laterals are consequently put at sixty or less feet apart. Fifty feet is a good average distance. By watching regularly and regulating the direction of the water, the whole area may be covered uniformly.

COST OF INSTALLATION

The total cost of installing the Skinner system will vary according to the distance apart the laterals are placed, the materials used for uprights, the size of the underground pipes, etc., but it may be expected to cost anywhere between two hundred and twenty-five and three hundred dollars an acre. This is exclusive of pumping plant and mains leading to the system. The one at Vineland cost approximately two hundred and fifty dollars an acre, exclusive of labor to install. The following is a detailed outline of the materials used. This does not include labor or freight on the materials:

368 feet 2-in. pipe galvanized under ground at $12.06 per C.	$44.38	
72 feet 1½-in. uprights at $9.45 per C.	6.80	
576 feet 1-in. uprights at $5.78 per C.	33.29	
1152 feet 1-in lengths at $5.78 per C.	66.58	
		$151.05
288 nozzles at 05c each—30% duty	$18.72	
9 patent sieve unions at $2.40 each—30% duty	28.08	
72 hangers at .18c each—30% duty	16.84	
1 gate valve, 2-in., at $3.80	3.80	
9 small valves for end upright at $2.60	23.40	
9 elbows and 9 T (20 lbs.) at .19c per lb.	3.80	
9 bags cement at .40c each	3.60	
		98.24
		$249.29

Some precautions are necessary in applying the water. So far we have had no loss or injury from applications made during the day or in direct sunlight, but we have had loss from over-application. A heavy shower directly following an application of water may cause some injury. This was the case with some tomato plants last year. It is well to make a good application, say one inch, and then do not water again until the soil begins to dry. A small quantity each day only tends to keep the leaves and plants moist and develop disease without being in sufficient quantity to penetrate the soil. Do not, however, let the soil become too dry; water penetrates and spreads through the soil much more quickly when it is fairly moist. A pail of water spilt on dry dust mulch



The Skinner Irrigation System, as used at The Vineland (Ont.) Experiment Station, is here shown. The soil is ribbed for early cultivation. In the background may be seen the cherry orchard and Lake Ontario.

Extending the Niagara District: Peach Trees on Farm of Peter Hartley, near Milton, Ont., Halton Country

Notice the low heading and that strawberries are inter cropped.

does not penetrate readily, while on a moist surface it is absorbed almost immediately. It is well to have the land thoroughly underdrained so that surplus water may drain away quickly.

A beginning has been made in this work at the Vineland Experimental Farm, where almost three acres are under this system of irrigation. Besides the vegetable crops, we have growing under it strawberries and raspberries. Check plots are grown on adjoining land, and it is hoped that in the course of a few years we will be able to work out something definite regarding the profits of this system.

Methods of Fruit Culture that are Successful

F. E. Ellis, B.S.A., Peterboro, Ont.

NIAGARA and fruit culture were at one time always spoken of together. The area where small and tender fruits could be grown successfully on a commercial scale was supposed to be limited to small sections of Wentworth and Lincoln counties. This district still holds first place for quantity of fruit produced, area considered, but many new sections in Ontario are claiming merit as fruit growing districts. Sections of Essex, Lambton and Huron counties have shown that they can grow tender fruit successfully. Still another such district is located around Dixie, a few miles east of Toronto. Whole farms are there planted out to fruit. Still further west, near Milton, however, looking from a Canadian Pacific Railway train, one would never dream that they were within easy driving distance of a small community, which, though limited in extent, is being developed rapidly as a fruit-growing district.

Four miles from the Milton Station, near the Milton Mountain, is located the home of W. J. Hartley, of Sunnyside Fruit Farm, the leading fruit grower of this district. Mr. Hartley has 100 acres in fruit of many varieties. Cherries, peaches, and apples are grown extensively and successfully. All of the small fruits are grown by the acre. The number of pickers during the busy season sometimes mounts up to three score. The Hartley fruit farm deserves to be numbered among the most extensive fruit farms in Ontario.

Still another extensive fruit grower in this district is Mr. Peter Hartley, a brother to Mr. W. J. Hartley. On the occasion of a visit last summer, I found Mr. Peter Hartley's farm to consist of one hundred acres of sandy loam, the soil which he considers is best adapted to general fruit farming. When the present owner took charge, some seventeen years ago, it was an ordinary stock and general farm, with a few apple trees near the road. Mr. Hartley was quick to see the fruit producing possibilities of his district, and he gradually increased his fruit area until now the major portion is in small and tree fruits. He still milks six cows raises a few litters of pigs a year, but these are just remnants of the farm as it once was. Mr. Hartley was away from home when I arrived, so I started back through the farm to investigate for myself.

A view of the Hartley farm that one secures from the road gives a false impression of the real scale of the fruit plantation. Half way back is a steep embankment and a beautiful grove of trees. Back through this grove is the main plantation of small fruits. Here were thirty acres of sandy loam with a gentle slope to the south protected on all sides by mature trees. It was an ideal situation. There Miss Cora Hartley, her father's "right hand man," was found directing a small army of pickers. Having been regretting Mr. Hartley's absence it was a pleasant surprise to find that Miss Hartley seemed to know all details of the business. They had just finished strawberry picking for the day, and the desirability of the various varieties of strawberries first came up for consideration.

THE STRAWBERRY PLANTATION

"Altogether we have seven and one-half acres in strawberries," said Miss Hartley. "We recommend the Early Michael for a first early berry. We have tried the Betterwood quite extensively, but do not care for them. They are a nice looking berry but too soon. Pearson's Beauty is our favorite late variety. The Williams is a prolific bearer, but it has a green top that does not appeal to customers, and makes it a poor preserving berry. We also favor the Glen Marys."

TWO CROPS OF STRAWBERRIES

In one respect the manner in which the Hartleys manage their strawberry crop differs from methods in most other commercial plantations. They take two crop of berries from the one patch. In the second year from setting and as soon as the first crop is taken off, they plow up close to the rows and cultivate. Runners are sent out, new plants established and, Miss Hartley informed us, frequently the second crop is larger than the first crop.

Still another quirk in the Hartley management appealed to us as being unusual. As soon as the second crop of strawberries is taken off the plantation is plowed and planted to late potatoes. The soil following strawberries is always rich and in good tilth and a good crop of potatoes is harvested. Hence the Hartleys get three crops from their plantation in three years, two of strawberries and one of potatoes. instead of only two crops of strawberries in three years as is usually the case. Another source of income from the strawberry plantation is the sale of plants in the spring. This source of revenue balances the expense for new plants; the Hartleys try to change plants each year as they find that the Williams particularly plays out soon. They aim to get their new supply of plants from a farm with a heavier soil than their own.

Raspberries are perhaps the most important crop. They have twenty acres, Early Marlborough for early picking and Cuthberts for late. There is a small plantation of thimbleberries, but

these have not wintered well. At present Mr. Hartley is experimenting with the Early Herbert, which his brother William of Sunnyside Farm has found to be earlier and hardier than any of the standard varieties.

At the time of our visit the raspberries were just starting to ripen. We remarked that there would be much picking to be done next week, and asked where the pickers came from.

"Oh we have little difficulty to find pickers," was the ready response. "They come from all directions. We have forty that we can call on at any time. Next week we will have over fifty pickers here. We send a team to Milton and bring a load of children from there. Then there are always pickers available in the families of the men who work in the neighboring brick yards. The farm children around, too, like to make a little money picking for us." For cherries the pickers are paid 15 cents for an eleven-quart basket, and one boy has picked as high as seventeen baskets in a day. Strawberries are paid for at the rate of one cent a quart, raspberries two cents, and black currants two cents.

Once a raspberry plantation is established, the Hartleys plan to carry it on for many years. Last spring, for instance, they plowed down a plantation that had yielded fourteen crops. The old canes are cut out each year in December or the early spring and all grass is cut away with a raspberry fork. Both strawberries and raspberries are fertilized with barnyard manure and with commercial fertilizer. This year only part of the raspberry plantation got an application of commercial fertilizer. "I believe that that portion looks twice as good as the unfertilized part of the field," said Miss Hartley.

THE TREE FRUITS

Having examined the thirty acre fruit plantation we then passed back to the front of the farm where are all of the tree fruits. Of these, cherries take the place of first importance. The major portion of the plantation is six years old. Having been well cultivated and fertilized from the first they have made a splendid growth, and this year yielded four baskets to the tree. Speaking of varieties Miss Hartley said: "I heard father remark that if he were putting out five hundred cherry trees, four hundred and ninety-nine would be Montmorency. and he did not know but what he would make the last one Montmorency too," which would seem to indicate that the Early Richmond, which is also grown, has not proved as profitable a variety as the Montmorency. In addition, there are a few trees of sweet cherries, but these do not yield as profitable crops as the red ones, even when the higher price is considered.

The small fruit plantation consists of five hundred bushes of black currants, planted six feet apart each way, and about two hundred bushes of red currants. These latter are not considered so profitable as the black, as the price is always low.

THE PEACH ORCHARD

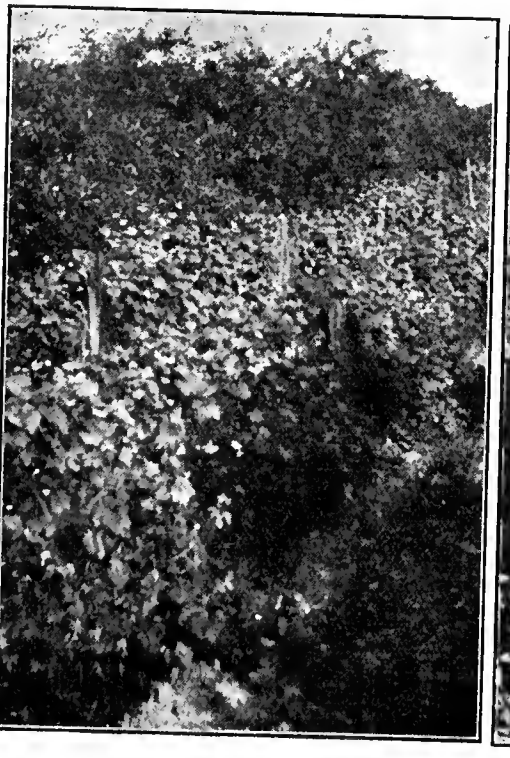
To the casual visitor the most surprising part of the Hartley operations is their peach orchard. They have a nice young plantation of five hundred trees of Early and Late Crawford and Elberta. The plantation is too young to produce crops as yet, but the Hartleys believe that they can make peach culture profitable. Mr. Wm. Hartley has been growing peaches for many years on his farm a short distance away and has harvested many profitable crops.

Another money-making crop with the Hartleys is potatoes, of which they last year had fourteen acres. Their potato planter has a fertilizing attachment; the Hartleys are large users of commercial fertilizers. This year they found it so profitable to rent their planter to neighbors that another year they are planning to get a second one for their own use and rent the one they now have. A digger is owned on shares. Cobbler and Snider's Early are the early varieties preferred, with Dooley's and Rural New Yorker for late.

"And how do you like fruit farming?" we asked Miss Hartley.

"There's nothing like it," was the enthusiastic response. "I wouldn't change to the city for anything."

Mr. Hartley's success as I see it lay in his ability to see the possibilities of his farm and district. He has developed gradually and surely until now he has a farm profitable enough to ensure him a good living and more to him and his family for the rest of his days; and he does not consider himself an old man by any means. One point he emphasizes —the necessity of capital for the young



Three scenes in Mr. Hartley's orchard are here reproduced. First may be seen Mr. Hartley and some of his red currants. A view of the orchard, with Montmorency cherries in the background and grapes in the foreground, is next shown. Miss Jean Hartley is shown in the third scene, holding a heavily laden bush of black currants.

An inexpensive, easily operated spraying machine suitable for use in small orchards.—The E. C. Brown Co., Rochester, N.Y.

man, or the old man either, who is making a start at farming. He believes that without it a man must keep his nose down to the grindstone. With capital to start he believes farming to be the choicest of all occupations.

Fruit Tree Grafting for the Amateur

John Gall, Inglewood, Ont.

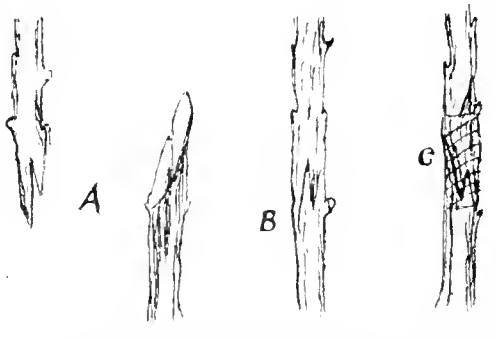
GRAFTING is usually performed in the spring, about the end of March or earlier if there are signs of spring influence. Grafting is simply the transfer of a shoot carrying several buds, from one tree to another; and this operation may be performed by the amateur with ease if only a little care is exercised.

There can be no question as to the utility of grafting, for by its aid a poor class of apple or pear may be transformed into one which is good.

The first point in successful grafting is to secure an intimate union of the parts—not a mere sticking together, but an absolute union.

In all methods of grafting the shoot to be transferred is called the scion, and the tree which is to receive it is called the stock. It is of the utmost importance, when cutting scions, to select only from trees which have the desirable characteristics most strongly marked, and by so doing the individual may greatly improve his plantation by top-grafting with scions from a tree having the desired qualities.

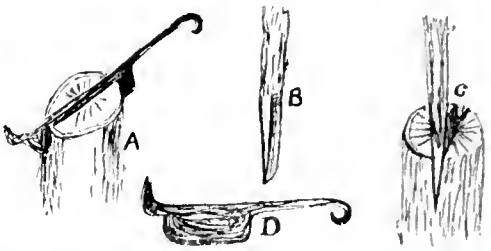
It is essential that the cambium layer—that is, a layer of tissue formed between the wood and the bark—of the scion and stock be in contact on at least one side. From this layer, the new cells are formed, which through time unite the parts and cover the wound. It is always necessary to cover the wounds made by grafting to prevent the entrance of rot-producing spores, and for this purpose wax is used.



A. Tongue grafting, scion and stock prepared. B. Same placed together. C. Tied.

There are two simple methods of top-grafting, namely, tongue and cleft grafting. Tongue grafting is practised upon young trees and small branches, while cleft grafting is generally performed on branches from one to two inches in diameter. In tongue grafting the stock is cut with a bevel about one inch long, and the scion cut to fit that bevel. Both bevels are cut into slightly and the tongue of one fitted into the other. The cambium layers must be in contact on one side at least. After the scion is set, the wound should be covered over with wax to exclude the air.

When cutting off large branches for cleft grafting, it is always a good idea to make a second cut, making the first cut five or six inches above the position chosen for the scion. Then cut off the remainder at the desired place, and thus avoid the danger of tearing the bark.



A. Cleft grafting, splitting the stock. B. Scion. C. Scion inserted in cleft of stock. D. Grafting chisel made from an old blacksmith's file.

With a grafting iron or chisel split the branch just far enough to admit the scions. Avoid making too deep a split, as this tends to weaken the stock, and the scions will not be held sufficiently firm. It is well not to graft two horizontal limbs, one directly above the other, as the tendency of new growths is upward, and the growth from the lower one will come in contact and interfere with the other. In branches other than those growing directly upright the split should be made parallel to, rather than at right angles to, the ground. The scion should be made wedge-shaped, with bevel about one inch long, starting at each side just at the base of a bud. Make the scion three buds long, cutting off just above the third bud. It should be cut a little thicker on the side next to the bud, so that the stock may pinch tightly on that side to ensure a close contact of the cambium layers.

Open the cleft with the wedge end of the grafting chisel and insert one or two scions, as may be thought necessary. Place the lower bud of the scion to the outside. The scion must not be forced down, but open the cleft with enough leverage on the chisel to admit the scion freely. Setting the scion with the top pointing slightly outward guarantees contact in at least one point. Use grafting wax to cover all wounds.

Cherry Growing Practices in Quebec Province*

Rev. Father Leopold, La Trappe, Que.

NOT as many cherries are grown in the province of Quebec as formerly. Why is this? Have the varieties proved less hardy for our severe climate? I do not think so. It is my opinion rather that we have simply neglected to replace the old cherry orchards as their days of existence expired. The cherry tree is, as you know, a short-lived tree compared to the apple and pear tree. Yet the good crops we can get every second year should be a safe reason to move us to plant more cherry orchards as in the days gone by. We still find cherry trees flourishing away below Quebec in our most severe winters.

Cherries are divided into two groups: The sweet and the sour cherry. Sweet cherries are very popular on the markets in Montreal; but unfortunately, we can not grow them in Quebec. They are somewhat exacting in soil and climatic conditions; in fact, the sweet cherry will not stand extreme cold weather, and when subjected to it, the tree often cracks open and is easily winter-killed. However, in our orchards at La Trappe we succeed in getting a somewhat good stand and fair crops from at least one variety, and that is "Imperatrice Eugenie." There is no mistaking this variety for a sour cherry, as its tall, erect growth identifies it easily with the sweet cherries. Another reason why we cannot grow the sweet cherry in the province of Quebec is because the sweet cherry trees are early bloomers, and therefore are very subject to early spring frosts. They are thus easily damaged.

The sweet cherry prefers a light warm loam. It does not like wet feet, nor does it thrive as the pear in a stiff clay loam. On the other hand, we must avoid too gravelly or sandy soils, as such soils have a tendency to bring on an early bloom in the spring. The sap is also brought into activity too soon, which, with our cold here, is sure to have disastrous consequences upon the trees.

If we can not grow the sweet cherry, we can produce a good number of varieties of the sour type with ease. I do not think that even the sour cherry is grown extensively in Quebec on a commercial basis. But in nearly every orchard we can find a few solitary trees that produce well if they are given a little care to prevent them from getting "gummosis" or the black knot.

With the establishment of canneries, the growing of a considerable area of sour cherries would be a very profitable industry. There will always be a steady demand for canned cherries. Besides this we can always depend on being able to sell our cherries for remunerative prices on our local markets for home consumption.

From the small number of cherry trees grown in Quebec it is hard to say what areas would be more especially adapted to the fruit. However, we are sure of this, that the sour cherry will outlive the sweet cherry here, as it is much hardier. It stands much more cold and frost in winter and in the spring. Rainy weather does not seem to damage the blossoms to such a point as with the sweet cherry.

The cherry tree will thrive on the lighter, well-drained loams. This fruit likes an elevated, naturally light, dry, loamy, retentive soil. The sour cherry tree will stand a heavier soil.

The management of a cherry orchard is somewhat similar to the apple orchard. I would advise clean tillage until about the time the fruit is picked. In tilling young trees not yet bearing, I would see that ample time is left after the cultivation is over that the trees may mature and season their growth before winter. As the sour cherry tree does not make a very large tree, I would advise planting it sixteen and one-half feet each way, thus making one hundred and sixty trees per acre. I would not attempt to set out anything, but a strictly first-class tree, as all others are too expensive. I prefer setting out a tree with a two years' growth from the bud, having the four or five main branches as low as possible, consistent with economical tillage and handling of the orchard. Trees headed low are grown usually in the rare or open type. By heading back the trees now and then we prevent their becoming too high before they come into fruiting. Many leading cherry growers advocate pruning the cherry tree very slightly and in our province subject to severe winter weather, it will be well to delay the pruning until spring, but before the sap is moving strongly.

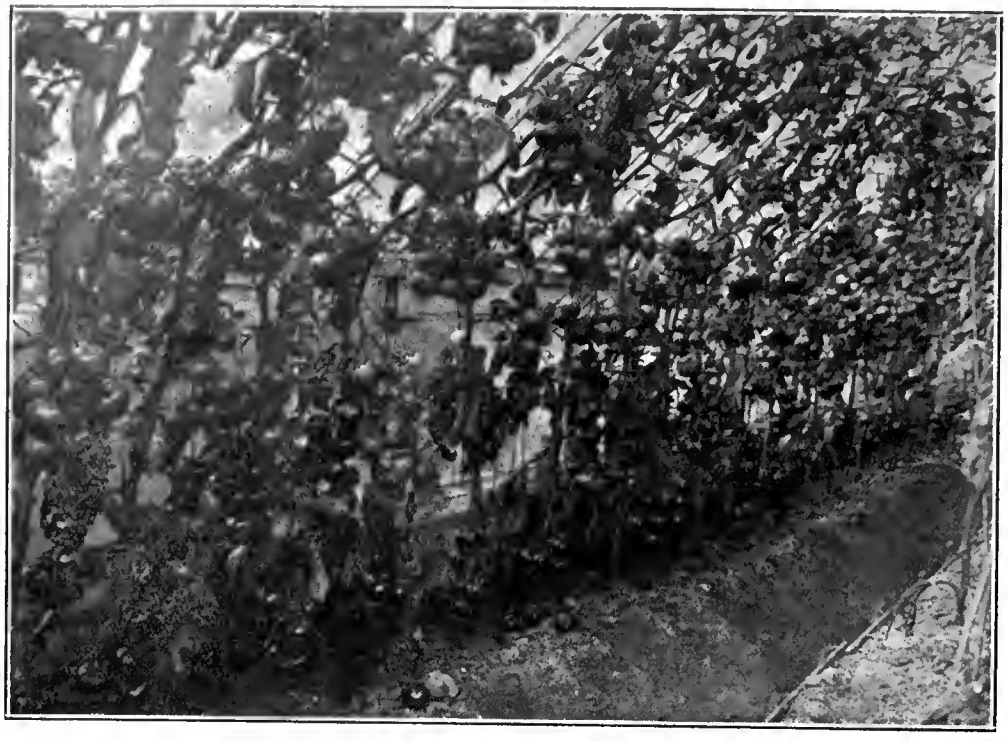
Cherry trees in Quebec are mostly propagated by budding in August on Prunus Mahaleb or Mazzard stock. Attempts made to propagate the cherry tree on the Choke Cherry (Prunus serotina) prove to be failures, the sorts being too dissimilar in their natures to favor a union. Wherever it is possible to grow them I would recommend budding on Mazzard rather than on Mahaleb, though the latter is more widely used by nurserymen, as it is easier to bud and free from leaf blight in the nursery row. The Mazzard forms a better root system, stronger union, a longer lived tree, and is sufficiently hardy.

Budding is perhaps harder to accomplish successfully than with plum, and certainly harder than with apple, pear, and quince stock. After trying both methods, I find that success will be found to depend largely upon cutting out with the bud a larger portion of the wood than is common with budding other species of fruit. Take out this wood deftly with the point of the blade so as to leave as large a surface of cambium layer in contact with the stock as possible. In this operation I have lost comparatively few cherry buds.

Cherry trees can be top-grafted successfully. This sort of graft will succeed without any difficulty, if it is performed early in the spring before the slightest swelling of the buds, and before even the frost has disappeared from

*Extract from a paper read at a meeting of the Quebec Pomological Society.

Spraying potatoes and boys cultivating in the Irish Boys' Home, Hespeler, Ont. —Photo by Rev. G. W. Tebbs.



Tomatoes growing up the side and roof of a greenhouse. Notice the strong stems and large fruit. —Photo from H. S. Hodges, Simcoe, Ont.

the ground. After this period difficulty will be experienced.

I would recommend the following sour varieties, as they are well-known and succeed in many places in the province. We grow them at La Trappe:

Early Richmond, Montmorency, English Morello, and Louis Philippe. The two first varieties are light red in color, with colorless juice and flesh. The two last are of a darker color and have a darker juice. They are more subject to leaf spot, which is very often serious, especially where the trees are on low ground and the weather damp or wet. Early Richmond and Montmorency ripen early and are comparatively free from the leaf spot, but Louis Philippe and English Morello are more firm and stand shipping better.

Besides these four varieties I would recommend, in colder regions, the following, which are very hardy: Orel, 24 and 25, Vladimir, Minnesota Ostheim, Cerise d'Ostheim, and the old "Cerise de France."

The cherry is a profitable crop, as we netted this year one dollar twenty-five cents per crate of six gallons, all picking expenses paid, counting from sixty-five to seventy-five cents for the picking.

The Use of Fertilizer

S. H. Rittenhouse, Jordan Harbour, Ont.

To fertilize our strawberries we plough down a clover sod in the fall and cover it with stable manure during the early winter months previous to planting the following spring. This system has given us excellent returns.

For a couple of seasons we have been getting good results from tomatoes through the use of commercial fertilizers. Naturally it requires more intelligence and careful observation to get profitable results from commercial fertilizers than in the use of stable manure. We will be forced to change our plans in the near future because of the scarcity of the manure. I look upon the clover crop as indispensable in keeping up fertility.

Intercropping Young Orchards*

W. T. Macoun, Dominion Horticulturist

IT costs a considerable amount to bring an orchard into bearing. The price of land, cost of trees, their planting and care, and interest on money invested must be considered. To offset this it is important that we get some income from the land while the trees are young.

For the average farmer a three-year rotation, consisting of grain, clover and potatoes, is probably the best. Manure should be applied to the clover in the fall. If the land is in good condition, potatoes can be planted oftener. No matter what crop is grown, a strip four feet on each side of the trees should be left. It should be kept cultivated and seeded to a cover crop at the proper time. A good growth should be obtained in the trees every year. The strips should be increased as the trees become larger.

When planting potatoes, it is well to remember that the source of the seed is almost as important as the variety itself. Potatoes from districts where the potatoes keep on growing until the frost kills the top make much better seed than those from parts of Ontario where the tubers are prematurely ripened by the tops dying in hot weather. The latter seed is much weaker in vitality. In experiments conducted at the Ottawa Experimental Farm, it was found that a crop three and one-half times as large was obtained from western grown seed as was given by seed obtained where hot summers are the rule. These results are from an average of eleven varieties. Late planted potatoes will keep on growing until the frost and make better seed than early planted potatoes. These immature potatoes will not sprout as early in the spring, and on this account also make better seed.

An average increase of ninety-four bushels an acre was obtained from plots sprayed with the Bordeaux mixture over unsprayed plots at Ottawa. As an insecticide, a mixture of Paris green and arsenate of lead in the proportion of eight ounces of Paris green and one and one-half pounds of the lead to forty gallons of water, has given the best results at the Experimental Farm. The Paris green kills more quickly than the arsenate of lead, but the latter adheres longer. The good qualities of the two are obtained in the mixture. The greatest development of the tubers takes place in the latter part of the summer. If the potato tops can be kept green throughout September, a large crop is assured.

Good varieties for the main crop are: Gold Coin, Green Mountain, and Carman No. 1. For the early crop, Irish Cobbler, Rochester Rose, and for extra early the Early Ohio give good results. The last-mentioned variety is a rather light cropper. Davies Warrior is a promising new sort.

Another good crop, where the soil is of a warm nature, is field beans. They are now selling at a high price, and are likely to be higher next year. It is very important that no crop that will injure the trees in any way should be planted. Corn, for instance, shades the trees and often causes them to keep on growing too late in the season. The little money to be obtained from an inter-crop will not pay for the injury to the trees.

When the land is prepared for strawberries we use binder twine stretched from one end of the field to the other. A man goes along this binder twine and digs about six inches deep, pressing it over. A boy follows with a basket of fifty plants on his arm with the roots loosened. He shakes the roots out and drops them down the back of the spade, which is held by the man, who draws his foot away and packs the soil firmly about the roots and be careful not to cover the crown.—W. J. Kerr, Ottawa, Ont.

*Extract from an address delivered at the annual meeting held in Port Hope, Ont., Jan. 27th, of the Northumberland and Durham Fruit Growers' Association.

Fruit Improvement Through Bud Selection*

L. B. Scott, Bureau of Plant Industry, Washington, D. C.

(Continued from February issue.)

SHORTLY after the beginning of the efforts to improve fruit through bud selection, Mr. A. D. Shamel started some preliminary observations with peaches at South Glastonbury, Conn. Our plots include Carmen, Elberta, J. H. Hale, and Belle of Georgia. Similar variations were found as in the citrus trees, varying from absolute barrenness to very great productiveness. These differences were consistent from year to year.

Work also was started in the J. H. Hale apple orchards near Seymour, Conn. Because of limited time, these trees were not picked, but the crop from each tree was estimated each year. Certain trees were found that were consistently heavy producers each year, others that bore a large crop in alternate years and still others that were consistently poor producers each year.

It seemed worth while because of the self-evident fact that there was a marked variation among trees of the same variety in deciduous fruits, to secure more detailed information on this point. Accordingly, after a survey of a number of apple orchards in the State of Michigan by Professor H. J. Eustace, of the Michigan Agricultural College, and the writer, this last summer two apple bud selection study plots were located, one of Northern Spy and one of Baldwins. The same general plan was followed as in the California citrus work.

Each tree had its individual tree number printed on the tree trunk or large main limb with white lead paint. This number includes the plot number, row number, and number of the tree in the row. Thus, number 14—18—20 instantly located that tree as being in plot 14, row 18, and the twentieth tree from the end of the row, always numbering from a certain given point.

The fruit from each tree is picked separately and the fruit assembled at the base of the tree. The fruit is graded into first, second, and third grades, and each of these grades can be further subdivided into large, medium and small The fruit in each grade is counted and weighed and the notes recorded in special blanks. The notes are then transferred to the six-year blanks.

Our deciduous fruit work naturally divides itself into three parts, as in the citrus work.

(1) A study of the differences as they occur among trees under the same conditions.

(2) Can these differences be propagated?

(3) Will these differences be consistent in the budded trees?

We can already distinguish six types of Spy and six types of Baldwin trees. In most cases a difference in the habit of the tree growth is co-related with a difference in fruit.

These types in the case of the Spy are:

(1) The open productive type.
(2) The alternate bearing type.
(3) The upright unproductive type.
(4) The light-foliaged type.
(5) The deeply ridged fruit productive type.
(6) The McIntosh Red type.

(1) The open productive type of tree corresponds to our open productive lemon tree, all the branches are loaded with fruit and they bear a uniformly heavy crop each year. You may ask "How can you tell that by one year's observation?" Partly by the old fruit scars, but more so by the owner's testimony. The owner of the orchard where our plot is located knows his trees and can tell what a number of them have done in the past.

(2) There are a number of trees of the alternate bearing type which bear a large crop every other year. While these are profitable trees, they do not represent as great a financial return to the owner as the trees which bear a large crop every year.

(3) A very common type of Spy tree in all orchards we have visited is the upright unproductive. This type of tree is a large upright one, a very light cropper, and in some cases absolutely barren. Associated with this distinct habit in tree growth is a markedly ridged, flattened fruit. The poorest tree of this type in our plot this year bore one bushel of these poor quality flattened, ridged fruits, as compared with thirty-eight and one-half bushels as borne by the best tree of the productive type. (These trees I am referring to are twenty-two years old.) Just think what that difference means in dollars and cents, one bushel compared with thirty-eight and one-half bushels.

(4) The light foliaged, unproductive type shows a distinct variation in foliage, has a spreading habit of growth and bears a fruit somewhat flattened and ridged at the calyx and blossom ends.

(5) Another type for want of a better name we have called the deeply ridged productive. The trees are productive, and the fruits resemble a standard Spy, with the exception that they are a deep red in color and markedly ridged.

(6) The sixth type we have called the McIntosh Red type. Probably some other name would be more appropriate. The fruits are flattened, but they have a color resembling a McIntosh.

We have found these types in other orchards. In orchards that were in sod, in orchards that were cultivated, in low-headed orchards and in high-headed orchards.

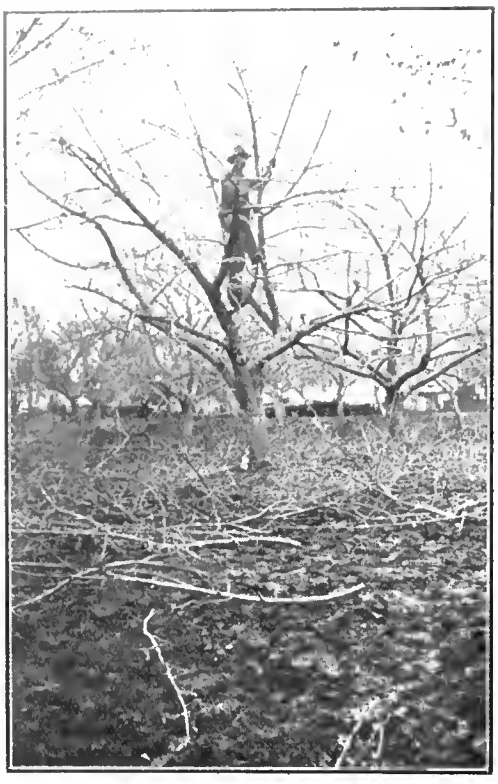
In the Baldwins we have found at least six types. Some are characterized by differences in production and others by differences in the fruits. These are:

(1) A standard yearly productive type There appears to be a marked variation in the color in the fruits borne by different trees of this type, varying from a brown on some trees to a deep red on others.

(2 An alternate bearing type.
(3) An upright barren type.

An attractive display made by a Vancouver retail fruit dealer last fall during "Apple Week."

*The results set forth in this address, which was delivered during December before the annual meeting of the Kansas State Horticultural Society, we desire to call to the special attention of Canadian fruit growers.—Editor.



Apple trees in Mr. Hamilton's orchard at Port Hope after pruning.

(4)) A type which bears distinctly flattened fruits.

(5) The "York Imperial" type bearing a fruit shaped like a York Imperial instead of a standard Baldwin.

(6) The "Roman Stem" type, which type of fruit has a distinct protruding segment or tip in the cavity.

These types we have found occuring as limb sports, individual fruit sports, and as whole trees. These are the types we are familiar with now. No doubt others will be found, possibly by ourselves, and without question by others in their own orchards.

In addition to the variations in types there is a great variation in production within each type. In the Spy orchard in which we were working this year, the average tree production was about four barrels per tree, while some of the best trees in our plot bore over ten barrels.

We have not had time as yet to show experimentally that these variations in deciduous fruits can be propagated. However, as we have found just as great if not greater variations in deciduous than in citrus fruits, and as we have been able to successfully propagate these variations in types and differences in production in citrus fruits, it seems a safe assumption to say that these differences can be propagated in deciduous fruits as well.

The J. H. Hale peach which occurs with great frequency as a limb sport on standard Elberta trees has been successfully propagated.

In the North Yakima section a sporting tree of Rome Beauty has been found. This tree bears a deep red fruit which at maturity shows none of the characteristic Rome Beauty markings. Buds have been taken from this tree and show the same characteristics in the budded trees as in the original tree.

A Texas fruit grower has recognized this principle of variation in his trees, and has successfully worked over unproductive types of apples, persimons, and pecans, to productive types. A number of prominent nurserymen in Kansas, West Virginia, New York, and many other sections, are propagating their nursery stock from select bearing trees and are securing uniformly productive trees, as compared with many unproductive orchards, propagated by the old method of securing buds from other young trees, right in the nursery row.

We mention these few instances out of the many we might give of the propagation of these variations in widely scattered sections, simply to show the large number of these variations and also that they have been successfully propagated. And so, while we have not had time as yet for our own experimental deciduous buds to come into bearing, we have already accumulated such a mass of commercial or practical evidence to convince any sensible man not only that these variations exist in marked numbers, but also that they can be successfully propagated.

Pruning Practices Explained

A. D. McIntosh, B. S. A., Stirling, Ont.

SINCE no two trees are alike, and since conditions of variety, site, location, slope, climate, soil, and treatment are always a variable quantity, no specific rules can be laid down for pruning each and every apple tree. Each tree is a study. There are, however, general principles of pruning that apply to all trees, especially those in commercial orchards. In this article, it is proposed to deal with the pruning of trees up to the time of bearing.

In the same way that no two trees are alike, no two branches are alike, yet all have some traits in common. All branches of the apple tree grow from the terminal; and the buds farther along the branch are stronger than those near the crotch, owing to their advantage in securing more sunlight than the others. It is only this struggle between the buds on a tree that prevents every bud from growing into a branch. The great majority of buds never develop. This is Natural Pruning.

Now, since every branch does the same thing as every other branch, it follows that artificial pruning within reason must benefit the remaining branches.

Someone has said that "anything which checks the growth of a tree tends to make it produce fruit." This is a provision of nature. It is also a well-established fact that fruit-bearing (or non-bearing) is a habit of the tree. Some varieties acquire the habit earlier in life than others. E.G., compare the Wealthy and Northern Spy for early bearing. Some acquire the habit of bearing every other year. This is sometimes true of opposite sides of the same tree.

Fruit buds in apple trees are separate and are identified by their shape and size, being larger and more blunt than the leaf buds. In Ontario, fruit buds bear every other year. Differentiation of fruit and leaf buds takes place in the summer, hence only summer pruning may cause an increase in fruit buds. Remembering this, it is well to prune young, unbearing trees in the spring or fall.

A very important detail is the kind of cut the pruner makes when at work. A smooth cut, close up to branch, or close to a bud that will send a shoot in the proper direction should invariably be made. Hence the sharp knife for twigs, the sharp shears for small branches, and the sharp saw for limbs. A long-handled saw with narrow, revolving blade is now procurable, and is so practicable for rapid, easy and satisfactory work as to be indispensable where much pruning is to be done. Don't leave stubs. And how about the wound?

Since prevention is better than cure, and since it is a fact that several species of bacteria or germs live entirely on cuts and exposed wood of trees, it behoves the orchardist to disinfect and paint the exposed wounds caused by large cuts at least. For all practical purposes lead paint is most satisfactory. Wounds made just before the growing season always heal quickest, hence spring pruning for young trees is preferable, where other conditions make it more practicable.

Pruning to make shapely trees does not mean that larger production will follow. Thinning of the fruit buds on every limb ensures that those remaining buds will be more vigorous and far more likely to be productive of good-sized fruit that will hang on to the parent tree more firmly because of less competition for space. And it must not be forgotten that the effects of pruning are only temporary, hence they must be repeated.

The growth in length of twig takes place in about five weeks in spring and early summer, while the maturing and filling up of this growth takes the rest of the season. In favorable growing seasons it often happens that too great a growth in length takes place for pro-

Obtaining an Early Start with Garden Plants

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

DO not attempt to raise too many boxes of seedlings in the house. A box twenty-four by twelve inches will, if sown in lines or drills, contain a dozen kinds, for instance, cabbage, cauliflower, lettuce, tomatoes, peppers, and so on. These when transplanted will fill a dozen boxes or more of the same dimensions. In the same manner a dozen varieties of flowers may be raised—larkspurs, stocks, asters, petunias, pansies, pinks, and others of like nature. Twelve boxes of these when transplanted, added to the twelve of vegetables and fruits, will surely be sufficient for the needs of the amateur. A great mistake is often made in attempting too much and so courting failure through lack of space. If a small cold frame can be requisitioned to contain the boxes the difficulty will be greatly minimized. In fact, an outdoor cold frame is really indispensable when large quantities of seedlings are raised in the house.

SOWING THE SEED

Before sowing the seed, thoroughly clean the pots or other recipients, and so remove spores of mosses and fungi, as these growths are harmful. Afford good drainage, pulverize the soil, and screen it finely, add leaf soil and sand, also finely screened, and so make the whole porous. Always screen a layer of very fine soil on the surface ere sowing the seed. Sow evenly and thinly or the seedlings will be weakly. Do not cover small seeds deeply, about their own depth is sufficient. Sow seeds of a microscopic nature upon the surface, do not cover them at all. Types: Calceolaria, begonia, and gloxinia.

Never water surface sown or small seeds by the overhead method; partly immerse their recipients in water until the soil is sufficiently soaked. Many seeds are washed overboard by careless watering. Exclude bright light from germinating seeds which are sown indoors or in greenhouses. Darkness favors germination in some seeds, though not in all. Remove the shade when the seedlings are visible, and allow only subdued light to come in contact with them for a few days. Seedlings are directly influenced by light, they will grow in its direction. Actual contact with it will retard them. Therefore, when they show signs of weakening, place them near the window or greenhouse roof, as the case may be. A short jointed growth will thus result.

Sow melons and cucumbers in small pots, three seeds to the pot, remove the weak seedlings, leaving only the strongest in each pot. Do not, unless absolutely necessary, transplant until the time for planting out of doors. There is of course, no harm in transferring the plant and soil bodily to a larger pot; the soil, however, should not be disturbed. Melons and cucumbers so started are more quickly and readily brought into bearing, and so commercially are a greater success than those garden-sown.

HOTBEDS MAY BE USED

All the plants mentioned in this article and many more may likewise be started in hotbeds. Obtain fresh horse manure. Shake out as much straw as possible. Peat or wood litter is not desirable. Pile the manure in a shed, allow it to remain undisturbed for a week, then turn three or four times at intervals of three days each time turning the exterior of the pile inward. If the manure appears dry, sprinkle a little water on it; this will aid fermentation. Pack the pile firmly to ensure steady and equal fermentation and subsequent sweetening. After the final turning, place the manure in the frame, tramp it down firmly, raise the back slightly higher than the front, and cover with two or three inches of finely screened soil. Place the sash in position and close the frame.

When the temperature falls to 85 the seed may be sown. If sown in drills, greater variety may be obtained from a hotbed than when the seed is broadcasted. Thin out the seedlings as necessary. Give air on all favorable occasions. Do not, however, allow the wind to blow under the sash. Water sparingly, but adequately. Close the frame, if open, early in the afternoon, and so conserve the sun's heat, which, after all, is best.

The Planting of Shrubs

A. E. Thatcher

THERE has always been and probably always will be a difference of opinion as to whether the fall or spring is the better time for planting. If the work has to be done in the fall on account of the rush of work in the spring it is advisable to plant as early as possible when the ground is in a moist condition, directly the leaves commence to fall. For my own part, I am strongly in favor of preparing the ground in the fall, letting it lie rough through the winter and planting in the spring. If the work is well done and the requisite amount of attention is given the shrubs afterwards there is small chance of failure. It is very true that we often have a short, dry planting season in the spring, but much disappointment is frequently caused by shrubs which, if planted in the fall, fail to become sufficiently established to withstand the severity of our Eastern winters.

With the ground in readiness and the material at hand the next operation, that of planting shrubs, is perhaps the most important part of their culture. So much depends upon how this is accomplished as to after success or otherwise that too much care cannot be taken to have it well done. From whatever source the shrubs are obtained they should be carefully unpacked on arrival and the roots thoroughly moistened, and if they cannot be planted for some time, they should be laid in a sheltered place away from the wind. It is a good plan to place a stake with the name where each shrub is to go; this will expedite matters when the planting is being carried out.

The best time for planting is when the

The Greenhouse of Mr. R. B. Whyte, of Ottawa, as Photographed in March

In this small house Mr. Whyte has tried many kinds of plants. His chief show plants are the bulbs, and never from early winter till late spring is his house without a beautiful display of these most satisfactory flowers. Freesias, narcissi, tulips, hyacinths, form the staple crops, while crocuses, grown in flat pans, also make very effective shows.

One of the pretty spots at the Guelph Agricultural College. The wall in front of the Campus.

ground is in a moderately moist condition, as the soil can then be made firm without becoming pasty, and if possible choose a calm day, as wind has a most detrimental effect upon the roots. A hole should be taken out of sufficient size to accommodate all the roots after they have been spread out evenly, so that it will not be necessary to bend any round or cramp them, and having seen that the hole is of sufficient depth, the planting can then proceed. Cut off any broken or damaged roots on the under side with a sharp knife and take great care of the small fibrous ones, as on these the life of the shrub depends very largely, and see that they are quite moist. Then place the roots in the prepared hole and spread out all of them evenly, working in among them some of the finest soil, pressing it firmly and adding more until the hole is filled.

While the roots should be well covered, it is not advisable to plant too deeply, especially on heavy land, and the nearer the fibrous roots are to the surface the greater warmth do they receive, and consequently start into active growth more quickly than if buried some distance from the surface. When the planting is completed it is an excellent plan to give the shrubs a good mulching of any suitable material at hand, such as decayed leaves or long dressing. This is of the greatest assistance if warm weather prevails, for it keeps the roots moist and cool and prevents surface soil from becoming baked.

Hardy Conifers

W. T. Macoun, Dominion Horticulturist, Ottawa

The larches are not evergreen but they are conifers and mixed with the evergreen coniters they make a pleasing contrast to them and are especially attractive in spring, as the bright green foliage comes very early and relieves the deeper tints of the evergreens. The European larch is perhaps the best species although the Japanese is very attractive also, but has not been growing long enough in Canada to learn whether it looks as well as the European when the trees are large. The young trees are more attractive than the European. The European Larch makes very rapid growth. It is not a wide spreading tree, but its branches are somewhat pendulous. The native Tamarack is desirable for contrast with evergreens but is not so attractive as the European or Japanese Larch as individuals, as the trees are stiffer in habit.

SILVER FIRS

The Silver Firs include the Abies and Pseudotsuga of which the best known species of Abies in this part of Canada is the Balsam Fir. The Balsam Fir is a very attractive lawn tree when young but after it has been planted twenty years or so it is liable to become scraggy. The fine firs of the west coast of America and Europe such as Abies Magnifica, Nobilis and Nordmanniana, are not hardy at Ottawa, but there is one fir which is quite hardy which is as handsome as any of these, namely, the White Fir, sometimes called Silver Fir, Abies concolor. This is a native of Colorado, Utah and Arizona. It is a very striking and beautiful species with large flat, glaucous green leaves. Trees should be obtained from northern stock as those from its southern range may not be hardy. The Douglas Fir, Pseudotsuga Douglasii, has been thoroughly tested at Ottawa and found to be quite hardy. It makes a very stately tree, more graceful in its habits than most of the spruces and other firs. It is desirable to get the trees from the northern or colder parts of its range. Individual trees vary much in the color of their leaves, some having a much more bluish tint than others. This tree grows to a great height in British Columbia. It makes a fine hedge at Ottawa, more satisfactory so far than any of the spruces.

THE PINES

One or more of the tall and stately pines should be on every grounds large enough for a few trees. We place the native White Pine, Pinus Strobus, at the head of the list for beauty and general desirability. It is better known as a timber tree in Canada than as an ornamental tree, but when it branches from near the ground, and has sufficient space to develop symmetrically it becomes one of the most graceful evergreens, and the leaves which preserve their color well in winter are of a very lively green. It has been found to do well when made into a hedge and makes a very attractive one. A hedge planted in 1890 twenty-four years ago, and now about six feet high, is still in fine condition.

Perhaps the next best pine is the Austrian, which is quite hardy in Eastern Canada and makes a fine ornamental tree. The native Red Pine looks very much like the Austrian pine but has not made quite so attractive lawn specimens as the Austrian. Equal, if not superior to the Austrian Pine, is the Blue Pine of the dry districts of British Columbia. The long, glaucous green leaves, sometimes twisted into peculiar forms, and its erect habit give it a very majestic appearance. As the tree gets older the bark, which is of a reddish color, is very striking. This beautiful pine should be more planted than it is in Canada. It is one of the most difficult to transplant, and should be planted when quite small.

The Scotch pine has been a great deal planted, perhaps largely owing to its association. It is a very hardy species, but at Ottawa the terminal buds have from time to time been injured by insects causing the tree to lose its natural shape. It is a very rapid grower and grows well in nearly all kinds of drained soils.

The Swiss Stone Pine. Pinus Cembra, is a very slow, upright growing species but with foliage much like the White Pine, and is very useful for certain places on the grounds. It has made a good compact attractive hedge at Ottawa.

The Dwarf Mountain Pine, Pinus Montana Mughus is one of the most noticeable pines at the Experimental Farm. Some trees which have been planted twenty-five years are now fifteen feet in height and about the same across; others are smaller, as the individual specimens vary considerably. It is more of a shrub than a tree and makes a very attractive individual specimen on a lawn. As the trees get older it is found that the snow which lodges in them has a tendency to spread them and sometimes to break some of the limbs, but it is one of the most desirable of the pines.

My experience has been that evergreens will transplant successfully both in spring and fall; in the spring as early as the ground can be worked, and again in September; with deciduous trees I have had more success with early spring planting than at any other time.—C. F. Clark, Toronto, Ont.

Paeonies will thrive in almost any soil but succeed best in deep, rich, moist clay loam.—J. H. Bennett, Barrie, Ont.

Your Garden of Dreams

DESPITE the inclemency of the weather, despite the earliness of the year, never has the garden been more beautiful to look upon than it is at the present time.—In your mind, of course. As a matter of strict, unpoetic accuracy, the backyard—it is too early in the year yet to accord it the dignity of naming it a garden—presents a singularly uninspiring appearance. The bare borders are covered with snow, the beds are untended wastes, and the lawn is a bare expanse, mantled in white.

But the seedsman's catalogues have begun to arrive, firing imagination, and making one oblivious to fact. For weeks past they have been coming to hand, and still they are popped into the mail box. They come in all shapes and sizes, uniform only in the vast bunch of wonderful flowers pictured on the outer cover.

You satiate your imagination with the catalogues, and then you close your eyes. Immediately there rises before you a vision of your garden made perfect with the things you intend to grow this year. That bed in the corner, hitherto only producing a crop of sweet williams by stubborn persistence, shall sport carnations and lilies. That border by the wood shed, where nothing but dandelions will ever grow, shall sprout this summer with the choicest novelties. Of course, you very well know that nothing of the kind will happen, but the visions continue obstinately optimistic. Year after year you have planned such developments in the garden, year after year fate, the poorness of soil, and the predations of cats and dogs have brought your noble efforts to nought.

But still you resolutely plan, for you are convinced that the very best part of gardening consists in making your plans for the coming season. There is no arduous physical toil about it, there are no disasters with spades, no emotional moments with shears that refuse to cut, lawn mowers that decline to mow.

You plan generously, for imagination is never mean over a few packets of seed, never hesitates over a dollar. You purchase mentally, you sow mentally, wasting neither time nor labor. And, without any of that dreary waiting, your garden blooms immediately; and—crowning benefit of planning—if you don't like the effect, you just rearrange it all in a twinkling, and your garden blossoms again on quite a different scheme.

The joys of planning a garden! When the catalogues have set you going properly, you might as well have three or four acres for all the fun you get out of the little pocket-handkerchief space at the back of your house. You mentally plant trees—the fruit trees continuously bearing immense crops—and enlarge the lawn and mask the walls behind wonderful creepers.

Then comes the reluctant elimination, reducing cost and quantity to accord with the modesty of your purse and garden. And then comes the first selection. You gloat over it lovingly, and again you see the garden all a-growing and a-blowing beyond comment. Cats and birds do not exist in that wonderful dream-garden; the dog never gives way to the avarice of burying bones in the borders; late frosts and the boisterous winds never visit that fairy realm.

Always it is midsummer ,and always you are pointing out the beauty of your garden to some envious neighbors.

And so you go on, dreaming over the garden and altering your visionary plans each time another catalogue arrives. And, finally, the catalogues cease to arrive, and you discover that the time for actual performance has come.

And then—ah, well!

But, however the experts may sneer at the resultant baldness of our efforts in summer, no one can see a more beautiful garden than you see in yours, when you draw your chair a little closer to the stove, and, dropping the newest seed catalogue to the floor, close your eyes for a few moments of horticultural rapture.

Health and a Hundred Dollars---How I Gained Both Last Summer

Miss E. M., Quebec

I WAS a stenographer with a good position in a near-by city, when the doctor summarily ordered me "back to the land," and sentenced me to a year's hard labor—he termed it "plenty of exercise in the open air"—with the option of pain and a nervous breakdown as the penalty of disobedience. In this way I was brought suddenly face to face with the problem of how to put in the year salaryless. Any of the many girls who have experienced the happy sense of independence the drawing of a regular salary affords, will realize what it meant to me to have my hands tied and my income suddenly cut off. Soon I was busy trying to devise means of following the doctor's instructions, and at the same time "turning an honest penny." Presently an idea came to me; I spent some days working it out on paper before I satisfied myself that it was a plan worth trying at least. The idea was "sweet peas."

In the city where I had been for years employed, I and my friends had bought them at twenty-five cents for a small bunch, even in the height of the season, and many a time I had thought with regret of the beauties I used to grow in my

Lilium Longiflorum Grown Out-of-doors in an Amateur's Garden

This splendid bed of Lilium Longiflorum was grown by Mr. Witmer, of Berlin, Ont. It has been cultivated for several years and has withstood the severe winters. The bed is nine feet wide by twenty feet long. The stems grew to a height of four to five feet.

Cimicifuga, the tall, hardy, herbaceous perennials here shown, are ornamental in character and suited for the back of plantings or for partially shaded places in the wild garden. They are faulted by some because of their smell.

garden at home. My plan was to grow sweet peas,—the very best that could be grown—and find, or if necessary, make a market for them. If I failed the money loss would be trifling and my time being worth nothing, I would be fully repaid for any outlay in the open-air exercise and the abundance of flowers I should be able to give away if they proved a drug on the market. My plan proved a success, and this is how I carried it out.

Everyone knows that the first point in sweet pea culture is to get the seed into the ground as early as possible. On this account, the ground ought to be well prepared to a depth of three feet the preceding fall and left exposed to the weather all winter. As January was already well along I found that this was not possible so I decided to do the next best thing and have it prepared just as early as possible in the spring.

I chose a piece of ground that had been ploughed the previous fall where my father intended to plant corn but he had no objection to breaking a new piece for that purpose, so I felt that something had been done and that there would be a possibility of getting that ploughed strip dug up very early. In the meantime I decided to force the season. I knew that in the height of the season, sweet peas are plentiful and the florists have an abundant supply engaged ahead, so my only chance to market mine would be to have them actually better and, if possible, earlier than those usually on sale. With this in view I ordered from the most reliable seedsmen the most choice and incidentally the most expensive varieties.

About the middle of February I planted a few samples of each packet in separate, small pots and placed them in the cellar where they would not quite freeze. They were a long time in germinating but as soon as they were up I transferred them to a light window, and hastened to have a mild hot-bed made for them. By the middle of March they were put into the hot bed but were transferred, as soon as the weather made it possible, to a cold frame. They had developed a great deal of root and I changed them to larger pots. The last week in March I began operations on the ploughed strip where I was to raise my main crop. Part of my outdoor exercise for the last two weeks had been to clear the snow off that piece of ground so that the sun could thaw and dry it more quickly, and now the surface was thawed to a depth of a few inches, though it was as hard as rock farther down. The hired man had very little to do just then, and I got him to work for me. With pick and spade he labored under my supervision and dug and hewed out nice deep trenches, throwing the half-frozen earth up on the side. The strip was about one hundred feet long and he was able with such assistance as I could give, to prepare two or more lengthwise trenches a day. When eight trenches, about five feet apart, were finished, I called a halt.

The next few days nothing more could be done but leave the sun to dry the earth a little to make it workable. I chose this time to hire a couple of boys who understood the art, to cut two large loads of birch pea-brush, paying them one dollar and a quarter a load. I had no idea of buying eight hundred feet of wire fencing when the pea-brush is so much more picturesque as well as more comfortable for the peas.

The last day of March I planted the seed. In the bottom of the trenches I put about two inches of manure, working it up well with the soil; this I covered with five or six inches of the mellowest soil lately dug out of the trenches, pressed it down with the hoe, and then planted the peas in a double row about three inches apart, covering them with about four inches of earth, which was was pressed down firmly once more with the hoe.

The potted peas in the cold-frame were now clamoring for attention. They were nearly six inches high and were being drawn up too fast, I thought, under the glass, so I removed them one warm day while I prepared the soil in the frame very deep, made it moderately rich, worked in some bone meal and, gently knocking the plants out of the pots so as not to disturb the roots, I set them into the ground, sinking them over three inches lower than they had grown in the pots, thus insuring for them deep roots and sturdy growth. Sweet peas do not mind the cold and I thought I could safely remove the sashes entirely but fearing that, having been started more or less warm, they might suffer from a severe frost, I left the glass over them, raising it a few inches to give them plenty of ventilation.

Now, there was nothing to do but await developments, but I watched for the peas in the trenches and as fast as they poked their heads above ground I covered them over with a little fine earth until they were on a level with the sides of the trench. When the vines were two or three inches high I put up the brush supports, sticking the base of each brush stick well into the ground, one on either side of the row and slanting them together, tent-like, at the tops. Here and there I tied the tops together so that they would be sure to withstand the wind. The vines simply loved these supports and climbed all over them, spreading out so that the sunlight could reach every leaf and twig, and how they throve!

Things began to look promising for a fine crop of splendid flowers and my next care was to find a market. I got the names of all the chief florists in the city, and wrote a short note to each, informing them that I expected to have sweet peas early, and of extra fine quality, and asking them if I might send them a sample bunch, and if there was any possibility of their giving me an order, if mine proved actually superior to those they usually handled.

I wrote to fifteen florists and, of those, ten did not reply, three curtly informed me that their supply was already ordered; but two conceded that though they were usually overstocked with sweet peas during the season, still I might send them a sample bunch. I promptly forgot the unlucky thirteen, and was overjoyed with the two mildly encouraging replies.

On May 20th I hailed with delight the first blossom from the cold-frame sweet peas and by pinching off the tips of the vines and throwing all the energy into a few blooms I coaxed them to give me on June 1st two modest bunches of beautiful specimens which I wrapped in cotton, in case of still possible frost on the journey, and shipped along with my high hopes to the two encouraging florists. One I never heard from again but the other sent a prompt reply engaging all I could supply, shipped three times a week, provided they were of uniformly high quality. He offered twenty-five cents a hundred sprays in bunches of twenty-five sprays apiece of the same color.

My open-air sweet peas commenced to bloom about the middle of June, and by the last week in June I was able to send my first shipment to town. From that time on I shipped them regularly three times a week, prolonging the season of profuse flowering by pinching the tops,

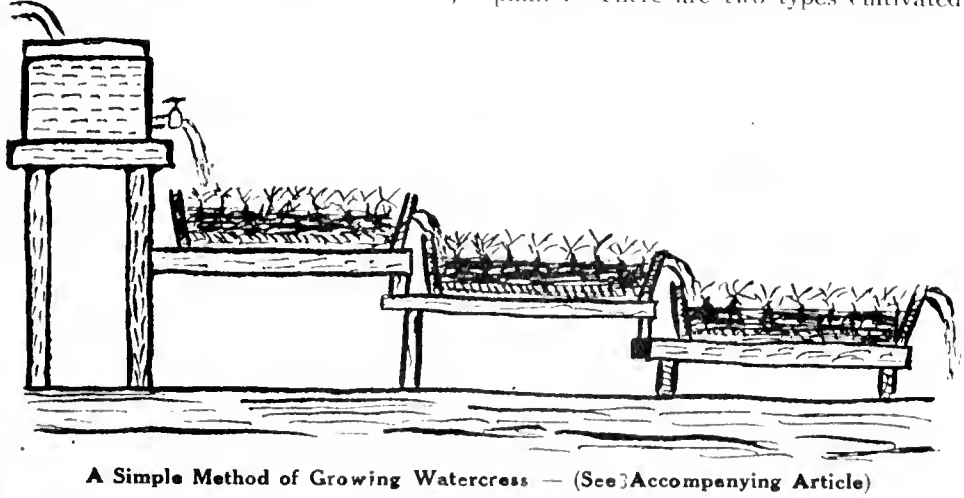
keeping them clear of weeds, well banked up with earth, and well watered; about once a week I watered them thoroughly with a very weak liquid manure. In this way I kept them giving me a marketable quantity of bloom averaging about eight thousand to nine thousand sprays every week for six weeks. These, at twenty-five cents a hundred, brought me a nice little weekly income of twenty dollars, which amounted in the six weeks to one hundred and twenty dollars. I cannot say exactly how much of this could be called "net" profit, because the work of the hired man for four days that would otherwise have cost me about one dollar fifty cents a day, or six dollars for the four days, really cost me nothing. The fertilizers, too, I appropriated from the farm supply, but would estimate them at about five dollars, certainly not more. The pea-bush cost two dollars fifty cents and the nine ounces of seed, some of it being of rare varieties, came to five dollars, making in all a total outlay of eighteen dollars fifty cents or less, so that something over one hundred dollars was clear gain—not to mention the "outdoor exercise," which did wonders for my overstrained nerves, and the vast amount of enjoyment I got out of my summer's work.

Growing Watercress

John Gall, Inglewood, Ont.

ANYONE who has a constant supply, however small, of running water may grow watercress. A space larger or smaller, according to area at command, should be excavated so that under ordinary conditions the bottom may be covered with from two to three inches of water; but it is advisable to permit of cleaning the beds from time to time, to have some means of temporarily diverting or cutting off the water supply. The soil should consist of a very sandy loam or of fine gravel. Propagation is usually accomplished by division of the old roots or by sowing of seed. The best times for planting are in spring and the early fall. Plant the rows in the flow of the stream, not across it. Seed may be sown in pans of light soil in a greenhouse or frame, keeping it moist, and pricking the plants out into the beds when large enough to handle. Watercress may also be grown in any constantly-moist and shady spot in the garden, and in winter it may be obtained from pans or boxes kept in the greenhouse, giving plenty of water at all times.

The illustration shows a somewhat novel method of growing this popular subject. It will be seen that three large but shallow tubs—about a foot in depth—are fixed, step-fashion, one above the other. At the top of the series is a tank, which may be filled with water either from rain, or by means of the pump, should there be a well in the garden. From this tank just a trickle of water is permitted to run by means of a tap and "bend," as shown, while the overflow from the first tub fills the second, and that from the second the third. Of course, the tubs are filled about half-full, or rather more, with soil of a suitable character, marly gravel in the bottom, and two or three inches of rather fine, sandy loam on the top. The depth of water is about two inches, or rather more, and a small piece of bent iron tubing conducts the overflow from each tub into the next, while the exhaust water is utilized to supply the celery and other vegetable crops, so that nothing is wasted. An arrangement of this character might be fixed up in any convenient spot in the garden, its utility where watercress is in any great demand being too obvious to need comment.



A Simple Method of Growing Watercress — (See Accompanying Article)

The Dictamnus Fraxinella

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

The excellent illustration of Dictamus fraxinella, published in the February issue of The Canadian Horticulturist, has led to a request for further information in regard to this excellent class of plants. There are two types cultivated, the Dictamnus fraxinelle alba and the Dictamnus fraxinelle purpurea or purple-flowered Dictamnus. Both are similar in habit of growth, the only difference being the color of the flower. I do not consider the purple variety as useful or decorative as the white. As a rule the Dictamnus grows very readily from seed. The seeds are a glossy black color and almost as large as a radish seed. There is so little call for seeds of perennial owing to their propagating so readily from divisions of the roots, that it is difficult to get new seed oftentimes unless from plants that others have growing or from your own plants. In fact, I consider the Dictamnus one of the easiest kind of plants to grow from seed.

Seeds of perennials are best sown out of doors either in the open ground or in a shallow, flat box outside in June. When large enough they can be transplanted to the border in suitable weather any time before the middle of September or the following spring.

The Asparagus Beetle

A. Gibson, Entomological Division, Ottawa

Growers of asparagus in this vicinity have had much trouble with a sort of bug that injures the young shoots and foliage of asparagus. It almost wholly destroys the usefulness of the crop. What is it? How shall we combat it?—W. F., Owen Sound, Ont.

"The insect is, I think, the Common Asparagus Beetle or the 12-spotted Asparagus Beetle, or possibly both of the insects may have been present. The dark, olive-colored grubs of the Common Asparagus Beetle feed upon young asparagus shoots, and also attack the foliage. The yellowish grubs of the 12-spotted species feed, as well, upon the tender shoots and new foliage, and later feed chiefly inside of the berries, when these are of sufficient size. Both of the asparagus beetles pass the winter in the mature state and frequent asparagus plantations early in the season for the purpose of laying their eggs and also, of course, feeding. A simple remedy, if poultry are available, is to allow the chickens or ducks to run about in the beds in spring when the beetles are present. If this is done, large numbers of the insects will be devoured.

Probably the most effective remedy is the dusting of the plants every three or four days with fresh air-slaked lime. This adheres to the slimy bodies of the grubs and kills all with which it comes into contact. If you would forward specimens of the insects to the Entomological Division, Central Experimental Farm, Ottawa, as soon as they are noticed next spring, we will advise you definitely as to the species responsible for the injury.

Heavy clay soil is said to be the best for sweet peas, but in Toronto we have had fair success on clay loam and even on sandy soil.—Thomas D. Dockray, Toronto, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited.

PETERBORO, ONTARIO

H. BRONSON COWAN Managing Director

The Only Magazines in Their Field in the Dominion

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests: The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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, $1.40 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 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	12,966	August, 1914	11,905
February, 1914	12,983	September, 1914	11,610
March, 1914	12,960	October, 1914	11,622
April, 1914	13,362	November, 1914	11,532
May, 1914	13,284	December, 1914	11,545
June, 1914	13,073		
July, 1914	11,871	Total	148,713

Average each issue in 1907, 6,627

Average each issue in 1914, 12,393

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are ablo 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 amonnt of his 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."

Rogues 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 pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

THE QUESTION OF RATES

Fruit growers are justified in opposing vigorously the proposed advance in freight rates to be applied in eastern Canada. These are times when the increased cost of living has reached serious proportions. Such an advance as is proposed would affect every producer and every consumer. While lack of traffic, due in part to the war, is one of the reasons given for the increase, the public is well aware that when business improves there would be no reduction in rates. Fruit growers desire to be fair to the railways. They realize that the cost of operation has increased of recent years. They realize, also, that when railways such as the C.P.R., periodically cut "mellons" worth millions of dollars for the benefit of their shareholders, the public should not be expected to foot the bill when hard times threaten to reduce profits.

The service furnished by the railways is most unsatisfactory to shippers, and entails heavy losses to shippers each year. Canadian Pacific Railway officials say that it is ridiculous to ask for a speed of ten miles an hour for freight delivery; yet we find railway companies are penalized in Virginia, Georgia, Florida, Mississippi, North Carolina and North Dakota, if freight is not lifted within twenty-four hours, and carried at a rate of from twenty-five miles a day to twenty miles an hour. The run between New Orleans and Chicago with fruit and vegetable shipments is made in fifty-five hours, a distance of nine hundred and twenty-two miles, or an average speed of sixteen miles an hour, including stops. For banana trains the schedule between these points is forty-seven hours and thirty minutes, an average of twenty miles an hour. Fruit trains from Southern Illinois are run from Centralia, Ill., to Chicago, two hundred and fifty-two miles, in ten hours and five minutes, about twenty-five miles an hour, and this service has been in effect since 1901. In the districts comprising Delaware and the eastern shores of Maryland and Virginia, which ship ninety per cent. of its production north of Philadelphia, fruit growers have the accommodation of specially constructed cars for fruit, and a freight service almost on passenger schedule. From Wilmington, N.C., to New York, fruit trains average better than sixteen miles an hour. Florida, like other southern states, is provided with a special fast freight service for the transportation of fruit, trains making the run from Jacksonville to New York, including stops at a rate of over seventeen miles an hour. All through the different fruit producing states a similar service is provided. From the Jacksonville, Palestine and Tyler districts in Texas, to New York, a service is given of fifteen hundred and twenty-three miles in five days, and sixth morning deliveries of peaches and cantaloupes are made in Montreal. It is thirty-two hundred miles from Southern California to New York, and for this distance a service of thirteen miles an hour is provided.

Oregon, Washington and Idaho, competitive States with Canadian producers in Western Canada, with an apple orchard area of 435,000 acres, also have a special schedule during the heavy movement, and in some cases carload fruit shipments are handled on passenger trains. This advantage, coupled with the blanket rate under which these latter states cover the western market west of Winnipeg, at from eighty cents to one dollar and twelve and a half cents on soft fruits, and from sixty-five to eighty-five cents on apples, makes this question of improved service in transit of vital importance. When our railway companies make an adequate improvement in their service, they may be justified in asking for an advance in rates, but not before.

THE SOCIETIES' OPPORTUNITY

The horticultural societies of Ontario have an exceptional opportunity this year to encourage gardening on vacant city lots. Conditions created by the war have pinched many families. Thousands of people who never did so before are thinking of starting gardens in which it will be possible for them to produce at least enough vegetables for their household needs. Horticultural societies who recognize this condition arrange their option lists accordingly and let it be known that they are prepared to assist these would-be gardeners, by the providing of suitable literature, and in other similar ways should meet with a hearty response on the part of the public.

Speaking on this point recently, Dr. C. C. James, Agricultural Commissioner for Canada, made some remarks, to which many of us should pay heed, when he said: "This task of increasing production is not limited to the farmers. There is a task laid upon towns and cities. These have been growing and expanding, extending their boundaries, until to-day there must be at least one hundred thousand acres lying idle, unproductive, but cultivatable, in our towns and cities. Living nearby are tens of thousands out of work. Schemes have been suggested of taking the landless men out to the manless lands to grow wheat. That would probably cost two dollars to grow one dollar's worth of wheat. It would not be economical, but a waste of men and money. Why take these men in thousands to the land to grow crops about which they know nothing when right at their doors are vacant lands that will produce food? Surely the cities can secure the use of this vacant land, and set some of the unemployed at work growing potatoes and other vegetables, crops that require labor all through the summer. Under proper supervision men with little or no farming experience can be used to produce food of this kind. It seems so easy now to organize committees for relief work abroad. Why not turn some of this organizing energy and enthusiasm into relief at home along these lines. Committees of this kind should have people of expérience on them." There is no organization so favorably situated to undertake this work as our horticultural societies.

The Late Robert Thompson

The universal expressions of regret that have been placed on record in the leading fruit districts of Canada in reference to the death of the late Robert Thompson, bear eloquent testimony to his worth as a man as well as to the value of his services to the Dominion. Few men have the qualities of energy, perseverance, courage and capacity for public service, as well as the ability to make and hold friends, to the extent enjoyed by the late Mr. Thompson.

Years ago, when the Niagara District, more particularly the St. Catharines section,

was suffering from over-production of fruit, due to faulty methods of distribution, Mr. Thompson grappled with the situation and by the formation of the St. Catharines Cold Storage and Forwarding Co., was able to develop distant markets. Thereby he helped to save the situation. Elsewhere on this page reference is made to the value of Mr. Thompson's services to Canada. Suffice it here to say that many hearts have been made sad by his loss and that his absence in the circles where he customarily moved, will be felt for years to come.

THE DUTY ON FERTILIZERS

The Dominion Government will display wisdom if it decides to pay heed to the protests being showered upon it by fruit and vegetable growers against the increase in the tariff on fertilizers. Practically the only native fertilizer material is tankage. At this time when the government is urging increased production it is only reasonable to suppose, now the matter has been drawn to its attention, that it will decide to rescind this duty which otherwise will militate considerably against the production of larger crops.

Australia assists her farmers in the purchase of fertilizers to the extent of advancing five and a half per cent. of the purchase price. The German Government has issued a decree making fertilizers "preferred freight," and furnishes tarpaulins free to cover shipments in open cars. The United States and most other countries do not charge any duty on fertilizers or fertilizer material. To impose a duty of seventeen and a half per cent. on fertilizers imported into Canada under these circumstances, will place a burden on Canadian growers as well as tend to greatly restrict the use of fertilizers. The early removal of this duty will be in the best interests of both producers and consumers.

Officers of cooperative fruit growers associations throughout Canada have heard with pleasure of the decision of the Supreme Court when it recently awarded damages to the extent of $844.00 to the Oakville Fruit Growers' Association in its action against one of its members. The member in question had broken the rules of the Association by selling his apples to an outside buyer. The rule of the Association required that members should pay the Association fifty cents a barrel for all fruit thus sold. Justice Middleton awarded damages on this basis. This decision should be made widely known because of the influence it will have in strengthening the work of cooperative associations.

PUBLISHER'S DESK

Year by year the interest taken in modern methods of spraying is increasing, and we receive a growing demand for information dealing with this subject. Our front illustration this month shows a modern power spraying machine at work in a young orchard. Such machines make it possible to cover a large area in the least possible time and with a minimum of manual labor.

* * *

The arrangements for our great Fourth ANNUAL SPRING GARDENING AND PLANTING NUMBER next month are about completed. As we look over the list of articles we have on hand, it is evident that this, our April issue, is going to be the strongest issue of the kind we have ever published. From cover to cover the articles are going to be exceptionally good. As it will be a special gardening number, articles relating to gardening are to be given special prominence. This year, owing to the cry for increased production, as well as in part to the lack of employment, thousands of people are thinking of starting gardens in their back yards who never did so before. These people are asking for information to show how they should set about it. Realizing this situation, we have asked Mr. W. T. Macoun, Canada's noted Dominion Horticulturist, to contribute a special article on this subject, describing what some city people he knows have accomplished and how they have done it. Mr. Macoun has consented to give us this article, and it will be one of the features of the issue. Our readers who enjoy the article in this issue by Mr. J. McPherson Ross, of Toronto, describing the arrangement of different gardens, will be pleased to hear that Mr. Ross will have another article in our April issue showing another garden plan suited for the average city residence of persons in moderate circumstances. Mr. Ross will also have another article describing plants suitable for shady places, and how some unpromising sites for gardens have been transformed by their use. A feature of the floral pages will be an illustrated article describing the garden that won the first prize in the horticultural competition in the city of Ottawa in 1914. This is a small garden, but it is full of interesting features that will be described in the article. An illustrated article will show how lawns are made, while still another illustrated article, this one by Mr. John Gall, of Inglewood, will describe how amateur gardeners can obtain and apply needed fertilizers to their gardens with a minimum of effort and expense. Would you like to have a water garden this year? If so, you will find another article in our April number, describing how it may be done. There are other features we have planned for this issue, but space does not permit of our describing them all.

In the Fruit Pages of our April issue will appear articles full of interest to fruit growers. The third and last article by Mr. L. B. Scott, of the Bureau of Plant Industry, Washington, D.C., will be used. This article will explain, by means of charts, how records of the yields of individual trees may be obtained and recorded. The shortage of potash this year has constituted quite a problem for many fruit growers. Prof. R. Harcourt, of Guelph, will contribute a special article describing sources of potash for agricultural purposes. Prof. F. M. Clement, of the Vineland Experimental Station, will discuss the merits of fall vs. spring planting of fruit trees, while Prof. A. H. MacLennan, Macdonald College, Que., will deal with the intercropping of young orchards. One of the best articles in the issue will outline a specialist's success in celery culture. This article, which will be illustrated, will describe one of the largest celery farms in Ontario. It is an issue every fruit grower and amateur gardener should receive.

Robert Thompson---An Appreciation

By W. H. Bunting, St. Catharines, Ont.

The sudden death of the late Robert Thompson, which occurred on Tuesday, February 9th, came as a distinct shock, not only to the Niagara peninsula, where he was best known, but also throughout the length and breadth of Canada; as his name had become during the past few years almost a household word wherever the growing and shipping of fruit has engaged the attention of our rural population.

Mr. Thompson's career is a striking example of what can be accomplished in any walk in life by a man who will throw himself entirely and with his whole soul into his chosen life work.

During the past few years, a large number of those who have been pioneers in the fruit industry of Canada, and who have assisted in securing for this country an enviable reputation for the production of splendid fruit, have crossed the bar and passed into the beyond; but not one of them will be more sorely missed throughout the wide circle of the community whose lives he touched, than Robert Thompson. His was a life of singular and unselfish activity. Notwithstanding the fact that for some years he was far from being a robust man, yet up to the last hour of his life he was actively engaged in the work of assisting his fellows in improving their condition, and in laying the foundations for greater achievements in the fruit industry. Public spirited to an unusual degree, he practically gave his best efforts for others, and it is only now, when his familiar figure will be seen no more at the various gatherings and conventions which he was wont to attend, and in whose deliberations he took so active a part, that the severe loss to the community will be realized.

Mr. Thompson has received at the hands of his fellow fruit growers and the public, many tokens of the esteem in which he was held. In 1894 he was selected by the Patrons of Industry and the Liberals of Lincoln as their standard bearer for the Provincial Legislature, and although not elected as a member of the House, for many years his advice and counsel was generally sought in matters of public interest. As a member of the Ontario Horticultural Commission at the Pan-American Exposition in 1901 he was indefatigable in upholding the merits of Ontario fruit in competition with the great States to the South. Elected President of the Ontario Fruit Growers' Association, the Niagara Peninsula Fruit Growers, and many other organizations of a kindred nature, he served the public faithfully and well.

The most outstanding feature of his life work, however, has been his achievements in connection with his direction of the cooperative work of the St. Catharines Cold Storage and Forwarding Company. As President and General Manager for many years of this successful cooperative fruit association, Mr. Thompson was known from coast to coast. The development of the shipment of tender fruits cooperatively from the St. Catharines district to nearly every important point in Canada east of Calgary, was largely due to his energy and perseverence.

Called suddenly in the midst of plans and projects for the advancement of fruit growing in this critical period, a void has been created which it will be almost impossible to fill. He has left the record of an unselfish, public spirited, energetic life, and his works do follow him.

Apple Advertising: How the Movement Started

At the Dominion Fruit Conference held in Grimsby, Ont., last summer, Mr. W. Grant Border, the secretary of the apple advertisers of America, was to have spoken on the subject, "Advertising the Apple." Unfortunately he was unable to be present. Since then The Canadian Horticulturist has obtained the following definite information regarding the movement from an article by Mr. L. B. Nolley, of New York, and other sources.

The campaign to extensively and systematically advertise the apple which is being waged by the Apple Advertisers of America is one of the most novel and most powerful ever brought out for an American product. For this reason a brief resume of the apple advertising movement may be of interest.

In early December, 1911, a rough draft of an article calling attention to the importance of advertising the apple was received by R. G. Phillips, secretary of the International Apple Shippers' Association. The name of the sender and writer have now been forgotten. In fact, so novel was the proposition at that time the writer himself, in a letter accompanying the manuscript, stated that he was merely passing it on, and did not know whether or not it possessed interest.

Perhaps if made at another time the suggestion would have attracted little attention. Fortunately, however, it was made at the psychological moment, for it so happened that George Walding, now dead, Mr. Phillips, and several other active members of the Association had been talking of advertising for some time before it was received, especially in connection with that year's crop, which was large and moving slowly at low figures.

The manuscript brought things to a head. It made this little band of men feel that they were on the right track and that the time and conditions were opportune to "start something." Accordingly, the article was published, and the apple advertising ball was started rolling.

Certain portions of this letter are worth quoting here, as comment which they called forth ultimately led to the formulation of systematic plans of advertising. The writer states:

"Advertising the apple is a half-century behind the times. Yes, a century behind, because it has never even started as a systematic enterprise. About the only advertising the apple has received is the wrong kind. In the summer and fall the press is usually full of scare headlines on how short the crop is and how high the price will be, and in the winter, if anything is said in the press, it is usually along the lines of how poor the fruit is and how the middleman is robbing the people and cheating the grower, doing no work and growing rich in idleness.

"The way (to advertise properly) is plain. The trail has not been only blazed, but it has been beaten down, dug out, ballasted and covered with asphalt, and down its broad lighted course the wise merchant rides in his automobile, free from care and enjoying the cool of the day. But the apple men, where are they, growers, dealers? Why, part of the time fighting about the size of the crop and cursing out whether the contract calls for a half-bushel of cider apples to every package or only a peck and a half. We spend the rest of the time hoping that Providence will in some way bring it to the minds of the people that apples are a good thing to eat. Providence doesn't do it, and then we have a set-to with Providence."

Several replies to this article were received. The most enthusiastic, however, say these gentlemen, was that of Mr. U. Grant Border, of Baltimore, who was accordingly asked to contribute an article on the same subject. Mr. Border consented, and his article was duly published.

A PLAN ADOPTED

Herein, for the first time, was actually suggested a definite, tangible, workable plan for advertising the apple and placing the industry on a basis worthy of its great importance. It was the plan which was later adopted by the International Apple Shippers' Association. It is the plan which, with certain modifications, is now being followed by the Apple Advertisers of America. The gist of the plan was contained in these significant paragraphs:

"Now, we are all agreed on two essential things: First, we have a commodity worthy of the highest praise; second, the need of a judicious, effective and persistent advertising campaign. How is this to be brought about?

"An effective advertising campaign cannot be conducted without a liberal money expenditure.

"Every apple association and individual shipper or grower should be brought to realize the great importance of contributing to a general fund in proportion to the volume of their shipment. To raise this fund stamps should be issued, similar to the Red Cross stamps, to be sold in quantities and each shipper place a stamp on each package."

About this time the executive committee of the International Apple Shippers' Association met and the question of advertising was brought up as offering a subject for a valuable address. The committee was impressed with the possibilities which it offered for bringing the matter prominently to the attention of the membership, and Mr. Border was selected to make it. The address produced the desired effect, and the advertising movement was officially adopted by the Association. An advertising committee was appointed, of which Mr. Border was made chairman.

This committee found itself face to face with a big problem. True, some advertising had been done, but it had been done in a scattered way and amounted to little both in quantity and results. The need of a country-wide publicity campaign was apparent to all apple men, but how was such a campaign to be financed? Mr. Border's answer to this question was "The Stamp Plan," which he had already outlined some months before in the article quoted. The committee agreed that the plan was practical and adopted it.

With the inception of this publicity work Mr. Border sought the counsel of the Nolley Advertising Agency of Baltimore and New York, and since that time he and the Agency have been working in close co-operation. While much hard work has been done and remarkable progress made, it soon became apparent that those interested in apples who were not members of the Association hesitated in supporting the advertising proposition because it was an association affair. This inspired the formation of an organization that would be more universal in scope, and so during the first week of March last, at the Hotel Imperial, New York, the Apple Advertisers of America was formed. Into this new organization was merged the former advertising committee

HOW THE STAMPS ARE ISSUED

The stamps are issued in two denominations—one-cent and two-cent. A one-cent stamp is to be placed on every box of apples shipped; a two-cent stamp on every barrel. In addition to this, every dealer or retailer when he receives either boxes or barrels of apples without the stamps is to place the stamps thereupon. Everyone, even those remotely interested in the successful issue of the campaign, such as boxmakers, nurserymen, makers of fertilizers, etc., are asked to place stamps upon all of the letters which they send out, not only to help swell the advertising fund, but to popularize the idea. The entire issue of the stamps is in the custody of the Equitable Mortgage and Trust Co. of Baltimore, which acts as a depository for the fund. This company, through the many banks that are its agents in various parts of the country, sell the stamps to every grower, shipper, or dealer who applies for them. The stamps may be bought in person or by mail.

The advantages of the plan are manifold. In the first place, it will provide the means for carrying on a continuous, country-wide advertising campaign, through newspapers, magazines, printed matter, and other media, that will acquaint the masses of the United States and Canada with the great food and health-giving value of the apple; with the fact that it is open to a wider range of uses than any other product, easily prepared, easily digested, and appetizing to all; and with the further fact that, when bought in substantial quantities, is one of the most economical of foods.

It settles equitably the question as to the amount it is proper for any one individual to contribute, since it provides that each man shall contribute in proportion to the size of his output. Thus, the man who has fifty packages of apples to market buys fifty stamps, while he who has 1,000 packages, buys 1,000 stamps. In this way the largest and smallest cooperate in the movement according to their ability, and share equally in the benefits.

Rough Handling by Railways

G. E. McIntosh, Forest, Ont., Traffic Expert for the Ontario Fruit Growers' Association

Rough handling of shipments by employees of railway, steamboat and express companies, is causing heavy losses to nearly every shipper of fruit in the Dominion, and he has absolutely no redress except through the rough and dangerous channel of a claim against the carrier. It is another grievance over which the Railway Commission has no jurisdiction, and no provision is made in the criminal code for punishing the guilty ones.

I have seen barrels of apples utterly ruined by rough handling at Montreal before they reached the boat. I have had barrels opened after they were permitted to fall the height of three or four tiers of barrels, and have taken from such barrels, apples burst in halves. Five carloads of British Columbia boxed apples in one shed alone were piled on the bilge. Barrels were piled two high on end in the shed, and when loading on the boat the top barrel turned over and dropped to the cement floor, while in the hold of the boat the sling carrying six barrels very often is permitted to drop heavy enough to slack the barrels. I understand there are cargo inspectors at export points, but apparently there are not enough of them to do the work thoroughly.

SMALL FRUITS

Gooseberries, Red and Yellow; Currants, Red, Black and White; Raspberries, Red, Purple and Yellow; Black Berries; Grape Vines, Strawberries, Rhubarb, Asparagus Roots, etc., etc. *Ask for Price List.*

W. FLEMING, Nurserymaa
Owen Sound, Ont.

DAHLIAS GROWN IN CANADA

Ten giant prize winners, including the famous "Jack Rose" and "Souvenir de Gustave Doazon" for $1.00. Fifteen choice varieties, all correctly named, $1.00. Twenty varieties, all different, $1.00. Send for price list.

G. S. DOUGLASS **BUCTOUCHE, N.B.**

TOWNSEND'S
20th Century BERRY BOOK

The Leading AMERICAN PLANT CATALOGUE tells the plain truth about TOWNSEND'S Thorough-bred pedigree plants. Such as I would gladly buy myself were the position of planter and grower reversed.

My aim is to supply only the quality of plants that I know will prove a success to my customers. The kind that will please them so well that they will come back with their repeat orders, and bring their friends with them.

That my business has increased 1,000% in the past five years is convincing proof that I have pleaaed my people.

While it is not the price that I hold out as an inducement to buy my plants. You will find them quoted from ¼ to 1/3 less than many large growers ask for plants of a lesser quality.

This book fully describes and illustrates the leading varieties such as—JOE JOHNSON, (the best late variety I have ever seen); Townsend's Late, Chesapeake, Mascot, Gandy, Klondyke, Early Ozark, Aroma, Baltimore, Kellogg Prize,, Progressive (ever bearing), and over 50 other good varieties.

Gives the 20th century method of growing and caring for them. Tells why certain varieties soon run down and how they may be built up; all is easy sailing the Townsend way. You can't go wrong with a copy of my book before you. IT'S FREE. Also my services. Write for your copy to-day—only a few thousand left.

E. W. TOWNSEND, Strawberry Specialist
500 Vine Street **Salisbury, Maryland**

One week spent at Montreal, closely watching the handling of apple shipments from the car to the shed and then to the boats, satisfied me thoroughly that the export trade for the fruitmen of Canada can never become the success which our fruit can demand under reasonable conditions, on the foreign market, unless the handling at these points is done with more care and consideration, under government inspection.

Legislation compels the growers, under penalty, to pack their fruit to a certain standard, but just as soon as it is shipped it is at the mercy of the carrier. This is a gap that has been left open, through which losses running into thousands of dollars, have passed. In justice then to the growers and shippers, legislation should be brought about, that while they are liable for the proper pack, the handlers be made liable for improper handling. The same condition exists with express shipments of fresh fruits. I know this to be a fact, that at nearly every fruit shipping point in Ontario, at least, growers have stood on the platform and seen their shipments of peaches rendered practically unmarketable before the train pulled out.

It is most discouraging to follow the fruit special through the Niagara district during the heavy shipping season, and see

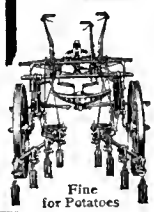
Frequent Cultivation makes better crops and bigger profits.

IRON AGE
Riding Cultivators

have that accuracy and ease of control that fits every condition of soil and growth of plants. Everything is at your finger tips—easily shifted, adjustable for all kinds of work.

Lever controlling width of cultivation does not change angle of teeth—very important. Steel frame. Guided by ball-bearing pivot wheels, excellent for hill-side work. Parallel gang shift, high and low wheels, dust-proof bearings, etc. One or two row.

Ask your dealer to show them and write us for free booklet, "Two Horse Riding and Walking Cultivators."



Fine for Potatoes

The Bateman-Wilkinson Co., Ltd.
467 Symington Ave. Toronto, Can.

Douglas Gardens
OAKVILLE, ONT.

DAHLIAS

SINGLE: Ami Barillet, crimson-scarlet with golden disc: very distinct. 20th Century, rosy crimson, shading to white at the edges and a light halo around the disc.

CACTUS: Countess of Lonsdale: a blending of amber and salmon pink; a free bloomer; very popular. Kriemhilde: Outer petals pink, shading to a white centre of beautiful form; a favorite sort. J. H. Jackson: Brilliant crimson maroon.

DECORATIVE: William Agnew, brilliant scarlet; a great favorite. C. W. Bruton: Golden yellow; very large blooms.

SHOW: Grand Duke Alexis, massive large quilled flowers, ivory white tinted pale lavender. Red Hussar: Brilliant cardinal red; a good cut flower sort. A. D. Livoni: Clear pink, quilled petals; one of the best for cut flowers.

All varieties: Each 15 cts., 10—$1.25.

Postage as per schedule is to be added.

N.B.—The Dahlia plants that we offer are from strong cuttings grown in pots until incipient tubers are formed. No old tubers are offered.

JOHN CAVERS

PRIZE DAHLIA ROOTS

15 for $1.00 by express not prepaid, or 15 by parcel post for $1.15, field grown roots. Special price for lots of 100 or more.

GEO. E. EGERTON
112 Chalmers St. **GALT, Ont.**

YOU Have Many Uses For This Machine!

We are frank in telling you that a **SPRAMOTOR,** rightly used, will earn its cost the first season and pay you a handsome profit besides.

Our **SPRAMOTOR** is a very adaptable machine—one that will benefit you in many ways. It saves orchard trees and row crops with equal certainty, destroys weeds, kills rot, blight, canker, lice, beetles and all parasites.

It throws paint or whitewash on to buildings twenty times as quickly as by hand, and does a better job. Used with disinfectant it protects horses and cattle from biting, tormenting flies and lice. A

Spramotor
It isn't a SPRAMOTOR unless we made it

reduces the percentage of loss in fruit over 80 per cent., as shown by **Government tests in 19 different orchards.** Used on potatoes a **SPRAMOTOR** has increased a yield of almost nothing to **400 bushels an acre.**

The **SPRAMOTOR** stands unequalled in the whole world as an effective spraying machine. It has won over 100 Gold Medals and First Awards against all comers. Twenty distinct patented improvements on the **SPRAMOTOR** that no other machine can have. Prices run from $6 up to $350—dozens of styles and sizes. Let us send you FREE, our valuable illustrated treatise on Crop Diseases. Post card brings it quickly.

Made in Canada. *No Duty to Pay.*

SPRAMOTOR WORKS, 2412 King St., LONDON, CANADA

Queens

BRED IN CANADA
from the best Italian stock.
Let me Book Your Order Now.
One Dollar Each
Six for Five Dollars.

P. TEMPLE
438 Gladstone Ave. - TORONTO

BEE SUPPLIES

Write for Bee Supply Catalogue
Write for Spraying Catalogue
Write for Poultry Supply Catalogue
Write for Dairy Supply Catalogue

MORGAN'S SUPPLY HOUSE
LONDON, CANADA

YOU ARE INTERESTED IN BEES
THEN TAKE THE
AMERICAN BEE JOURNAL

Some **SPECIAL FEATURES** for 1915 are a series of articles by **FRANK C. PELLETT** on "Honey Flora" and **C. P. DADANT'S** articles on his trip abroad and "Queen Rearing in Italy."

We have many of the world's best bee writers as contributors.

J. L. BYER conducts our Canadian Department. **DR. C. C. MILLER** writes editorials and answers questions.

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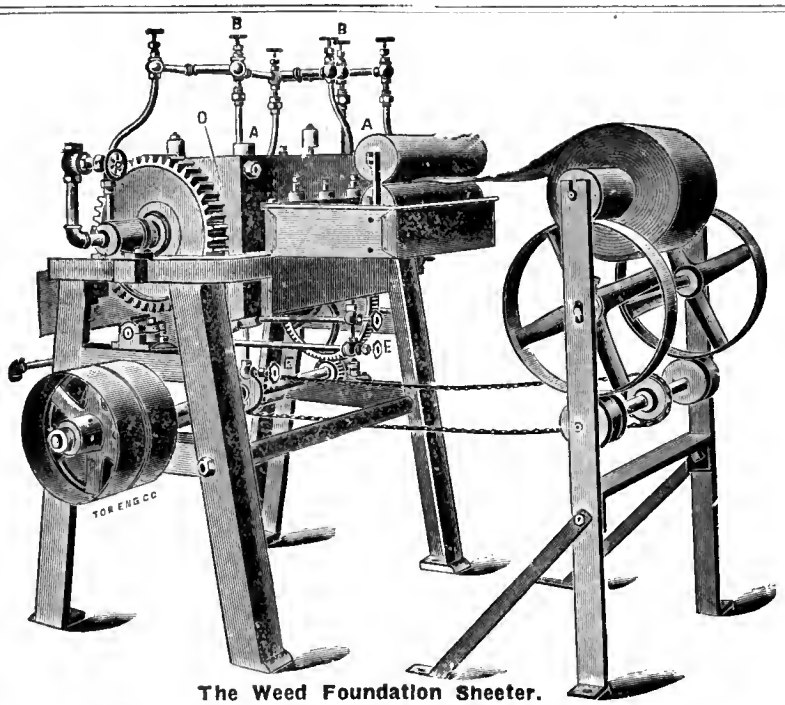
Made by the "Weed Patent Process"



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FOUNDATION made by this process excells all other in strength of texture. This combined in nice, straight uniform sheets, with good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it

Customers' Wax made up by "Weed Patent Process"
Beeswax taken in payment of making at trade prices, if desired

THE HAM & NOTT CO., Limited
BRANTFORD, ONTARIO

peaches piled ten baskets high, and baskets tossed on top of this to the car roof. On one occasion this special consisted of two Grand Trunk box cars, two Canadian Express cars, two Grand Trunk refrigerators, two Arms horse cars. Many of these cars were loaded as mentioned. I selected one consignee, the Cherney Grocery Co., Windsor, and later called upon them. Their report was that not one shipment during the season had reached them in a proper condition.

Effect of the New Duties

The manner in which the new duties and war taxes will affect fruit growers was dealt with at length in a recent issue of The Cooperative News by A. E. Adams, secretary of the United Fruit Companies of Nova Scotia Ltd. Mr. Adams estimates that his company will have to pay $2,494 a year extra, and that if it had not succeeded through several months' efforts in having all duty removed off sulphate of nicotine the extra cost would have been $4,048 a year. Mr. Adams writes in part as follows:

"The tariff charges are of such a sweeping and universal character that practically every citizen will be called upon to bear his share of the burden. We cannot disguise the fact, however, that the tariff changes will seriously affect us, as most of our requirements have to be imported.

"The all-round increase of 7½ per cent. affects nearly every material we handle, and the imposition of 7½ per cent. on all goods that were originally on the free list, with a few minor exceptions, also brings under tariff such commodities as bone meal, muriate and sulphate of potash, nitrate of soda, sulphate of ammonia, sulphur, soda, and various other chemicals, while the duty on such articles as acid phosphate, mixed fertilizer, arsenate of lead, lime-sulphur, etc., is increased by 7½ per cent.

"The stamp duty on cheques, receipts, bills of lading, bills of exchange, letters, etc., will also affect us. Now let us calculate approximately what increased expenditure on the part of our members, these changes call for.

"From June 1st to December 31st, your central office mailed 11,500 letters. We can, therefore, estimate that up to the end of our financial year another 9,500 will be mailed, making a total for the year of 21,000. We can, therefore, estimate that in one year the new one cent war stamp will cost your central office about..... $210 00

"Your office issues about 2,000 cheques a year, so that the new war stamp will cost about..... 40 00

"The cost of the same stamp on drafts and bills of exchange will be about 20 00

"The extra duty on fertilizers will be approximately 2786 25

"On sulphur 292 50

"On arsenate of lead 450 00

"Sundry other articles imported, 250 00

$4048 75

"It will be understood that the above figures only include the extra duty and do not take into consideration existing duties.

"Now, that $4048.75 represents what you would have had to pay extra had there been no Central Association, but, having a Central Association, it will not cost you so much."

Continuing, Mr. Adams explains that his company will save $2,492 through the removal of the old duty on sulphate of nicotine, leaving the net increase in cost due to the duties and taxes at $2,494.

BEES FOR SALE

For Sale—Early swarms, 1 lb. bees $1.50, f.o.b. here. Add price of Queen if wanted. Untested Italian Queens, 75c each. Tested Italian Queens, $1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction I guarantee to any Express Office in Man., Ont. and Que. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5th. Capacity, 40 swarms per day. You will get your bees when wanted, or money back by return mail. Early swarm gets the honey.

W. D. ACHORD, FITZPATRICK, ALA., U.S.A.

BEES FOR SALE

Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; All with Queens. Italian Queens, 75c each; 6 for $4.00. Complete Catalogue Free.

THE DEROY TAYLOR CO.

BOX C · NEWARK, N.Y., U.S.A.

IF GOOD QUEENS ARE WANTED

I have the goods. The pure three-banded Italians and the pure Carniolians, both races from imported mothers. Prices, untested, each 75c, doz. $8.00; Tested $1.25 each—$12.00 doz. Circular Free.

GRANT ANDERSON SAN BENITO, TEXAS

BEES and QUEENS

Ours are choice stock and Northern Bred, are more desirable for Canadian Beekeepers. Ask for Catalogue B.

Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.

Berry Baskets, ask for Catalogue O.

M. H. HUNT & SON · LANSING, MICH.

The Bee-Keepers' Review

Is out on a hunt for new subscribers and has a special offer to make to those subscribing at the present time. The regular subscription price of The *Review* is $1 a year. Our special offer is to give the last nine months of 1914 and all of 1915 at the regular annual price. The nine months of 1914 contain all the valuable papers read at the National Convention at St. Louis, Mo., last February, including one from Prof. Morley Pettit, and one from Prof. F. W. Sladen, of Canada, besides many from over the border. Twenty-one months for a dollar. A bargain worth considering. No extra charge for Canadian postage.

Address, with remittance, The Bee-Keepers' Review, Northstar, Michigan.

THE ROOT CANADIAN HOUSE

Successors to THE CHAS. E. HOPPER CO., 183 Wright Ave., TORONTO, Ont.

Every want of the beekeeper supplied. Canadian and American goods. New friction drive Extractor, Gasoline Engines, Hot-bed Sash. Quality counts. Catalogue free. Subscriptions for Bee Journals taken.

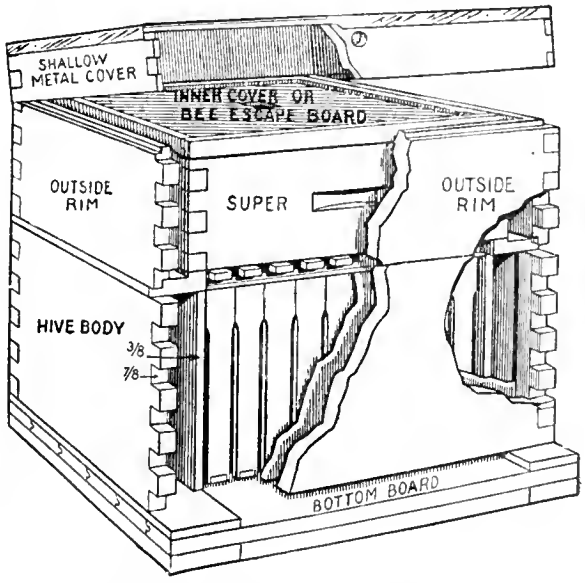
BEEKEEPERS!

Send for our new Catalogue describing our Improved Model Hives—one of the best hives in use for our climate. Weed Process Comb Foundation, Bees in Pound Packages and a full line of Bee Supplies.

Write us if you have any BEESWAX to offer

F. W. JONES

BEDFORD, QUE.



Protection Hive--the hive that is making a clean sweep everywhere.

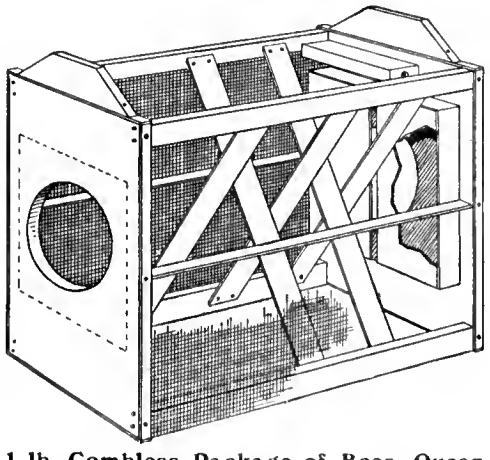
Bee Ware

"Made in Canada" goods, double walled and single walled dovetailed hives—Canadian standard in width, power outfits, excluders, frame jigs, ventilated escapes, smokers, sections, Fdn. fasteners, shipping cases, bees, queens, honey, wax, comb foundation.

Scores of different articles manufactured here. Everything for the Beekeeper.

All our woodenware is a marvel of accuracy and finish. Our whole products bear the imprint of thought and care, even in the smallest detail. This is because we are PRACTICAL APIARISTS.

How about your 1 lb. combless package of bees? The most economical method of building up your apiary we know of. Owing to the shortage in bees this spring, a big demand is certain. Already the rush is on. If handled properly they will give a handsome return the same season. The Bees should be on the combs before Fruit bloom. That means early orders. All orders filled in rotation. Satisfaction guaranteed. See Catalogue for information. PROMPTNESS IN SHIPPING: We ship same day order is received. No delay—factory is at our rear.



1 lb. Combless Package of Bees, Queen included. The modern way to ship bees.

CHAS. E. HOPPER & CO.

126 SIMCOE STREET - TORONTO, ONT.

Twenty-five years of knowledge and experience we give you in every order.

PURE SEED POTATOES
FOR SALE

A quantity of Davies' Warrior, Green Mountain, Noxall and Pats Choice.
Four of the heaviest yielding main crop white potatoes.

Write for Price List

PORT ELGIN FRUIT GROWERS' LIMITED
PORT ELGIN, ONT.

Progressive Jones says:

"Grow Bigger Crops During the War"

THIS is the Canadian farmer's golden harvest-time. With wheat selling over the dollar mark, and other grains and vegetables bringing war-time prices, farmers should do their utmost to grow as big crops as possible this year. This, friends, is the time of all times to enrich your soil with

Harab FERTILIZERS

It is the sure way to make your soil yield bumper crops and make more money for you. By using the proper fertilizers you can greatly increase your yield at no extra cost of labor or seed. Would it not pay you to grow the maximum from your soil?

DAVIES' Fertilizers

If you've been in the habit of using Davies' Fertilizers, keep on using them. They are excellent fertilizers. It's merely a matter of choice between Harab and Davies'. The Ontario Fertilizers Limited supply both.

If Harab Fertilizers were not exceptionally profitable to use, I don't think there would be such a great and growing demand for them, do you? But perhaps you would like to read the new fertilizer booklet that describes them fully. If so, just drop a card to The Ontario Fertilizers Limited, and say "Please send me your new Harab Fertilizer booklet." They have promised me to send my friends this booklet promptly without charge.

Yours for bumper crops,

Progressive Jones

The Ontario Fertilizers Limited, West Toronto, Canada

23

Growing Food on Vacant Lots

W. W. Andrews, Regina, Sask.

"Our method of handling vacant lots in Regina is by a committee, of which I am chairman. Our secretary finds out from owners if they are reasonably sure that they will not build on their land during the coming season, and if they are willing to let us have the land for our purposes.

Then we arrange to plough and harrow them. This costs us ninety cents a lot. (It cost us much more at first.) We charge two dollars and fifty cents for use of lot, plowing and harrowing, and we give some flower seeds to be sown in the ten feet near the street. Some of the lots were very beautiful. We formed a cooperative society among the gardeners and they bought their seeds cooperatively. We carried on a series of lectures and talks on the conditions of success in western gardening. These were held in the schoolhouses and were the first social centre work in the schoolhouses. These meetings were well attended and the discussions were interesting. We pay our secretary fifty dollars for his trouble.

We have now one hundred and sixty lots ready for the spring. We had some city property which is now used by the city for nursery purposes. Next year we expect to add a large number of lots to our list.

We were able to run a small market of our own—cooperatively managed, and this move led with the cooperation of the ladies' association to the re-opening of the city market. We hope to reduce somewhat the fee of two dollars fifty cents. It is very small, considering the results the gardens yield.

I had one garden and so also had some others of our committee. My little twenty-five-foot lot kept our table supplied all summer with abundance of green stuff, lettuce, Swiss Chard, spinach, peas, beans, tomatoes, corn, onions, carrots, turnips, celery, potatoes and cabbage, enough to do us all winter. The soil here is wonderful in its fertility.

We used the newspapers freely. Our secretary was most indefatigable. The chairman and secretary necessarily do most of the work. Some of the stores gave plants, tools, and special seeds at reduced prices to all who presented one of our cards.

We have decided to recommend all our gardeners who use hotbeds and cold frames to eschew glass and to use factory cotton instead. It costs less, does not grow so hot during the day nor so cool at night. The plants get more air and are in every way harder and stand transplanting better.

One edge of the factory cotton we tack to the higher side of the frame and the other edge is tacked to a lath or roller. The cotton is in this way easily rolled up, and when spread over the frame the weight of the roller keeps it in place. Lath may be used as rafters to keep it from sagging during a rain and injuring the plants.

A movement has been started in the Province of Quebec favoring the holding of a provincial horticultural exhibition similar to the one which has been held in Toronto for the province of Ontario during the past eight years. The province of Quebec needs such an exhibition. Nothing would do more to unify the horticultural interests and at the same time advertise the fruit resources of the Province. The first few exhibitions would naturally be small but in time they should become an important annual event in the affairs of the Province.

Nova Scotian Methods That Succeeded

At a meeting of the directors of the United Fruit Companies of Nova Scotia, Ltd., held early in February, Secretary-treasurer A. E. Adams presented a lengthy report, covering the operations of the company during the past season. Extracts from this report are here given:

It was realized by your Board of Management at the commencement of the financial year that unusual difficulties were to be encountered on account of the great crops reported from all sections. When a little later, Europe, our greatest market, was plunged into a fearful devastating war, those difficulties were increased tremendously. Your management were quick to understand and take advantage of the fact that these very difficulties but provided opportunities for cooperative centralization to accomplish useful work and to demonstrate to the world what could be accomplished by the united efforts of a community banded together for mutual assistance and protection.

When war was declared it was recognized that the price of feed and flour would advance considerably, in fact if evidence were needed of what would happen it was quickly provided for by local feed and flour merchants who promptly advanced their prices.

The action, however, of your central office in immediately securing some forty-five carloads of feed and flour and promptly placing about twenty cars at various points throughout the Valley, quickly had an effect and caused traders to revert to reasonable prices and to be content with a fair profit. In all, 105 cars have been handled since August at a cost of $94,500. Every carload of this has been passed on to subsidiary companies at a price far below market value.

METHODS COMPARED

I wish at this point to trespass on your patience for a few moments while I compare the manner in which the apple crop of the three great producing provinces has been handled.

British Columbia, although organized into cooperative companies and also enjoying the benefits in a measure of cooperative centralization, cannot claim to have made a success of her efforts in the marketing of her crop. It is not my intention to criticise her methods, for in a certain direction we have a lot to learn from British Columbia, but what I do want to direct your attention to is the fact that the British Columbia crop has only netted for the grower 27 cents per box.

Bearing in mind that only the very finest specimens are packed and that land is much higher in price there than here, that labor

A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at $3.00 to $14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.

No. 6 Drill and Wheel Hoe

The Bateman-Wilkinson Co., Limited
462 Symington Av., Toronto, Can.

Landscape Gardening

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For 46 years the leading authority on Vegetable, Flower and Farm Seeds, Plants and Bulbs. You need it. *Send for free copy—to-day.*

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An Extra Early Red Variety

Developed by Experts at the Central Experimental Farm, Ottawa. Reported to be the earliest variety in existence and especially adapted for Canada, being Northern Grown. Full size packet, 15c.

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LET CANADA BLOOM DESPITE THE WAR

What a consolation a flower garden will be this year! Of course, more people are going to grow their own vegetables this year, but just as many should retain the touch of beauty. Our new illustrated catalogue will help you decide what kinds to plant. A postcard will bring it.

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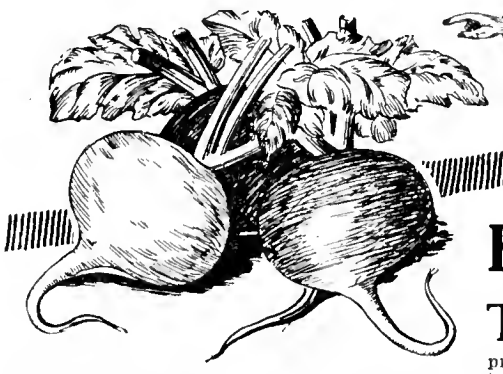

Ferguson's—Non Plus Ultra, white Turnip and scarlet white tip. Pkt. 5c; oz. 15c; ¼ lb. 40c; lb. $1.00.

High-Grade Seeds

TO insure "Bumper Crops" this year you cannot be too careful about buying the Best Seeds. Owing to the present war it is expected there will be a tremendous call on our Canadian market to supply the needs of Europe. All seeds are carefully tested, and our Expert passes nothing but the best producers.

The Best Is None Too Good

With our experience and knowledge of True Quality Seeds, we recommend here twelve of our finest specialties in vegetable seeds which we will send post paid anywhere in Canada.

BEANS: Ferguson's Sure Crop Stringless Wax. Pkt. 10c. ½ lb. 20c. 1 lb. 30c.

BEANS: Ferguson's Stringless Green Pod. Pkt. 10c, ½ lb. 15c. 1 lb. 25c.

BEET: Ferguson's "Dobbie's" Selected Globe. Pkt. 10c. oz. 40c.

CABBAGE: Ferguson's Copenhagen Market. Pkt. 10c, ½ oz. 35c. 1 oz. 60c.

CORN: Ferguson's Early Malcolm. Pkt. 10c, ½ lb. 25c. 1 lb. 40c.

CUCUMBER: Ferguson's Extra Long White Spine. Pkt. 10c, oz. 25c.

LETTUCE: Ferguson's Peerless. Pkt. 10c, oz. 30c.

LETTUCE: Ferguson's Wayahead. Pkt. 10c, oz. 20c.

ONION: Ferguson's Excelsior. Pkt. 25c.

PEA: Ferguson's World Record. Pkt. 10c, ½ lb. 30c, 1 lb. 50c.

RADISH: Ferguson's White Icicle. Pkt. 5c, oz. 15c.

TOMATO: Ferguson's O.K. Pkt. 15c, ½ oz. 75c.

Write for our big Catalog FREE.

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DUPUY & FERGUSON
39 Jacques Cartier Square
MONTREAL

HIGHEST GRADE SEEDS

CENTRAL NURSERIES

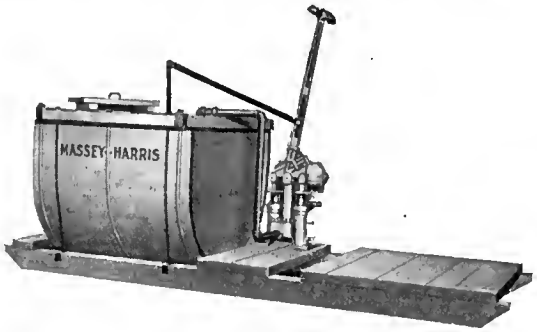
Have a Fine Assortment of
Trees, Vines, Plants, Ornamentals, Etc.
For Spring Planting Direct.

For Satisfaction plant HULL TREES. Our prices are right and so are the trees. Send for new priced catalogue, also your want list for special prices on Apple Trees. Excellent quality, and at a very reasonable price. Trees grown in Canada. **Look over our price list. No Agents.**

A. G. HULL & SON - ST. CATHARINES, ONT.

It Pays to Spray

Proper Spraying yields Big Returns.
Unsprayed fruit is liable to be a drug on the market.
A Good Spray Outfit will soon pay for itself and Adds to your Profits.

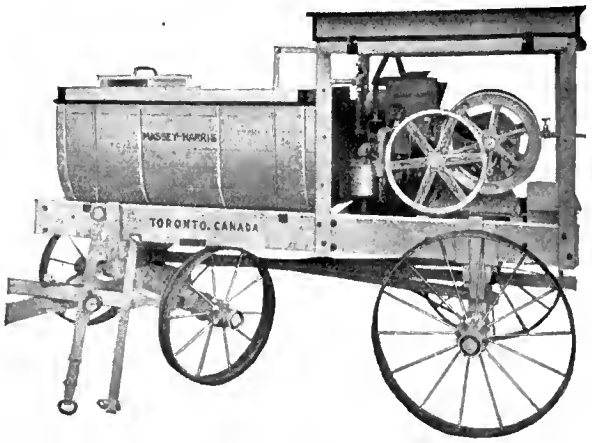


The Massey-Harris Sprayer

has Double Cylinder Vertical Pump with Bronze Plungers---Tank is made of selected Cypress---the Agitator is operated from top of the Tank---no Sprocket Chains or other "trappy" Parts.

Made in a large range of sizes from the hand power outfit on skids, shown above, to the large power outfits for the large fruit farms.

Complete catalogue which contains valuable hints on spraying, free on request.



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AGENCIES EVERYWHERE

is also more expensive, I feel sure that you will agree that a return of 27 cents per box is totally inadequate to pay for production.

Ontario, which is the largest apple raising province of the Dominion, is hardly in a much better position. True, Ontario has many cooperative fruit companies, but she lacks a central association. The result has been that lacking the guiding hand of a central, lacking the courage that a central can always inspire the various cooperative companies and the individual growers of Ontario have almost thrown their crop away.

Dependent almost entirely on the speculator, even as Nova Scotia would be but for its central association, the Ontario grower found that he was leaning on a rotten reed for the apple speculator in August and September last was not imbued with a great amount of courage and refused altogether to have any dealings with those out of whom he had in the past made handsome profits.

Consequently the growers, thrown on their own resources, flooded the western markets with their apples absolutely without regard to the requirements of that market. Prices were slaughtered, and that portion of the crop that was harvested was thrown away, nearly half of the crop, however, was never harvested and was allowed to rot on the ground.

To-day, Ontario is without apples, and her usual markets are bare, crying for the very apples that have been thrown away, and Nova Scotia is taking advantage of the opportunity thus afforded, and is placing her products on the markets that Ontario previously considered her own.

Who will say that a similar state of affairs would not have existed in Nova Scotia had there been no central association? At the commencement of the season hundreds of growers cancelled their orders for barrels and lacked the courage to pick their fruit. With the high freight rates that would have been demanded but for our efforts to prevent them, it would have required considerable courage to have shipped across to a country involved in a great war, and I say that Nova Scotia would have done exactly as Ontario did.

It was the central association that furnished the courage that caused the growers of the Annapolis Valley to harvest and pack their crop, and it was the central association that regulated the shipments so that the growers in spite of the dark clouds of war are receiving a fair return for their fruit.

Perhaps I cannot do better at this stage than tell you just what your fall fruit has done.

The average for Ribstons is: No. 1, $1.50; No. 2, $1.38; No. 3, $1.63.

Blenheims, No. 1, $1.54; No. 2, $1.30; Co. No. 3, $1.00; No. 3, 98c.

Kings, No. 1, $2.04; No. 2, $1.75; Co. No. 3, $1.30; No. 3, $1.02.

Compare those returns with the returns received by the growers in any of your competitive provinces, and I claim you have all Canada beaten.

WISCONSIN INCUBATOR AND BROODER BOTH FOR $13.90

130 EGG INCUBATOR
130 Chick Brooder
BOTH FOR
$13.90 Freight and Duty PAID

If ordered together we send both machines for only $13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. **Ten year guarantee--30 days trial.** Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of $13.90 is for both Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.

Write Us Today--Don't Delay

WISCONSIN INCUBATOR CO. Box 186, RACINE, WISCONSIN, U. S. A.

THE GEORGIAN BAY

TREE PRUNER

Is made for better pruning and less climbing. Will cut a limb of reasonable size anywhere between the tip and the tree without injury to the tree. Is durable and light, made of best material, adjusted for long or short pole. Description and price sent on application.

GEO. W. BULL, WIARTON, ONT.

APPLE TREES

All standard varieties, one and two years old; large, strong and clean; grown with special care from selected buds for our own planting.

AT RIGHT PRICES

Write us for Prices and Information

LYNNDALE FARMS

SIMCOE, ONT.

P. E. ANGLE - Superintendent

As our Gravenstein average is affected very much by our operations in the Canadian West, I will deal with the western business next. Owing to the panic to which I have already referred, the western business was very difficult to handle. With the nearby Ontario growers ready to accept any price for their fruit with British Columbia flooding the west with their crop all on consignment it was a fairly tough proposition for any representative to sell Gravensteins at any price.

Mr. Morse succeeded, however, in the face of such a state of affairs in selling 29 cars at from $1.90 to $2.00 for No. 1's and No. 2's.

After he had secured that business he met other competition much harder to overcome, namely, the competition from his own province. The unorganized growers selling their Gravensteins to speculators at $1.00 to $1.25 enabled those gentlemen to quote Gravensteins on the western market at $1.35 to $1.40 per barrel.

A bad feature of this competition was that our competitors were quoting cooperative pack. The speculators found that buyers were demanding cooperative pack, and that little attention was paid to their quotations, even if lower than ours. They therefore organized cooperative companies of their own so that they could use apples thus obtained to undersell the organized farmers and thus ruin your markets.

I consider the action of the speculators in thus organizing cooperative companies the finest compliment that could be paid to our organization and a standing testimony to the success of our movement. Thus the farmers' own organization endeavoring to obtain for the Annapolis Valley a fair return for its crop was balked in that endeavor by the action of those who will not cooperate. It is safe to state that but for that senseless competition double the quantity of Gravensteins would have been placed on the western market and the

Market Gardeners

Before buying your Seeds this Spring we want you to see our PRICE LIST of

SEEDS

KEITH'S SEEDS are right seeds at right prices and will *positively* and *absolutely* give you satisfaction.

Write Us About Your Wants

Seed Merchants since 1866

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124 KING ST. EAST - TORONTO

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

Orders Filled Promply Send for Prices

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

Mention the Canadian Horticulturist when writing to advertisers.

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PAGE FENCE is the BEST FENCE at the LOWEST COST. When you pay *less*—you *gamble.* When you pay *more*—you *waste.* And when you pay **PAGE** prices for any other fence—*you give dollar bills for 50c.*

No. of bars	Height	Stays inches apart	Spacing of horizontals	Price in Old Ontario
6	40	22	6½, 7, 8½, 9, 9	0.24
7	40	22	5, 5½, 7, 7, 7½, 8	.26
7	48	22	5, 6½, 7½, 9, 10, 10	.26
8	42	22	6, 6, 6, 6, 6, 6, 6	.29
8	42	16½	6, 6, 6, 6, 6, 6, 6	.31
8	47	22	4, 5, 5½, 7, 8½, 9, 9	.30
8	47	16½	4, 5, 5½, 7, 8½, 9, 9	.32
9	48	22	6, 6, 6, 6, 6, 6, 6, 6	.34
9	48	16½	6, 6, 6, 6, 6, 6, 6, 6,	.36
9	52	22	4, 4, 5, 5½, 7, 8½, 9, 9	.34
9	52	16½	4, 4, 5, 5½, 7, 8½, 9, 9	.36
10	48	16½	3, 3, 3, 4, 5½, 7, 7, 7½, 8	.38
10	52	16½	3, 3, 3, 4, 5½, 7, 8½, 9, 9	.38
11	56	16½	3, 3, 3, 3. 4, 6½, 7, 8½, 9, 9	.41

ALL FULL No. 9 GAUGE

SPECIAL FENCE

No. 9 top and bottom. Balance No. 13. Uprights 8 inches apart.

18-bar, 48-inch	$0.46
20-bar, 60-inch	.51
3-ft. Gate	2.30
12-ft. Gate	4.35
13-ft. Gate	4.60
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Set Tools	8.00
25 lbs. Staples	.80
25 lbs. Wire	.75

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For 22 years, PAGE (Made in Canada) Fence has been the highest value at the lowest cost. Sold DIRECT "From Factory to Farm"—with no fancy profits nor "free excursions" to middlemen—PAGE Fence is the biggest **actual** fence value you can buy.

We make but one grade—the very best. We have no "skimped"-gange light-weight fence as "bait." Our wire is ALL **full Imperial Gauge.** Even the knots are full No. 9 gauge. (Because the knot is the vital part in any fence—and no fence is stronger than its weakest knot.) PAGE weave is perfect. Every lateral of uniform length. Every upright correctly spaced. The PAGE knot is slip-proof. PAGE Galvanizing is the best money can buy. Every rod of PAGE Fence is sold under this iron-clad guarantee — "Satisfaction — or your money back." Out of 15,000 shipments last year—not one came back

When you buy PAGE Fence DIRECT (Freight PAID on $10 or over) you get the biggest real value for your money. When you buy other Fence at Page prices—you pay more for what you get, or get less for what you pay.

Mail your order to the nearest PAGE Branch. Remit in cash, check, bank-draft, postal or express order. Get IMMEDIATE shipments from the big PAGE Warehouse near your farm

We are official supplier of fencing, gates, etc., to Granges and other members of the United Farmers' Cooperative Company. Members should apply to the head office of the United Farmers' Cooperative Company, 100 Church Street, Toronto, for particulars.

Write for FREE copy of big PAGE General Catalogue. High-grade Farm and Household necessities at Wholesale Prices

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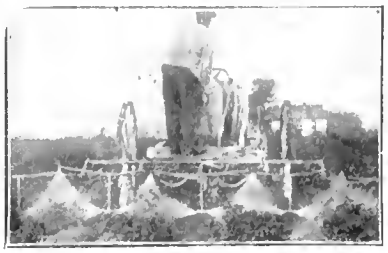
Results Prove Spramotors Best!



No other spraying machine has been granted the patents for improvement that you'll find on the SPRAMOTOR. No other maker has been so long engaged in the exclusive manufacture of spraying machines. These are the facts that count when it comes to service-giving and result-getting. We make the

Spramotor

It isn't a SPRAMOTOR unless we made it

in dozens of styles and sizes, from $6 up—operated by hand, horse and gasoline power. Outfit shown here is our HAND SPRAMOTOR mounted on one-horse cart supplying twelve nozzles under high pressure. Gives perfect spray for row crops, trees and vineyards, also weed killing. Four to eight nonclogging nozzles do the work. Wheels adjustable in width, 54 in. to 72 in. nozzles from 26 in. to 36 in. also in height. A first-class moderate price outfit.

FREE Write us giving some idea of your spraying needs, and we will send absolutely free and without obligation to you, our fully illustrated valuable work on Crop Diseases.

MADE IN CANADA — NO DUTY TO PAY.

SPRAMOTOR WORKS, 2215 King St., LONDON, CAN.

Spraying Pays

BECAUSE it saves your original investment so that it can produce at a profit each year.

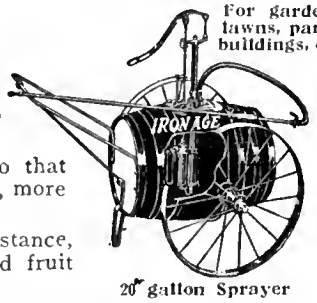
BECAUSE it keeps trees and plants healthy so that they not only produce regularly but you get a larger, more uniform and better quality crop.

BECAUSE only sprayed trees, for instance, produce uniformly good fruit, and good fruit brings a fair price at any time.

BECAUSE it keeps stock quarters healthful, and prevents infection and spread of disease. An ounce of prevention beats a pound of cure any day.

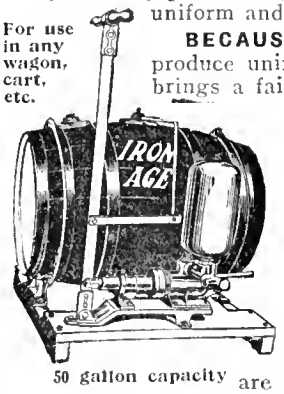
It not only pays to spray, but it pays to do it thoroughly, with first-class machinery, and with the right machine for each purpose.

For gardens, lawns, parks, buildings, etc.



20 gallon Sprayer

For use in any wagon, cart, etc.

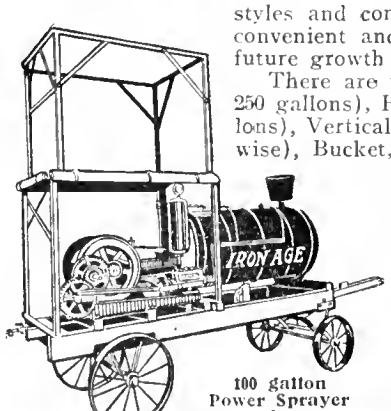


50 gallon capacity

IRON AGE Sprayers are built with that choice in view—a large number (70) of styles and combinations, most of which can grow to more convenient and more efficient uses, and greater power, for future growth in your spraying operations.

There are in this line Power Sprayers (50, 100, 150, and 250 gallons), Horizontal Barrel Sprayers (20, 50, and 100 gallons), Vertical Barrel Sprayers (50 gallons, mounted or otherwise), Bucket, Knapsack, and Hand Sprayers, and Traction Sprayers for field use in row crops.

Outside Pumps, high pressure, bronze ball valves, hemp packing, all parts easily got at, solutions touch brass parts only, thorough mixing, a fine system of straining sediment, nozzles that put the spray on as it should be and nozzle strainers for further protection—these things characterize Iron Age Sprayers throughout.

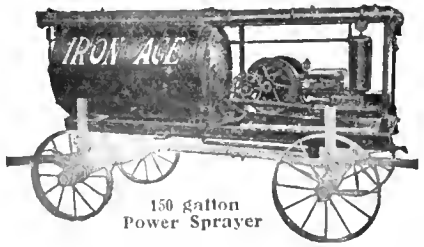


100 gallon Power Sprayer 200 pounds pressure with 6 to 8 nozzles

We have agencies in all parts of the country with the most intelligent dealers. See the nearest one and in the meantime write us for "Spray" booklet and a spraying guide.

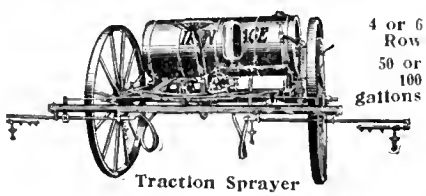
THE BATEMAN-WILKINSON CO., Ltd.

466 Symington Ave., WEST TORONTO, Ont.



150 gallon Power Sprayer

For field use



4 or 6 Row 50 or 100 gallons

Traction Sprayer

minimum price would have been $1.75 per barrel.

We shipped to the Canadian west 13,211 barrels and 1,200 boxes of Gravensteins. The total shipments to the Canadian west were 21,631 barrels.

We regret, however, that we have had some trouble with the apples shipped to supply these orders. We know that the apples sent were a first-class pack, but the grain growers were not satisfied. They were accustomed to the larger, higher colored apples of Ontario and the west, and considered our greener and smaller apples an inferior pack. At first we anticipated serious trouble in getting a settlement, but we were able to get the whole matter adjusted with very minor allowances.

The Nova Scotia apple industry has much to be proud of. Fertilizers, seeds, spraying materials, etc., and other essentials of the orcharding business are procured here for less money than elsewhere in the Dominion, and a better return has been secured for the crop than in any other province in the Dominion. These two great facts are irrefutable, and are a standing testimony of the success of cooperative centralization.

We have also sent a strong protest to the powers that be at Ottawa against the heavy duties now being imposed on certain spraying materials and fertilizers, and are using all legitimate means to have such duties on the farmers' raw material removed.

Western Growers Plan for the Future

The Okanagan (B.C.) United Growers, Ltd., have submitted a plan of action to the shareholders of the fruit unions identified with them, which contains much of interest to fruit growers in other districts as well.

EXTEND THE PARCELS POST

"Whereas the growing of fruit, both in the eastern and western provinces has become one of Canada's leading industries, and whereas the returns from this business, particularly the growing of soft fruits, have become so unsatisfactory as to threaten the very existence of the industry;

"And whereas this state of affairs is not due so much to the want of a market, which is ample, nor to the prices paid by consumers, which are generally reasonable, but rather to a combination of excessive or unnecessary charges between the grower and the consumer, the result being that when boxing charges, freight or express rates, commissions to selling agencies, brokers, jobbers and wholesalers have been satisfied, but a small percentage, and sometimes nothing whatever of the selling price remains for the grower;

"And whereas in the opinion of this institute this state of affairs can somewhat be remedied by bringing the grower as nearly as possible into direct contact with the consumer by means of a parcels post system;

"Therefore be it resolved that the Government of the Dominion of Canada be, and is hereby petitioned to amend the present parcels post system; 1st, by increasing the weight of the parcel to at least twenty-five pounds; 2nd, by granting a special rate on fruit during the shipping season; the said rate not to exceed one cent per pound, and to cover at least three provinces outside that in which the fruit is grown."

CHEAPER PACKAGES

That it is absolutely necessary for the

success of the fruit industry to have a cheaper fruit package provided in order that the grower receive a living price for his fruit. And that we recommend having travellers sent out before the fruit begins to move in order to secure the trade for soft fruits. This will, we feel sure, accomplish much toward the elimination of the broker, and the realizing of more satisfactory prices for the fruit.

That earnest efforts be made to arrange a working basis with our competitors as to selling policy and prices.

That we have our own offices located at Vancouver, Calgary, and Regina.

That we sell our own goods.

That garden truck and early soft fruits be placed direct with the retail trade by our own salesmen, so far as possible.

That we sell our main carload crop to the regular wholesale trade on an f.o.b. shipping point basis.

That no goods unsold be shipped out except to our own salesmen.

That cheaper packages be used, especially in handling "orchard run" or "off" varieties of apples. Baskets will also be used in making experiment shipments of sour cherries, small plums, early apples, and crab apples.

That our export markets be extended.

Niagara Fruit Growers Active

The Niagara Peninsula Fruit Growers Association conducted a number of meetings at leading centres throughout the district during February. The annual meeting of the association opened at Grimsby where addresses were given by the president, R. H. Dewar, Prof. L. Caesar, who spoke on the control of San Jose Scale and Cherry

This Book Will Help You

To make your home look worth while---and worth more.

Lovers of Roses

will find many suggestions in its list of 115 hardy varieties. It also lists many varieties, new and old, of Shrubs, Vines, Herbaceous Perennials, Trees and Bedding Plants.

The Book Is Free

to readers of the Canadian Horticulturist. Send for it today.

JOHN CONNON CO. Limited
HAMILTON, ONTARIO

RENNIES want to send you their Seed Book - *Sent Free.*

IT describes more than 1500 of the best varieties of Vegetables, Flowers, Shrubs, Vines, Fruits and hardy plants suitable for all parts of Canada—scores of varieties of Asters, Pansies, Petunias, Phlox, Sweet Peas, climbing and dwarf, Roses, Dahlias, Gladiolus, Paeonies and Phlox Plants, etc., for beautifying the home grounds.

ALACRITY TOMATO
An Extra Early Red Variety

Developed by Experts at the Central Experimental Farm, Ottawa. Reported to be the earliest variety in existence and especially adapted for Canada, being Northern Grown. Full size packet, 15c.

EARLY MALCOLM SWEET CORN

An Extra Early Sort developed at Ottawa Experimental Farm. It proved to be the best of the Sweet Corns tested at our trial grounds at Long Branch and our Farmer says: "Early Malcolm is the Earliest Sweet Corn I have ever seen, and I have been growing corn since 1878," Packet 100 seeds, 15c.

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Write a post card to-day to our nearest address.

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NEXT MONTH

Annual Spring Gardening and Planting Number

It will be a big puller. Copy should reach us March 20th.

Spray---INCREASE YOUR PRODUCTION---Spray

WITH

Niagara Soluble Sulphur

SOLUBLE SULPHUR is the Sulphur Spray with the water left out. A dry powder easily dissolved in cold or hot water. Makes a perfect Solution. Used in the same way as Lime-Sulphur.

No sediment, no grit, to wear out pumps and clog nozzles. No freezing, no crystallization, no leaking, no loss. No barrels with leaky, sloppy, muss, trouble and expense.

SOLUBLE SULPHUR is packed in 100's, 50's, 25's, 10's and 5 lb. drums. 100-lb. drum is equal to a 600-lb. barrel of Lime-Sulphur. A saving of 500 lbs. in freight is effected.

All the sulphur in Soluble Sulphur is available. There is no lime to make a mortar over the Scale and thus protect it. Soluble Sulphur is a natural and perfect solution, with a high percentage of polysulphides, the most active property in a Spray solution.

SOLUBLE SULPHUR sticks indefinitely, protecting the tree, foliage and fruit, against fungus diseases and insect pests. It is a neutral solution and has greater penetrating power

SOLUBLE SULPHUR has been used by thousands of fruit growers now for three years with the highest satisfaction. It positively will do the work. A trial will convince anyone.

DON'T PAY FREIGHT ON WATER. Let us send you full particulars.

NIAGARA BRAND SPRAY CO., Limited, BURLINGTON, ONT.

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SPECIAL COLLECTIONS

(Prices Prepaid)

Bruce's Collection Floral Gems, 1 pkt. each 6 varieties, Fine Annuals, each separate, many colors, for **25c.**

Bruce's Peerless Collection Tall Nasturtiums, 1 pkt. each of 6 finest varieties, separate colors, for **25c.**

Bruce's Royal Nosegay Collection Sweet Peas, 1 pkt. each 6 superb sorts, separate colors, for **25c.**

Bruce's Peerless Collection Dwarf Nasturtiums, 1 pkt. each of 6 finest sorts, separate colors, for **25c.**

Bruce's Empire Collection Asters, 1 pkt. each of 4 magnificent varieties, separate, all colors, for **25c.**

Bruce's "A" Vegetable Collection, 6 pkts. different varieties, our selection, for **25c.**

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FREE—Our handsomely illustrated 112-page catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, etc., for 1915. Send for it.

John A. Bruce & Co., Ltd. Hamilton, Ontario
Established Sixty-five years.

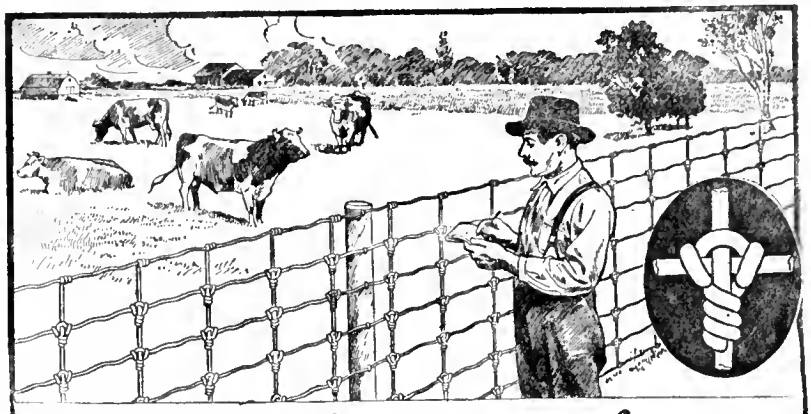


Figure what your fence costs you per year

That is the only right way to figure the cost of fence—the only real way to determine value. Judged on that basis the so-called "cheap" fence becomes the dearest you could buy.

For example—FROST FENCE at a reasonable cost will give you twenty years of service. A "cheap" fence put up at the same time, costs one-fifth less, but doesn't last half as long. Is there any question which fence is the cheapest?

For the man who wants good, true, solid value, FROST Fence is the only logical buy. Have you ever noticed that users of Frost Fence as well as dealers are invariably quite prosperous and up-to-date? Consider this, and also the all-important fact that **we make our own wire.** This advantage alone is easily sufficient to place

Frost Fence First

Every foot of wire used in FROST FENCE is best full-gauge No. 9 Hard Steel Wire. Then the galvanizing is extra thick and heavy—won't scale off or succumb to the attacks of rust and weather.

There is extra reserve spring in the laterals to meet future contraction or expansion. The lock, which is the crowning feature to FROST Fence, is wrapped around both stays and laterals with a never-yielding grip, ending in a doubly secure tie below.

Write us direct if you can't get FROST FENCE. We may need an agent in your locality.

56

Frost Wire Fence Co., Limited, Hamilton, Ont.

Fruit Flies; Mr. R. Morrill, of Michigan, who dealt with peach growing; Prof. T. D. Jarvis, who spoke on the Marketing of Fruit, and by F. Johnson, who dealt with Grape Culture. The following day the convention was continued in St. Catharines. Mr. W. A. McCubbin spoke on the control of Peach Canker and Brown Rot, Prof. Jarvis urged the use of express by small producers instead of sending by freight.

An address on vineyard conditions and manipulation was given by Mr. J. H. Burkhard of St. Josephs, Mich., who among other things urged the spraying of vines, whether they needed it or not. The speaker advocated the use of fertilizers. Dominion Fruit Commissioner, D. Johnson, favored the use of advertising as an aid in disposing of the fruit crop and intimated that the Dominion Government purposes endeavoring to promote the consumption of peaches.

In reply to a number of questions relating to the fruit lands of Florida and California, Mr. Morrill advised his hearers to stay at home. A peach orchard owned by him in Texas had caused him somewhat heavy losses. Mr. Burkhard advocated the adoption in Ontario of a law to prevent the shipment of immature grapes. Such a law is in force in Michigan and has given satisfaction. Other speakers during the meetings were Dr. C. C. James, Dominion Commissioner of Agriculture; Prof. R. Harcourt, Guelph; F. C. Hart, of the Department of Agriculture, Toronto; and F. M. Clement, Vineland Stn., Ont. Following the convention of the Central association a series of local meetings were held at Fonthill, St. Davids, Jordan Station, Beamsville and Stoney Creek.

British Columbia Fruit Growers' Association

Special emphasis was laid on three points at the annual convention of the British Columbia Fruit Growers' Association held in Victoria, B. C., January 26 and 27. These were the taking of action to obtain an increase in the tariff which would prevent the dumping of fruit from the Pacific Coast states on the markets of British Columbia, the perfecting of the methods of cooperation followed throughout the province and the reduction of expense, both in the orchard operations and in marketing methods as well.

President W. C. Ricardo, of Vernon, advocated the use of improved methods during 1915. He said that the 1914 crop had been 20 per cent. greater than that of 1912. During 1915 it was going to be possible for the growers to obtain their boxes at a lower cost.

Secretary R. M. Winslow, of Victoria, B. C., reported that the executive committee had devoted special attention to obtaining publicity for British Columbia fruits. The general returns had been the lowest recorded in recent years, due largely to the large crop in the United States and to war conditions. There had been an improvement in transportation conditions. The membership of the association was 876.

Sir Richard McBride, Provincial Premier, strongly advocated an increase in the tariff on fruit. He claimed that the peach and apple market in Vancouver was often shot to pieces by the slaughtering of Washington State fruit on the Vancouver market, when the Seattle market was overstocked. Similar views were expressed by Hon. Price Ellison, Minister of Agriculture, and by W. E. Scott, Deputy Minister of Agriculture. An ad-

dress on transportation conditions was given by F. W. Peters.

Mr. Forsyth Smith, Markets Commissioner, described his efforts during the year to stimulate trade with the prairie provinces and Eastern Canada. He pointed out the different requirements of eastern markets, especially those of Toronto and Montreal. Trade in apricots and cherries was somewhat confused last year, and more advertising was recommended. In order to obtain publicity for British Columbia fruit he advocated the appointment of salesmen who would carry samples of the various fruits, and give lectures wherever they went.

An address was given by R. Robertson, manager of the Okanagan United Growers, on the subject "Cooperation in the Okanagan." Mr. Robertson advocated the making of efforts towards the amalgamation of shipping interests.

RESOLUTIONS ADOPTED

The following resolutions were adopted:

1. "That the full pint hallock and crate be adopted as a legal and a standard package for berries, thus equalizing competition with imported fruits, particularly berries.

2. "That the dominion government be requested to enact legislation compelling dealers receiving fruit on consignment to make returns to the shippers, showing condition of fruit on arrival; to whom it was sold, the buyer's address and the price received therefor and that returns be made at least once a week."

OFFICERS ELECTED

W. C. Ricardo, president; Thomas Abriel, vice-president; R. M. Winslow, secretary.

R. D. Nicholson, R. M. Palmer, James Rooke, W. S. Foggo, Hon. Price Ellison, Minister of Agriculture, W. E. Scott, Deputy Minister of Agriculture, ex-officio, members of the Executive Committee.

Directors: Victoria, W. F. Somers; Duncan-Nanaimo, R. M. Palmer; Lower Mainland (south of the Fraser) George I. Thornton; Lower Mainland (north of the Fraser, Mission and east) F. M. Shook; Lower Mainland (north of the Fraser, west of Mission) J. C. Metcalfe; Salmon Arm, Armstrong, F. D. Nicholson; Vernon-Coldstream, W. C. Ricardo; Okanagan Centre-North Kelowna, J. E. Reekie; Kelowna (south and east), W. C. Pooley; Summerland, R. V. Augur; Vernon-Long Lake, W. S. Foggo; Penticton, E. W. Mutch; Similkameen, J. J.

GARDENERS' GLOVES

Sheep-shin gloves, steam and fireproof asbestos tan. Just the right glove to protect your hands during the spring work.

10-in. gloves, 50c. per pair, prepaid. 10-in. one finger mitt, 25c. per pair; 4 pairs $1.00, prepaid. 12-in. one finger mitt, gauntlet cuff, 40c. per pair, prepaid.

"I have used Davidson's gloves and have found them superior to all others." JOHN GALL, Weston.

N. F. DAVIDSON, Man'f'r., INGLEWOOD, Ont.

HANDIEST IMPLEMENT YOU CAN HAVE

You'll find a hundred uses for the Bissell Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable.

T. E. BISSELL Co. Ltd., ELORA, ONT.

Write Dept. N for Folder to-day

A Self-Starter for the Farm

For an early call that fills the fields on time—for early yields that fill the bins—

For a business-like farm system that gets things done on time and according to plans—Big Ben.

He has two calls—a straight five-minute ring or ten gentle half-minute reminders to bring you out gradually.

If not found at your dealer's, a money order to his makers, *"Westclox, La Salle, Ill.,"* will bring him postpaid—$2.50 in the States; $3.00 in Canada.

AT LAST! Just the Outfit You are Looking For

The Most Practical, Efficient and Simplest High Pressure POWER SPRAYING OUTFIT ever offered

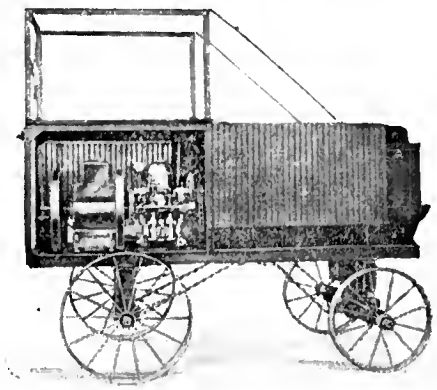
"Goes Like Sixty"

Light Weight

High Pressure

Direct Geared

No Racking Pump Jack



100% Service

Engine can be used for other work all the year round.

Truck makes a capital farm wagon.

Sills of channel steel, with steel platform.

Do not buy a Sprayer until you have investigated the "Goes Like Sixty" Power Sprayer. Send for Sprayer Catalogue to-day.

GILSON MFG. CO., 244 York St., GUELPH, ONT.

Patented Tree Pruners

MADE IN CANADA

Kansas

Happy Thought

Orchard King

Best in Quality. *Easy to Operate.* *Strongly Made.*

MADE ONLY BY

TAYLOR-FORBES COMPANY, Limited, GUELPH, Ont.

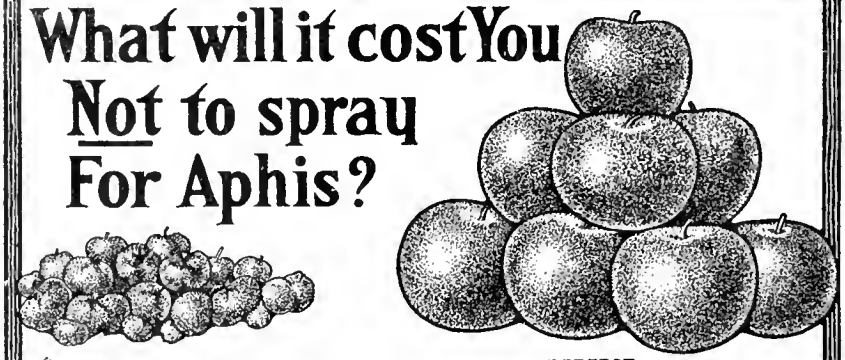
Ask your Hardware Dealer for the TAYLOR-FORBES kind

Special---Effective February 12th

"BLACK LEAF 40"

DUTY FREE IN CANADA

What will it cost You Not to spray For Aphis?



APHIS INJURED PERFECT

The U. S. Dep't of Agric. Says $30,000,000

is the annual damage done to the American fruit crop by insects. Aphis causes a considerable part of this loss and the standard insecticide recommended by experiment stations and spraying experts for this and many other orchard pests is

"BLACK LEAF 40"

Guaranteed to contain 40% Nicotine

THIS IS THE TIME TO SPRAY for Apple Aphis—just as the leaf buds show green. Don't delay till the foliage gives the Aphis protection. Use "BLACK LEAF 40" when buds are like the one shown in this picture. Write us for Apple Aphis Bulletin.

"BLACK LEAF 40" is not recommended for all insects; but for Aphis, Pear Psyla, Hop Louse, and many other soft-bodied sucking insects it has proven to be a highly effective and a very economical insecticide.

LET US HELP YOU PROTECT YOUR ORCHARD

If your dealer will not supply you with "Black Leaf 40", send us P. O. Money Order for $2.50 and we will send you, express prepaid, a 2 pound can that will make 200 gallons of effective spraying solution. If you are in doubt about the insecticide you need, write us, send specimens, or give descriptions of your insect enemies and we will help you to find the proper insecticide.

KENTUCKY TOBACCO PRODUCT CO. Dept. E., Louisville, Ky.

INCORPORATED

Armstrong; Kettle River, James Rooke; Arrow and Slocan Lakes, Thomas Abriel; Nelson and Lower Kootenay, James Johnstone; Kaslo and Upper Kootenay, E. Norman; Cresto and East Kootenay, James Compton; Gulf Island, Alex. Law; Lytton to Kamloops (including West Lillooett, C. E. Barnes; Peachland-Westbank, J. L. Vicary.

Manitoba

The annual convention of the Manitoba Horticultural and Forestry Association, held in Winnipeg, February 18 and 19, was the most successful annual gathering ever held by this organization. The management of the Manitoba Agricultural College, where all the session but one were held, made excellent provision for the accommodation of the convention, and the attendance, especially at the women's session, was gratifying. Mrs. Vialoux, of Charleswood, occupied the chair during the women's session, while the president, Dr. H. M. Speechly, presided at all the other sessions. The report of Secretary-Treasurer Brodrick, was particularly satisfactory.

Apple Shipments

The shipment of apples from North American ports for the season up to February 15th, amounted to 2,101,792 barrels. Last year for the same period shipments were 1,598,327 barrels, and the year before 2,521,650.

Liverpool has been the principal receiving port both last year and this. Liverpool in the present season has handled 860,000 barrels, London coming next with 478,000, and Glasgow with 442,000.

New York has been the chief port from which shipments were made, 700,000 barrels going from that port, 584,000 from Halifax, and 365,000 from Boston.

Items of Interest

Reports presented at the annual meeting of the Welland County Fruit Growers' Association, held at Marshville, Ont., showed that the members had averaged $2.10 a barrel for their total pack. Most of the fruit was exported although some was shipped to the west.

Reports from the Niagara District indicate that the peach trees have come through the winter in excellent condition. It is hoped that last year's light crop will be followed by a large yield this year.

A deputation of fruit growers from the Niagara District waited on the government at Ottawa during February, and asked the government to see that purchases of jam for the British army are made from Canadian factories which have a large surplus on hand. Unless disposed of this surplus will affect the prices of fruit this year particularly black currants. One canning factory has reported that it has enough jam on hand to last for five years.

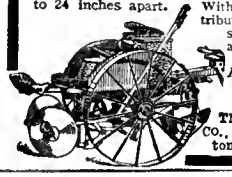
The annual meeting of the directors of the Ontario Vegetable Growers' Association for the presentation of financial reports and the election of officers, was held in February. The secretary reported encouraging progress in membership and a satisfactory financial condition. The following officers were elected: President, F. F. Reeves, Humber Bay; first vice-president, J. J. Davis, London; second vice-president, C. McConnell, Aylmer; secretary-treasurer, J. Lockie Wilson, Toronto.

Potato Profits

depend largely on how the crop is planted. Every skipped hill is a loss in time, fertilizer and soil. Every double wastes valuable seed. It means $5 to $50 per acre extra profit if all hills are planted, one piece in each. That is why

IRON AGE *100 Per Cent Planters*

often pay for themselves in one season on small acreage. They also plant straight, at right depth, to 24 inches apart. With or without fertilizer distributor. Ask your dealer to show you this Planter and write us for booklet, *"100 Per Cent Potato Planting"*



The Bateman-Wilkinson Co., Limited, 465 Symington Ave., Toronto, Can.

SWEET PEAS

Should be planted soon: we get ours to bloom from June till the end of September! All Canadian grown seed, guaranteed true to color and a germination of over 95%. Send for list of the beautiful colors and varieties NOW.

"OTAMOT"

"Gautbys Ideal," a new variety which is undoubtedly the finest eating tomato in America—a very heavy bearer of perfect fruit and a great drought resister. Turn to page 50 of the February issue and drop a postal RIGHT AWAY for full particulars, and get in before our COMPETITION closes.

HILLSIDE FRUIT FARM, SIMCOE, ONT.

GROFF'S MODERN GLADIOLI

"America" Groff's 119 is now the leading variety in commerce, wherever Gladioli are grown.

Groff's "Peace" will have as large a sale when equally well known.

We have over one thousand varieties of Groff's Hybrids under test, and many of them will become permanent additions to the list.

We also grow in quantity, Dahlias, Cannas, Paeonies, Hardy Perennials and General Nursery Stock.

Catalogues on Application.

CAMPBELL BROS., SIMCOE, ONT.

EUROPEAN SEEDS

Order from ENGLAND NOW

KELWAY'S

QUOTE and CAN DELIVER

Anise	Cauliflower	Lucerne	Rape
Beet	Celery	Mustard	Rutabga
Cabbage	Kale	Pepper	Spinach
Carrot	Kohl Rabi	Raddish	Turnip

Vetch and Flower Seeds

If you have hitherto placed your orders in other quarters, OUR PRICE under present circumstances, will compel you to buy from us.

Please write AT ONCE while stocks last for immediate and later delivery: also on contract for next Fall.

British Sailing to Canada continues all the time.

KELWAY & SON, SEED GROWERS to the TRADE

LANGPORT, ENG.

The Question of Overproduction*

Prof. F. C. Sears, Amherst, Mass.

Even in as fine an industry as the orchard industry it is worth while to look ahead occasionally and see where we are going. Whether we are coming to a point where there is to be over-production. If there is any danger of coming to that, there is certainly nothing more vital for us to consider. We have heard, on our side of the line at least, a lot of talk from various men in whose judgment we had every confidence, that we were approaching a point where there is bound to be over-production.

While statistics are dry things, it is worth while to consider a few. The report of the Trade and Commerce Department at Ottawa, on the 31st March, 1914, shows that the average shipments of apples from Canada to Great Britain and to the United States and other countries, for the ten years from 1893 to 1902, were something over 800,000 barrels, and the average shipment the next ten years, 1,200,000; that is, there was a 50 per cent. increase in shipments. The last United States census shows that there were sixty-five million trees in the United States at that time not yet in bearing. These are big figures, and probably we do not take them in, but they present a serious side to the question of over production. You will also find present day plantings are on the average in the hands of much better men than the old plantings were; the work is better handled.

Let us look now at the other side of the question. We had in the United States fifty million less bearing trees at the last census than we had ten years previous. And by the time the sixty-five million apple trees mentioned before come to bearing, we will probably have lost enough more, so that we will not be at all ahead of what we were when the census was taken. Add to this that while this change was going on in the yield, the population of the United States had increased from seventy-six millions to ninety-two millions, an increase of about twenty-one per cent., and you have a situation that looks a good deal brighter. Besides this, the people are spending more money, spending it more freely than they used to. There is a good deal more increase than twenty-one per cent. in their buying power. When we narrow it down the situation is not so discouraging.

Fruit Commissioner Johnson spoke about the tremendous increase in plantations in the west. That is a fact that must be considered, but it seems to me that we people in the east have the west beaten in our nearness to market. It costs them about fifty cents to produce, plus fifty cents freight to put their product in the Boston market, while it does not cost us anything like that.

Canadian Apples for Norway.—The Norwegian Consulate has informed the Department of Commerce, at Ottawa, that various inquiries have been received from interested parties in Norway desirous of getting into communication with Canadian exporters of fresh fruit, more particularly of apples. Norway is a large importer of these products, there being sent over from the United States a considerable quantity of Winesap, Peppins, Gravensteins and other well keeping apples of good size. One of the Norwegian inquirers solicits representation in Norway for some Canadian exporter who may decide to open up connections with this market.

*Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.

BEZZO'S FAMOUS PRIZE ASTERS

Prizes New York State Fair, Toronto Exhibition and other places where shown, about 20 varieties. All shades of color. Plants $1.00 per 100 by express, $1.10 by mail. Safe delivery guaranteed. Special prices to Horticultural Societies.

C. MORTIMER BEZZO - BERLIN, CANADA

BOOM Your Spring Business

By Advertising Your Goods in

The Spring Gardening and Planting Number

OF THE CANADIAN HORTICULTURIST

FREE LAND

FOR THE SETTLER IN

NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL
Director of Colonization
Parliament Buildings., TORONTO

HON. JAS. S. DUFF
Minister of Agriculture
Parliament Bldgs., Toronto

IMPROVED CLOSE CORNERED PLANT BOXES

The earth does not fall out at the corners. Just the basket you have been looking for. Order NOW and give shipping date to make sure of prompt deliveries.

Canada Wood Products Co.

ST. THOMAS, ONT.

Strawberries 50 varieties

Raspberries 13 varieties

10 varieties **Seed Potatoes**

FREE CATALOG

THE LAKEVIEW FRUIT FARM

H. L. McCONNELL & SON, PORT BURWELL, ONT.

STRAWBERRY GROWERS ATTENTION

For choice, well selected stock of all the standard varieties of strawberry plants, send us your order. List Free.

ONTARIO NURSERY CO., WELLINGTON, ONT

Strawberry Plants

Stocky and well rooted plants. Carefully packed. Free catalogue and price list.

S. H. RITTENHOUSE, JORDAN HARBOR, Ont.

WE PAY HIGHEST PRICES FOR RAW FURS

We receive more shipments of Raw Furs than any five houses in Canada

FREE

HALLAM'S TRAPPERS GUIDE French or English

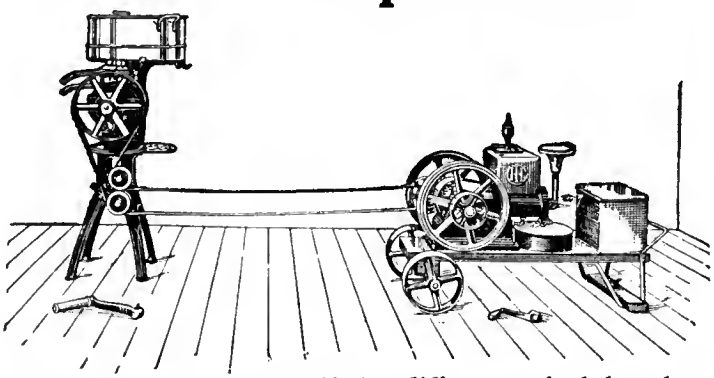
HALLAM'S TRAPPERS SUPPLY CATALOG (Illustrated) and HALLAM'S RAW FUR QUOTATIONS worth $50.00 to any Trapper

WE SELL ANIMAL BAIT, TRAPS GUNS &c. AT LOWEST PRICES

Write To-day—Address

JOHN HALLAM LIMITED Desk B66 **TORONTO**

International Harvester Cream Separators



PICTURE to yourself the difference in labor between setting milk in any of the old-time ways and skimming it with an **I H C** cream separator. What a job it is to wash the pans or crocks. How many handlings they need. What a lot of time it takes to fill them and set them away, to protect them from dirt, to do the actual skimming, to dispose of the cold skim milk, to purify the crocks or pans.

Now note the difference. With an **I H C** separator the milk is skimmed while still warm from the cows, the separator is washed in a few minutes and everything is ready for the next milking.

You want the separator that will help you most and save you most. Take time enough to buy a cream separator. The more carefully you go about it, the more comparisons you make, the more clearly you will see that one of the **International Harvester** separators—a **Dairymaid, Primrose,** or **Lily,** will serve you best. See the I H C local agent. Get catalogues from him or write to us for them.

International Harvester Company of Canada, Ltd

Hamilton, Ont. Ottawa, Ont. London, Ont. Quebec, P. Q. Montreal, Que. St. John, N. B.

The Economic Handling of Fruit*

F. H. Grindley, Fruit Division, Ottawa

ONE of the main problems before fruit growers is that of eliminating some of the expenses which are incurred during the various stages of marketing fruit. The question has been threshed and re-threshed in all parts of the country. To-day we are very little nearer a solution then we ever were. We still have the middlemen and their supposed profits, we still have the high prices to the consumer and the comparatively low price to the grower. After all, the middleman has his place. He is largely responsible for the distribution of our fruits in the markets. We would be in a sorry plight without him. And listen: Few wholesalers are growing rich, few retailers are making the outlandish profits with which we have been wont to credit him.

Fruit costs so much because our system of marketing is wrong. It is too expensive. There are consumers who are willing to pay the ordinary market price of fruit who, in fact, give little or no regard to its cost. That class of people will always exist, and we need give them no special concern. The class to which we must give attention is the poorer class, the laboring class, the average man on the street, the consumer who is willing to do his share in bringing about a more desirable condition of affairs. These people are not in a position to pay high prices for fruit. Nor have they been able to buy fruit this year when it has been cheaper than usual, for the simple reason that dollars have been as scarce as the proverbial hen's teeth.

The consumers and producers must find some means of getting closer together and removing unnecessary expenses. If the consumer wants his fruit in barrels he can have it in barrels. If he wants it in boxes, the producer must put it up in boxes.

But the grower cannot do everything. He has done much by the organization of co-operative associations, by giving the public a uniform pack and by giving the members of these associations a better price than their independent neighbor. The consumer is still acting as an individual, is still paying his four or five dollars a barrel to the retailer, who in turn is supplied by the wholesaler, and so on back to the producer. And here is this same consumer putting up his wail against existing conditions. If he wants cheap apples he can get them. The average price this year to the grower was seventy-five cents a barrel on the tree for No. 1's, 2's and 3's, and practically the same amount of money will pick and pack and market the fruit within a reasonable distance. An additional forty-five or fifty cents must be allowed for the barrel, if shipped in barrels.

But the consumers must organize just as the growers are already organizing. Unless they do so, they must pay what the trade demands. The wholesaler is making no outrageous profits on his turnover, the retailer has his expenses to meet, his delivery wagons to keep up, his employees to pay. Let the consumers get together, organize themselves into associations with executive officers capable and willing and broadminded enough to make some effort in their own interest. Then they can get apples in any conceivable manner. They can get them with the city crest printed on them if they want to. The whole problem is in the hands of the consumers themselves, with the cooperation of the producers.

*Extract from a paper read at the last annual convention of the Quebec Pomological Society.

GLADIOLUS

GROWN IN CANADA

Send for Circular

We are offering a variety said to be the most beautiful of all gladioli.

H. P. VAN WAGNER

R.R. No. 5 Hamilton, Ont.

Gardening for Pleasure and Profit

demands careful selection of seed, for unless you plant the very best seeds you are partially wasting your soil and fertilizer, as well as your time and labor. The safe selection is

Ewing's

Reliable Seeds

—the favorites throughout Canada for over Forty Years. Market and amateur gardeners alike prefer Ewing's Seeds because they show a very high percentage of germination, and produce uniformly vigorous plants of the choicest strains.

If you have any place at all for it, be sure to put in a garden this spring—and be sure, too, that you plant the right seeds—Ewing's. Write for our Illustrated Catalogue and if your dealer hasn't our seeds, order from us direct.

42

The William Ewing Co. Limited

Seed Merchants

McGILL ST. MONTREAL

This does not mean that the middlemen will be boycotted. They will still have their legitimate field in which to cooperate. It simply means that more fruit, much more fruit, will be consumed. The threatening danger of over-production will be lessened. People will be able to buy apples who have hitherto regarded them as a luxury beyond their reach. Others will benefit who have been securing their supply of fruit from hucksters and pedlars at fifteen cents a gallon in small quantities, which is at least three dollars a barrel. Some of these pedlars, it is true, may be put out of business. But what of that The cities would be better off without them, and the consumers to whom they cater will get equally good fruit for half the price.

Last fall there was a great deal of fruit which went to waste, particularly in western Ontario. This was because the demand was largely lessened, the export market for early and fall varieties was cut off, and there were few itinerant buyers in the field. Be the seasons what they may, fruit was never harvested in some orchards and was frozen on the tree

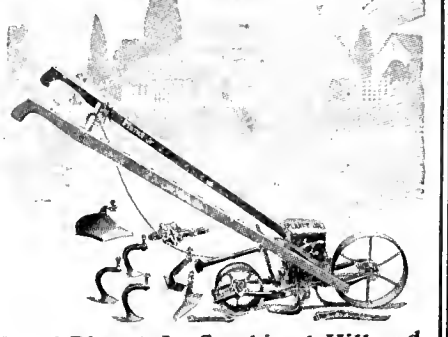
Realizing the situation, the city council of Ottawa tried an experiment with apples shipped in bulk, to supply the poorer classes in that city. Two cars of mixed varieties—Baldwins, Russets, Greenings, and Spies—were brought into Ottawa. The fruit was of good quality, tree run, arrived at destination in first-class condition, and was delivered at the doors of the consumers in bags at $1.30 for 140 pounds, which is equal to the contents of one barrel. So great was the demand for this class of fruit that a single advertisement in the Ottawa papers was sufficient to sell a car, and one enthusiast went so far as to say that fifty cars could have been sold in a similar way in Ottawa alone.

In every large town and city there are public institutions, charitable organizations whose duty it is to look after the needs of the people. Through them much good can be done, if someone will take the initiative and point out to these bodies the benefits of such a scheme. Or, as perhaps a better alternative, it would be feasible for the cooperative associations at the producers' end to have representatives in certain cities to supervise the distribution of their crop. At any rate, we in Ottawa are satisfied with what the city council has done, those in the council who organized the work are satisfied, and certainly those who were fortunate enough to secure some of the fruit are satisfied.

Last fall was an exceptional season, and had apples not been shipped in bulk they would probably never have been shipped at all. Still the principle is right, as if you can sell apples direct to the consumer in bulk you can sell them in other ways without going through all the ordinary channels of commercial marketing. What can be done with loose fruit can be done with barrels, with boxes, with cartons, or with what you will. The additional cost will be the cost of packing and packages, and nothing more

If the whole fruit industry attempts to market direct to the consumer, if a demand is created in the cities and towns for cheap apples, if all these efforts are made to lessen the price of fruit, some may ask where is the producer's profit, where the need for cooperative fruit growers' associations, where the necessity for careful grading and packing? What I have briefly suggested should in no way interfere with the good work which is being done along cooperative lines. The growers must still cater to the needs of the better classes in our own

Planet Jr.



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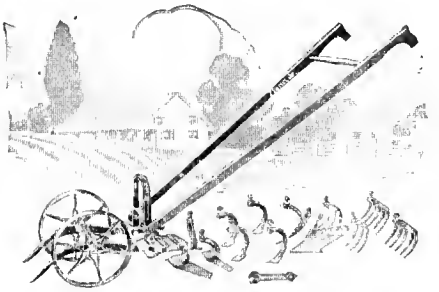

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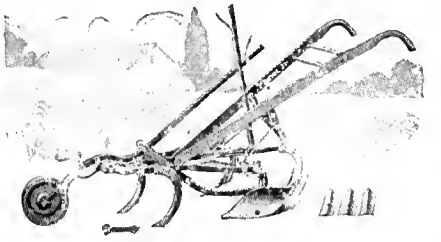

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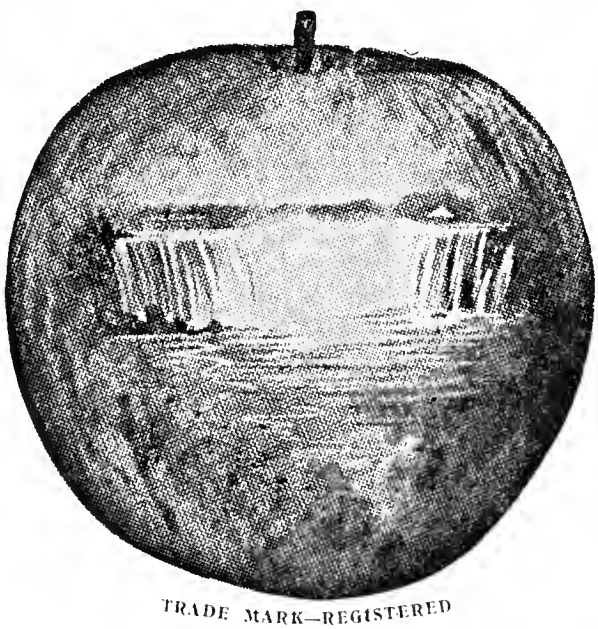

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markets, they must continue to feed the export market with high-class fruit and those new and wider markets which are even now being exploited. All this must be done, but let us consider, too, the poorer classes, let us interfere with the pedlar trade and give their customers better fruit at more reasonable figures. As long as the grower gets a fair price for his product, a price that will pay him for his fruit and for his labors, it matters little to him what course it follows after it leaves the orchard.

We are told that even now there is a danger of over-production in Canada, that unless new markets are found, conditions will rapidly become more and more unsatisfactory. Make an effort, then, to increase consumption at home by selling some of our fruit through more economical channels, and by catering to a class of people who have either considered fruit as a luxury when they have bought it, or who have never been able to buy it at all.

The Control of Orchard Pests

Speaking at the recent convention of the Nova Scotia Fruit Growers' Association, Prof. Brittain, provincial entomologist, said: "The problem of fruit growing today is largely the problem of economic control of orchard pests, which take a heavy toll each year of the farmers' profits. Fire Blight or Pear Blight has been discovered in Wolfville, Starrs Point, Port Williams, and Annapolis Royal. Timely and concerted action may bring it under control. It is one of the most serious problems confronting the fruit grower. It appears in four forms, viz., Blossom Blight, Twig Blight, Body Blight, and Hold Over Blight. Blossoms affected with the disease take on a scorched appearance. It spreads to buds, twigs, branches, which when affected, carry small heads of a yellowish fluid which ooze through the bark and cankers filled with yellow exudate may eventually appear. The best cure is effected by cutting off several inches below the affected part and burning the twigs. The knife used should be kept disinfected or the disease may be aggravated and spread worse than before. The cut surface, too, should be disinfected. Corrosive Sublimate tablets dissolved in water make a good disinfectant for this purpose. The handiest method for using this disinfectant is to carry a sponge, wet with the solution, attached to one's wrist by a string, and use it as a swab whenever a cutting is made.

The false Tarnished Plant Bug is another of the fruit growers' enemies. It looks like a large over-grown Aphis. It is very active and appears in the spring about the time the blossoms fall. It pricks the leaves, scars the twigs, and proturbances appear on surface of apples attacked and the inside becomes punky. Pears affected become corky or woody. The young insects are wingless and they do the most harm. From 50 to 75 per cent. of the crop is affected in some orchards. It is a very active carrier of Fire Blight.

The best control for the False Tarnished Plant Bug is a spray of Black Leaf 40, three-quarters of a pound to one hundred gallons of water when the blossoms are falling.

Prof. Brittain outlined the success of the campaign against the San Jose Scale in the Valley. The results were most gratifying and showed the wisdom of the legislation enacted on the importation of young trees from sections badly infested with the scale. Following is a record of the trees

destroyed since the beginning of the Scale Inspection work in Nova Scotia:

When Planted	Destroyed in 1912	1913	1914
1910	7	0	0
1911	339	6	1
1912	377	45	2
1913	0	6	0
1914	0	0	0
Totals	723	57	3

In regard to orchard spraying, Prof. Brittain had conducted an investigation to find the percentage of people who spray and the percentage of orchard area sprayed. He showed a chart containing a lot of statistics from which were gleaned the following:

County	Per cent. of People Who Spray	Per cent. Orchard Area Sprayed
Kings	74	87
Hants	12	32
Annapolis E.	43	67
Annapolis W.	9	49
Digby	3	7

Work has also been done with the Green Apple Aphis, and it was found:

A spray of Lime-sulphur 28 Be, Black Leaf-40 (1-1500) and flour paste applied at the time the blossom buds are showing pink killed 100 per cent. of the Aphis.

A spray of Lime-sulphur 28 Be and Black Leaf-40 (1-900) applied at the time the blossoms are showing pink, killed 100 per cent. of the Aphis.

A spray of Lime-sulphur 28 Be, Black Leaf-40 (1-1500) and flour paste applied when the leaf buds are half open killed 98.24 of the Aphis.

It was found that the Green Apple Aphis produced fourteen generations in one season. They produced their first young when ten days old. The period of production covered 10.6 days. The average life of the Aphis after producing their last young was 2.09 days. Average number of young produced by single Aphis, 44.09; average number of young produced in one day, 3.05; average total life of Aphis, 28.08 days.

Apple Shipments to Australia

During the Australian fresh fruit importing season of 1914—from September to December—the Vancouver and San Francisco steamers landed 122,015 cases of apples at Sydney, N.S.W. In comparison with the similar period of 1913 the shipments of apples landed in Australia from the two ports were as follows:

From Vancouver—1913, 64,999 cases; 1914, 60,939 cases: decrease 4,060 cases.

From San Francisco—1913, 17,532 cases; 1914, 61,076 cases; increase, 43,544 cases.

In 1913 it was impossible to ascertain what proportion of the apples shipped at Vancouver was of British Columbia origin, but in the season of 1914 the steamers' manifests disclose that 8,264 cases shipped at that port were of United States origin. Hence, if the figures are correct, the Australian importations of Canadian apples in 1914 were 52,675 cases. The shipments from British Columbia were beautifully packed and landed in excellent condition. Some consignments were transhipped to Melbourne and importers are arranging for larger shipments next season.

AUSTRALIAN EXPORTS OF APPLES

The exports of apples from Tasmania in 1914 aggregated 2,103,712 cases—easily a record of the principal apple growing state of the Commonwealth. The shipments comprised 766,703 cases to the United King-

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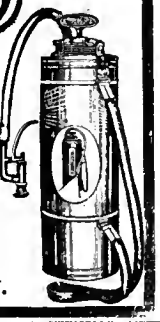

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"WHEN I bought my first manure spreader, I was thinking more of my horses than I was of my land. I bought a 'light weight' machine. It went all right empty, or with a half load, but it warped and jammed so after a few full loads that soon the horses couldn't move it. A spreader must have some weight if it is to do good work and last any length of time. The spreader I own now is what some might call a heavy machine. The beauty of it is that it neither warps nor jams and it works as easy when fully loaded as it does when nearly empty. As my neighbor said when he bought one like mine, 'I could spread soft coal with it.' I find it is much better for the horses, better for the land, and better for my pocketbook."

This farmer owns a **Deering** manure spreader built for efficient work, and field-tested in every feature. The weight is put into places where weight counts. It helps to make the machine stiff and strong. It prevents jamming, twisting, warping and sagging.

See the Deering local agent who handles these machines and let him show what the features on **Deering** spreaders are put there for. Or, write us for information and we will give you our agent's name.

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If you have not already a greenhouse consider the pleasure you can have from one. You can keep your home supplied with cut flowers all winter. You can start your vegetables from seed in the greenhouse, and have them ready to set out as soon as the frosts are over in the spring, a clear gain of two or three weeks for early tomatoes, etc. You can enjoy the interest of watching the germination and growth of plants all year round.

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dom, 72,175 cases to Germany and other continental countries, 55,538 cases to South America, and 1,139,296 cases to other Australian states and New Zealand. In addition to the fresh fruit, there were also exported from Tasmania, 46,315 cases of pulped fruit, 17,765 cases of dried fruit, 25,779 cases of canned fruit, and 217,280 cases of jam. Arrangements for the 1915 export season are now being completed and seventeen steamers are already listed to load at Hobart, but it is not anticipated that more than 600,000 cases will be shipped to the United Kingdom. The maximum exportation of apples in one season from the State of Victoria has been 300,000 cases, but in consequence of the damage caused to the orchards by the dry season, it is considered unlikely that Victoria or South Australia will have any surplus apples available for export in 1915.

Cooperative Methods in the Annapolis Valley

A. E. Adams, Berwick, N. S.

There are forty-eight Cooperative Companies in the Annapolis Valley, forty of which are members of the Central Association which is incorporated under the name of the United Fruit Companies of Nova Scotia, Limited. The membership of the subsidiary companies varies from ten to one hundred and twenty, the average membership being about forty. Each company owns a frost proof warehouse, some own several, and employs a manager, who engages all the help required to run the business of the company, the local company paying all such help. All apples are packed in these warehouses, no packing by individual members being permitted.

The local managers make themselves acquainted not only with each member but also with his fruit so that a manager knows just what parcels of certain varieties of fruit will stand up longest. Before apple picking starts, each manager sends to the Central office an estimate of the quantity of each variety his company will probably have and a note as to its condition. Should help be scarce in any district the local manager advises the central association, and additional help is sent to that company.

When picking starts members pick and haul under the instructions of the local manager. It is essential that there be control in this direction during the fall months as it is detrimental to the fruit to have large quantities of hot apples hauled into the warehouse and stored. As each member hauls his apples in he receives from the warehouse foreman a receipt for a certain number of barrels of the varieties hauled tree run. A carbon duplicate of this receipt is retained by the foreman.

Each member stencils his name on the side of each barrel. Fall apples are hauled in unheaded as they are usually packed out at once, but winter apples are headed, and are put into the spacious frost proof cellars of the warehouse to wait later packing. Each day all apples hauled in are credited to members in a tabulated book called "barrels inwards and outwards book." Each member has a page or more of this book set apart for his records. On opening this book one finds on the left hand page a series of tabulated columns, one column devoted to each variety, and in this column is recorded the date and number of barrels of that variety hauled in, on the opposite page is a record of how those ap-

*Extract from a paper read before the last Dominion Fruit Conference.

ples packed out so that it can be seen at a glance just how any members apples packed. Tabulated sheets recording this pack are kept by the foreman of the packing room.

As the barrels of apples are taken into the packing room the foreman marks on his sheet the name of the barrel, the number of barrels and the variety. When that parcel is packed he records on the same sheet the number of one, twos and threes procured. The local managers report daily to and receive constant instruction from the central office, which markets the whole of the output of each company. In the work of marketing an efficient and well organized sales force is employed.

Pre-Cooling Fruit *

Edwin Smith, Supt. Fruit Cold Storage, Grimsby, Ont.

To precool fruit it is not always necessary to have an elaborate and expensive plant. Anything that lowers the temperature of the fruit previous to shipment tends to check its ripening processes and postpones decay. At Summerland, B.C., a type of plant is being experimented with that costs from $1,500 to $3,000, and is giving splendid results. At Mission and Hatzic, B. C., the provincial Department of Agriculture has carried on experiments to show the beneficial results of using cold night air that they have in that region, and also by picking raspberries in the early morning while the dew is yet present, and removing the moisture by fanning in a dehydrator before shipping. Such an appliance costs but from twenty-five to fifty dollars, depending on the size, and so successful has it been that the growers have become enthusiastic about it, and are picking in the rain and making very successful shipments after dehydrating.

The practice of wet picking is not to be encouraged in regions where plenty of dry weather is to be had. Mr. J. C. Wiggen, of Wyndale, B.C., cools his strawberries by placing them in a cooling house situated in a mountain "draw" or ravine through which currents of cold air pass during the night. This practice coupled with his admirable cultural and harvesting methods gives him a wonderful reputation in all his markets and he thus commands high prices.

WATCH THE WORK

In precooling fruit for express shipments extreme care must be taken not to overdo the work. While in British Columbia I had charge of a series of investigation in the

*Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.

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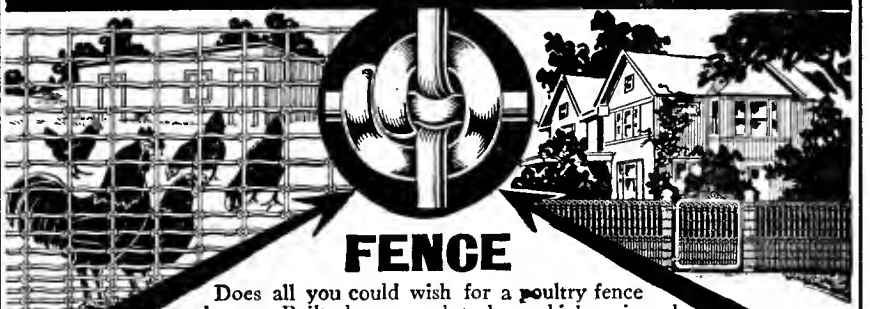

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accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc. We make gates to match, that are equally attractive.

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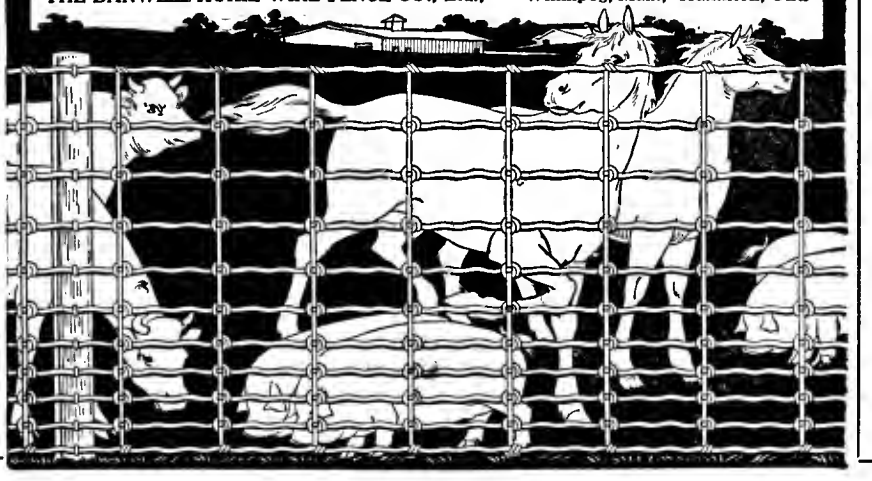

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GOLDEN AND 3 BAND ITALIAN, also Carniolan Queens. Tested each $1.00, 3 to 6 95c, 6 or more 85c. Untested 75c, 3 to 6 70c, 6 or more 65c. Bees per pound $1.50. Nuclei per frame $1.50.—C. B. Bankston, Buffalo, Leon Co., Texas.

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SAMPLE QUEENS—To introduce our Moor's strain of Leather colored and Golden Italian Queens, we will send one to each applicant at 40c each, cash with order.—Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

EARLY QUEENS—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, $1.00 each; $4.25 for six; $8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.—The Rialto Honey Co., Box 73, Rialto, Cal.

QUEENS—California queens, nuclei, and bees, bred from the best Doolittle stock, ready for shipment at once. Queens, untested, 75c; per dozen, $8.00; tested, $1.25; per dozen, $12.00; mismated, one year old, 50c; per dozen, $5.00; tested, one year old, 75c; per dozen, $8.00; nuclei, two-frame, $1.50; three-frame, $2.25; five-frame, $3.00; ten-frame colony, $4.50 Bees by pound: One-half lb., 75c; 1 lb., $1.00. Add prices of queens desired to all above prices of bees and nuclei. Delivery guaranteed. No disease. Address Spencer Apiaries Co., Nordhoff, Cal.

lower mainland precooling strawberries for express shipments. By means of thermographs I secured the average temperature of the express cars travelling between that region and the prairie markets. Berries were then cooled to various temperatures from forty-five degrees up till they were shipped at the same temperature as taken from the patch. On the market an inspector determined the score of the fruit and percentage over-ripe. The results showed that cooling was beneficial to the average cooled five degrees below the temperature of the express cars. When cooled lower than this the berries suffered on account of the condensation of moisture on removal from the cooling chamber, with the resultant growth of mold, which was as bad or worse than when shipped hot from the patch.

GUARD ALL POINTS

But whatever method of precooling is used successful shipments are impossible if other points in handling are neglected. Precooling is not a panacea and will not make over-ripe or injured fruit arrive in good condition. This was admirably illustrated during the past season when two cars of fruit were shipped the same day to the same firm in a prairie city. One car was delayed and arrived twenty-four hours later than the other. The delayed car was in ideal shipping condition, with fruit at an even and satisfactory degree of ripeness, and arrived at its destination in perfect condition. The car that was not delayed contained plums that were beginning to soften at the time of shipping and some carelessly packed, and arrived at its destination with a part of its plums in bad shape.

To have precooling work to the advantage of the shipper the following precautions must be followed: (1) Frequent pickings of fruit to avoid ripeness and secure even maturity; (2) Careful handling in picking, packing and handling; (3) Careful grading and expert packing; (4) Immediate cooling after picking and packing; (5) Immediate shipping after cooling; (6) Secure and careful loading in satisfactory iced refrigerator cars.

At the Grimsby Cold Storage we can only control these pre-requisites by refusing to receive fruit that is not in good condition, and even this means cannot be as effective and as satisfactory as where the shipper or grower is honest enough to serve his own interests best by shipping only satisfactory fruit promptly and carefully harvested.

By controlling the loading of the cars we are able to govern this factor for successful shipments. On all long distance shipments the fruit is raised four inches from the refrigerator car floor on a slatted rack and loaded so as to leave a continuous air space. In the centre of the car a space is left from two to five feet for air circulation and the loads in either end of the car are held rigidly in space by bulkheads and proper braces. This is the most effective way of stopping the evil of broken packages and by using care we have not had a complaint about a single broken package during the season.

Precooling is yet in its infancy in Canada. When fruit is properly picked, carefully handled without delay the advantage of precooling has been shown beyond all doubt. As yet we have made only a start. To look forward to the day when each shipping point will have its precooling plant, is a long step, just as it is to look ahead to the time when our fruit will be carefully and honestly packed suitable for precooling and long distance shipments. But I am convinced that the time when these desires will be realized is not many years away.

CLASSIFIED--Continued

BEES AND QUEENS

QUEENS—Our early queen breeding location is a long narrow oasis in the desert of Southern Nevada, which is crossed at Moapa by the Salt Lake and Los Angelos R. R. Write for our circular which gives prices of queens, bees by the pound, nuclei, etc. Booking orders now.—Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

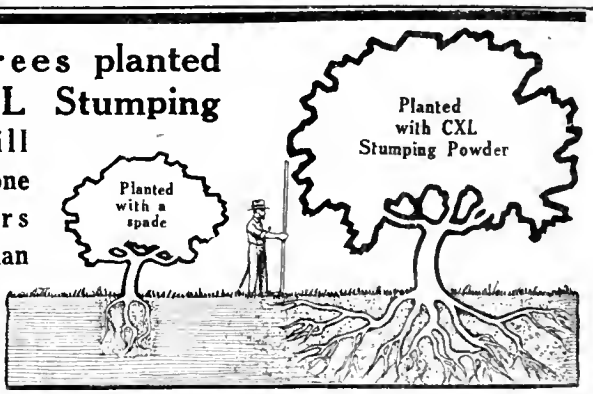
BEE SUPPLIES

CALIFORNIA REDWOOD HIVES, one story complete with ten frames, $1.00. Supers with 9 frames, 50c. Discounts, 25-10% — 100-20%. Extracted honey cases, 65c. Dadant's foundation delivered by prepaid freight anywhere, medium 52c—thin 54c, surplus 59c. Supplies of all kinds at 5% off any manufacturers' prices. Catalogue free.—Spencer Apiaries, Nordhoff, Cal.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording for $1.30. Catalogue free.—Pearl Card Co., Clintonville, Conn.

Fruit trees planted with CXL Stumping Powder will yield from one to two years earlier than those planted in the old-fashioned way



In spade dug holes, the roots are compressed within narrow limits by the hard-packed soil.
CXL Stumping Powder shatters and loosens the earth for yards around; thus the roots can reach out easily for nourishment, the soil will absorb moisture more quickly and retain it for a longer time.
Besides—the planting is done in less time and with less labor. There's a CXL Explosive for every blasting purpose.

Send for free booklet "Farming with Dynamite"

Canadian Explosives Limited, Montreal - Victoria

CANADIAN EXPLOSIVES TRADE CXL MARK LIMITED

The Canadian Horticulturist

Vol. XXXVIII APRIL, 1915 No. 4

A Specialist's Success in Celery Culture

J. C. Inman, Eden, Ont.

TORONTO consumes one-half of a carload of celery every day. A considerable proportion of this is raised near Thedford, Ont., although celery is shipped in also from different points in Ontario and from points in the United States including Kalamazoo, Michigan. The best celery, however, for the Canadian market is our own Canadian-grown product.

Thedford is about forty miles east of Sarnia on the Grand Trunk main line to Toronto. The leading celery grower of the district is Mr. J. W. Powell. Eighteen years ago Mr. Powell was a veterinary surgeon at Thedford. He was not altogether satisfied with his prospects, and when a land company offered him a farm for nothing down and so much a year for a few years Mr. Powell took it.

It came about like this: Some years ago a big land company thought they saw a chance to make some quick and easy money by draining a swamp known as Lake Burwell, situated near Thedford, and selling the rich swamp land to truck gardeners. The scheme looked so promising that they put dredges in, and at a cost of eight thousand five hundred and twenty dollars drained the water into Lake Huron, a mile and a half away. Having drained the land, the next big item was to sell it, and Mr. Powell was the first man to see the possibilities in the rich muck bottom of the old swamp.

MR. POWELL'S START

After straightening up his affairs, Mr. Powell found that he had a trifle over one hundred and nine dollars in cash. It was with this limited capital that he went down into the old swamp to start cleaning his one hundred and seventy-one acre farm. He worked hard all spring and managed to get a trifle less than an acre cleared, and planted to celery sprouts and about a quarter acre to onions. The celery grew fine all summer and promised to be a big crop for the first year, but in the early fall a heavy frost came and all the result of the hard work done was a blackened and wilted mass by noon the next day. The season's work was gone, the hundred dollars gone, and the onions were of little value, but Mr. Powell's courage was still there, and he decided to stick to it and try again.

The next year saw about an acre and a half planted in good time carefully tended and harvested, and for the first time some real money was realized. The next year there were three acres, the next five, and the next seven, and so on up until two years ago, when eighteen acres were successfully planted and harvested. Last season at least twenty acres were grown.

THE LAND REQUIRED

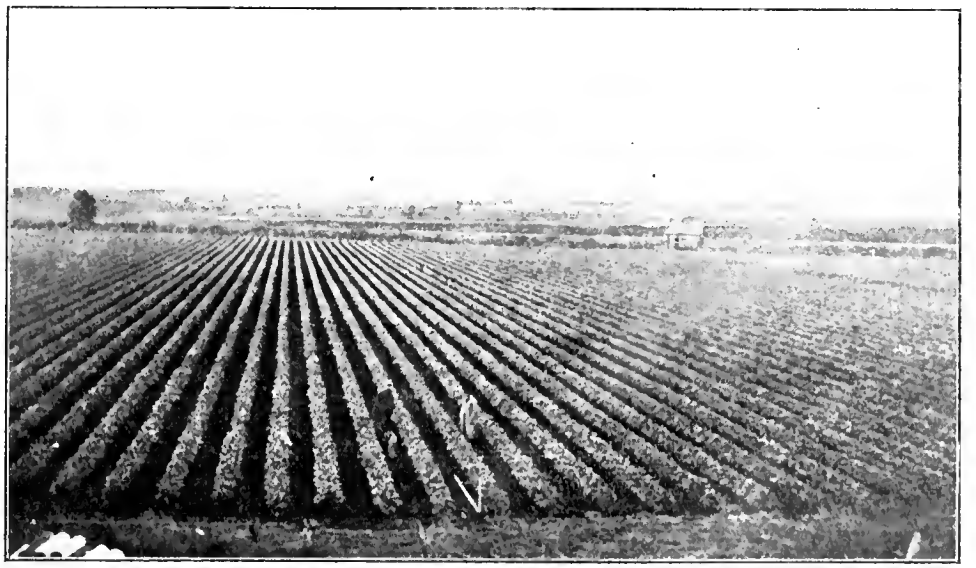
It takes very productive land to grow celery. Only such land as old lake bottoms and marshes is strong enough to grow it in sufficient quantities to make it profitable. The muck land in the old Lake Burwell marsh is from three to seventeen feet deep, and for productiveness is unexcelled. Mr. Powell used to grow onions, cabbages, cauliflowers, potatoes, and other less profitable crops before he found the science of celery culture in which he now specializes.

Celery growing, as Mr. Powell conducts it, is much like growing tomatoes or potatoes, only it is more profitable. As soon as the frost is out of the ground the land is thoroughly disked both ways and eight hundred pounds of complete fertilizer is applied per acre. It is then harrowed until the field is perfectly level and has every appearance of a large truck garden plot, only the soil is very much blacker and more productive looking. The celery beds in which to start the seeds are made about April 1st, and the plants are kept well watered and tended to until about the middle of June, when it is usually safe to set them out.

Transplanting is done on the hands and knees, and the young celery plants are set in rows four inches apart. A marker or a long line is used to make the rows and the planter follows the line on his hands and knees, sticking the plants into the soil and pulling the earth up around them. Almost continuous cultivation is kept up until the middle of August, when bleaching is started. The plants are ready for the market in twenty or thirty days.

Bleaching is brought about by pushing the earth in the rows up around the celery stalks with a sort of miniature snow plow, which is pulled down between the rows by a horse. It is necessary to go down the rows several times during the late summer and early fall before bleaching is completed, or until the celery is earth packed enough to be able to withstand the early frosts.

The celery is usually all harvested by November 10th. Mr. Powell stores over two-thirds of his crop. A carload per acre is considered a fair crop. This means that from twelve to fifteen carloads must be packed away during the month of October and the first part of



A Ten Acre Field of Celery That Speaks For Itself

Mr. J. W. Powell, of Thedford, Ont., is one of the leading celery growers of Canada. Mr. Powell's methods are described in the article on this page.

Harvesting the Celery Crop

An illustration obtained in the celery field of Mr. J. W. Powell, Thedford, Ont.

November. Boys and men are hired by the dozen to help harvest the crop during the last thirty days' rush, and even then they are almost sure to be caught with a little out yet when the frost settles down for the first real freeze.

Last season Mr. Powell harvested about seventeen carloads. As celery is worth around five hundred dollars a car, you can estimate the value of his 1913 crop. Of course, all this is not profit, by any means, as hired help, seed, equipment, and loss must all come out of this, but even at the worst it returns a vastly better living than his old veterinary practice used to do. The celery is shipped out all winter as required by big wholesalers in Toronto and Montreal, and in order to prevent freezing, refrigerator cars are used. The supply often lasts into the early summer.

Other growers besides Mr. Powell are doing well on the rich muck soil of the old swamp. Mr. J. W. Paisley, with eleven acres, is the next largest grower, with Mr. Allan Stubbs and Mr. Humphry Ross coming next. Many growers have from a half-acre to two or three acres, and it is these who go to make the grand total of forty-six acres of celery grown and harvested in the swamp every year. Thirty-four cars were harvested in all last season, and this season should see between forty and fifty cars shipped from this small but important producing section.

A garden is a piece of land where plants and people grow and love each other.

Factors of Success in Fruit Growing*

F. M. Clement, Director of Horticultural Station, Vineland Station, Ont.

THE factors of success in fruit growing naturally fall into three divisions: The basic or foundation factors, production factors, and the economic factors. In the first division we have to take into consideration such factors as location, situation, soil, site, choice of varieties, and such other factors as form the basis or foundation of the industry. These are largely determined by the grower when he buys a farm and plants it. They are considerations that are often, but should not be, lost sight of, for on them the degree of success largely depends. In the last division, we must consider such factors as markets, transportation, distribution, and sale. These are questions that the grower must face without flinching. Between the foundation and economic factors we have a long step, that of production, but one that determines largely the final profits. Without good fruit properly packed, sales at remunerative prices are unlikely.

Five operations enter into production: Pruning, fertilizing, spraying, cultivation, and thinning. The finished product, the fruit is judged on five points also: Color, size, freedom from blemishes, quality, and uniformity. For the sake of convenience the following table is arranged, and it is under these heads that I wish for a few minutes to discuss production.

Pruning—color.
Fertilizing—size.
Spraying—freedom from blemishes.
Cultivation—quality.
Thinning—uniformity.

Pruning stands first in the production of No. 1 and fancy fruit. Color, the first result of pruning, is often the deciding factor between a No. 1 and a No. 2 and color is also an indication of maturity. Pruning regulates the size of the fruit; and also to a large extent the quantity. Pruning is the first step in the control of blemishes, and especially Apple Scab and Ink Spot or Sooty fungus. Spraying is only a supplement to pruning for the control of scab. Nature's remedies, sunlight and air circulation, stand first as disease controllers. Spraying is only supplemented by man to assist in or to complete the work. Only well pruned trees can avail themselves of nature's remedies, and it is useless to expect best results if the first principles are neglected. Pruning also in this way improves the quality of the fruit by coloring and keeping free from blemishes. The first step in uniformity is in pruning, shaping, and balancing the tree. Fruit evenly distributed is much more likely to be of equal size.

Fertilizing might be discussed in conjunction with cultivation. By some, cultivation is placed first and fertilizing discussed as a supplement to it. A fertile soil produces large fruit. Size within the variety is more variable than quality within the variety, and consequently, though in practice cultivation precedes fertilizing, fertilizing is of most importance. The two operations are, however, interchangeable. A starved tree produces small apples; a well nourished tree larger apples. Fertilizing also affects the vigor or health of the tree, and makes it better able to resist disease.

Spraying is a special operation and is done with one main object in view, that of completing the control of fungus diseases and pests on both fruit and trees. It is a step in the improvement of the appearance of the fruit.

CULTIVATION AND QUALITY

Cultivation is being held responsible for quality (within the variety). By cultivation is meant not necessarily clean cultivation followed by a cover crop or sod mulch, but any form of soil treatment that tends to make the trees thrifty and bear good fruit. Quality is a little harder to define. It is largely firmness or brittleness and taste or flavor. Cultivation is our best means of conserving moisture and plenty of soil moisture tends to turgidity in fruit, leaf and branch. Quality may also be extended to include keeping quality. Experiments show that keeping qualities are extended from one to two weeks by judicious clean cultivation methods. Cultivation, on the other hand, when carried to the extreme, is destructive to color and maturity of the fruit and to maturity of the tree.

Thinning, though last on the list, is there only because it was the last of the five productive operations to be taken up by the orchardists. With the advent of the box package thinning for uniformity is imperative. For the barrel package, it is helpful but not essential. Uniformity of size from thinning might also be extended to include uniformity of color, a factor extremely essential to the best appearance of the fruit. Picking, grading, and packing are production factors also, but not being included in those operations which are always directly under the control of the grower, are not dealt with here.

No one factor alone will lead to success, but all-basic, productive and economic factors linked closely together will make a strong chain. The chain, however, leading to success is no stronger than its weakest link.

*Extract from an address delivered before the Northumberland and Durham Fruit Growers' Association.

Sources of Potash for Agricultural Purposes

Prof. R. Harcourt, O.A.C., Guelph, Ont.

THE chief source of potassium salts of commerce for both agricultural and industrial purposes in Canada, and indeed in all parts of the world, has been the Stassfurt mines in Germany. Unfortunately, one of the evil effects of the disastrous war now raging in Europe is the cutting off of this supply. The potassium salts we have been importing were mainly the muriate and sulphate of potash. Both of these compounds contain approximately fifty per cent. of potash in a very soluble form. Being both rich in potash and soluble, they were an excellent fertilizer material either applied directly or for mixing with the non-potash bearing animal refuse of our meat packing houses in the preparation of the various grades of mixed fertilizers on the market.

Before dealing with our natural sources of potash, it may be well to point out that most of our soils contain very large quantities of this important plant-food constituent. During the last two years we have analyzed a large number of samples of sandy and clayey soils, and we find that they contain from one to two per cent. of potash. Even some sands, as for instance, those of Norfolk county, carry nearly two per cent. of total potash. Or to put it another way, there is about forty thousand pounds of potash in plough depth over one acre and plenty more below that. One per cent. would be equivalent to about twenty thousand pounds in one acre plough depth. When we remember that good crops of cereals do not take up more than fifty pounds of potash per acre and that mangels, our heaviest potash consuming crop, do not use more than three hundred pounds of this constituent and that the greater parts of this is in the tops which are usually left on the ground, we see that we have potash enough in the soil to last for a long time. Nature has left this in an insoluble form so that it cannot be wasted; but she has also provided the means of bringing it into an available form.

The three main factors to be taken into consideration are good cultivation, abundance of decaying organic matter, and lime. The cultivation assists the decay of the organic matter which furnishes certain acid materials which break up the potash compounds of the soil and brings the potash into an available form. The lime neutralizes any excess of acid and also acts as a liberator of potash. It is well to bear in mind that most of our soils contain an abundance of potash and that the farmer's first object should be to bring as much as possible of it into an available form.

For our light potash consuming crops, such as wheat, oats, and barley ,there should be no need of applying potash; but for such crops as mangels and potatoes, which use comparatively large amounts of this constituent, we may not be able to bring enough potash and other plant-food constituents into an available form to ensure a maximum crop, here is where manure is needed, or as we are dealing with potash, where it may be applied. What has been said about mangels may also be said regarding all big fleshy-leaved plants, as they all require large quantities of potash. The point we want to particularly remember is that our chief source of potash is in the soil itself and that we ought to strive to make full use of what can be got from this source before purchasing supplies. There are, of course, some soils particularly poor in this constituent, and to which, especially if used for market garden purposes, potash will have to be applied.

OTHER SOURCES OF POTASH

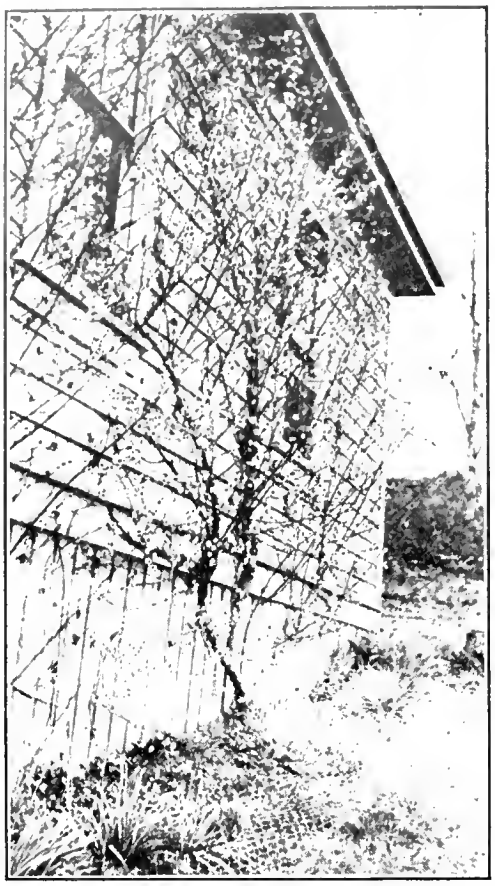
All vegetable matter contains potash gathered from the soil, and consequently whether we burn it and save the ashes, plough it down, or feed it to animals, we still have potash. The animal retains very little of the potash in the food eaten so that it nearly all appears in the manure . Farmyard manure is thus an important source of potash. A large percentage of it is in the urine, however, and a part of it may be lost unless plenty of absorbents are used.

WOOD ASHES

Wood ashes naturally contain potash, as they are derived from plants which absorbed it as an essential plant-food constituent. Good pure unleached ashes should contain about five or six per cent. of potash. It is present in a very soluble form and probably in the very best form to serve immediately as plant-food. In this respect it is better than the German potash salts. In addition to potash, ashes contain one and one-half to two per cent. of phosphoric acid and from twenty to thirty per cent. of lime which still further increase their value. At any time, but especially under present conditions, every effort ought to be made to save all wood ashes. This is not only regarding the ashes made where wood is burned as a fuel, but the brush obtained from the trimming of trees should be burned where the ashes may be recovered or on land under cultivation.

Wood ashes are especially valuable for orchards, grapes and legumes on sandy

Thorough cultivation is one of the secrets of success in strawberry culture. This crop is increasing in popularity, more particularly in Southern Ontario



A peach tree in bloom on the ranch of Mr. T. W. Palmer, Lake Hill, B.C. It bears a heavy crop of peaches (Alexander) every year.

soil, but they are also very beneficial when applied for mangels and corn and when mixed with one-third to one-half their weight of bone meal to increase the proportion of phosphoric acid they greatly aid the growth of turnips. On muck soil they are also invaluable, indeed, there are few crops on light and gravelly soils for which wood ashes cannot be employed with profit. Five hundred pounds of good wood ashes will carry a little more potash than one hundred pounds of muriate of potash, about as much phosphoric acid as fifty pounds of bone meal, and lime equal to at least one hundred and twenty-five pounds of air-slaked lime.

SEAWEED

Seaweed is used as a fertilizer on both the Atlantic and Pacific coasts. It contains from about three-quarters of one per cent. to two per cent. of potash, depending upon the variety of seaweed. In the fresh state it cannot be used very far from the seashore. If, however, it could be dried and ground cheaply enough it might become a valuable source of potash

LIBERATORS OF POTASH

The physiological functions of potash in the plant cannot be performed by any other material, consequently there can be no substitute for potash as a food for plants. Certain materials, however, tend to bring the inert stores of potash in the soil into available forms and thus act as indirect sources of this constituent. The calcium or lime compounds are the most important in this respect. Fresh slaked lime is perhaps the most active, but it also causes rapid decay of the organic matter and should be used with caution, especially upon sandy and gravelly soils. Thoroughly air-slaked lime and ground limestone rock are very useful and safe forms of lime to use. This form of lime does not unduly hasten the decay of organic matter, and it performs all the numerous beneficial functions ascribed to lime in general. That is, it improves physical conditions of both sands and clays, it corrects sourness or acidity in soils, and liberates potash. Gypsum, also a lime compound, has all these useful functions, excepting only that it does not correct the sourness. The presence of abundance of lime compounds in soils is of great importance.

The shutting off of our supply of potash may be a blessing to us if it leads us to make more economical use of our natural supplies of this constituent, and leads to better methods of cultivation in order that we may make fuller use of the vast supply in the most of our soils.

Intercropping Young Orchards*

A. H. MacLennan, Macdonald College, Que.

BEFORE going into the details of intercropping the young orchard, I wish it understood that I would not crop close to the young trees. A strip at least three feet wide on each side of the row should be left free of the intercrop, and each year as the tree grows this strip should be widened.

There are two types of orchard men: First, the farmer who tills many acres and adds the orchard as another source of revenue, and second, the man who tills but a few acres of land, most of which will eventually be bearing. This latter type is more frequently seen in Ontario than in Quebec, but indications point to its becoming more common in certain sections of this province.

The need of intercropping brings out two points: The need of money and the need of cultivation. Few of us can afford to plant an orchard and wait without any returns until our orchard begins to bear. Any man is fortunate indeed who can do so, but still we find that where we can do this other things may arise, which would cause us to forget cultivation. Cultivation is one thing in orchard growing that cannot be neglected. We must take a leaf out of the market gardener's book, who has found that he must till the soil if he wishes returns. An orchard is a long period investment, therefore, we can afford to take no chances. Cultivate we must, and this comes easier through intercropping because we get immediate returns.

But before we get too deeply into growing crops in the orchard we must think of how we will dispose of them. It is easy to raise most crops, but often difficult to dispose of them. The owner of a big farm, who raises cattle or sells milk, can raise crops with which to feed these animals. But the man on the smaller area must look abroad. His market may be either the town or city or the canning factories. Of these latter we do not find many here in Quebec, so that necessarily our market must be the town or city.

There are certain characteristics of a good intercrop which we must consider: It must be profitable: It must need cultivation: It should not be a crop which requires stirring of the soil during the months of August and September, as we wish the young growth to be well hardened before winter: It should have different food requirements: It should have a different season of growth. There is not enough moisture in the spring for two crops, so let the tree have the use of the soil in spring: It is best to be an annual crop.

Bearing these points in mind, I would like to give a table of crops as they may be placed in three groups—good, bad, indifferent.

Good—Beans, cabbage, tobacco, potatoes, onions, squash, tomatoes, corn, buckwheat, carrots, peas, chickens.

Bad—Raspberries, blackberries, hay, grains.

Indifferent — Currants, gooseberries, strawberries.

*Extract from an address delivered at the last annual convention of the Quebec Pomological Society.

The Preparation of the Tree-hole is an operation that must not be slighted, as a good deal of the future success of the tree depends on this part of the work. Plant holes are usually dug too small. Roots are often cramped into too small a space and find themselves placed against the hard sides of a lazy man's hole. The hole should be dug large enough to admit the entire root system without cramping, with a sufficient margin to allow a comfortable amount of loose soil for the roots to grow into. If the soil is not of satisfactory composition, supply a better soil; garden loam, soil from an old pasture, or well decomposed humus from the swamp furnish good material for filling in. Manure of any kind is best kept away from the roots; old, well-rotted manure can be used as a mulch but green manure should not be used.—C. F. Clark, Toronto, Ont.

Fall vs. Spring Planting of Fruit Trees*

F. M. Clement, Horticultural Experimental Station, Vineland Station, Ont.

SPRING is the generally accepted time for the planting of fruit trees —apples, pears, plums, peaches. and cherries. Of late years, because of the heavy loss in spring planted cherries, a few of our authorities are recommending fall planting. The idea is gaining, and from my own observations and experience I feel safe in saying that with proper soil conditions the percentage loss from fall planting will be less than from spring planting. But the cherry is exceptional among fruits in that growth starts very early in the spring and when once the buds have swollen or burst it is practically impossible to get a large percentage to grow. This is particularly true of the sweet cherry. Other fruits do not start so quickly, and then even though a few buds are swollen or burst the loss with careful planting is compartively small. We must then look for other reasons before recommending fall planting.

There are four factors to be considered, first, the availability of well-ripened nursery stock that can be delivered in mid or late October; second, the time or labor required to plant; third, the soil in which they are to be planted; and fourth, the climatic or weather conditions to which the newly planted trees will be exposed during the winter. Nursery stock is usually readily available in the fall of the year. This year was as exceptional as we are likely to get for some time. A warm fall kept the trees growing until late, and yet we have been able to obtain two hundred well-ripened apple trees as clean and likely a looking shipment as I ever saw. These we planted the first week in November. They were delivered to us the third week in October. One nursery firm to whom I wrote did not care to take orders for fall delivery, but I am willing to assume all responsibility.

We can not argue without reserve, that there is more time to plant in the fall than in the spring. It may be so on many farms, but I have not found it so in my experience. Fruit picking, fall plowing, and cleaning up the year's work fill every hour just as full as the hours in the spring. But fall work can often be delayed a few days without loss. Spring seeding and planting must be rushed. It is much easier to take a few days from late October and early November than from late April and early May or even late May and early June. Labor is also more plentiful in the fall than in the spring.

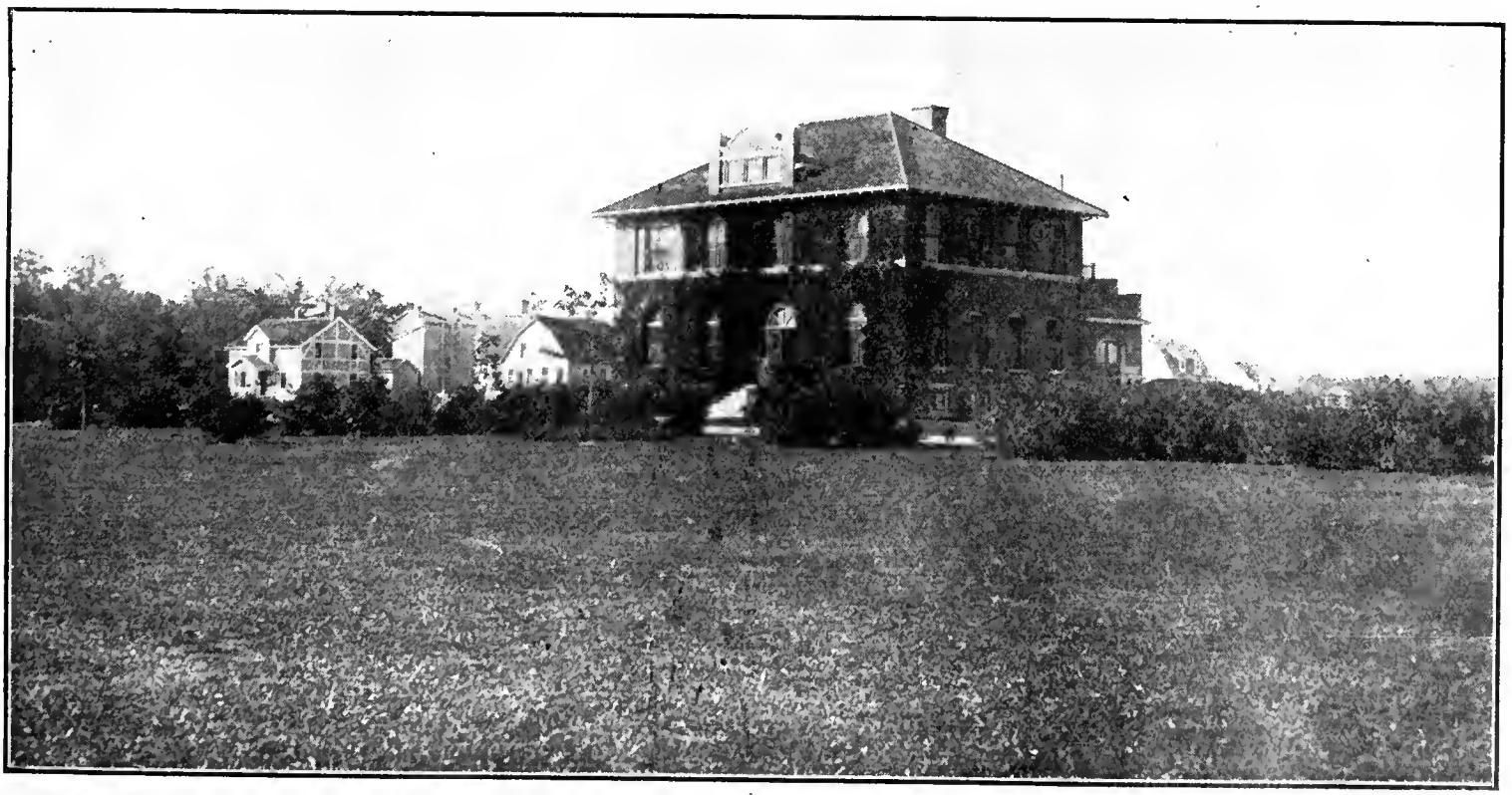
SOIL CONDITIONS

The soil factor is important. Some difficulty may be experienced in harvesting the year's crop, plowing and preparing for the trees. It is taken for granted nothing would be used but a field that had grown a hoe crop the immediate summer before. The trees may then be planted and plowed up to at once. It is absolutely essential that all standing water be kept away from them. Be careful to open all ditches and run the cross furrows. This is essential even though the field may be well underdrained. Surface water often does as much or more damage than soil water. Bank the trees up to a height of about eight inches with soil and then mulch with manure close around the mound. This will afford ample protection to the roots. Don't prune the tops. Leave them just as they come from the nursery and cut away all damaged or dead parts in the spring.

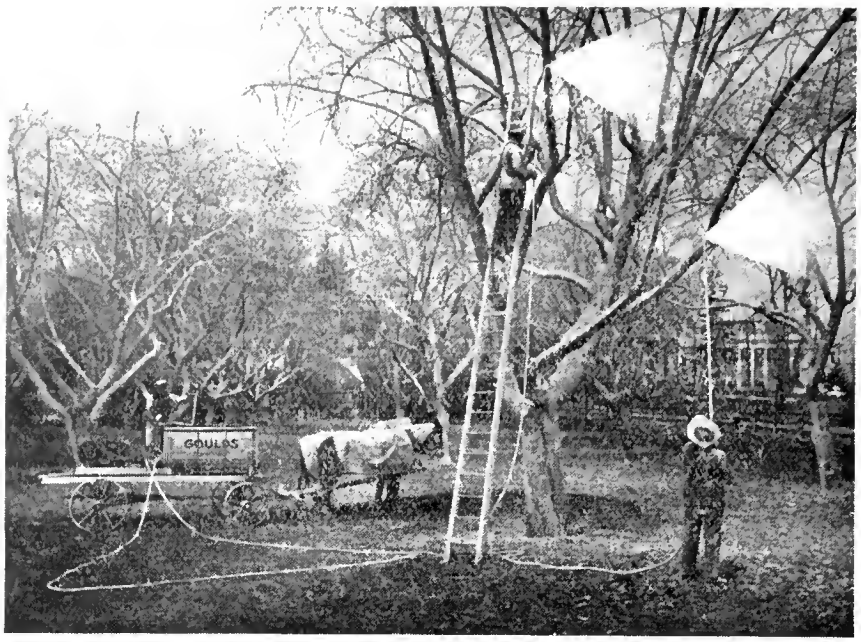
The weather conditions are quite largely the deciding factor. They vary greatly over the province, and a discussion of them will lead us into a discussion of winter injury. Let it suffice to say here that winter injury is largely the result of dessication or drying: Largely so, but not entirely. But it is the factor we have to deal with in the fall planting of nursery stock. A certain amount of evaporation takes place, even on the coldest days of winter. This must be made up by a flow of water, or say from the roots upward. Infinitely small as this flow may be, on the bright, warm days it is sufficiently heavy to make up the loss of colder days. The mulching prevents deep freezing and thawing of the surface soil. It also aids in retaining moisture.

Experiments conducted at Vineland on plums and pears show a decided advantage in favor of fall planting. Six Reine Claude plums and six Bartlett pears were

*An address delivered last November at the annual convention of the Ontario Fruit Growers' Association.



The Administration Building of the Vineland (Ont.) Fruit Experiment Station, situated in the heart of the tender fruit belt in the Niagara District.



A modern power sprayer at work in an old but well-kept orchard.

planted in the falls of 1911, 1912, and 1913 . Duplicate check rows were planted in the springs of 1912, 1913, and 1914. In every case there was a difference in favor of the fall planting.

The following table showing the results on the plums may be of interest.

Dynamited Holes, 1912 Diameter of Trunk	New Growth, 1914	Spring Planted. Diameter of Trunk	New Growth, 1914	Autumn Planted Fall of 1912 Diameter of Trunk	New Growth, 1914
Tree 1—1.11	188½	1.58	299	1.66	266¾
Tree 2—1.11	164	1.75	278	1.66	338
Tree 3—1.43	317½	1.41	138½	1.58	255
Tree 4—1.27	222	1.34	216½	1.66	274½
Tree 5—1.34	216	1.43	161¾	1.75	237
Tree 6—1.27	209	1.58	274	1.75	266½
Total...7.53	1317	9.09	1367¾	10.06	1637¾
Aver...1.255	219.5	1.515	227.9	1.676	272.9

The trees are yet too young to bear fruit, but the growth of the longest planted trees this summer is a fair indication of the value of the one time of planting over the other.

No trees have been lost in the fall planted rows and only one in the spring planted; none in the dynamited.

In connection with this experiment we have also been testing the value of dynamiting holes for fruit trees. The table gives the results to date. At present the trees are smaller and making a little slower growth than either the fall or spring planted, but I do not care to draw any conclusions as yet. We are continuing the work again this fall and coming spring. I attribute the smaller growth of the trees in the dynamited holes to the fact that the holes were dynamited and the trees set at once. The soil was well shattered as it should have been, and consequently dried out badly, the trees suffering a set-back, from which they have not yet recovered.

We are dynamiting this fall and setting the trees at once in part of the experiment, dynamiting now and setting the trees in spring and in part dynamiting and setting the trees at once in the spring. This should give us a fair idea of the value of the practice. The soil is a heavy clay, with a very stiff blue and red clay subsoil.

How We Made Our Spray Tank

J. F. Werden & Son, Picton, Ont.

In the spring of 1913 we bought one of the large sized hand spraying machines of a leading make. It is arranged for power also. We used it the first year with a single barrel as a supply tank. As we ran only one line of hose this did not work too badly, but it was rather slow. Last spring we decided to add another line of hose and put two men on the pump as we like plenty of pressure, we decided that we must have a larger tank. We priced them, and decided to try an idea that we had had in mind for some time.

We bought three oil barrels of about fifty gallons capacity. They should be the same size. We took a truck wagon we had on the farm and used it as a spray wagon. On it we put first two planks, one on each side out against the stakes. They should be at least fourteen inches wide and twelve feet long. On these we put two pieces two by six. They would be better if they were three inches thick. We went to our plumber and got him to cut two pieces of inch and one-quarter galvanized pipe. On each piece we got him to cut a thread at least an inch and a half long on each end, and fitted them with two lock nuts on each end and one washer of rubber packing on each end. In the first barrel we bored a hole just large enough to let this pipe in. It should be down on one side as close to the staves as it can be bored, but be sure to leave room enough to get your lock nut up tight. The other barrels were bored in the same way. The middle one, of course, had a hole in each end. Care was taken to get them exactly opposite. The rear end barrel also had a hole in it so as to drain the tank when necessary.

We cut a hole in the barrel about four inches square right beside the bung of the barrel so as to get our arm in to put the washers and nuts on the ends of the pipe inside the barrel. These need to be put only the length of the thread inside and then tightened on the outside. On the waggon we put a two inch on the front bolster to give the tank a slope, then cut the two-by-six pieces so as to fit the bulge of the barrel as much as possible. The barrels were placed in position and the lock nuts screwed as tight as we could get them. If you try this, get your blacksmith to make you six rods, long enough to go up over each end of the barrels and down through the planks. If they are fitted right and screwed up tight the barrels will be perfectly rigid. The success of the tank depends on this. Now take some short pieces of scantling and build a frame work so as to build a platform over the top of the barrels. Ours does not touch the barrels, and our observations lead us to think it is better for them not to. Put your pump on this platform with the suction hose in the lowest barrel, and you are ready for the orchard. Your agitator should work in all three barrels, but this will depend on how the pump you have is arranged.

Notes on Fertilizers

W. F. Carpenter, Grimsby, Ont.

The analysis is the important factor in artificial fertilizers. They are most beneficial for use on sandy and light soil where it is not necessary to have a mulch. On the heavier soils a mulch is required, and fertilizers will not show the same result.

In fruit trees it is difficult to notice the result when fertilizers are used, although I am satisfied they are a benefit, especially to growth. If heavy in potash they greatly assist the maturing of all fruits. In other crops fertilizers are most beneficial, and the difference in quality and growth is easily noticed.

Board vs. Wire Fences

E. L. Dyer, Toronto, Ont.

I LIKE Ruskin. He could see beauty in an ordinary lump of earth. For years I have been looking for "beauty" in board fences. True, board fences have color, but I think Ruskin would agree with me that the shades are dreary, dull, and monotonous, and that board fences in the average town and city are unsightly and an abominable nuisance. They harbor refuse, rubbish, and decaying vegetation, and consequently attract vermin and create unhealthy conditions.

My sun room overlooks backyards for a whole block. I can see that every owner takes great pride in his home. They are well painted, and every care and attention is given the residence, yet these beautiful homes rise above sordid surroundings. With the exception of my own yard, the ugly board fence is everywhere in evidence. My yard is comparatively clean and dry. In one yard I see three barrels, a dog kennel, old baskets, decayed apples, orange peel, etc., all piled against a board fence. Some yards still have banks of snow, because the air and sunshine cannot get at it.

At this time of the year, March 20th, no yard looks very presentable, yet it affords me considerable delight to notice that my yard is conspicuous by its absence of winter accumulations. The illustration showing the two sanitary wire fences and rustic furniture gives some idea of the pleasure and restful enjoyment our little "park" affords parents and children alike. I merely knocked the boards off, cut down the posts, replaced the top rail, and put on the wire. Not figuring in my labor, it cost me eighteen cents a foot for material and paint for sixty feet, or a total of ten dollars and eighty cents.

The second illustration shows where I took down eight board fences and erected a sanitary lawn fence. The work of removing the old boards and supplying the fence was done at an expense of twenty-five cents a foot.

The movement for sanitary and the more attractive wire fences is growing rapidly. One private concern in Toronto, The Dovercourt Land Building and Savings Co., under the direction of Prof. H. L. Hutt, now head of their Horticulture Department, are doing more than the city itself to promote civic improvement. This year the company will distribute over one thousand dollars in prizes. Prof. Hutt condemns board fences, and in his address before a large Toronto audience, he illustrated with lantern slides the dullness and gaunt hideousness of bare board fences as contrasted with attractive wire fences and the luxuriant growth of flowers and shrubbery where sunshine and air have free access.

In theory, every citizen supports the movement for a clean city, but all do not bring home to themselves the fact that to achieve it means individual responsibility. Let him contemplate his back yard, talk with his neighbor, and if it exists, remove that hideous back fence from blighting their observation. Erect in their stead the health-giving, joy-promoting lawn fence. Make your home "show" what you think of it. A hundred people see the "outside" of your place to a dozen who get "inside."

"Why don't they keep their yards a little cleaner?"

You ask with deep annoyance not undue.

"Why don't they keep the lawns a little greener?"

Did you ever stop to think that "They" means YOU?

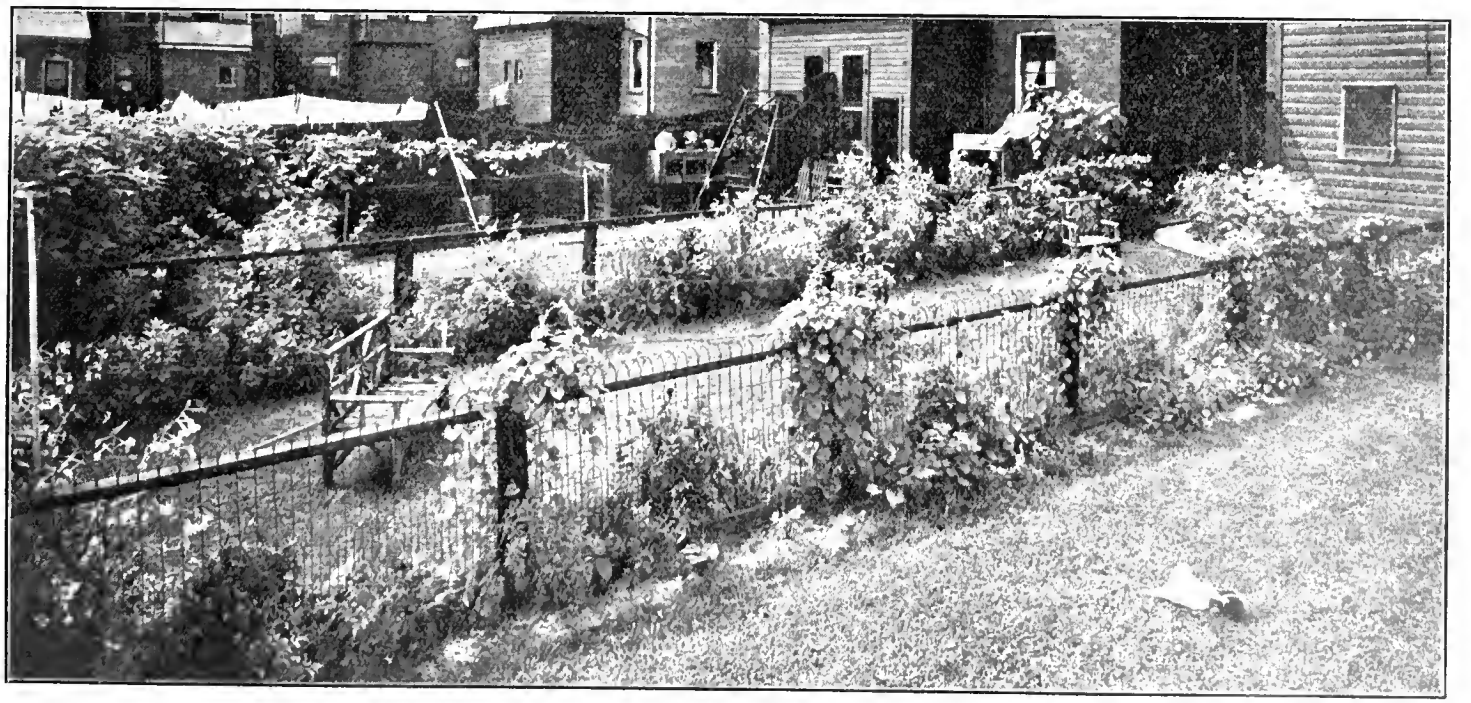
The Art of Transplanting

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

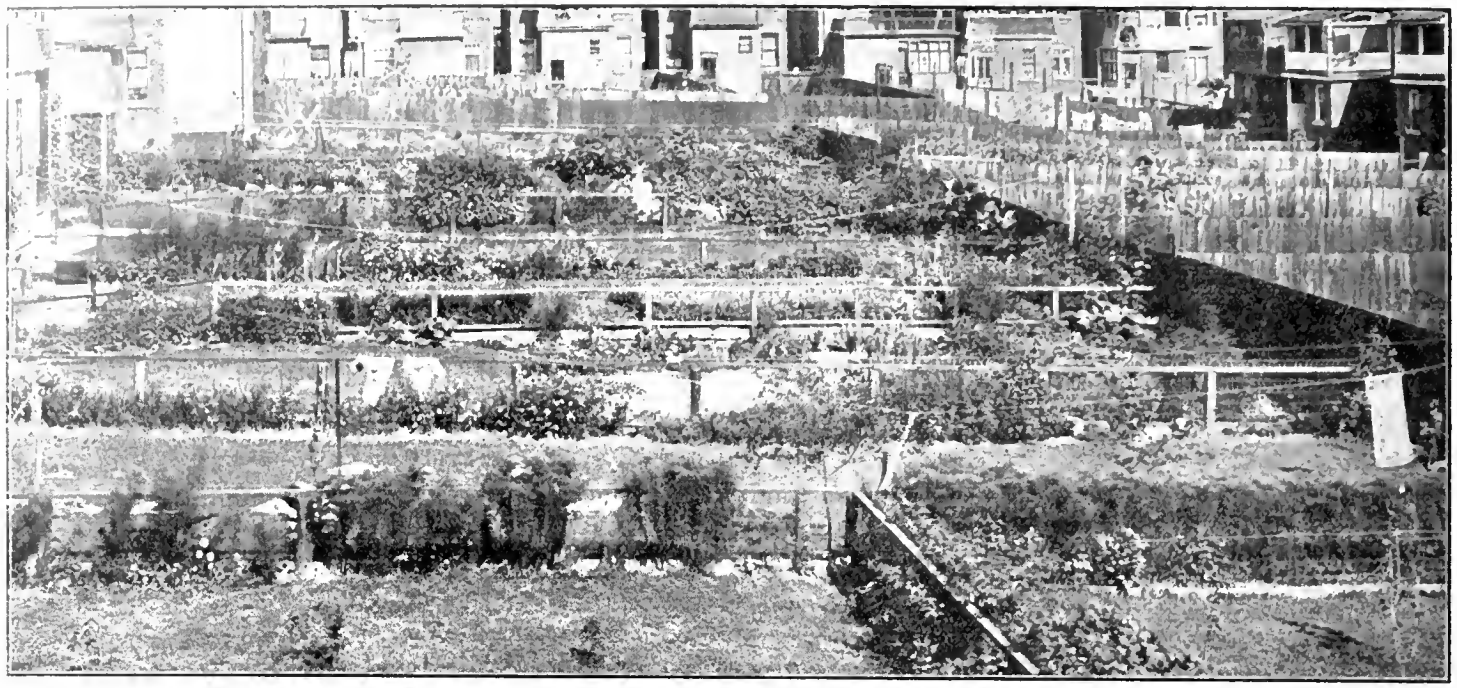
To harden plants to outdoor conditions, give air to them as freely as possible at all times without injuring them. About the first or second week in May, if the weather is at all mild, the boxes or pots may be set out of doors where they can be given protection if the weather turns cold, or be brought indoors on cold nights. Shade the plants from the sun after setting them out for a few days.

Most of the plants for the perennial border may be set out about the end of May or early in June, except the salvia, ageratum, and lobelia. These should not be planted until about the second week in June, not until all danger of frost is over. Salvias, pentstemons, petunias, verbenas, and snapdragons should be set about fifteen inches apart. Ageratum and the other dwarf growing kinds about ten inches apart. Set the plants out in dull, showery weather if possible.

The plants named can be grown from cuttings as well as from seed, but as they are all more or less difficult to winter over in a dwelling-house or green-



Note the contrast afforded between the two neat wire fences in the foreground and the wooden fence in the rear.



Back yards made beautiful. In this case seven board fences in Toronto have been removed and replaced with wire fences.

house, the best results are usually obtained by sowing seed, except perhaps in the case of the salvia, ageratum, and lobelia, which give splendid results from cuttings if cuttings can be obtained early in the spring.

It is customary to allow these perennial flowers named to be entered as "annuals" at exhibitions. A rule, however, should be inserted in the prize list stating that "Any plant that can be grown from seed and flower the same year shall be considered to be an annual. This is advisable, as it prevents any dispute as to the proper classification of these plants that are botanically classified as perennials. At the same time, they may be entered also in the competitions for hardy perennials unless some rule is inserted to the contrary, as some of them are hardy under special conditions and surroundings.

A Popular Arrangement

J. McPherson Ross, Toronto, Ont.

The most favored arrangement for small city lots, and where the owners do not wish or have the time to work in the garden amongst the vegetables, is to divide the lot in two by an evergreen hedge of spruce or cedar, or else privet or barberry. Spiraea Van Houtii is frequently used, leaving an entrance in the middle of the plot. This gate or entrance gives a chance to put a wire arch on which some crimson ramblers may climb over. The front half of the lot next to the house is sodded down, a shade tree is planted in the centre or side and in a few years gives sufficient shade for one to rest themselves on the grass. Around this small lawn is planted a border of shrubs with alternate clumps of paeonies, phlox, bleeding heart, iris,and so forth. The remaining part of the lot is used for vegetables, divided by a path in the centre with a few trees planted on each side of the path. A row of strawberry plants serve for an edging. It is a very small plot that will not have room for three or four stout rhubarb roots of pie plants; a few clumps of mint and other herbs. The fence affords a capital place for training some grape vines and tying up the tomato plants, or ornamental squash or gourds. Of course more space offers more opportunities and involves more labor.

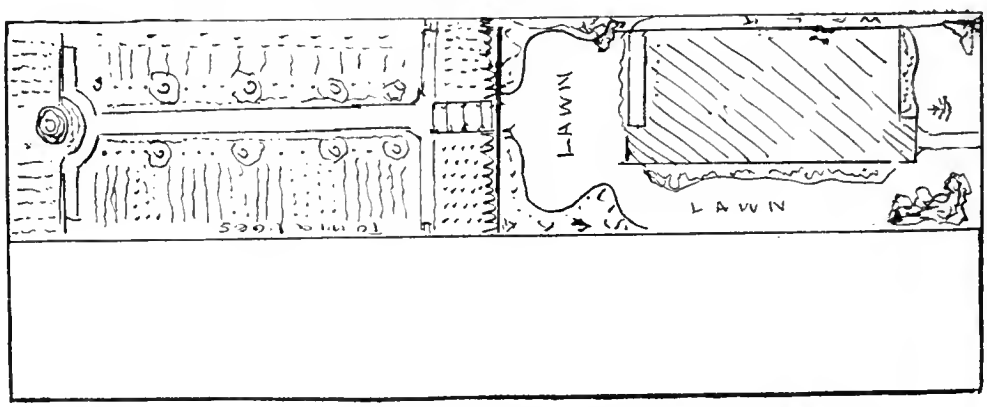
City dwellers prefer flowers and grass and trees to vegetables, for as the majority truly say, we can buy vegetables cheaper than we can grow them, and then their cultivation soon wanes, the garden fever cools off when weeds appear and labor is required to keep the plants growing, the garden work loses its attractiveness to many. Except the industrious, wise people who with little experience find the growing garden with its supplies of fresh vegetables, a great solution of the question of dear living.

The Planting of Shrubs

A. E. Thatcher

Many people are under the impression that newly planted shrubs should be copiously watered at the roots. This is unnecessary and oftentimes detrimental. If a good watering is given immediately after they are planted, which will settle the soil about the roots, and a mulching is applied, very little water will be needed for some time by the roots, but it is an excellent practice to spray them overhead frequently. This keeps the wood moist and greatly assists the buds to develop.

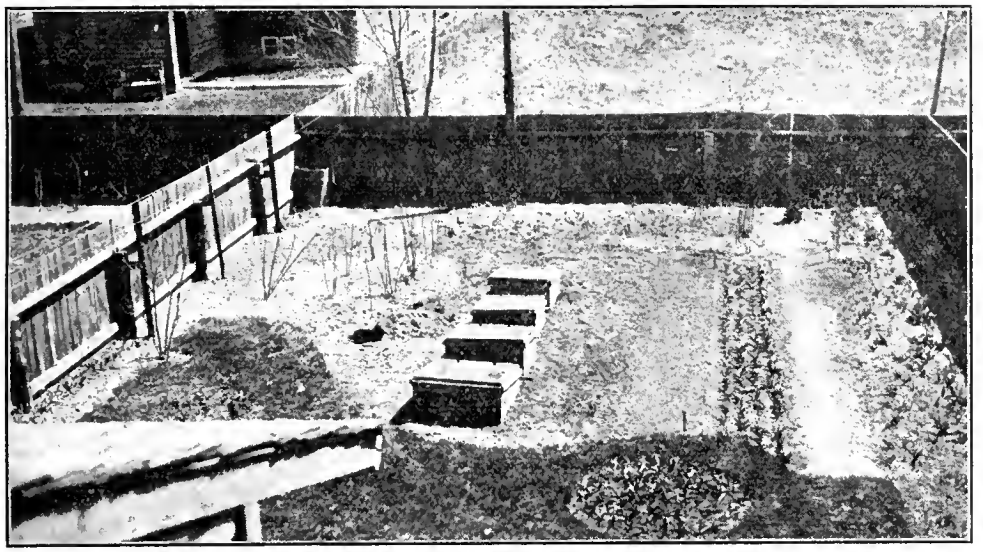
In planning the garden for next year get it as close to the house as possible. Plan to sow a few common flowers in a part of it for cut flowers during the summer.



A simple garden plan for an average city residence. (See accompanying article).

The Planting Plan of a Prize Garden

THE garden that won the first prize in the horticultural competition in the city of Ottawa in 1914 was owned by Mr. J. B. Spencer. It was a small back yard, thirty-four by sixty feet. In the summer of 1909 it was reclaimed from a low, white sand waste, growing



This shows Mr. Spencer's prize-winning garden as photographed in May, 1914.

a few scrub willows. That year it was filled in with the best available soil, secured from cellar excavations. Much of this, however, was of an exceedingly poor quality.

In the spring of the following year a perennial border was put in along the west fence, and the remainder was planted with vegetables, with a few sweet peas along the eastern fence. In the autumn of that year the owner was rewarded with a second-class medal in the Lady Grey Garden Competition.

The following year about half the ground was sodded and the remainder laid out according to the plan shown in the illustration. In the autumn, a first-class medal in the Lady Grey Competition was the prize secured. From the beginning of July until frosts came, the table for a family of four was fully supplied with green vegetables, and a sufficient crop was harvested of carrots, beets, onions and parsnips to last until the following spring.

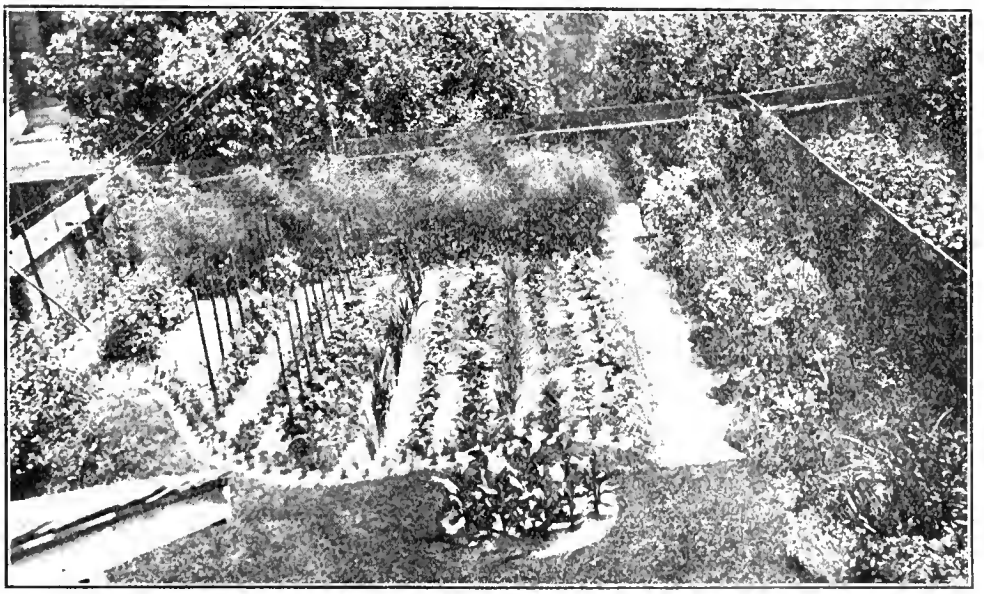
In the spring of 1910 an asparagus bed, consisting of three rows twenty feet long, was planted, and, commencing in 1912, the household has each year enjoyed an abundance of this toothsome vegetable. From the beginning, the owner has made a specialty of tomatoes, which are shown in the illustration growing on stakes. About two and a half dozen plants have been grown each year, and have never failed to supply an abundance of tomatoes from August until winter, besides sufficient for canning to last most of the winter.

At the left hand of the illustration will be noticed a number of rose bushes. In the spring of 1913 a dozen of the choicest varieties of perpetual bloomers were secured from Ireland, and a small importation was made the following spring. So far, not a plant has been lost, and from the middle of June until the frosts have sealed up the ground, there have always been roses to cut for the table. The varieties were recommended by experienced growers, and include Mrs. John Laing, J. B. Clark, Frau Karl Druschki, Clio, Ulrich Brunner, Hugh Dickson, and Alfred Columb. There has also been planted, here and there, climbing roses, including Climbing Tausendschon, Crimson Rambler, Philadelphia Rambler, and a few other well-known sorts.

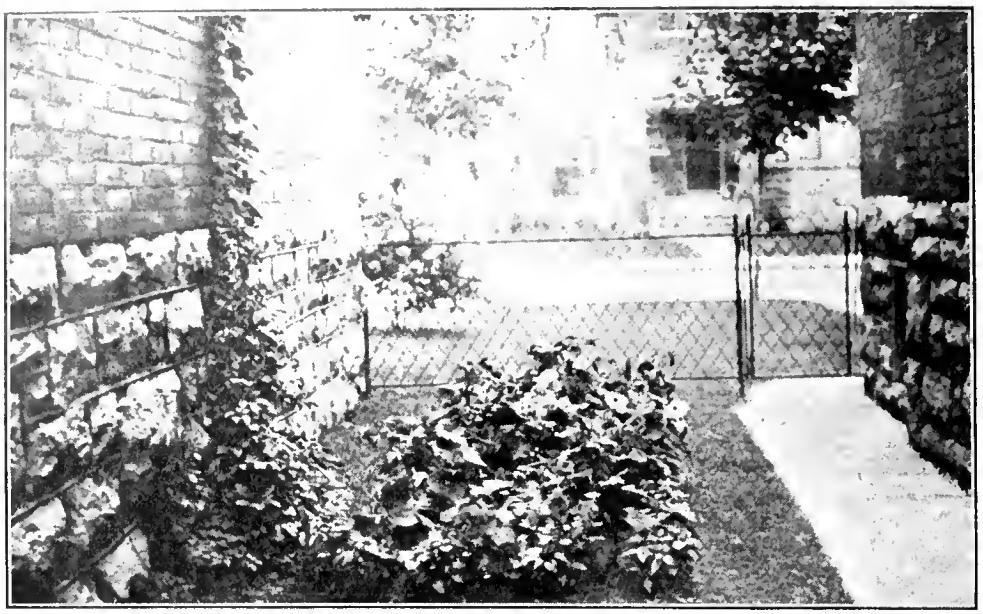
The perennial border shown at the right side of the illustration is about five feet wide and fifty feet long. It was planted largely from premiums secured from the horticultural society and gifts from gardeners in the neighborhood. After two years this border was seen to be much too thickly planted, and the plan was not satisfactory. In the autumn of 1913 it was completely dug up and laid to one side. The bed was given a heavy coat of well-rotted manure, which was deeply dug in. A plan was then made according to the Experimental Farm border, and last year it was the admiration of all who saw it.

The border consists of three irregular rows. The row next the fence contains hollyhocks, delphiniums, and perennial heliotrope. These are planted in groups of threes and fours, so as to make in each case a feature. The next irregular row consists largely of the following: Phlox, perennial poppies, iris, anemones, Canterbury bells, Shasta daisies, columbine, and sweet william. The low-growing plants in front of and between the rows include daisies, pinks, alyssum, stonecrops, and a number of others.

In order to maintain a perpetual show of bloom, annuals were planted in vacant places and to succeed early bloomers. At the side of each Oriental poppy was planted two cannas, "Pillar of Fire." Early in the spring a five cent package of Shirley poppies was scattered from end to end of the bed. Here and there were put in small groups of scarlet phlox Drummondi. These several varieties presented a general scarlet glow during the entire season from midsummer to the middle of September. Another plant that was made use of in filling spaces was purple candytuft. This was planted near the border and presented a very striking effect during the latter part of July and August. Bits of sweet alyssum were



This illustration shows Mr. Spencer's garden as it looked in August. See accompanying article.



A bed of tuberous begonias at the side entrance to Mr. Spencer's garden.

also introduced here and there as a "peacemaker" between strong contrasts in color. It will be seen, therefore, that what is termed a perennial border is not entirely so, but license must be given the amateur to depart from any hard and fast rule in order to secure what he considers the most desirable effect.

When the bed was re-planted, the spaces between the plants were filled with tulips and other bulbs. The tulips consisted largely of Darwins of the different shades, but a very large number of Cottage and other early blooms were also put in. These are planted in groups according to color. Groups of daffodils here and there added brilliance to the effect. A year ago a large number of trillium bulbs were secured from the woods, and this spring will tell whether or not these have succeeded in living through the winter.

The main portion of the garden, across the border, was a mixture of flowers and vegetables. Flowers bordered the walk, first a row of sweet alyssum, then phlox Drummondi and snapdragon. The next row was carrots, with here and there a poppy plant, which had the effect of blending the flowers into the vegetables. To avoid bare spaces, a dozen and a half of asters were preserved in pots and were planted in the early pea ground as soon as the crop was picked.

By regular cultivation and occasional watering, even the vegetables in their straight rows were very attractive, more especially after the abundant crop of tomatoes on the stakes commenced to ripen. Behind the tomatoes were the roses, and covering the fence behind these were sweet peas.

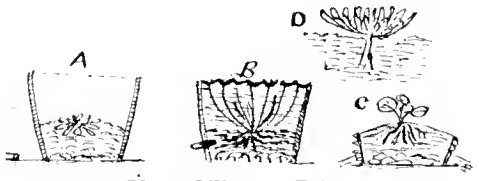
As shown in the picture, there appears a circular bed of cannas, and at another point at the left of the garden, not seen in the illustration, there is a small bed of peonies and iris of the finest varieties. Between these are planted lilies. This combination would be hard to surpass for its beauty throughout the season. Along the eastern fence, from end to end, is a space two feet and a half wide, which last year was planted with snapdragons, asters and gladioli, in front of such vines as scarlet runners, sweet peas and nasturtiums. There were also grown in this border a small number of dahlias. Close to the back veranda, not seen in the picture, was a row of roses interspersed with low bedding plants.

One of the most beautiful beds in this garden last year and the year before, was one of tuberous begonias that occupied a shady position between the house and the neighbor's dwelling. This had a border of alternanthera. The ground for this was richly prepared and magnificent bloom was secured. At the front of the house, in addition to shrubs and vines, there was an oval bed of sweet alyssum, pyrethrum and prince's feather.

Being in competition this garden was well looked after. The grass was cut regularly about three times in two weeks, the edges carefully trimmed each time. The soil between the plants was stirred about once a week, dead bloom was removed as it appeared, and unsightly plants were replaced, where practicable, by something fresh. To enter a garden competition means work; to win a prize requires persistent and earnest effort, but apart from the award, one has the utmost satisfaction in possessing a beautiful adjunct to a comfortable home.

The Amateur's Water Garden

THOSE who have not the advantage of a lake or pond may still grow several of the most charming water lilies in tubs, choosing varieties which are not of a too vigorous growth or large-growing nature for this method of culture. The tubs should be fairly large, a diameter of three or four feet being very suitable in most cases, though ordinary coal oil casks, sawn in two (with the inside burned out well, of course) will do for some of the smaller growing sorts.



Water Lilies: In Tubs.

Put a little rough material in the bottom of each tub, and then a moderate quantity of good, loamy soil, with a little leaf mould, rather than manure, added; then set out your plant on a slight mound in the centre, and fill up with water nearly to the rim of the tub. This is to be done in the spring, of course; and a hole should be bored in the side of each tub, near the bottom, and fitted with a plug, so that the water may be drawn off occasionally and replaced by fresh.

In the sketch at A may be seen the section of such a tub as described, with the soil and the plant, or root, in place, but otherwise empty, while at B appears the same thing, but filled with water, and the plant at full growth. C shows a plant placed in a basket, ready to lower into the water of a lake or pond, which is generally accepted as the best method of planting, while D gives a rough idea of a fully-expanded flower on the surface of the water.

Decidedly the best kinds of water lily for tub culture are two Chinese species, known as Nymphaea Pygmaea Alba and Helveola. The flowers of the former are white and those of the latter pale yellow. Both are real gems. Ellisiana with flowers of the richest rose color, and Laydekeri Lilacea, with a few others, may also be successfully cultivated. When more than one tub is used, a very ornamental effect can be produced by leaving a space between the tubs to be used as a miniature rock garden.

Suitable Garden Tools

Many a backache might be avoided, or at least greatly lessened, and much hard and unpleasant work saved, by a judicious selection of tools for the garden and adapted to the work on hand, or by choosing those which are light as well as strong when making purchases.

A most handy and useful tool, which is not met with in gardens nearly so often as it ought to be, is the Crome. Have you an old veteran of a digging fork which has seen its best days, and is worn down to possibly half its original length? Take it to the blacksmith and let him bend the prongs down so as to be at

right angles to their original position; put on a four-foot handle of ash or some other lighter wood if desired, and you have a tool which will probably be found more handy for a variety of uses than any other in your collection. For loosening soil between cabbages, for breaking over roughly dug ground ready for planting, or for seed sowing, for raking up litter, and many other purposes, it is an invaluable labor saver.

Much labor may also be saved by using light tools. Unnecessarily heavy ones mean energy wasted and less work done, whether the labor be one's own or hired. How often are spades, forks, etc., much heavier and clumsy than need be! In this matter the hardware dealer is often at fault, for his stock is frequently badly selected; some tools are unduly heavy, some are weak and badly made; still, satisfactory tools are to be found for the seeking.

Light steel hoes are very useful for a free working soil, but on stiff land, especially when dry and hard, they are almost useless. Here the position is reversed and a heavier tool is required.

Many other cases of unsuitable and labor-making tools in general use might be cited, but I think enough has been stated.

To sum up—Get tools strong but light, and such as are adapted to the requirements of your soil and the strength you may have to wield them; then not only will time and energy be saved, but the pleasure of gardening be intensified.

Vegetable Gardening for Town and City Lots

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

THERE is practically no part of Canada in which there are settlements where at least some kinds of vegetables cannot be grown. The great variety which it is possible to grow successfully, even in the coldest districts, is a surprise to many.

There is a growing demand for fresh, well-grown vegetables, and a call for them in greater variety, but in many parts of Canada the people do not yet get a plentiful and varied supply.

If more vegetables were eaten there would not be the same need for the more expensive kinds of food, and if the vegetables were grown at home the saving would amount to a considerable sum at the end of the year.

While this article is written mainly for the use of amateurs, it may be that the market gardener will find some information that will be of use to him.

While it is not possible for some persons to grow their own vegetables, there is a large proportion of the population who could easily raise an abundance of these palatable, delicious and nutritious food products if they cared to do so. In the country there is plenty of room for a good vegetable garden, and even in cities, towns, and villages there is usually a sufficient area on the lot at the back of the house to grow enough vegetables to supply a large family during the summer months and to give away some to other people.

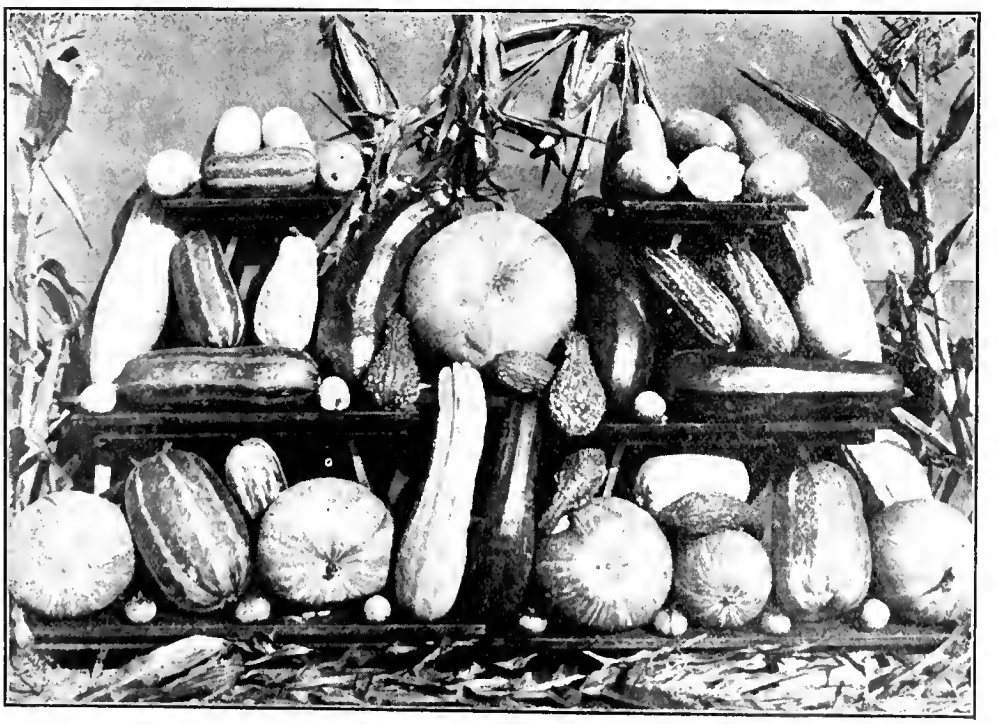
SITUATION OF THE GARDEN

In cities and towns there is, of course, no choice in regard to the situation of the garden, as one has usually no alternative but the back of a lot. If large trees surround this lot or are even along one side of it, gardening will be more difficult and much less satisfactory than where there are none. Trees exhaust the soil of moisture and plant food, and their shade often affects the crop adversely. Even where there are trees, however, fair success may be obtained with short season crops, such as lettuce, radish, and spinach, which can be grown early in the spring or in the autumn when the growth of the trees is not very active. In the country the garden should be as near the house as possible, and warm, well-drained soil should be chosen, if there is such. It is usually the women of the household who look after the garden in the country, hence things should be made as convenient for them as possible. However, it is better to cultivate a few rows of garden vegetables in the fields with the root crops than to have no garden at all.

PREPARATION OF THE SOIL

To get the best results the soil should be brought into good tilth. When beginning gardening in cities and towns it is often found that many difficulties have to be overcome before the soil is in really good condition. Old cans, stones, bricks, pieces of wood, broken toys, and many other things must be removed or buried so deep that they will not be troublesome. Then it often happens that the subsoil from the cellar of the house has been thrown over the yard in order to level the ground. This is sometimes of great depth. This subsoil is usually either a stiff clay or sand. Clay, while it will give more hard work, is usually a much better material to start with than sand. If there is much coal ashes in the yard, most of them should be removed altogether or buried in one corner of the yard. A little ashes mixed with the clay will help to make it more friable or more open, but there is little plant food in coal ashes, and there should be a minimum of them in good garden soil.

A mixture of sand and clay will help to make the soil of a better consistency than is either one of these alone. An application of lime to clay at the rate of about two tons per acre or about one hundred pounds to a garden twenty-five by forty feet in size, or even half that quantity, and thoroughly mixed with the clay will help in breaking it up, but the most important thing of all is the manure, preferably rotted manure if it can be obtained. Fifty tons per acre is none too heavy a dressing. When spread on



Products of the garden of T. S. Purver, Calgary, Alberta. This indicates what the West can do

Lavender and white crocuses grown in the house.

the ground before digging in, it can be from three to four inches thick without there being too much. This should be well worked through the upper foot of ground, whether it be good soil, clay, or sand. If the manure is strawy it should be well dug in so that the straw will not be pulled out when the soil is raked. With a heavy annual application of manure, even the poorest soils can be made to give good returns, providing there is sufficient moisture in the soil, which in many cities and towns can be applied artificially.

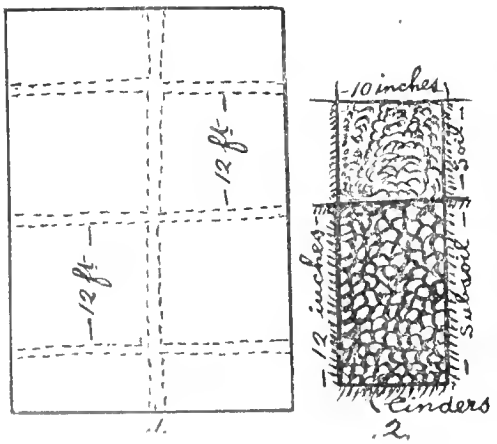
Where no water is available, very strawy manure applied to light soils is apt to make them too loose, and they dry out easily and seed does not germinate well, hence well-rotted manure is much better for such soils if it is available. The rolling of light soils where strawy manure has been used will be found useful in bringing the moisture to the surface and hastening the rotting of the straw. The great aim should be to eventually get the soil into such a condition that it will neither bake nor become hard in a dry time nor dry out readily, and both of these conditions will be brought about by the liberal use of manure, which adds plant food in an easily available form and helps to form humus, which is so essential to a good physical condition of the soil. Clay soils should not be dug when they are very wet, as they will bake badly, but by waiting until they are fairly dry they can be worked much better.

A spade, a hoe, a garden rake, and a manure fork are the four chief tools needed in gardening. Narrow hoes and rakes are best in small gardens, or well-made children's tools, but with long handles. In stiff clays it may be found necessary to use the hoe after the soil has been dug in order to break it down so that the rake can be used advantageously. The rake is now used to level the soil and to pulverize it still more. The surface soil should be made as level, smooth, and as fine as possible. If the soil for two or three inches down is in good condition, a quick germination of the seed will usually be assured.

How to Make a Lawn

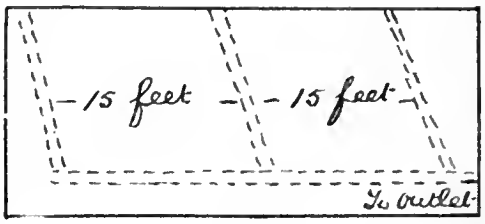
John Gall, Inglewood, Ont.

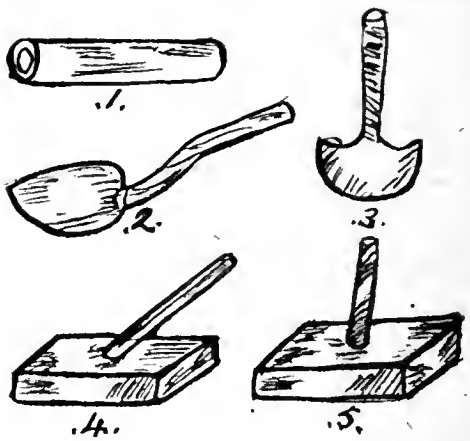
LAWNS can be made either by sowing seeds or laying turf, the former method, although occuping more time, giving by far the best results. Where the subsoil is of a porous nature, drainage is but seldom necessary, but on clay and other retentive soils it is always advisable to provide some means for disposing of the superfluous water.



Unless the quantity of water is very excessive, the following method of draining will suffice: Trenches about ten inches wide should be excavated across the ground, as shown on the accompanying diagram, from twelve to fifteen feet apart, and to a depth of a foot below the subsoil. These trenches are filled with cinders, brickbats, and similar material, to the top of the subsoil, and the soil replaced, as shown in the section. Any surplus moisture will drain into the trenches. Should the ground be very wet, agricultural drain pipes must be laid, as shown in the diagram, at a depth of about three feet, the main pipe being led to a well or other outlet.

After being drained, the ground must be carefully levelled and given a dressing of thoroughly-decayed manure, which should be well dug in, all stones, roots, weeds, and rubbish being picked out as the work proceeds. This section of the work should be done a few weeks before it is time to sow the grass seeds. It is a great mistake to sow the grass seeds too early, as there will most likely be several soft places which will settle, and these can be refilled before the sowing is done. Grass seed should always be sown thickly, or a good, close turf cannot be produced. One pound of the best lawn grass seed should be sown every thirty square yards of ground. Cheap mixtures, as a rule, consist of coarse grasses entirely unsuitable for the purpose in question. Before sowing the seed, the ground should be rolled and made perfectly level and even, so that a thoroughly fine bed is secured. A quiet, calm day should be chosen for sowing, and after scratching the ground over with a rake, it should be pegged out into sections of thirty yards square each, sowing one pound of seed to every section, and distributing it as evenly as possible. After sowing, the surface should be covered with finely-sifted soil sown by hand at the rate of three bushels to every thirty square yards, the whole being carefully and thoroughly rolled—the tighter the better.



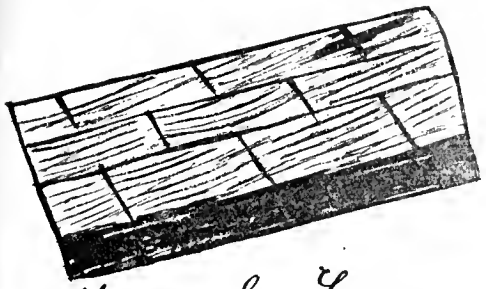


Lawn making implements: 1—Agricultural drain pipe. 2—Turfing iron. 3—Turf cutter. 4 and 5—Grass or turf beaters.

Some protective means, such as scares and cotton, should be provided to keep birds away until the young grass plants have grown to a height of about two inches, at which time the lawn should be lightly rolled, and after an interval of eight or nine days it may be lightly gone over with a sharp scythe, the cuttings being allowed to remain on the surface to protect the young plants from the sun. Every week the scythe mowing should be repeated, the old cuttings being first swept off, and as soon as the plants have taken a firm hold of the ground the roller must be used, and the mowing machine take the place of the scythe. Frequent and continuous rolling and cutting are indispensable to the

formation of a good lawn, and during dry weather this work should be done in the morning, spraying water on as often as required. It is better to mow moderately close twice a week than to cut once a week with the knives of a machine set too close to the surface.

As stated, a lawn formed with turfs can be brought into use much sooner than when seed is sown, but special attention must be given to the selection of the turf. That containing or consisting of coarse grasses and weeds should be rejected. The site of the lawn should be prepared in exactly the same manner as described for seed, with a fairly thick layer of good mould on top. The turf must be cut with sharp tools (see sketches) so that the edges are cut square and clean. A handy size to cut turfs is three feet long, one foot wide, and from two to three inches thick. In laying the turves, those around the edges of the lawn should overlap the edges, so that they can be cut off straight when the whole is complete. Every piece must be laid to break joint with its neighbor, as shown in the sketch. A barrow of good soil should be at hand so that any inequalities in the turf may be remedied, and when all are laid, beat well down with a proper lawn-beater, filling any spaces between the turves with soil. Water thoroughly, and roll well every day, continuing this treatment until the grass commences to grow, when the edges before referred to may be cut straight. Mow when required with a good sharp mowing machine.



How to Lay Turves

Fertilizing Made Plain

John Gall, Inglewood, Ont.

LEAVES collected in the fall form a splendid plant food. These should be buried in a hole in the ground to decompose, and after the lapse of a year taken out and dug into the soil. If a little manure be mixed with them, this will greatly assist in the decomposition. Such a collection of leaves can be turned to good account in the following late spring, such as a bed for vegetable marrows, cucumbers, or melons. After the crop has been taken off the leaves and manure can be used with excellent results, either in the flower border or vegetable garden.

Does the amateur gardener thoroughly appreciate the value of soot as a fertilizer? It is known that it has its uses as a deterrent to the ravages of slugs, but seldom is it used as a manure. It ought to be applied to the roots of plants of every description in a liquid state. The method used in the preparing of it is as follows: Secure a small bag, such as a discarded flour bag, which will serve the purpose well; fill it three parts full with soot, which has been kept for two or three months, and allow it to hang suspended in a pail of water from a stick fixed across the top of the bucket. Allow it to hang for a few days, and when wanted for use, squeeze the bag until the water becomes a brownish color. The liquid may then be applied to the plants with good results. Again fill the pail, and suspend the bag of soot in the water so as to be ready for use when required.

In its dry state soot may be sown freely on a windless day with good effects on the onion patch; just scatter it over. This not only acts as a fertilizer, but proves itself great in warding off insect pests. If, after sowing such root crops as parsnips, beets and carrots, the surface of the soil be dusted over with soot, the crops will receive a considerable benefit. But a word of caution is essential. Fresh soot contains a large amount of heat, and if allowed to be sown too early after it has been collected from chimneys and flues, its burning properties are likely to do more harm than good. The safest plan, then, is to keep it in some dry place for a couple of weeks before making any attempt to use it. Soot may be purchased through the seed stores either in large or small quantities.

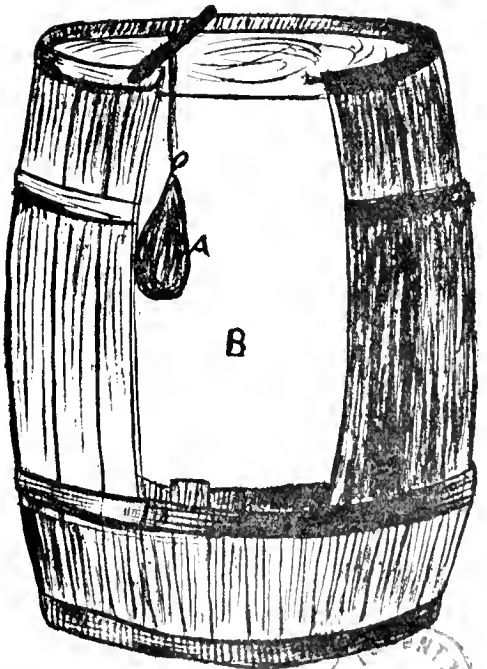
Potash is a most valuable plant food. Wood ashes contain this necessary element to quite an appreciable degree, and it is for this reason I should like to lay emphasis upon the importance of their use. These have a manurial and fertilizing value that is often forgotten even by the experienced gardener. They should be carefully preserved, and, as opportunity permits, be scattered over the onion or asparagus bed in the early spring, or mixed with potting soil, or in fact be used anywhere where the soil requires enriching.

The value of liquid manures, especially when plants are nearing their highest stage of maturity in the course of the season, can hardly be exaggerated. The advantages of liquid over solid manures are that the effect upon growing plants is immediate, and for this reason, if for no other, care should be practised in their use. It is advisable, therefore, to consider briefly how they should be made, and when and where applied.

Liquid manure is water holding in solution all the chemical constituents of fertilizers which go to supply plants with their natural support. Many materials can be employed in this composition. Those most often used are horse, cow, sheep, pig, and poultry droppings; soot and house slops. These can be utilized either separately or altogether. In the later case, the best plan is to get a large tub or barrel which is watertight and fitted with a good tap, the best being a beer barrel tap; then obtain a small bag, fill it with the manures, and suspend it inside the barrel by means of a strong stick placed over the top. Next fill up the barrel with water, stir well with a stick every day for about a week, after which the bag and contents can be taken out and the liquid will be ready for use.

In the making of liquid manure whose ingredients are mixed, it is necessary to consider the relative values of the different manures used. It may be mentioned, as a rule by which to work, that pig and sheep manures are the richest; those from the horse coming next; and last of all, cow manure. Poultry droppings are much stronger than any of these, and should be used very sparingly, and with care. About a peck of poultry manure will make thirty gallons of liquid manure, if used separately.

The applying of liquid manures in too strong a condition is the great danger to be faced. A good rule is to use them when they have attained the color of weak tea. It is better to err on the weak side than to run the risk of ruining the plants by applying liquid manure that is too powerful. Again, it should only be used when the greatest strain is being thrown upon the plants and they are searching for foods that are to carry them through—that is to say, when the plants are either ripening their fruits or sending forth their blooms.



Making liquid manure. A represents a bag containing a peck of soot and B water in which it is suspended. See accompanying article.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited, PETERBORO, ONTARIO

H. Bronson Cowan Managing Director

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of The Ontario and New Brunswick Beekeepers' Associations.

REPRESENTATIVES

UNITED STATES
STOCKWELL'S SPECIAL AGENCY
Chicago Office—People's Gas Building.
New York Office—Tribune Building.

GREAT BRITAIN
W. A. Mountstephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests: The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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, $1.40 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, 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	12,966	August, 1914	11,905
February, 1914	12,983	September, 1914	11,610
March, 1914	12,960	October, 1914	11,622
April, 1914	13,362	November, 1914	11,532
May, 1914	13,284	December, 1914	11,545
June, 1914	13,073		
July, 1914	11,871	Total	148,713

Average each issue in 1907, 6,627
Average each issue in 1914, 12,393

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 his 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."

Rogues 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 pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST
PETERBORO, ONT

EDITORIAL

PRESERVE ARBOR DAY

The numerous organizations, such as Civic Improvement Leagues, that have sprung into existence during the past few years for the purpose of stimulating and increasing the public interest in civic improvement have an opportunity to accomplish good work by reviving an interest in the observation of Arbor Day. In this work our horticultural societies would do well to lend a hand.

In each of the provinces, excepting only British Columbia, provision has been made for the celebration of Arbor Day. In most provinces it is a public school celebration only. The regulations provide for its observation by the planting of trees and shrubs on the school grounds. In many towns and cities the schools no longer observe the day. This is regrettable. The various agencies that have been working to promote town planning and civic improvement have educated public opinion on the importance of tree planting. An effort, therefore, to revive an interest in the observance of Arbor Day would be likely in most centres to meet with a ready response.

The Commission of Conservation at Ottawa points out that Canada is so dependent upon her forests that any measures which may be made to extend the knowledge of the people respecting trees and the need for their protection will serve a useful purpose. It suggests that Arbor Day might be made a public day or half-holiday, as well as observed by the schools. The proposal has much to commend it. If city councils or park commissions would undertake to provide trees on condition that the citizens would agree to plant them according to instructions, a public observance of the day would meet with favor in many centres.

THE LIMITS OF COOPERATION

Cooperation has conferred so many and such great benefits on fruit growers and its advocates are so numerous and earnest it seems difficult for some to realize that like everything else, its possibilities for good are limited. Its dangers grow out of its successes. There is great need for a wide and general extension of the cooperative principle in the production and marketing of fruit in every fruit district of Canada, but particularly in Ontario and Quebec. It seems almost uncalled for, therefore, to point out agencies that sooner or later will militate seriously against the success of the cooperative principle. Yet the sooner we recognize that there are dangers the better prepared will we be to deal with them when the time arrives.

The greatest danger that attends the introduction of the cooperative method is the tendency of land to increase in value wherever cooperation proves successful. So well is this fact realized that in a bulletin, dealing with cooperation, issued by the Dominion Fruit Division, fruit growers are urged to cooperate because among other reasons, cooperative effort will tend to increase the value of their land. Let us, for a moment, examine conditions in the Annapolis Valley. Because of the success that is attending the efforts of the United Fruit Growers of Nova Scotia, Ltd., a tendency is already manifest among fruit growers to increase their acreage, and lands are already beginning to increase in value. This condition promotes speculation in land. The result will be that sooner or later there will be a boom in land values in the Annapolis Valley which will prove just as disastrous in Nova Scotia as similar booms have proved in recent years in British Columbia.

As fruit lands increase in value there is a tendency for them to pass out of the hands of growers into the hands of speculators. In time they are re-sold to newcomers at prices that eventually become so high it is almost impossible for last purchasers to make a profit from their land in spite of the great success which may be attending the efforts of their local cooperative associations.

Wherever cooperation is proving successful there is a tendency also for more and more people to rush in for fruit growing. This continues until advancing land values act as a check. As more and more engage in the occupation the production of fruit is so increased that even the efforts of the best organized cooperative associations become taxed to deal with the situation thus created. Fruit, then, has frequently to be sacrificed in the leading consuming centres. This benefits the consumer for a while, and even tends to increase consumption, but if the condition continues it also is offset by the tendency of land in the cities to increase in value until the benefit of the increased production and lower prices has been absorbed by the city landowner rather than by the consumer. This tendency of land to increase in value is one which sooner or later tends to offset practically all the benefits derived through cooperative effort.

The remedy for increasing land values is to shift taxes from improvements to land values. Under such a system of taxation the fruit grower who plants and cultivates an orchard is not penalized for his enterprise, while the speculator who would seize and hold land for speculative purposes is fined by the increased taxes he has to pay. The more this question of the tendency of land to increase in value is studied by fruit growers the more worthy they will find it of further consideration. It is an unrecognized but very real agency which is always and ever operating to minimize and thwart the efforts of those who strive to make fruit growing more profitable by the introduction of improved and better methods of horticultural practice.

ONTARIO FRUIT GROWERS SHOULD ACT

The success which is attending cooperative methods in the Annapolis Valley of Nova Scotia, the Okanagan Valley, and other fruit centres of British Columbia, as well as in the Pacific Coast states, makes it the more difficult to understand why Ontario lags behind in the application of the cooperative principle on a broad scale. There are numerous successful local cooperative associations in Ontario. Some of these are as successful as can be found anywhere on the Continent. Where Ontario is falling down is in its failure to unite more of the local associations than it has yet succeeded in doing in an extension of the principle on a provincial scale.

The warning comes from the west that this year western fruit growers, through their cooperative organizations, are planning to so arrange their shipments of fruit that when it is found that the prairie markets are supplied this fruit will not be allowed to be sacrificed on the prairie markets, but will be rushed through to eastern markets, and sold for what it will bring. In other words, the fruit growers of Ontario who produce more fruit than all the other provinces combined, because of their failure to cooperate in a large way are in

danger of having their local markets invaded and injured by fruit growers thousands of miles away.

If the situation is to be saved the representatives of the cooperative associations of Ontario should get together at the earliest possible date and complete plans for the marketing of this year's crops. Some years ago The Canadian Horticulturist assisted in the organization of the Ontario Cooperative Apple Growers' Association. If the representatives of the cooperative associations of Ontario are now ready to cooperate on a larger scale we will be pleased to do what we can to assist them in getting together and formulating a working policy. The sooner action is taken in some way, the better it will be for all.

The suggestion made through The Canadian Horticulturist that the apple should be recognized as the national dish of Canada was endorsed at the last annual convention of the British Columbia Fruit Growers' Association. This means that the leading fruit growers' associations of Canada, including those of Nova Scotia, Ontario, and British Columbia, are in favor of this movement. One of the best methods of leading the public to accept the apple as Canada's national dish will be for fruit growers' associations of all kinds to mention the apple wherever possible as our national fruit. Should another national advertising campaign be conducted next fall, an excellent opportunity for advertising the apple as our national dish will be presented. It could be made a central theme of the advertisements and the idea would soon meet with ready acceptance by the public. Thus the object aimed at by our fruit growers would be accomplished. The benefits that will be derived through increasing the popular sentiment in favor of the apple are worthy of our making the necessary effort.

Splendid work is being accomplished by the Schools Division of the Ontario Experimental Union in encouraging the teaching of horticulture and agriculture in country schools. This work is being promoted through school gardens, school fairs, and other similar agencies, as well as by gaining the interest and support of trustees and teachers. Helpful literature is freely provided. This is well worth writing for by all interested in this movement.

PUBLISHER'S DESK

This is an issue of The Canadian Horticulturist which we feel should accomplish much good in promoting a greater interest in horticulture. From our front cover, which shows an informal row of tulips in the Allan Gardens, Toronto, through all of the reading pages, an effort has been made to furnish illustrations and articles both timely and interesting at this season of the year. Those people who are planning to start vegetable gardens for the first time will be helped by Mr. Macoun's article as well as by much of the other information that has been furnished by other contributors. Mr. Gall's articles on the laying out of the lawn and on fertilizers are practical and helpful to an unusual degree. One article which we planned to publish in this issue, entitled "Plants for Shady Places," was unfortunately crowded out at the last moment. We expect to use it in our next issue. Horticultural societies in Ontario, of whom there are a few, which do not subscribe for The Canadian Horticulturist for all of their members, which would like extra copies of this issue for distribution among their members are invited to write for terms. Those societies which take The Canadian Horticulturist and who employ canvassers to obtain members, would do well to see that their canvassers are supplied with this issue of The Canadian Horticulturist when calling on prospective new members, as it should assist them in obtaining their membership. Fruit growers will recognize the value and importance of the many articles which are of special interest to them.

Elsewhere in this issue appears a report of the annual meeting of The Horticultural Publishing Company, Ltd., which publishes The Canadian Horticulturist, The Beekeeper, and The Canadian Florist. The directors of the company are all men directly interested in horticulture. Practically all of them have national reputations through their connection with some special branch of horticulture. One explanation of the success which has attended the publication of The Canadian Horticulturist may be found in the character of the men who control its policy.

Patriotic Vegetable Gardening Competition

W. T. Macoun, Dominion Horticulturist

THE British Empire will need all the food that can be made available in 1915. Everyone in cities and towns with vacant land can produce some food if he will. By growing vegetables for household use you will release food for someone else that would have been sold to you. By growing vegetables for your own use you will also save most of the money that you would otherwise have paid for them, which you can give to the many needy war funds should you care to do so. Vegetables fresh from the garden are much more appetizing than those which have been gathered for some time. You will, if you grow your own, find that you will eat more vegetables than you have been accustomed to, and will have less desire for the more expensive kinds of food.

RULES OF THE COMPETITION

To encourage the utilization of vacant land in this way, patriotic vegetable gardening competitions might be held. The rules governing the competition have been made as simple as possible, so that everyone whether he knows little or much about gardening has a chance to win a prize. It is presumed that many will enter who have never gardened before, and whose yards are at present in a very rough condition. This was taken into consideration when the rules were made.

SIZE OF GARDENS

Gardens entered for the competition are to be 1,000 square feet in area. In other words, they should be 50 by 20, 40 by 25, 30 by 33½, or any other shape that will give the required area. Potatoes are excluded from the general garden, but may be grown alongside, and, if possible, a special prize or prizes given, based on the same points as for the general garden. There is no restriction as to size of plot for potatoes.

TIMES OF JUDGING

The gardens will be visited six times by the judge or judges, once before any work is done and then once a month in May, June, July, August, and September.

Each month after the first visit, there will be a possible maximum of the following points, a total of 500 points for the season. At the first visit the points for difficulties (to be) overcome will be the only ones considered, full notes being taken on the condition of the land. The score will be made, at the second visit, from the notes taken at the first, and from the improvements which have been made.

	Points
Quantity and value of vegetables	20
Quality of vegetables	20
Assortment of vegetables	20
Difficulties overcome	20
Cleanness and neatness	20
	100

The quantity of vegetables grown will be decided both from the observations made by the judge and by a signed statement from the householder, showing how much of each kind of vegetable was gathered and the approximate value of the same.

By quality is meant condition of development and uniformity, and any other factor that affects the value of the product, except that of palatability, for the judge will not be expected to test the eating quality of the vegetables.

By assortment is meant the number of kinds of vegetables grown. There should be a fair proportion of each kind.

The judge will take into consideration the difficulties which each competitor faces when beginning his garden operations. If one competitor has many difficulties to overcome he will receive a high score under this head, but another competitor with fewer difficulties will get compensation in other ways.

Freedom from weeds, insects, and diseases, good cultivation, and straight lines come under the head of cleanness and order, or in other words, the general appearance of the garden will be considered.

The judge or judges should furnish pamphlets free, giving information on the best varieties of vegetables to plant, the general preparation of the soil, a suggested arrangement of vegetables in the garden (which need not necessarily be followed), directions for controlling injurious insects and diseases, and cultural directions for the different kinds of vegetables. It is expected also that information not covered by the pamphlets will be cheerfully supplied by the committee.

SOCIETY NOTES

Guelph

The option list of the Guelph Horticultural Society this year is an unusually attractive one. Members of the society are offered twenty-nine options, included in all of which is a year's subscription to The Canadian Horticulturist. Two of the options include books on horticultural subjects. A third is a certificate which credits the owner with fifty cents towards the purchase of garden tools at any hardware store in the city. The society this year will conduct a vegetable garden competition for working people only, a window and verandah box competition for members of the society only, and a working people's lawn and flower garden competition arranged by districts. It is distributing seeds, also, among the school children for use in home gardens. Officers of other societies may write to the secretary, Mr. J. E. Britton, O.A.C., Guelph, for a copy of the society's options.

Walkerton

The Walkerton Horticultural Society last year improved the grounds around the new Carnegie Library. It held a flower show at which the prizes awarded were paid in bulbs and plants. In the spring and fall plants and bulbs were distributed to the members. Each member received The Canadian Horticulturist.

Better Methods of Marketing Required*

C. W. Baxter, Fruit Division, Ottawa

IT is doubtful if there is any product of the soil as valuable as the apple, which shows so great a lack in practical business methods of marketing and distribution. It offers so many speculative inducements; it has reached the stage of being termed by some a "gamble."

Many growers contend that the apple business is unlike any other business. This of course, is true to some extent, but to no greater extent than various other lines of business. There are certain business principles which must be followed and which are essential to the success of every business. The same principles are practical in creating a demand for and selling and distributing the apple as are used in the distribution of the product of any factory.

To speculate with bananas is practically an impossibility. This is also the case with oranges. Each of these fruits are controlled by a selling and distributing organization. In them the apple meets its greatest competition. The fact that no speculation is permitted in the sale of bananas and oranges, as well as the various advertising schemes which have been used to find an outlet for these crops together with the machinery employed for the proper estimating of the total crop, enables the selling force to so determine prices that it has created a tremendous increase in the consumption of these fruits, even to the extent of moving the whole crop with little or no waste.

This last factor, the elimination of waste, is one which is commanding the attention of all students of economy. Those of us whose privilege it has been to move about the apple growing districts of eastern Canada during and after harvest time, and view the piles of "culls" left in the orchards, know that this feature of the apple industry should be seriously considered.

Scientific men tell us that it costs the tree as much to produce a cull as it does a number one apple. The waste we see in the product of the tree is, therefore, also a waste of the productive element of the soil. By the adoption of proper spraying, cultivation, pruning and thinning methods this waste can be largely eliminated. Commercial orchards in British Columbia and the Pacific Coast states have produced for several years in succession from 90 to 94 per cent. No. 1 fruit.

The marketing organizations of the orange growers of California are a tremendous success. We are constantly being reminded of this by the display of oranges in stores, large and small, in the cities and towns from coast to coast, even in very out-of-the-way places. The success of the cooperative organizations of the California orange growers, the unsatisfactory returns to individual apple growers, and the ruinous competitive methods of different associations, induced the growers of the Pacific Coast states to form the cooperative selling and distributing organization known as the North Pacific Fruit Distributors. It is a selling machine absolutely owned, controlled, and managed by the growers.

"Necessity is the mother of invention." This has been so with the fruit growers of the western coast states. They realized that, being situated so far distant from the larger marketing centres and their great disadvantage in freight rates, it would be impossible for them to successfully compete with the eastern fruit grower with the same product put up in the same way.

The methods employed by these growers are of the most up-to-date character. The result is that a very large percentage of their fruit is clean, well colored, and of first quality. They have adopted the box as the package to be used in marketing the apple. This package was unpopular at first. It has since become practically a standard package. It is greatly desired by the trade.

Cooperative associations were formed and as during the time the greater number of the young orchards were coming into bearing the total product was not large. Very high prices were realized. However, in 1912 the growers found themselves with a very large crop of apples; in fact, by far the largest they had had. To market this was a big problem. Various methods were used. Cooperative associations were competing one with the other. Some members withdrew from associations to which they belonged, and tried to market their fruit individually. This resulted in most unsatisfactory returns, and in many cases ruinous prices. Growers at once set about to find a means to remedy this condition. The result was that over sixty per cent. of the growers agreed to cooperate in marketing through a central association.

CAPABLE MEN EMPLOYED

In the formation of this cooperative selling organization, only men of the highest degree of efficiency and business management were engaged. These were men in whom the growers had perfect confidence. They were men who had already made successful business records. Wherever we go we see evidences of the success of this organization whose growers have justly claimed to be "the most perfectly equipped selling machine in the dicidious fruit business of the world."

The success of this system of distribution can be seen by its invasion of our eastern markets in the spring months, with such varieties as the Missouri Pippin, Winesap, and the much-despised Ben Davis. These we find on the tables of our eastern hotels, dining cars, and sold by railway newsagents and fruit dealers at what seem fabulous prices.

The claim of this organization that the grower is permitted to see the whole history of his fruit from orchard to market is made possible by the uniting of the local cooperative associations in a sub-central organization governed by the growers directly, or through representatives of the locals. A trustee is elected by each sub-central. These trustees constitute the governing board of the central. The growers of each district also elect two of their number, who together constitute an auxiliary board, with power to review the acts of the trustees. The books and records of all branches—central, sub-central, and local—are open to the inspection of each grower at all times. This permits of his knowing the cost of every move.

This organization provides a system of gathering crop estimates and market reports, and furnishes the grower with more and better information than is known by the buyers. This is a tremendous advantage to the grower. It ensures a uniform, supervised and dependable pack upon which buyers can rely, and is a great factor in eliminating the speculative element. By having representatives in every fruit centre in America and Europe, the fruit is more evenly distributed and secures a wide distribution. The buyers are assured of a greater steadiness of price and an almost certainty of buying on a stationary or a rising, not declining, market—another factor in eliminating the speculative element. A wide and intelligent advertising of their product increases the demand.

While this organization has not been in existence very long, it has accomplished much. Founded as it is upon ideal business principles, it cannot fail so long as it receives the loyal and sympathetic support of its members. The working of this organization (a mutual non-profit corporation) or any other system which gives the grower, large and small, control of his fruit from production to a wide range of markets, should receive the consideration of every fruit grower.

The great success attained by the United Fruit Companies of Nova Scotia, which is the buying and marketing machinery of a large number of local associations, is another example of what can be done by organization. The manner in which the phenomenal crop of 1912 was marketed and distributed, was a credit to the officers and members. A number of local associations of the Okanagan Valley, B.C., have organized a central body known as the Okanagan United Growers, Limited, which has given good results.

ONTARIO AND QUEBEC METHODS

As we review the methods of marketing and distribution in the provinces of Ontario and Quebec, we find they are various indeed. For instance, first, the producer packs his fruit and awaits the arrival of a buyer. Should he be disappointed in this, he sells through the commission merchant; second, the producer, as has been his custom for years, receives an amount per barrel in advance and ships his fruit to the European markets on consignment; third, the producer sells his fruit by the barrel, picked, the buyer doing the packing, or the producer sells the fruit by the barrel on the tree, the buyer picking and packing the fruit; fourth, the producer sells his fruit by the "lump" and secures the same price for all the fruit in the orchard; fifth, there are local cooperative associations whose members pack their own fruit and sell through mail quotations or by the employment of one or two travelling salesmen.

Such methods offer a large field for speculation. Some individual growers who have established a reputation for high quality in local markets, experience no difficulty in making sales at highest prevailing market prices. These growers, however, are comparatively few.

Cooperative associations which have a reputation for uniformity of grades and high-class fruit have been given a preference by dealers in our western markets. This was evidenced in the marketing of the big crop of 1912. Dealers frequently paid from 50 cents to $1 per barrel more for packs of associations which were well-known, in preference to unknown individual packs where the fruit was equally as good. Because of the various methods by which the fruit is sold and packed, a very wide range of grades and quality is the result. There is no uniformity even though the fruit complies with the requirements of the Inspection and Sale Act.

This lack of uniformity in grades is as prominent in association packs as with individual packs. It causes much dissatisfaction among the dealers. Instances of this have frequently come to my attention. I have seen barrels of apples packed by the same associations exhibited in large quantities and offered for sale in the stores of two merchants doing business in the same block. The varieties were the same, as well as the price, but one lot was worth at least a dollar a barrel more than the other, although both were within the requirements of the Act. There is no fear of the fruit industry that will give greater satisfaction to the distributor and consumer, as well as better returns to the producer, than the

*Extract from a paper read at the last annual convention of the Province of Quebec Fruit Growers' Association

establishment of uniformity in quality and grades.

Another result of our various and unorganized methods of marketing is the wide range of prices received by the producers, even where the quality and variety are equal. It is not the fault of the producer, but of the system. It is not to be expected that the grower is thoroughly posted with regard to actual market conditions. He may be an expert in production, but this very fact prevents him from obtaining this information. The expense necessary to obtain this information would be out of all proportion to the value of his crop, and he is placed at a decided disadvantage when he comes to market his fruit.

If the buyer whose special business it is to follow the markets, succeeds in buying below the prevailing market price, the difference is a loss to the grower, and this difference frequently represents a fat profit. Transactions of this kind are unsatisfactory and discouraging to the grower, who frequently makes use of the public press to give vent to his dissatisfaction. The blame is usually placed on the so-called "middleman," known to the public as the retailer. We had an example of this during the fall of 1912. A grower in Ontario placed a card in a barrel of apples, upon which he had written. "I received 50 cents

(*Continued on page* 110)

How Should Apples be Packed?

There is controversy upon the respective merits of the barrel and the box as a package for apples, remarks the Nelson Daily News. Mr. J. W. Hayward, a well-known Okanagan apple grower, is a strong advocate of the adoption of the barrel for the bulk of the crop of that district.

The box is upheld as a good package for high-grade fruits as far as transportation and protection against pilfering in transit is concerned, but it is branded as unsanitary on account of the contents being to a certain extent exposed. Mr. Hayward favors the crate for fall apples, but he finds that it is also unsanitary. Baskets, he considers, are cheap, handy and convenient, but poor from a shipping and sanitary standpoint, and subject to the ravages of the pilferer.

When the barrel is packed and closed it is acknowledged, he declares, to be the best universal package. Barrelled apples can be stored in warehouses where fish, onions, coal oil, and other articles which give off odors are placed, and the fruit will not be contaminated. Barrels are easy to load, ride well in transit, and can be packed quickly, while every time a barrel is moved it is equal to the moving of three boxes.

Summing up the respective costs of the barrel and the box, Mr. Hayward, allowing for first costs, moving, packing, and loading on cars, declares that growers of 150,000 carloads could save $4,275 by using barrels instead of boxes.

$1.00 for 600

Tomato Plants

This is possible with a packet of our new variety—the "Ideal." This tomato is an English variety, not yet on the Canadian market. Is a very heavy bearer of perfect fruit and a great drought resister — having surpassed itself in this country for production and perfection.

Just slip a dollar bill into an envelope, with your name and address RIGHT AWAY, and get full particulars re our competition, with your packet.

Also 25 & 50 cent pkgs. for amateurs.

HILLSIDE FRUIT FARM
(Dept. C) SIMCOE, ONT.

Peerless
Climax Fruit Baskets

Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

Canada Wood Products Co.
ST. THOMAS, ONT.

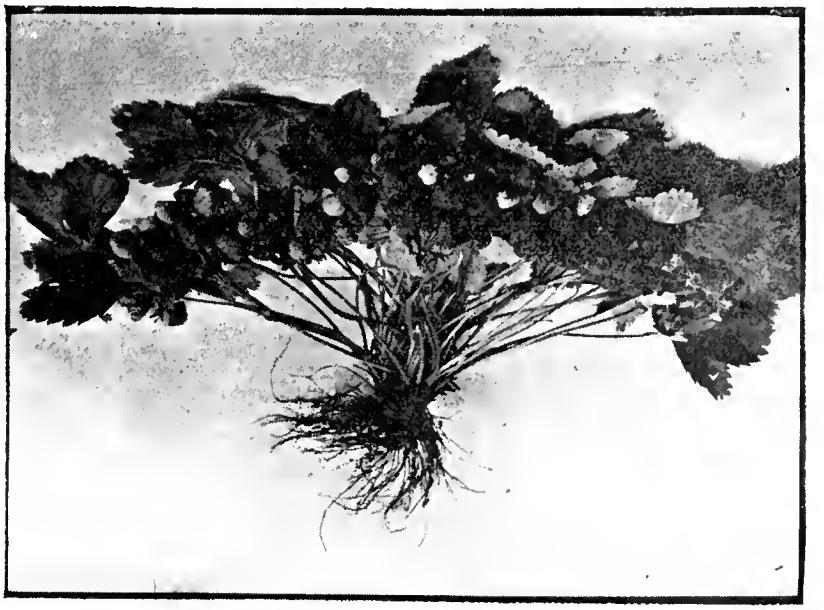
Douglas Cardens
OAKVILLE, ONT.

Hardy Plants
Grown in Canada

Achillea, "The Pearl," 15 cts. ea.: 10, $1.25.
Anchusa italica, "Dropmore," 20 cts. ea.
Anemone Japonica, 4 vars., including "Mont Rose," 15 cts. ea.; 10, $1.25.
Aquilegia, mixed, fine plants, 15 cts. ea.: 10, $1.25.
Arabis Alpina, 15 cts. ea.: 10, $1.00.
Artemisia lactiflora, 20 cts. ea.: 10, $1.50.
Asters (Michaelmas Daisies), 10 vars., 15 cts. ea.: 10, $1.25.
Bellis perennis (English Daisy), white and pink, 10 cts. ea.: 10, 80 cts.
Chrysanthemum Uiginosum, 15 cts. ea.; 10, $1.25.
Delphinium, mixed, fine plants, 20 cts. ea.: 10, $1.50.
Dianthus barbatus, Sweet William, 15 cts ea.: 10, $1.25.
D. plumarius, "Mrs. Sinkins," 15 cts. ea.: 10, $1.25.
Dicentra spectabilis, 15 cts. ea.: 10, $1.25.
Helenium, 5 vars., 15 and 20 cts. ea.: 10, $1.25 and $1.50.
Hemerocallis, 4 vars., including "Gold Dust," 15 cts. ea.: 10, $1.25.
Heuchera, 4 vars., 15 cts. ea.: 10, $1.25.
Kniphofia Pfitzeri, 15 cts. ea.: 10 $1.25.
Monarda didyma, 15 cts. ea.: 10, $1.25.
Phlox, 12 vars., including "Miss Lingard," 15 and 20 cts. ea.: 10, $1.25 and $1.50.
Yucca, 20 cts. ea.: 10, $1.50.

Please add postage as per our published schedule. Early orders are solicited.

JOHN CAVERS



Ott's Giant

THE new variety of strawberry reproduced above was cultivated from a chance seedling found by Mr. George Ott, of Arkona, Ont. The stems and leaves of this plant averages 12 inches in length and contains 114 berries, the largest berry measuring 5¾ inches in circumference. It will yield one-third more per acre than any other variety which Mr. Ott has hitherto grown. The berry commands also a higher price in the market than the older varieties.

Ott's Giant is being put on the market for the first time this spring. For a full description of this wonderful new berry and price list, send a post card to Mr. George Ott, Arkona, Ont.

FREE LAND

FOR THE SETTLER IN

NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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GARDENERS' GLOVES

Sheep-skin gloves, steam and fireproof asbestos tan. Just the right glove to protect your hands during the spring work.

10-in. gloves, 50c. per pair, prepaid. 10-in. one finger mitt, 25c. per pair; 4 pairs $1.00, prepaid. 12-in. one finger mitt, gauntlet cuff, 10c. per pair, prepaid.

"I have used Davidson's gloves and have found them superior to all others." JOHN GALL, Weston.

N. F. DAVIDSON, Man'f'r., INGLEWOOD, Ont.

Landscape Gardening

A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

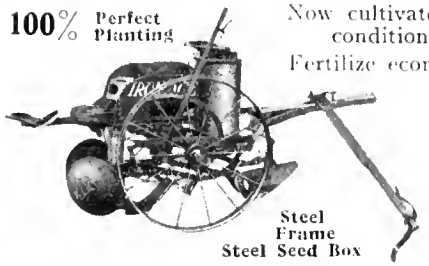
Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL
DEPT. C.F. - SPRINGFIELD, MASS.

Growing Potatoes for Profit

FIRST, get good seed.
Next, a good seed bed, as good as you can make it.
Then, make every seed piece count, one in every space and one only.
You save seed, at least a bushel per acre.

100% Perfect Planting



Steel Frame
Steel Seed Box

Now cultivate often and just the right way to suit your conditions.

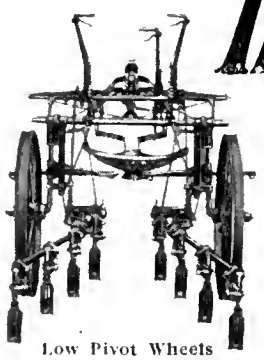
Fertilize economically, in the row where it does the most good.

Spray often with the right materials and a good machine—one with plenty of pressure or it won't do any good.

Dig by machine fast and safely, when the crop is right and the market ready.

100 Per Cent Planters place one seed piece in every space and one only, save at least one bushel of seed to every acre, spread the fertilizer so it won't injure the seed, and carry no infectious disease. Sold with or without fertilizer distributors in two sizes. Plants 8 to 24 inches apart in the row.

Riding and Walking Cultivators are exactly adjustable to proper working of the potato crop at all stages, have high or low, pivot or fixed wheels, with dust proof grease cup hubs, parallel motion of teeth when you shift, etc.



Low Pivot Wheels

IRON AGE

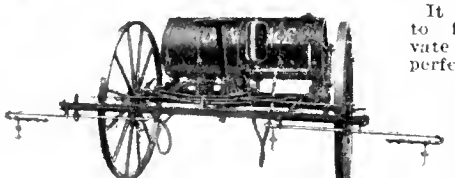
Potato Machines

are made with just these points in view—made by people who grow potatoes for profit—made with variety in style and equipment to meet conditions in all potato growing sections. Don't buy without studying planter, cultivator, sprayer and digger—the selection may decide profit or no profit.

It costs no more to fertilize, cultivate and spray a perfect stand—so it is naturally every man's ambition to plant that way, and it pays big in yield and better growth.

We will be very glad to answer any questions in regard to potato growing or about the necessary machinery.

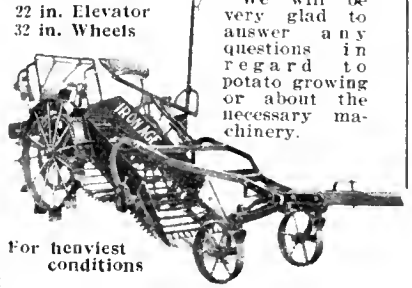
Four or Six Row Sprayers, 55 or 100 gallon cypress tanks, double acting pumps, hemp packing, bronze ball valves, easy to get at, no corrosion. For one or two horses. Takes practical orchard attachment.



Four Row — 55 Gallon Tank

Diggers, four styles to suit your conditions. Plenty of power and elevator room. Close adjustment of plow to get the potatoes, but not too much ground, and perfect separation of ground, crop and vines.

22 in. Elevator
32 in. Wheels



For heaviest conditions

The following booklets are at your disposal:

"100 Per Cent Potato Planting." "Two Horse Riding and Walking Cultivators." "Spraying" (and spraying guide). "Modern Potato Diggers." Shall we send one or all?

Your local dealer will be glad to show you these tools.

The Bateman-Wilkinson Co., Limited
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Makers also of Spraying Machinery (all kinds), Garden Tools, etc.

Bulletins and Reports

Lack of space has prevented us from publishing reviews of a large number of interesting books, bulletins, and reports dealing with horticultural subjects that have reached The Canadian Horticulturist during the past few months. Some of these we are able to mention only by name. Those of our readers who are interested in the subjects mentioned will be able to write direct for these. Others we treat at a little greater length.

Among the books are "The Principles of Fruit Growing" and "Plant Breeding," both by Prof. L. H. Bailey, of Cornell University. These books contain over 400 pages each, and deal at length with the subjects mentioned. The former sells for $1.75, and the latter for $2.00. They are issued by The MacMillan Company of Canada, Ltd., of Toronto, and may be purchased through The Canadian Horticulturist.

"The Back Yard Farmer" is a book by I. Willard Bolte. In an interesting manner it describes how to obtain results from and the possibilities of the back yard. It gives directions for the cultivation of vegetables, fruit and flowers, and the management of poultry, and the care of the lawn, vines, and shade trees. It is issued by Forbes & Co., of Chicago, sells for $1.00; the publishers are Carpenter & Co., Ithaca, N.Y. It also can be purchased through The Canadian Horticulturist.

"Insects of Economic Importance," by Glenn W. Herrick, Professor of Economic entomology, Cornell University, deals with practically all the most common varieties of insects, and describes the most successful methods of their control. The retail price is $1.00; the publishers are Carpenter & Co., Ithaca, N.Y. It also can be purchased through The Canadian Horticulturist.

The annual report of the Fruit Growers of Nova Scotia for 1915 is unusually interesting. The secretary is Manning Ells, Port Williams, N.S.

The Horticultural Division of the Dominion Experimental Farm is distributing a number of interesting bulletins. One contains the report of the Division for the year ending March 31st, 1913. This is so late of publication, it does not reflect much credit on the government printers although the report itself is an interesting one. It contains the reports of the various experiment stations throughout Canada. One of the most timely of these bulletins is entitled "The Planting and Care of Shade Trees." It is by F. E. Buck, B.S.A., the assistant of the Dominion Horticulturist. All interested in this subject should obtain a copy of this bulletin. Others of these bulletins are "Plum Culture," including district lists of plums, suitable for Canada, with descriptions of varieties, being bulletin No. 43, revised edition, and a "Summary of Results in Horticulture," being Bulletin No. 77; and Pamphlet No. 99, entitled "Hardy Roses, and their Culture, in Canada." Al lof these are by the Dominion Horticulturist, Mr. W. T. Macoun. The Renovation of the Neglected Orchard, with special reference to the best orchard practice, is dealt with in Bulletin No. 79, by M. B. Davis, B.S.A., Assistant to the Dominion Horticulturist. Two circulars isued by the Experimental Farm, are entitled "Growing Grapes for Home Use," by W. T. Macoun, and "Potash in Agriculture,' by F. T. Shutt, Dominion Chemist.

The Entomological Branch of the Department of Agriculture at Ottawa in Circular No. 4 gives instructions to importers of trees, plants, and other nursery stock into Canada.

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WE WILL SHIP IN 5 GALLON LOTS AT
$1.50 per gal.

Write at once to

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IF GOOD QUEENS ARE WANTED

I have the goods. The pure three-banded Italians and the pure Carnioljans, both races from imported mothers. Prices, untested, each 75c, doz. $8.00; Tested $1.25 each—$12.00 doz. Circular Free.

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Full line of Roots Bee Supplies. Also Made-in Canada goods. Friction drive extractors, gasoline engines, prairie state incubators and poultry supplies. "Gleanings" and other Bee Journals. Get the best. Catalogs and price lists free.

BEES FOR SALE

Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; All with Queens. Italian Queens, 75c each; 6 for $4.00. Complete Catalogue Free.

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Northern Bred Italian Queens

Guaranteed as can be had. Leaflet, "How to Introduce Queens" 15c, "How to Increase" 15c, both 25c.

E. E. MOTT, GLENWOOD, MICH.

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Leather Colored Italian Queens for June delivery. Untested Queens, $10.00 a dozen, or $1.00 each, in lots of 25 or more 75c each. Tested Queens, $1.50 each. Warranted purely mated Queens, $1.10 each or $12.00 a dozen. (Spring delivery). Breeding Queens, tested, after July 1st, $5.00 each. A few choice colonies of Italian bees with tested Queen in 9-frame model hives at $10.00 per colony.

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Bees and Queens

Ours are choice stock and Northern Bred, are more desirable for Canadian Beekeepers. Ask for Catalogue B.

Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.

Berry Baskets, ask for Catalogue C.

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Write for Bee Supply Catalogue
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BEES FOR SALE

For Sale—Early swarms, 1 lb. bees $1.50, f.o.b. here. Add price of Queen if wanted. Untested Italian Queens, 75c each, Tested Italian Queens, $1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction I guarantee to any Express Office in Man., Ont. and Que. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5th. Capacity, 40 swarms per day. You will get your bees when wanted, or money back by return mail. Early swarm gets the honey.

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Bee Ware

A full line of Beekeepers' Supplies, including our justly celebrated Double-walled Hive. The 1lb. package our specialty. We have a few choice Colonies of Bees not sold yet. We want Bees Wax. Have you got our handsome catalog of "Perfection Brand" Goods? It's free.

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25 Years of knowledge and experience we give you in every order.

Queens

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from the best Italian stock.
Let me Book Your Order Now.
One Dollar Each
Six for Five Dollars.

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438 Gladstone Ave. - TORONTO

Three-Banded Italians

Twenty years' selection and breeding is why Murry's queens are better. A trial order will convince you. Safe arrival and satisfaction guaranteed. Prices after May 1st:

	1	6	12
Untested	.75	$4.00	$7.50
Tested	$1.25	6.50	12.00

Bees by the pound, $1.50. Better let me book your orders now.

H. D. MURRY
MATHIS - - TEXAS

BEEKEEPERS!

Send for our new Catalogue describing our Improved Model Hives—one of the best hives in use for our climate. Weed Process Comb Foundation, Bees in Pound Packages and a full line of Bee Supplies.

Write us if you have any BEESWAX to offer

F. W. JONES
BEDFORD, QUE.

The Bee-Keepers' Review

Is out on a hunt for new subscribers and has a special offer to make to those subscribing at the present time. The regular subscription price of The *Review* is $1 a year. Our special offer is to give the last nine months of 1914 and all of 1915 at the regular annual price. The nine months of 1914 contain all the valuable papers read at the National Convention at St. Louis, Mo., last February, including one from Prof. Morley Pettit, and one from Prof. F. W. Sladen, of Canada, besides many from over the border. Twenty-one months for a dollar. A bargain worth considering. No extra charge for Canadian postage.

Address, with remittance, The Bee-Keepers' Review, Northstar, Michigan.

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AMERICAN BEE JOURNAL

Some **SPECIAL FEATURES** for 1915 are a series of articles by **FRANK C. PELLETT** on "Honey Flora" and **C. P. DADANT'S** articles on his trip abroad and "Queen Rearing in Italy."

We have many of the world's best bee writers as contributors.

J. L. BYER conducts our Canadian Department. **DR. C. C. MILLER** writes editorials and answers questions.

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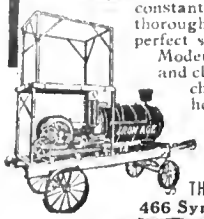
Power Sprayers

Succeed because they have a powerful double acting pump, that has been doing perfect work for seven years, a 2 H.P. Engine that develops 200 pounds constant pressure, using 6 to 8 nozzles, thorough agitation of solutions, and a perfect system of sediment straining. Modern equipment. Easy to operate and clean. 70 combinations for orchard, field, garden, poultry house, stock buildings and home. Ask your dealer to show them and write us for "Spray" booklet and a spraying guide. Both free.



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Write for six books on indoor and outdoor irrigation.

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ORCHID GROWERS. The Finest Stock in the World.
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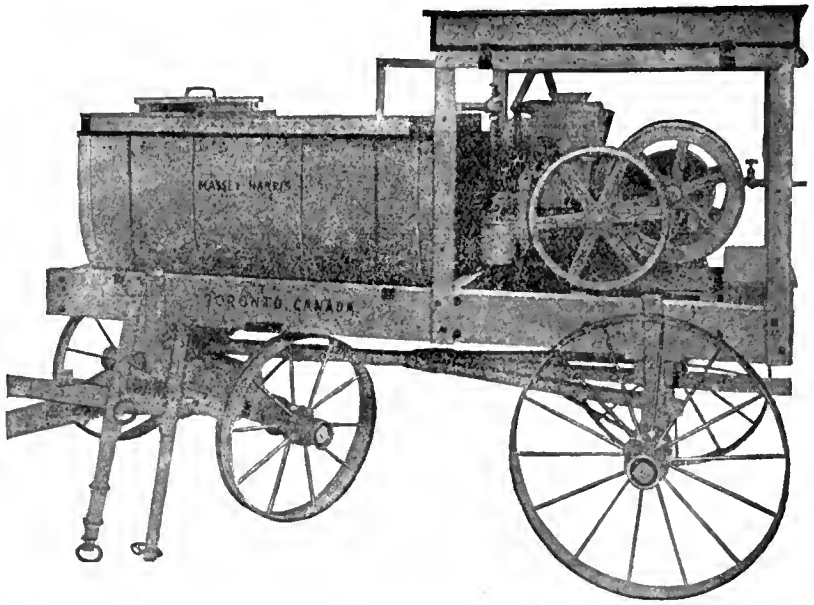

It Pays to Spray

WHEN YOU USE A

MASSEY-HARRIS SPRAYER

Proper Spraying yields Big Returns. Unsprayed fruit is liable to be a drug on the market. A Good Spray Outfit will soon pay for itself and Adds to your Profits.

The Massey-Harris Sprayer has Double Cylinder Vertical Pump with Bronze Plungers---Tank is made of selected Cypress---the Agitator is operated from top of the Tank---no Sprocket Chains or other "trappy" Parts.

Made in a large range of sizes from the hand power outfit on skids to the large power outfits, shown above, for the large fruit farms.

Complete catalogue which contains valuable hints on spraying, free on request.

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AGENCIES EVERYWHERE

Western Returns for 1914 Crop

Market conditions and returns last fall in the west were described at length by Mr. G. Forsyth Smith, market commissioner for British Columbia, at a meeting of fruit growers held during March in Vernon, B.C. Mr. Smith said in part:

"The fruit season of 1914 was a most unfortunate year from the marketing standpoint. I am afraid, however, that many of us do not quite realize how generally unfortunate it was as shown by the experience of other parts of the fruit growing world, and how much this was due to general conditions prevailing over the whole of the continent. For example, let us take peaches. Peaches were not a heavy crop in the Northwestern States, and in Ontario they were almost a total failure, and yet such was the effect of the general conditions prevailing, and such in particular was the state of disorganization among the American selling organizations, that the Wenatchee Produce Company, an organization which held a reputation for years for getting the best possible prices, has just returned to its shippers on 200 cars of peaches, 23 cents per box. If they deducted local handling charges and our scale of packing charges, it means that there was absolutely nothing returned for those 200 cars of peaches. The Yakima Valley Fruit Growers' Association have recently returned 27 cents on 445 cars of Elberta peaches. If they took off our handling and packing charges, 7 cents for the grower. In regard to apricots, a Wenatchee company recently returned to their growers 47 cents on 73 cars, or, taking off our handling charges and our scale of packing charges, 17 cents per box for the grower.

IMMENSE APPLE CROP

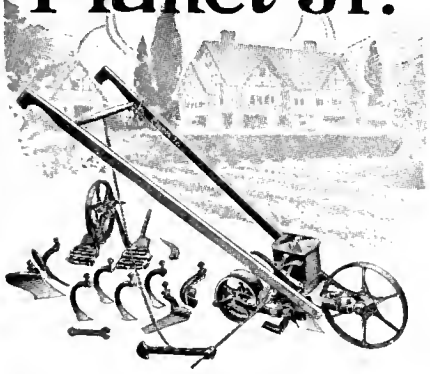
"Last year the United States had the largest crop of apples ever produced—a crop variously estimated from 70,000,000 to 86,000,000 barrels, or from 450,000 to 500,000 carloads, when probably 200,000 carloads would supply all demands. We began the fruit season in a period of financial depression and unsettlement. Then the war came, and a very unfortunate influence came into the situation. It was thought at first that the war meant no apple exports. This made buyers unwilling to make their usual arrangements and drove shippers everywhere to a policy of consignment. Let us take some prices from the other side of the line. The Yakima Horticultural Union, which in other years has given very good returns, has just returned figures on 64 cars of Jonathans, of the two best grades, 72 cents; or, taking off handling charges and our scale of packing charges, 32 cents. On all cars of 'C' grade apples, the kind that principally came into competition with the British Columbia apple, the return was 52 cents a box, or, if they took off handling charges and our scale of packing charges, 12 cents for the growers.

"On February 1st there were 26,000 carloads of apples in storage at various points in the east and west of the United States, or nearly twenty-five times as many as the whole of British Columbia produced. At that date there were 4,166 cars of boxed apples unsold, or three times as many as in the previous year. I quote these figures from the American side, because it was necessary to take into consideration the very serious conditions existing outside of the Okanagan Valley, if we are to arrive at a true idea of the meaning of the situation.

PRAIRIE CONDITIONS

With regard to prairie conditions one fact which affected the matter was the short crop of wheat—so short that in some sections the Government has had to come to the rescue of settlers and provide a fund

Planet Jr.



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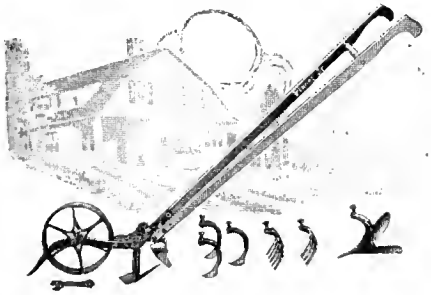
A splendid combination for the family garden, onion grower, or large gardener. Is a perfect seeder, and combined double and single wheel-hoe. Unbreakable steel frame. Capacity—2 acres a day.

Planet Jrs. are the most economical farm and garden tools you can buy.

Designed by a practical farmer and manufacturer with over 40 years' experience. They are made the best, last the longest, and give the biggest results. Fully guaranteed.



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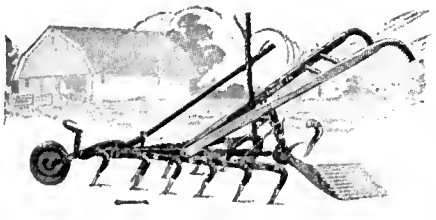
The highest type of Single Wheel Hoe made. Light but strong, and can be used by man, woman, or boy. Will do all the cultivation in your garden in the easiest, quickest and best way. Indestructible steel frame.



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Stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Non-clogging steel wheel. Invaluable to the market-gardener, trucker, tobacco or small-fruit grower.

New 72-page Catalog, Free

Contains 168 illustrations and describes over 55 tools for every farm and garden need, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. Write postal for it now!

S. L. ALLEN & CO.

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to advance them during the winter the necessaries of life. Naturally this meant a shortened demand for fruit. Right from the beginning of the fruit season, when strawberries were moving, it was noticed that there was a shortened demand for preserving fruits, due, I suppose, to the financial depression and the consequent desire on the part of the consumer to be as economical as possible with what so many unfortunately regard as a luxury. This situation affecting the retailer affected also the wholesaler, who found it necessary to carefully restrict its dealings.

CHEAPER PACKAGES

"There has been a great deal said recently about a cheaper pack for apples. This is a move in the right direction. Unfortunately, in the past we have been somewhat misled by the false analogy between our position and that of our American competitors, many assuming that the governing conditions in the two sections are similar, without remembering a very important and fundamental difference. The Americans have a high-class, carefully graded, well colored, expensively packed, and special product in every way, and we have felt that we must have the same, without realizing that the Americans have in their own country very many large cities which create the demand for this high-class fruit. This condition does not prevail on this side of the line where towns with populations of 50 000 are very limited. The prairie has often been spoken of as a high-price market, and it is brought into comparison with the Vancouver market. But the prairie market for apples is eminently an undiscriminating market: they want a good sound fruit, but they are not willing to pay fancy prices for what they consider as frills.

"We must adapt ourselves to conditions and give the prairie farmer what he is willing to pay for. He is quite willing to accept our fancy fruit, but he is not willing to pay a fancy price for it. The bulk of the prairie demand is quite satisfied with the apple of the American 'C' grade. A great bulk of our crop has to go to supply this undiscriminating demand, and a cheap pack is necessary for that. As far as I have been able to ascertain, a crate jumble pack will probably meet the needs of the situation. There would be a certain advantage in our sticking to a distinctive pack.

THE SEASON'S OUTLOOK

"Regarding the prospects for the coming year, we can not perhaps feel very optimistic. Nevertheless, there are some encouraging signs. Although, on account of the new acreage coming into bearing we will probably have a larger output, as will also the American North-west States, yet it is improbable that there will be a repetition of the tremendous crop which there was last year. Even though the war continues, the export market has been tried out, and we know that a certain quantity of apples can be marketed in the Old Country. Again, the prairie people are putting in large crops of wheat. This will make for better conditions, and, even though the actual returns from the wheat may not be received by the time most of our fruit is moving, the state of optimism that is bound to be created in the minds of the farmers will affect their purchasing power. Further, we have to look forward to the possibility of the assistance of a protective duty. People who have been as hard hit as the growers in British Columbia, and on the other side of the line, will be forced to very carefully scrutinize every feature of handling their business. This scrutiny must produce a very definite improvement. Our American competitors have appointed a Board, consisting of three men who have been invested with full powers, and who are

Wood or Wire—Which?

Board Fences Must Go

They cost too much and they're ugly.

They keep off good sunlight and so check growth.

Better to have a Dyer Sanitary Lawn Fence.

Look at these prices.

Style "F" as here shown, galvanized, freight paid in old Ontario on 100 ft. or over.

36 ft. high .. 8c. per ft.
42 ft. " .. 9c. "
48 ft. " .. 10c. "

Walk Gates to match .. $3 25
10 ft. Drive Gates $7.50

Write for prices on farm, lawn and iron fencing. Dyer has largest range of Iron and Wire Fencing for every purpose. Write

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"Turns the soil better"

The "Bissell"

Because of their shape, plates of "Bissell" Orchard Harrows turn over soil cleaner, better than you've been accustomed to have it done. Attach wings and Harrow extends out 12 ft. or more to cultivate under limbs of trees—closes up narrow enough to cultivate between grape vines. Combination Harrow too—reversible from "Out Throw" to "In Throw." Low seat, well-braced frame. Ask your dealer for information or write Dept. N

T. E. Bissell Co. Ltd., Elora, Ont.

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True to Name —Free From Disease

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can buy.

Kelly Trees are sold at Growers' Prices

Shipped direct from our own nurseries in Dansville, N.Y., and guaranteed sturdy, free from disease and True to Name.

For 35 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price.

Write for our catalogue TO-DAY, and get our prices.

KELLY BROS. Wholesale Nurseries

305 Main Street, DANSVILLE, N.Y.

You'll never regret planting Kelly Trees.

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Send a postal for a catalogue to-day.

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Also at Montreal, Winnipeg, Vancouver.

Roses Roses

Large assortment of best varieties, none better, none cheaper, also TREES, SHRUBS, VINES, PERENNIALS.

If not already on our mailing list, let us place you there, our new spring list will interest you. Ask for it.

Special Prices given on Roses and Shrubs to Horticultural Societies.

A. W. GRAHAM, ST. THOMAS, ONT.

Sweet Peas

You remember their fragrance and want more and better ones this year. This you are sure to get, if you order from our, true to color, perfect germinating seed. All 1914 production and raised on our own grounds.

Send postal NOW, for list of latest varieties, many being not yet on the Canadian market. Our competition closes shortly.

HILLSIDE FRUIT FARM
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Look Over Your Greenhouses

ARE they large enough to accommodate all your needs? Are they up-to-date and efficient in every way? Would a new house or an overhauling of your old ones save you money in operating or give you better growing facilities?

Every day, almost, brings forth new ideas in greenhouse construction, tending to more economical operation and better growing.

The plant which keeps up with them is the money-making plant. Remember that to-day's expenditure is to-morrow's saving.

Write Dept. B, for booklet—and further information.

GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.

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to be the umpires of the selling game. This Board will accomplish much in the prevention of consignments, and auction sales and price cutting. It is proposed to establish an f.o.b. zone on the other side of the line, and Canada is to be included in this zone. All fruit which fails to sell at a price fixed on the day of shipment will be passed through the f.o.b. zone and sold in the large city markets of the east. This will mean, to a large extent, the cutting out of consigned American fruit. All these things encourage us to hope that there will be no repetition this coming season of the havoc which was created in our markets last year.

Better Methods of Marketing Required

(*Continued from page* 105)

for this barrel of apples. What did you give for it" This barrel of apples was shipped to Winnipeg, and the consumer replied that he paid $5.50 for it. This incident was recorded in the newspapers in Winnipeg and started a controversy which was taken up by newspapers from coast to coast. Growers and dealers in the east endeavored to place the blame on the western dealers, both wholesale and retail, until the responsibility was finally placed upon the retailer, who was branded as an "extortioner."

It is not necessary to go further into the details of this incident. However, there are two points which might be of interest. First, the individual grower claimed to to have received only 50 cents a barrel for his fruit, while numbers of organized co-operative associations received from $1.25 to $1.95 net per barrel for their fruit sold on the same market. These prices are, of course, for unpacked fruit only. Second, we might note the custom, which has become an annual affair, of abusing the distributor whom producers are compelled to use to market their product.

The public discussions and controversies on the question of the high cost of living, and the great difference between the price paid to the producer and the price paid by the consumer usually terminate with the responsibility being placed upon the retailer. Is this public condemnation of the retailer justified? Does the producer gain anything by it? Such a policy is contrary to present-day business methods. Large corporations and manufacturers do everything possible to gain the sympathetic co-operation of the distributors who handle their goods, at the same time retaining the control of distribution, and to a great extent the price. They make a special study of the trade requirements and endeavor to please, knowing the value of a satisfied customer in creating a greater demand for their product.

The Dominion Department of Agriculture has issued Bulletin 224 by S. C. Johnson, Vegetable Specialist, entitled "Greenhouse Construction." It has also issued Bulletin 226, entitled "Plum Culture in Ontario," by F. M. Clement, B.S.A.

Foreign bulletins include the following: "Comparative Cooking Qualities of some of the Common Varieties of Apples Grown in Oregon," and "Windbreaks, Hedges and Ornamentals for Irrigated Sandy Soils of Eastern Oregon," both issued by The Oregon Agricultural College, Corvallis, Oregon.

The Ohio Agricultural Experiment Station, Wooster, Ohio, has issued circulars 148 and 149, entitled "Spraying the Farm Orchard by the Club Plan," and "A Spraying Program for Orchards with the Combinations Recommended."

Growing Early Cucumbers

J. L. Hilborn, West Summerland, B. C.

We plant the seed for growing early cucumbers and cantaloupes about April 20th in bats, the same way as for tomato seed, except that we use pure sand, as we find we get better plants by using sand. As soon as the plants are well up, we transplant them to other trays, using ordinary soil at this time, spacing the plants about two inches apart either way. They are kept here until the tomato plants are planted in the field, which gives us plenty of empty trays, also greenhouse and cold frame space in which to develop the cucumber and cantaloupe plants. For this last planting we grow eight or ten plants to a tray.

The land on which these are to be grown should be prepared some time in advance of time of setting. It should be fairly well enriched, as these crops require much more fertility than is the case with tomatoes.

We attempt to get the plants hardened off, before they are removed to the field, by giving frequent and thorough ventilation. Even although the weather may appear mild and warm, the sudden change from a confined atmosphere to the open field will almost invariably cause a serious check to the growth of these plants. We usually remove them to the field the first week in June. Much, however, depends upon weather conditions. It is better to wait a few days than to hurry them to the field before the weather is sufficiently warm. We plant in rows, about five feet apart, setting the plants about three feet apart in the rows, using only one plant in a hill.

With these crops, as well as all other varieties of early vegetables of which I have any knowledge, thorough and frequent cultivation is necessary to secure best results. A soil that is kept fairly well pulverized, and stirred at least once a week, is always warmer and produces better growth than soil not so frequently stirred.

If a person has no greenhouse or glass cold frame in which to start the plants, ordinary seasons a fair crop may be obtained by planting in the field, if the grower has fairly warm soil, warmly situated. By this I mean land sloping to the south and sheltered from northerly winds. The difficulty with growing these crops in this way is that, while a very good crop may be produced, with proper care, it invariably comes into the market too late to secure satisfactory prices.

Of the great quantities of varieties of cantaloupes which I have tested, I am now getting best results with Hoodoo and Fordhook. These varieties are small, with firm yellow flesh of good quality. For anyone wishing to grow a few for home use, the Emerald Gem, while smaller and too soft for distant markets, is the sweetest cantaloupe that I have seen, and is considered by all to be of best quality.

One growing cucumbers for market should always use varieties of the White Spine type, which do not turn yellow when held for some time before reaching the consumer. Of these, the Arlington is generally conceded to be as good as any.

Ontario Horticultural Exhibition

A meeting of the directors of the Ontario Horticultural Exhibition was held during the latter part of March. Last year's officers were re-elected, they being: President, Wm. Couse, Streetsville; 1st Vice-president, T. Manton, Eglinton; 2nd Vice-president, H. G. Sibbald, Claude; Treasurer, Hermann Simmers, Toronto; Secretary, P. W. Hodgetts, Toronto.

It was decided to hold the exhibition next fall during the second full week in Novem-

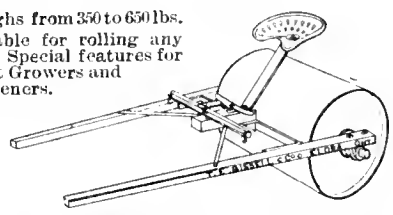
Gladiolus

Good bulbs, best varieties, lowest prices. Price of many varieties one-half to one-tenth of those of seedsmen. 100 Corms, 25 each of four standard varieties, $1.00. Express charges paid by purchaser. Fine varieties, 5c each, 50c dozen post paid. Send for circular. Dahlias, our selection, 10c each.

H. P. VAN WAGNER

R.R. No. 5 - HAMILTON, Ont.

Weighs from 350 to 650 lbs. Suitable for rolling any soil. Special features for Fruit Growers and Gardeners.



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A Crop-Saver and Money-Maker

That's what every SPRAMOTOR is to its owner. The outfit shown here is only one of many styles and sizes. It will do all kinds of spraying, whether trees, row crops, potatoes or weed killing.

The horse does all the work and you simply direct the spray. As many as twelve nozzles may be used, and you get 150 lbs. pressure. With this moderate-price outfit, orchard trees can be properly sprayed. We are sole makers of the

Made in Canada **Spramotor** No Duty to Pay

It isn't a SPRAMOTOR unless we made it

and have concentrated on spraying outfits only for the past 20 years. We make SPRAMOTORS from $6 up to $350, to operate by hand, horse or gasoline power.

The SPRAMOTOR won Canadian Government Spraying Contest at Grimsby, Ont., against eleven other makes. It wins every year in field and orchard against all other makes. Whether you buy a SPRAMOTOR or not, you are entitled to a copy of our valuable treatise on Crop Diseases, fully illustrated, absolutely free. Tells how to spray, what to spray and when, giving facts, figures and photos.

Write us to-day and get your copy by return mail. If you will state briefly your spraying needs, we will send details of a SPRAMOTOR that will fit your requirements exactly.

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SOW FERGUSON'S

High Grade Seeds

Now is the time to sow seeds that will grow and you cannot do better than purchase from our tested stock.

Here are some specials sent prepaid anywhere in Canada.

BEANS: Ferguson's Sure Crop Stringless Wax. Pkt. 10c, ½ lbs. 20c, 1 lb. 30c.

BEET: Ferguson's Detroit Round Beet. Pkt. 5c, oz. 18c.

CABBAGE: Ferguson's Copenhagen Market. Pkt. 10c, ½ oz. 35c, 1 oz. 60c.

CORN: Ferguson's Early Malcolm. Pkt. 10c, ½ lb. 25c, 1 lb. 40c.

CUCUMBERS: Ferguson's Extra Long White Spine. Pkt. 10c, oz. 25c.

LETTUCE: Ferguson's Wayahead. Pkt. 10c, oz. 30c.

ONION: Ferguson's Excelsior. Pkt. 25c.

PEA: Ferguson's World Record. Pkt. 10c, ½ lbs. 30c, 1 lb. 50c.

RADISH: Ferguson's White Icicle. Pkt. 5c, oz. 15c.

TOMATO: Ferguson's O.K. Pkt. 15c, ½ oz. 75c.

SWEET PEAS: Ferguson's Exposition, 1915 Collection

Eight of the best new and large varieties in the collection, 75c.

ELFRIDA PEARSON: Pale rose, very large.

ILLUMINATOR: New color, clear cherry salmon.

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MARGARET ATLEE: New Rose Cream.

NEW MARGARET MADISON: The finest pale lavender.

NUBIAN: The finest brown, very large.

Note: We offer special prizes at the Montreal Horticultural Show in August for these flowers. Complete details on request later.

D. & F.'s WAVED OR COUNTESS STRAIN, a splendid assorted collection, Pkt. 10c, oz. 25c, ¼ lb. 50c, 1 lb. $1.50.

Write for our big FREE Catalogue on "SEEDS OF KNOWN QUALITY"

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HANDIEST IMPLEMENT YOU CAN HAVE

You'll find a hundred uses for the Bissell Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable.

T. E. BISSELL Co. Ltd., ELORA, ONT.

Write Dept. N for Folder to-day

THE GEORGIAN BAY

TREE PRUNER

Is made for better pruning and less climbing. Will cut a limb of reasonable size anywhere between the tip and the tree without injury to the tree. Is durable and light, made of best material, adjusted for long or short pole. Description and price sent on application.

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THIS SPRING

KEITH'S SEEDS are right seeds at right prices and will *positively* and *absolutely* give you satisfaction.

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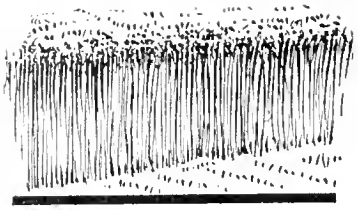
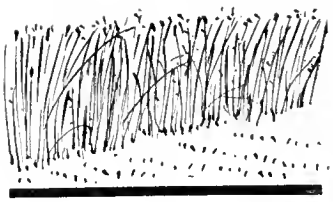
Mention The Canadian Horticulturist when writing.



Well Fed

Plants get the greatest part of their feed, and their growth, from the soil. If you give the crop you sow the exact Plant-Food it requires to grow and ripen, you can count on a strong stand and a rich harvest.

Nothing can be more exact in its results than the use of the right quantity and the right brand of



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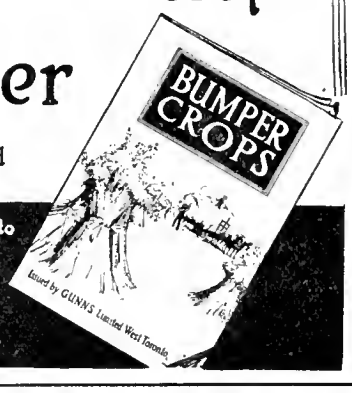
If years of cropping have used up the Plant-Food in the soil, you must supply commercial Fertilizers to replace it.

Do you understand how to do this profitably?

"Bumper Crops" is just the book to show what Plant-Foods to use for each crop and how to use them, to get the best returns.

FREE if you use this coupon.

Gunns Shur-crop Fertilizer



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I am interested in GUNNS Shur-Crop Fertilizer.

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Gunns Limited

West Toronto

ber. The association has a balance on hand of $1,300 and expects to receive liberal assistance from several quarters. As no show was held last fall, an effort will be made to make the Exhibition next November the largest and best yet held.

The West Indies Market

Watson Griffin, Canadian Trade Commissoner

The apple is not nearly so well known in the West Indies as the potato, but a grocer in Georgetown, British Guiana, after having purchased some British Columbia apples, arranged with an East Indian coolie to peddle them in the East Indian settlements and on the plantations where East Indians are employed. The result was surprising. The peddler came to him again and again for fresh supplies of apples.

A black woman who was peddling apples in Port of Spain, Trinidad, said that she had a very good sale for them. She carried them on her head piled on a large wooden tray. She said she bought them from a grocer.

If associations of apple growers in Canada could arrange for the effective introduction of their product into the West Indies, large sales might be made. As yet probably very few of these people know the taste of a Canadian apple. At the present stage of development it would be useless to send most of them a book of recipes for cooking apples in a variety of ways such as has proved so popular in Canada. It is desirable that the apples should go from the farmers in Canada to consumers in the West Indies without the expense of too many middlemen, as they must be sold at moderate prices. The apples should be sent regularly and frequently, but not in large quantities except where first-class cold storage facilities are available, as they quickly deteriorate in the climate of the West Indies.

APPLES AND COLD STORAGE

In Georgetown, British Guiana, a grocer showed some British Columbia apples that had been in cold storage for three months. They were in excellent condition and of fine flavor. The superintendent of a large cold storage warehouse in Georgetown stated that he had kept British Columbia apples in cold storage for nine months and found them in perfect condition at the end of that time. He said the chamber containing them was never opened during the nine months. He found that apples in a cold storage chamber which was opened frequently to get supplies could not be kept in good condition for more than three or four months.

None of the colonies show imports of apples in their trade statistics. They are classed with "Fresh fruit," or "Fresh fruit and vegetables." The quantity imported is very small, but if the masses of the people were made acquainted with the flavor of Canadian apples the demand would greatly increase.

The apple is the only fresh Canadian fruit that could be sent to the West Indies, but a sale of dried and canned fruits and vegetables might be developed. It would probably be possible to create a large general demand for dried or evaporated apples, if the people were made acquainted with their merits. They could be placed on the market more cheaply than canned fruits, and that is a very important consideration in these colonies.

The following catalogues have been received by The Canadian Horticulturist: Dupuy & Ferguson, Montreal, Que.; A. G. Hull & Son, St. Catharines, Ont.; Perry's Hardy Plant Farm, Enfield, Eng., J. A. Simmers, Toronto, Ont.; H. L. McConnell, Port Burwell, Ont.; O. A. Cwller, Judsonia, Ark.; Carter's Tested Seeds, Toronto, Ont.

Fruits for the Prairie Provinces

TREE fruits have been given a thorough test at the Experimental Farms in the prairie provinces, and while the ideal apple has not yet been obtained for general culture on the prairies, continuous progress is being made.

When the Indian Head farm was established in 1888, it consisted of a treeless area of land. Trees were at once planted as shelter belts, but it was some years before they afforded much protection. In 1888 there were 60 varieties of apples planted on the open prairie, represented by 200 trees; 30 trees of 8 varieties of plums; 34 trees of 7 varieties of cherries; 20 trees of 7 varieties of pears; and 3 peach trees. Most of these made good growth that year. One hundred and twenty-five apple trees survived the first winter, but only one pear tree, 11 plum trees, and three cherry trees. In the spring of 1889, 43 varieties of Russian apples consisting of 342 trees were planted, of which 257 were alive in the autumn. There were also planted 109 crab apple trees of eight varieties. The winter of 1889-90 killed a large proportion of the apple trees planted in 1889 and only six crab trees were alive of those planted in 1889. It is interesting to note that among the few varieties which were hardy to the tip in 1890 were the Duchess and Hibernal, which have since been successfully fruited in some parts of the prairies. In 1890 there were 500 Russian apple seedlings planted. These stood the winter of 1890-1891 without loss, but in the winter of 1891-1892 every tree was killed, one Red Siberian crab apple tree planted in 1888 being the sole survivor in 1892 of the apple and crab apple trees planted. Seven varieties of Russian apples planted in a sheltered place in 1892 succumbed the following winter.

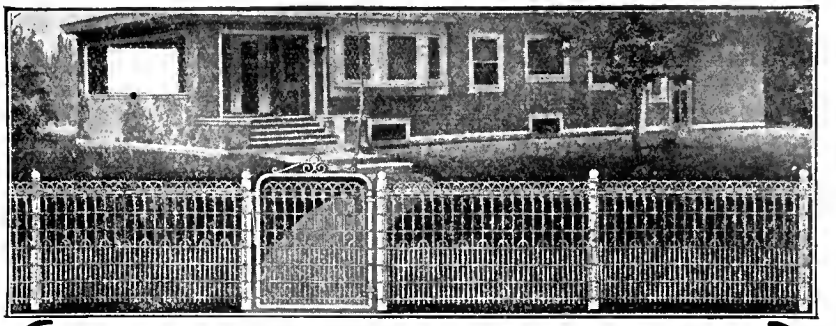
A wild crab apple, Pyrus, baccata, the seed of which had been obtained from St. Petersburg, Russia, having proved hardy, Dr. William Saunders, then Director of the Experimental Farms, conceived the idea of crossing this with the larger apples in order to, if possible, obtain hardier cultivated varieties, the work being begun in 1894. Many hundred crosses resulted; the trees were later sent to Indian Head, and by 1899 the trees began to fruit, and to-day the varieties Charles, Silvia, Jewel, Tony, and others are proving reliable varieties for Indian Head and many other parts of the prairies. It is true the fruit is small and crab-like, but these fruits mark a step in advance.

These crosses were again crossed by Dr. Saunders with the larger fruited, though tenderer, varieties of apples, with the result that fruit from two to two and a half inches in diameter has been obtained. Trees are now being propagated for test on the prairies, and it is expected that some of them will prove hardy.

At the Lethbridge Station the conditions are more favorable for apple culture, and apple trees have fruited during the past two years and there is every evidence that the trees will continue to prove hardy. At the other prairie farms the climatic conditions are little if any more favorable than at Indian Head, except at Brandon, which is somewhat better. At none of the farms, however, with the exception of Lethbridge, have apple trees survived for any length of time without protection.

Some fifty thousand Russian and other hardy apple seedlings are now being grown in nursery rows at the prairie farms with the object of subjecting them to several winters before they are put out in orchards, by which time the hardiest will be known.

By growing trees in well protected places, protecting the trunks and main branches



(Style "S"—Short bowed stay in lower half, exactly as shown.)

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(2)—The material is all our own make best quality heavily galvanized Frost Ilard Steel Wire. Laterals are two No. 13 wires tightly cabled, with the deeply crimped No. 9 uprights firmly interlaced.

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can be erected on wooden or iron posts. It adds beauty and value to any private property or public buildings, church yards, etc. We make three different styles of fabric, and gates with filling to match as shown above.

Frost Angle Steel Picket Fence is widely used for Cemeteries, Manufacturing Plants, Public and Private Grounds, etc. Write us for two-color illustrated folder. 61

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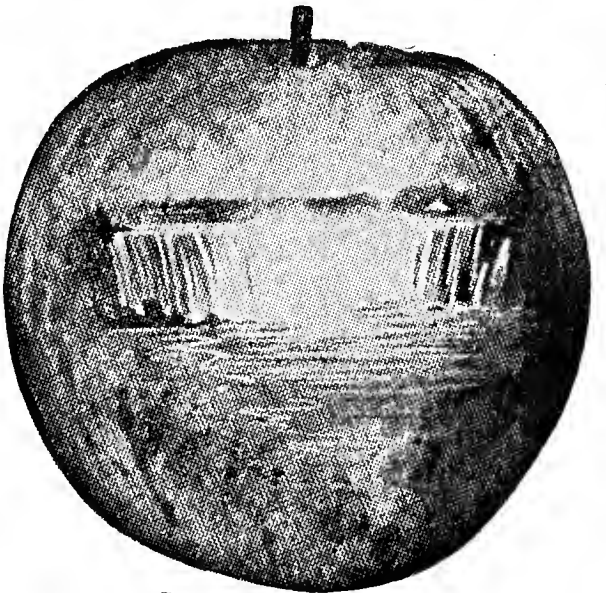
WHERE PUMPS WITH POWER ARE USED



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will find many suggestions in its list of 115 hardy varieties. It also lists many varieties, new and old, of Shrubs, Vines, Herbaceous Perennials, Trees and Bedding Plants.

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TRADE MARK

Ploughs—Wilkinson

REGISTERED

U.S.S. Soft Centre Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.

The Bateman-Wilkinson Co., Limited
461 Symington Ave., Toronto Canada.

No. 3 *Sod or General Purpose Plough. 25 styles to choose from*

with sacking in winter and using only the hardiest varieties, such as Charlamoff, Duchess, and Hibernal, apples can be and are being produced in many places on the prairies, particularly in Southern Manitoba where so much protection is not necessary. What is needed are varieties of apples as hardy, or nearly as hardy, as the native trees and shrubs, and it is the duty and endeavor of the Experimental Farms to obtain such varieties, and it is with confidence that ultimately such apples and other fruits will be found that the work is continued from year to year.

Demonstration Orchard Work in Ontario

P. W. Hodgetts, B.S.A., Director Fruit Branch, Toronto, Ont.

DURING the year 1914, twenty-three demonstration orchards in various parts of the province were conducted by the district representatives of the Ontario Department of Agriculture, under the supervision of the Fruit Branch. These orchards were thoroughly pruned, sprayed, and cultivated. The pruning was in most cases done by men specially sent out by the Fruit Branch. The spraying was left almost entirely in the hands of the representative, and the cultivation was done by the owner of the orchards under the direction of the representative.

Demonstration orchards were located in the counties of Brant, Bruce, Dundas, Elgin, Essex, Glengarry, Hastings, Kent, Lambton, Leeds and Grenville, Middlesex, Ontario, Peel, Prince Edward, Simcoe, and Welland. In addition to the above demonstration orchards, many pruning demonstrations were held throughout the fruit districts of the province.

For the coming season it is expected that at least as many orchards as for the past year will be taken over by the Department of Agriculture for demonstration purposes. Special experiments in pruning, one of which is to determine what months of the year bearing apple trees can be safely pruned, are also to be conducted and continued. This experiment has been carried on since September, 1914.

In the demonstration orchard work, as usually carried on in the past, the expense of pruning, spraying materials, and part of the labor for spraying has been supplied by the department, either directly from the Fruit Branch or by the district representative. The owner of the orchard was required to do the plowing and cultivating, manuring and teaming as required, and to assist with the spraying and similar work The harvesting and marketing of the crop was entirely in the hands of the owner.

Last year, however, a new phase of orchard demonstration was undertaken by the Fruit Branch, in which three orchards of upwards of four acres each were leased outright for a term of years. In these orchards, demonstrations and experiments in pruning, spraying, cultivation, fertilization, marketing, etc., are to be carried on for a sufficient number of years to ensure a fairly accurate result. Various spray materials, clean cultivation with cover crops versus sod culture, and different fertilizers will be thoroughly tested on a commercial scale. The harvesting and marketing of the fruit will also be done by the Fruit Branch.

The organization, advertising, etc., of public meetings, in conjunction with the work being carried on in the demonstration orchards, is left entirely in the hands of the district representative, the speakers being furnished by the Fruit Branch.

Below is tabulated the financial statement for 1914 of a Government demonstration orchard in Dundas county. The orchard in question consisted of about 1¼ acres of McIntosh variety. These figures serve to show conclusively how old neglected orchards may be made very profitable indeed.

Orchard of Earnest Farlinger, Morrisburg

Expenditure	
Cultivation:	
Disking, 1 day man and team.....	$3 50
Cover crop, 1½ bu. grain at 50c....	75
Sowing cover crop, ¼ day at $3.50,	85
Manure, 12 loads at $2.00	24 00
Pruning:	
20 days at $2.50 per day	50 00
1½ days scraping at $2.00 per day..	3 00
1 day painting cuts on trees, etc....	2 50
Spraying:	
4 days at $2.00 per day for nozzle man	8 00

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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.

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

H. PETERS
88 Front St. East, Toronto

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

4 days at $3.50 per day for man and team	14 00
Thinning:	
5 days at $2.50 per day	12 50
Picking:	
2 men, 5 days, at $2.00 per day	20 00
Packing and Grading:	
2 men, 8 days, at $2.50 per day	40 00
Cost of Spray Materials (four applications):	
84 galls. lime-sulphur at 18c	15 12
81 lbs. arsenate of lead at $9.00 per cwt.	7 29
5 lbs. Black Leaf 40 at $1.25	6 25
Packages:	
311 apple boxes at 15½c	48 20
Wrapping paper, etc.	17 00
19 bbls. at 45c	8 55
50 lbs. nails at 3c per lb.	1 50
	$283 01
Receipts	
3 bbls. No. 1 locally at $3.00	$9 00
54 boxes No. 1 Ottawa at $2.00	108 00
94 boxes No. 1 Toronto at $1.25	117 50
145 boxes No. 1 Montreal at $1.40	203 00
20 boxes No. 2 Montreal at $1.15	23 00
19 bbls. No. 2 locally at $2.50	47 50
81 bus. Windfalls at 50c	40 50
33 bus. Windfalls at 25c	8 25
	$556 75
Expenditure	283 01
Net profit	$273 74

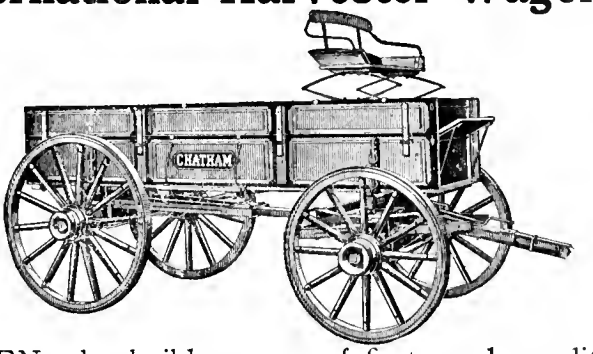
In the foregoing figures two or three items should be specially noted. The value of the manure to the land will be distributed over a number of years. Similarly the pruning charges are high, as the orchard had been neglected for a number of years. Prices also for McIntosh apples were not so good as usual during 1914. The number of culls, too, 114 boxes, is very high, due to a windstorm just before the fruit was ready to pick.

Concerning two demonstration orchards in Middlesex county, Mr. I. B. Whale, the District Representative there, writes as follows:

'Our most marked results were in Mr. Caverhills orchard, with twenty-five trees of McIntosh Reds. These trees were something over twenty years old, and according to Mr. Caverhill, they had not produced fruit that was marketable, the scab ruining the fruit and destroying the leaves many years. A year ago I do not think I saw as scabby-looking fruit or as small leaves. Mr. Caverhill intended grafting these last spring to other varieties, but after some persuasion he allowed Mr. Kydd of the Fruit Branch, and myself, to use them for demonstration work. We gave these trees four sprayings of lime-sulphur, using 45 gallons of limesulphur in all and 55 pounds of arsenate of lead. Figuring the cost of man labor at fifteen cents per hour and horse labor at ten cents per hour, the total cost was $11.50 besides the pruning. While the scab was bad in other trees of the same variety as well as other varieties, our twenty-five trees produced 38 barrels of apples, 33 of which were No. 1's, the remainder No. 2's, which shows the results which have been obtained in one year, due to pruning and spraying. The orchard was cultivated during the summer. It was from no marketable fruit in previous years to about 87 per cent. No. 1's with the treatment. The twenty-five trees in the old orchard which were pruned and sprayed were free from fungous diseases and insects of all kinds.

"With Mr. Sadler's orchard of ninety trees, set out forty-four years ago, we have his statement that up to two years ago he had never marketed over $100 worth of fruit in one year, but with the first year's pruning and spraying, the orchard gave $200

International Harvester Wagons



MEN who build wagons of first grade quality, throughout, work for a reputation. To many buyers all wagons look alike, nor is it possible even for an expert always to pick the better wagon of the two after a wagon is put together and painted.

This is why a good reputation is a most valuable asset to a wagon. Their good reputation practically assures the buyer that he will get his money's worth in a **Petrolia** or **Chatham** wagon.

In order to keep the reputation of the **Petrolia** and **Chatham** wagons up to the point where it belongs, all wood used is carefully selected, and then air-dried under cover. The lumber dries for at least two years, most of it three years, some of it —particularly the pieces for the hubs, which receive special attention—even longer. Air-drying produces tough wagon lumber because the sap dries naturally with the wood and binds its fibres together. It is this right drying of good wood which gives **Petrolia** and **Chatham** wagons the qualities necessary to live up to their reputation.

I H C local agents can furnish you with catalogues giving a great deal of valuable information about these wagons. If you had rather get it direct from us, drop a card to the nearest branch house.

IHC MACHINES Made in Canada

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Prizes wherever shown—New York State Fair, Toronto Exhibition, and many other places. All shades of color in about 20 different varieties in early and late branching: Royals, Mikadoes, Rochesters, Cregas, etc. Truly the Aristocrats of the Aster Family. Plants $1.00 per hundred by express; $1.10 by mail. Packed and labelled, in wet moss and safe arrival guaranteed. Express charges prepaid on orders over 250. Special prices to Horticultural Societies. All plants cold frame (not hotbed) grown. Order early. Bezzo's Aster Plant Food, 10c per lb. by express. Remit by Money Order.

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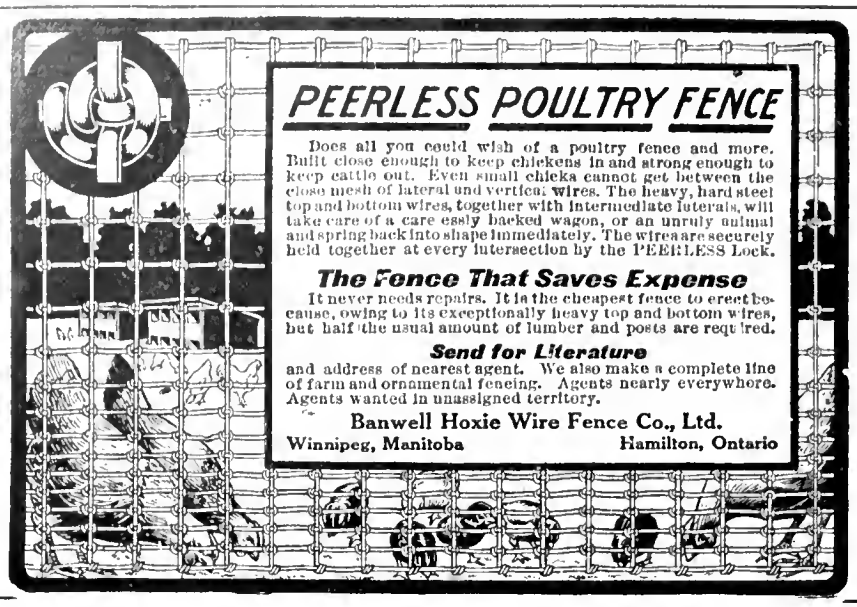

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Bradley's Fertilizers

in connection with good farming, sensible rotation and occasional liming when necessary will help you do this. They furnish the available plant food for big crops, and bring them along quickly and improve their quality.

Prices should be good. The Breeder's Gazette says: "If there ever was a time when bumper yields were sought, it is *this year*". For this reason, use Bradley's quickly available fertilizers and get your big money crops in 1915. Crops won't have to wait for their plant food to become available.

Booklets and circulars mailed free to any address. Drop a postal card to

The American Agricultural Chemical Co.,
92 State Street, Boston 2 Rector Street, New York
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returns. This year with the pruning and spraying, the orchard had returned over $400 worth of fruit, sold on an open market when prices were dull. Mr. Sadler now counts his orchard the best paying part of his farm, and firmly believes that the returns can be increased one-half as much again by fertilizing the orchard and by continued care."

The War and Imported Nursery Stock

It was expected that there would be a very serious diminution this season in the quantity of nursery stock imported from Europe. The decrease has been much less than was anticipated. A large amount of the Belgian stock was shipped in the early days of the war, and as it happens the nursery section is not in that portion of Belgium that has been the scene of the most active military operations. The Holland shipments have suffered very little and the Dutch nurserymen who, with the Belgians, supply the greatest proportion of the azaleas used for potting purposes, and bay trees, etc., are actively soliciting trade in these classes of nursery stock and in bulbs. It is anticipated that the withdrawal in France of so many men for active service will materially affect the French nurseries which supply the bulk of the seedling stock used by our nurserymen for grafting purposes. Nevertheless, every effort is being made to produce seedling stock in as large quantities as possible.

It is almost certain that the effect of the war will be seriously felt next season, both on account of the reduced production and the increased cost of sea transport. It would be well for Canadian nurserymen and florists to be prepared to meet the shortage in ornamental, fruit and other classes of nursery stock now imported from European countries.

The Horticultural Publishing Co.

The annual meeting of The Horticultural Publishing Co., Ltd., publishers of The Canadian Horticulturist and of The Canadian Florist, was held on March 31st. The reports presented to the shareholders met with their hearty approval. The following officers were elected: President, W. H. Bunting, St. Catharines; 1st Vice-president, J. H. Dunlop, Toronto; Secretary-treasurer and Managing Director, H. B. Cowan, Peterboro; Directors: A. W. Peart, Burlington, Ont.; Hermann Simmers, Toronto; Harold Jones, Prescott; P. W. Hodgetts, Toronto.

Last year revealed the lack that prevails in the fruit districts of Canada of adequate means of marketing the inferior grades of apples in the form of by-products. Evaporating plants should be located in all the chief producing districts. Were such plants established they would not only provide an outlet for much fruit which is now wasted, especially in a season such as last fall, but they would promote a better pack of the higher grades of apples by reducing the temptation to include in them apples better suited for lower grades or evaporating purposes. Cooperative associations that have not already done so should give this matter their attention, and be better prepared in future to deal with similar situations when they arise.

Several catalogues have been received by The Canadian Horticulturist during the last few weeks. These include a spraying catalogue from the Goulds Manufacturing Co., Seneca Falls, N.Y.; H. A. Dreer's Gardening Catalogue for 1915, John Connon Company's Wholesale Price List.

South African Apple Market

W. J. E. Gan, Canadian Trade Commissioner, Cape Town

THE s.s. Benin arrived at Cape Town on November 9 and discharged 52 barrels Canadian apples and 3,147 boxes American apples. The barrel apples realized 42s. 6d. and the box goods sold readily at 18s. 6d. This steamer carried a further lot of 100 barrels for Durban. The s.s. Melville arrived at Cape Town on November 25 and discharged from Montreal 1,220 barrels of Canadian apples and 6,272 boxes, half or more of which were American. From Halifax there was unloaded 96 barrels, 300 half barrels, and 2,447 boxes. The prices for barrel goods for the first week averaged 35s. and for the box goods 16s.; since then, however, less has been realized. Snows were offered in December for as low as 10s. a box. This steamer had a further consignment of Canadian fruit from Halifax for Port Elizabeth of 700 barrels and 250 boxes, while for Durban there were from Montreal 700 barrels and 250 boxes, and from Halifax 500 boxes and 625 barrels. The s.s. Bendu, which arrived at Cape Town on December 3, had a consignment from Montreal to Durban of 300 barrels.

CANADIAN APPLES IN SOUTH AFRICA

The first steamer this season carrying apples from Canadian ports to South Africa was of very little interest from a Canadian point of view, as most of the apples carried were from the United States. The proportion at Cape Town was 3,147 cases American, and 52 barrels Canadian. The only other shipment of Canadian apples on this steamer was 100 barrels for Durban. As it was possible to ship the 152 barrels of Ontario fruit on this early steamer, it seems reasonable that more Canadian fruit could be secured for early shipment.

For some years the cold storage space on the subsidized Canadian steamers has been practically in the control of a few South African buyers who purchase outright in the United States and Canada. Invariably the early shipments on the first boat consist almost entirely of American fruit. The advantage of this early delivery on the South African market, which means high prices, does not go to the American grower but to the South African buyer, who purchases the Washington Jonathan, Wenatchee, and one or two other brands at a c.i.f. Montreal price of about 6s. 6d., and this year it was a lower price. Reliable South African firms state that they have not been able to purchase Canadian apples because they were refused space early in the year. Conditions as they have existed help to restrict a larger sale of Canadian fruit and some new system of allotments in cold storage space should be tried; one suggestion is that no allotment of space be given until a stated date, say in August, when preference should be given on application for such space to the Canadian fruit.

In reference to space, credit must be given to the Montreal office of the Elder-Dempster Line, as this year they cooperated at a very late date in giving space to a first consignment of British Columbia apples for South Africa. The s.s. Melville carried a heavy shipment of apples, in which the Canadian fruit was more prominent than on the Benin, although one hatch space of cold storage was more than half filled with American apples and pears. The condition of the apples on arrival was very good, which shows good care on the part of the engineer, in fact all cold storage chambers that have come under notice on the Canada-Cape boats are well looked after.

The general opinion expressed by dealers, Government officials and retailers, is that the shipment of British Columbia apples was the best fruit imported into South Africa; the packing was declared perfect. Out of 600 boxes landed in Cape Town, only a few boxes were not up to form; they were what might be termed slightly "cooked," as if carried at the top of the freight car while in transit or near heat in some place or other.

For future shipments of British Columbia apples, arrangements should be made for a quicker delivery at Montreal. The receivers in South Africa state that the fruit was in transit on Canadian cars for some sixteen or seventeen days. It is also claimed that the Washington fruit is landed at lower railway freight charges than is the case with British Columbia apples landed in Montreal.

The British Columbia Jonathan is well liked and the McIntosh Red is greatly favored. The Vanderpool is considered an ideal apple for this trade, and on equal prices would easily displace the Wenatchee. Another brand in this consignment which was considered splendid was the Canada Red.

EASTERN CANADIAN APPLES

Russets were in splendid condition this year, but the lot shipped from Montreal did not make as good a showing as the Nova Scotia Russets. The South African buyers favor the Ontario and Quebec barrel owing to size; the price secured for the Nova

Strawberry Plants

Stocky and well rooted plants. Carefully packed. Free catalogue and price list.

S. H. RITTENHOUSE, JORDAN HARBOR, Ont.

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Anise	Cauliflower	Lucerne	Rape
Beet	Celery	Mustard	Rutabga
Cabbage	Kale	Pepper	Spinach
Carrot	Kohl Rabi	Raddish	Turnip

Vetch and Flower Seeds

If you have hitherto placed your orders in other quarters, OUR PRICE under present circumstances, will compel you to buy from us.

Please write AT ONCE while stocks last for immediate and later delivery: also on contract for next Fall.

British Sailing to Canada continues all the time.

KELWAY & SON, SEED GROWERS to the TRADE

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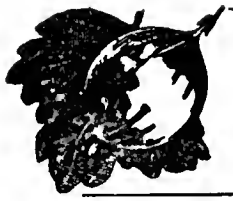

SMALL FRUIT PLANTS

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Don't let the question of price prevent you from owning a SPRAMOTOR and getting better crops. We make a SPRAMOTOR as low as $6, and from that all the way up to $350. Our $6 outfit is as good value in proportion as the $350 machine. There's a

Spramotor

It isn't a SPRAMOTOR unless we made it

for every need — the small farmer and the thousand-acre man. The knapsack outfit at the left is all high-grade and sprays at high pressure. We guarantee it to spray paint, whitewash and chemicals. The SPRAMOTOR is all brass with dashing agitator around screen, automatic plunger, brass ball valves and patent hand valves. The price is $12 with 5-gal. galvanized tank or $15 with 5-gal. brass tank.

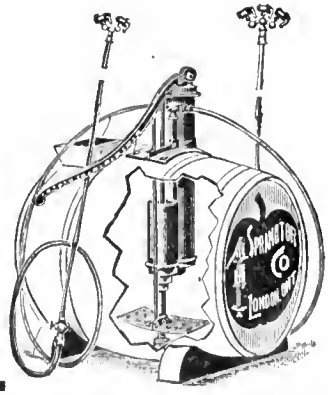
Barrel outfit consists of all-brass No. 2 SPRAMOTOR with two 10-feet lines of hose, couplings attached, patent hand valves, two bamboo extension rods with brass cupped ends and patent drip guards, two double-nozzle clusters, complete and guaranteed. Price $26. Can be used for all kinds of work.

FREE Write us giving some idea of your spraying needs. In return we will mail you without charge a copy of our valuable illustrated treatise on Crop Diseases, also details of a SPRAMOTOR best suited to your requirements.

Made in Canada. *No Duty to Pay.*

SPRAMOTOR WORKS

2409 King St., LONDON, CAN.

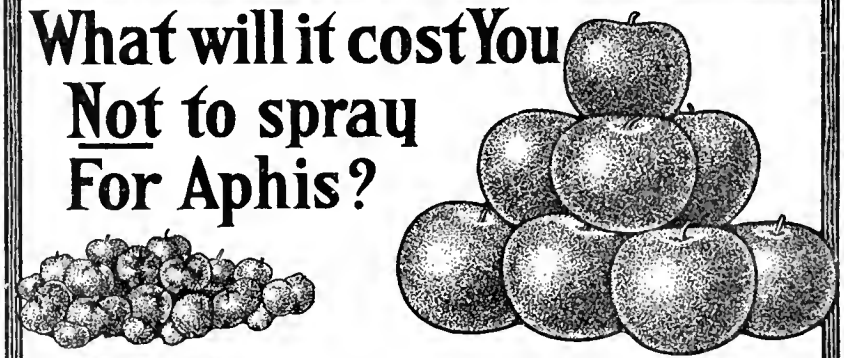


Special---Effective February 12th

"BLACK LEAF 40"

DUTY FREE IN CANADA

What will it cost You Not to spray For Aphis?



APHIS INJURED PERFECT

The U. S. Dep't of Agric. Says $30,000,000

is the annual damage done to the American fruit crop by insects. Aphis causes a considerable part of this loss and the standard insecticide recommended by experiment stations and spraying experts for this and many other orchard pests is

"BLACK LEAF 40"

Guaranteed to contain 40% Nicotine

THIS IS THE TIME TO SPRAY for Apple Aphis—just as the leaf buds show green. Don't delay till the foliage gives the Aphis protection. Use "BLACK LEAF 40" when buds are like the one shown in this picture. Write us for Apple Aphis Bulletin.

"BLACK LEAF 40" is not recommended for all insects; but for Aphis, Pear Psyla, Hop Louse, and many other soft-bodied sucking insects it has proven to be a highly effective and a very economical insecticide.

LET US HELP YOU PROTECT YOUR ORCHARD

If your dealer will not supply you with "Black Leaf 40", send us P. O. Money Order for $2.50 and we will send you, express prepaid, a 2 pound can that will make 200 gallons of effective spraying solution. If you are in doubt about the insecticide you need, write us, send specimens, or give descriptions of your insect enemies and we will help you to find the proper insecticide.

KENTUCKY TOBACCO PRODUCT CO. Dept. E., Louisville, Ky.

INCORPORATED

Scotia fruit, often considerably less than for fruit shipped in the Ontario barrel, is due to the smaller barrel.

The Ben Davis was largely represented in the shipment on the s.s. Melville. They all arrived in good condition, although some of the apples were not so red as the buyers would like them. The Quebec Snows, owing to the poor keeping qualities, are always a doubtful shipment, but this year more than usual were shipped from Montreal; they arrived in splendid condition, and for the first few days sold very well, but later it was found harder to dispose of them.

The grading of all fruit seen here this year could not be improved on. With regard to the packing, however, there is room for much improvement in the shipments of all Eastern Canada fruit, especially in the case of boxed apples. The Kings, a variety which is an old favorite in South Africa, arrived in the best of condition, but like the Ben Davis, a good many were not colored enough.

There were not many Wagners on the Melville, although for late shipment this variety is always in good demand. All of this brand were in splendid condition and well colored.

Both Ontario and Nova Scotia shipped a considerable quantity of Ganos apples in barrels. This variety is preferred to the Ben Davis, and this year's shipment was highly colored and in the best of condition.

SOUTH AFRICAN APPLE MARKET

The export to this market of Canadian apples can easily be doubled if a serious effort is made to secure the trade. The demand is for a hardy medium-sized highly coloured red apple The season for delivery in South Africa is October, November, and early December; this means shipping at the end of September, October 15th and October 30th at the latest, or two shipments—one about October 5th and the other October 25th.

All Canadian apples must be sold at the very latest by January 10th, as from that date the South African apple comes on to the market as well as other local fruits, including pears, peaches, apricots, and grapes. The box apples should be wrapped separately in paper, and should average from 140 to 180 a box. If possible, all fruit should be shipped over rail to the steamer in refrigerator cars. Canadian apple growers and shippers who are satisfied that they can fill orders in accordance with these demands are requested to communicate early in the year, and they will be placed in touch with South African firms who are anxious to handle Canadian fruit.

Organizing a Central Association*

A. E. Adams, Berwick, N. S.

I would like to give a few don'ts for the benefit of any fruit growers who may feel inclined to attempt the organization of a Central Fruit Growers' Association:

Don't attempt to obtain legislation without first explaining to responsible members of your local legislature the objects of the bill, and enlisting their support.

Don't attempt to organize a Cooperative Central Association without the aid of a man thoroughly experienced in such work.

Don't employ any officials who are not thorough cooperators.

Don't attempt to run your business with cheap men; get the best men procurable, and pay them well.

*Extract from an address delivered at the last Dominion Fruit Conference.

Don't employ any figureheads; they are unnecessary, and are a drain on the resources of the company.

Don't employ any man who is not prepared to give the whole of his time to the business of the company. A man cannot work for two masters.

Don't promise your membership more than you can accomplish.

Many will think that these "Don'ts" are too obvious to need mentioning but I give you them out of my experience of what has and does happen when farmers' cooperative companies are formed.

Cooperation has been successful in the Annapolis Valley for three reasons:

1st. We have cheapened the cost of production by the cooperative buying and distributing of the essentials of the farm.

2nd. We have increased the return to the grower by eliminating all unnecessary middlemen and placing the bulk of our produce directly in the hands of the wholesalers.

3rd. This has been accomplished by applying business experience to cooperative principles.

How to Deal with Overprodution*

Prof. F. C. Sears, Amherst, Mass.

WHETHER we are afraid of overproduction or not, we ought to do all we can to increase the consumption of apples and to better our markets. First: We ought to grow better quality varieties. You will at once think of the Baldwin and that if you grew anything better than that you would lose the most profitable variety you have. But I know when I was here that nobody ate Baldwins, you shipped them all to England. And I do not believe that you can expect the English to keep on eating what you won't eat yourselves. It seems to me the question of quality is much more important than we appreciate. A man eats one good apple, and he wants another one; but if he eats a poor one he does not care if he waits a week before he eats another. I am sure we do not appreciate the practical importance of this. A Boston paper recently remarked that nowadays when an American feels like absorbing an apple, he stops at a fruit stand and buys for ten cents a highly polished masterpiece which looks like perfect joy and tastes like cotton batting.

Second: We ought to have better packages in which to market our apples. The barrel, with all its good points leaves much to be desired. At our Massachusetts meeting in Worcester last week, we had on exhibition a package that had been shipped from Virginia to Brockton, and then from Brockton to Worcester. It was one of those paste board cartons which hold one hundred apples, and the man paid five dollars for it. Of course that was too much. He took out four layers and then sent us the rest, and even after they had been shipped around the country in this way, you prac-

*Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.

BRUCE'S SPECIAL "BIG FOUR" FIELD ROOTS

BRUCE'S GIANT WHITE FEEDING BEET—The most valuable Field Root on the market, combines the rich qualities of the Sugar Beet with the long-keeping, large size, easy-harvesting and heavy-cropping qualities of the Mangel. ¼lb. 10c, ½lb. 18c, 1 lb. 30c,

BRUCE'S MAMMOTH INTERMEDIATE SMOOTH WHITE CARROT—The best of all field Carrots. ¼lb. 30c, ½lb. 55c, 1 lb. $1.00.

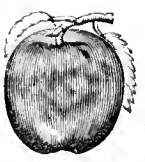
BRUCE'S GIANT YELLOW INTERMEDIATE MANGEL—A very close second to our Giant White. Feeding Beet, and equally easy to harvest. ¼lb. 10c, ½lb. 18c, 1 lb. 30c.

BRUCE'S NEW CENTURY SWEDE TURNIP—The best shipping variety, as well as the best for cooking; handsome shape, uniform growth, purple top, ¼lb. 12c, ½lb. 20c, 1 lb. 35c.

Prices are at Hamilton—Add for postage, ¼lb. 5c, ½lb. 10c, 1 lb. 15c. Each additional pound 10c.—Where there are Express Offices this is cheapest way to send all orders of 5 pounds and up.

FREE—Our handsomely illustrated 112 page catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, etc., for 1915. Send for it.

John A. Bruce & Co., Ltd., **HAMILTON, ONTARIO** Established Sixty-five years.



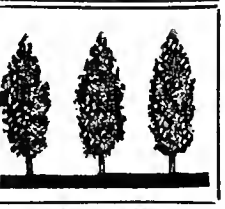
CENTRAL NURSERIES

Have a Fine Assortment of

Fruit and Shade Trees, Vines, Plants, Ornamentals, Roses and Shrubs, Etc. For Spring Planting Direct.

For Satisfaction plant HULL TREES. Our prices are right and so are the trees. Send for new priced catalogue, also your want list for special prices on Apple Trees. Excellent quality, and at a very reasonable price. Trees grown in Canada. **Early Seed Potatoes. No Agents.**

A. G. HULL & SON - ST. CATHARINES, ONT.



Highest Type Spraying Machine in the World

Pretty big claim that, but fully justified by the facts. At the Canadian Government Spraying Contest, Grimsby, Ont., the **SPRAMOTOR** took first prize with ease from eleven competitors. That puts **SPRAMOTORS** in the lead among all makes.

The outfit illustrated here is our gasoline-power model, the best machine we make, therefore "the highest type spraying machine in the world." We make SPRAMOTORS in many styles and sizes, for the largest farm and for the smallest, at prices from $6 up to $350—every one the best outfit for the money. We are sole makers of the

Spramotor

It isn't a SPRAMOTOR unless we made it

and have been making nothing else for the past twenty years. Over 20 patents covering features you can get in no other machine but the SPRAMOTOR. We have won over 100 Gold Medals and First Awards in all parts of the world. The next best machine isn't good enough for you.

FREE Write us a short letter, giving some idea of your spraying needs, and we will send you free, a copy of our valuable illustrated work on Crop Diseases, also full details of a SPRAMOTOR that will best fill your requirements.

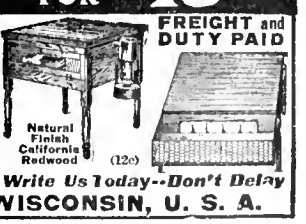
Made in Canada. **No Duty to Pay.**

SPRAMOTOR WORKS, 2407 King St., LONDON, Can.

WISCONSIN INCUBATOR AND BROODER BOTH FOR $13.90

130 EGG INCUBATOR
130 Chick Brooder
BOTH FOR
$13.90 Freight and Duty PAID

If ordered together we send both machines for only $13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. **Ten year guarantee—30 days trial.** Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of $13.90 is for both Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time.



FREIGHT and DUTY PAID

Write Us Today—Don't Delay

WISCONSIN INCUBATOR CO. Box 186, RACINE, WISCONSIN, U. S. A.

The Fruitland Nurseries

are now prepared to book spring orders for all kinds of Fruit and Ornamental Trees, Shrubs and Vines at lowest prices. Send for price list.

G. M. HILL. BOX 42 FRUITLAND, Ont

STRAWBERRY GROWERS ATTENTION

For choice, well selected stock of all the standard varieties of strawberry plants, send us your order. List Free.

ONTARIO NURSERY CO., WELLINGTON, ONT

Strawberries 50 varieties

Raspberries 13 varieties

10 varieties **Seed Potatoes**

FREE CATALOG

THE LAKEVIEW FRUIT FARM

H. L. McCONNELL & SON, PORT BURWELL, ONT.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

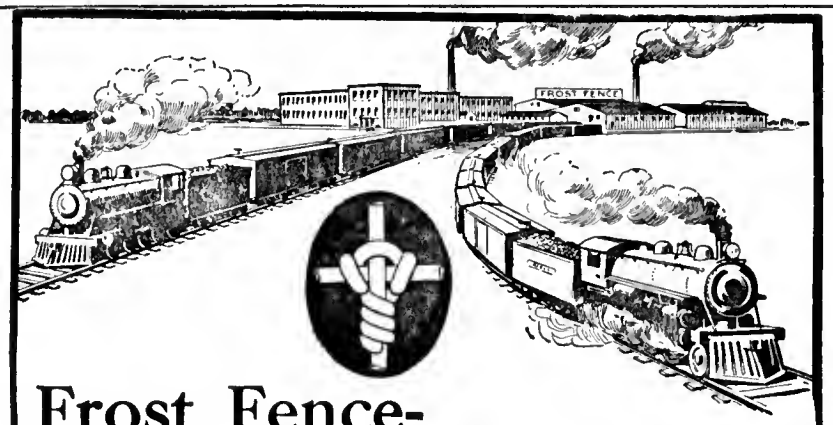
Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue



Frost Fence-Made in Canada and sold Canada-Wide

It would be impossible to find a community in Canada, however remote, that has not heard of FROST FENCE, and few where FROST FENCE is not used. Canada leads the world in many particulars, and is certainly not behind in the matter of wire fence, with the famous FROST FENCE works located right in her borders.

The new slogan "Buy Goods Made-in-Canada" is having a splendid effect upon this country's industrial situation. It applies with particular force to Frost Fence because not only is Frost Fence Made-in-Canada, but the wire from which it is made is of Canadian manufacture too, which is more than can be said of the majority of other wire products.

THEREFORE, whether you buy on the basis of greatest quality or upon the grounds of good Canadian patriotism, your choice should be

Frost Fence First

WE MAKE OUR OWN WIRE. For one thing, it helps to keep Canadian workers employed. During the year passed we paid $50,000 to those workmen who made our wire. This stayed in Canada Other firms go to the United States for their wire. Then again, it's the only sure way we know of to get the quality we insist upon for FROST FENCE.

With extra quality wire as a starter, we are putting out today a fence second to none in the world—an article that we gladly and proudly label as **"Made-in-Canada" from start to finish.**

Write for our fence catalogue. If you can't get FROST FENCE, get in touch with us. We may need an agent in your locality. 58

Frost Wire Fence Co., Limited, Hamilton, Ont.

tically could not find a singe apple that was damaged in the least. These packages can be had for 28½c apiece, and I believe they are to be one of our coming packages. This man wrote us he had bought apples packed in the western style and he had found all the apples bruised more or less, while these apples which had been shipped from Virginia were absolutely perfect.

The third point is better grading. Even you do not do perfect grading yet.

Fourth: There ought to be better distribution. We need better distribution both in time and place.

Fifth: We ought to do more to develop our local markets. I remember nobody used to ship anything to Halifax that was fit to eat, and Halifax is a city of 50,000 or more. There is no reason why they should not consume a tremendous lot of apples if you would treat them decently. I believe if you shipped them good stuff you would get good prices.

Sixth: We ought to pay more attention to by-products; the manufacture of all sorts of things out of our lower grade apples that otherwise go to waste or go into the middle of the barrel, and go somewhere else. There is an almost unlimited market for these different line of things. In our part of the country you can buy cider apples for about twelve cents a bushel; and you can sell the vinegar produced for ten or twelve dollars, where it cost you five dollars to make it. Then there is boiled cider; they figure twelve cents worth of these apples will make seventy-five cents worth of boiled cider. This question of by-products is worth considering.

Seventh: We ought to cut out the middle man. Last year Professor Waugh and I had a fine crop of Wealthy apples. We put them up in the ordinary type of peach basket, and took them to Northampton, one of our small cities, and went to various stores. At one store the owner took five baskets, and said, "When you come next time I will take fifteen." When the team went back it went to him first, and he took the whole of the seventy-five baskets. I happened to be in the store that afternoon and I saw these apples on sale. He had taken them out of those big peach baskets and put them into those little Georgia till baskets, and he was charging thirty cents for those; that is, he was getting $1.20 for what he paid us fifty cents for.

Eighth: Fruit growers ought to do more mixed farming. I believe that the time is coming when a little more mixing of our farming will be considered as a good thing.

My last point is advertising. It is one of the biggest questions that faces the fruit man of to-day if he is to avoid overproduction. In the first place I believe that we ought to advertise more generally the healthfulness of apples. People do not appreciate what a fine thing an apple is to eat. Just imagine what would happen if a man in the patent medicine business had a thing that looked as fine as an apple, was as wholesome as it is, tasted as good, and had a really high food value added. Any man who could corner a patent medicine with anywhere near that collection of good points would be a millionaire inside of six months! Yet we farmers do not advertise them at all, or at least not to amount to anything.

The Canadian Horticulturist is eagerly looked for and diligently read in our gardening family.—A. Lucas, R. R. No. 7, London, Ont.

What Our Railways Might Do

Geo. E. McIntosh, Forest, Ont., Traffic Expert for the Ontario Fruit Growers' Association

It may be true that many transportation companies are beginning to appreciate agriculture as a source of income, and are giving some attention to its development, but this is not nearly so evident in Canada as in the United States. This is probably because while we have become ardent advocates of production we are pillars of salt so far as transportation requirements are concerned. In this connection it is interesting to note just what the railways of the United States are accomplishing through extending a comparatively small amount of assistance to agricultural people along their lines.

One company reports that for eight years it has been engaged in organizing farmers' associations in the districts through which it runs, until now there is hardly a town of three hundred people on that line which has not an active association of farmers for the promotion of diversified crops. The result has been that in 1904 the road hauled in ninety days three thousand five hundred cars of truck and fruit, as against none five or six years before.

Another company states that through similar efforts, fruit and truck growing has increased fully one hundred per cent. in the last five years.

Another company says: "The result of the work has been an increase from almost nothing in the way of fruits and vegetables to many hundreds of cars annually."

In one locality specially adapted to the growing of strawberries a railway company furnished plants and sent an expert to instruct the farmers how to plant and grow this fruit. Eight acres were put out the first year and the yield was nine carloads. This has developed, until last year that road hauled something over six hundred carloads.

One company publishes for distribution among its patrons a monthly magazine, which contains accurate information as to the character and condition of the markets in the several cities, and gives the rates of freight from the various points along its lines to these cities.

Another company has organized thirty-five farmers' institutes and truck growers' associations, with an aggregate membership of five thousand persons.

Eight companies have established experiment and demonstration farms to show the capability of the soils and climate of the districts where they are located. A road in the south has organized fruit and truck growers' associations at many points, and issues printed circulars and bulletins of information.

Seven years ago another railroad company selected a farm on sandy land generally regarded as worthless. Last year there were grown on this farm over three hundred different kinds of vegetables and fruits.

Limitless areas have been transformed into fruit farms and the railways themselves have become objects of wealth in the land whose value they had helped to create. It is worthy of note that all of the companies that have been active and directly engaged in thus assisting agricultural people, declare their purpose to continue their aid.

It is evident, therefore, in order that a railway company may profit to the fullest extent from the fruit or vegetable growers contiguous to its lines, it must do more than construct tracks, run trains, and carry

RENNIE'S Garden Seed BOOK

Now Ready For 46 years the leading authority on Vegetable, Flower and Farm Seeds, Plants and Bulbs. You need it. *Send for free copy—to-day.* **For 1915**

ALACRITY TOMATO
An Extra Early Red Variety
Developed by Experts at the Central Experimental Farm, Ottawa. Reported to be the earliest variety in existence and especially adapted for Canada, being Northern Grown. Full size packet, **15c.**

Wm. RENNIE Co. Limited,
Adelaide and Jarvis Streets. TORONTO

A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good gardeo will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at $3.00 to $14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Gardeo News" both free.

The Bateman-Wilkinson Co., Limited
462 Symington Ave. Toronto, Can.

Progressive Jones says:

"Be Sure to Use Well-Mixed Fertilizers"

ONE day a man said to me, "Jones, why don't you tell the farmers to be sure and use well-mixed fertilizers?"

Well, I thought I had done so, but perhaps I didn't do it often enough. You see, friends, it's important to use well-mixed fertilizers. Otherwise, your fertilizers will be strong in some places and weak in others, and crops fertilized with it will show uneven growth. Now, I've been at The Ontario Fertilizers Limited's factory and have seen

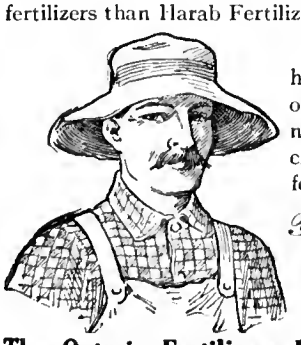
Harab FERTILIZERS

being mixed. I have never seen a more thorough job. Every pound of the fertilizer is in exactly the right proportions. And the fertilizer is finely ground and in good dry condition. It is in the very best possible shape for use on the field.

DAVIES' Fertilizers

are preferred by many farmers. They are excellent, well-mixed fertilizers. The Ontario Fertilizers Limited will supply you with either Davies' or Harab brand. Just state your preference. Also ask for either the Harab or Davies' Fertilizer booklet. Either is free on request.

Remember, friends, that cheap fertilizers are poor investments. You need the very best you can get. And if there are any better fertilizers than Harab Fertilizers, I don't know their names.



The year of 1915 will be a year of high prices for farm produce on account of the European war. Make up your mind to make your land yield bigger crops than ever before. That means fertilize.

Yours for bumper crops,
Progressive Jones

The Ontario Fertilizers Limited, West Toronto, Canada

24

Double Your Fruit Crop

Kill the insects, blights that ruin crops of orchard, farm, flower garden. Get bigger crops of better quality this year. Rely on

Auto Spray

40 styles—hand and power. 300,000 in use. Your dealer can supply you. Style No. 1—shown here—has 4 gal. capacity. Easily carried over shoulder. Write for catalog and free spraying guide.

E. C. BROWN CO., 862 Maple St., Rochester, N.Y.

Find Out How—Get Free Guide

RENNIE'S

The name that assures the best quality in SEEDS, PLANTS and BULBS.

ALACRITY TOMATO

An Extra Early Red Variety

Developed by Experts at the Central Experimental Farm, Ottawa. Reported to be the earliest variety in existence and especially adapted for Canada, being Northern Grown. Full size packet, 15c.

Write for Catalogue.

Wm. RENNIE Co. Limited

Cor. Adelaide and Jarvis Streets, TORONTO

Surround Your Lawn, Garden and Yards With

PEERLESS Lawn Fencing

ORNAMENTAL fencing serves a double purpose. It not only enhances the beauty of your premises, but also protects it and your children and property—as well. It keeps out marauding animals and trespassers. It protects your lawns and flowers and always gives your home grounds that orderly, pleasing appearance.

Peerless Ornamental Fencing

is the result of years of fence building. It is built to last—to retain its beauty and grace for years to come and should not be confused with the cheap, shoddy fencing offered. Peerless fence is built of strong, stiff wire which will not sag and the heavy galvanizing plus the heavy zinc enamel is the best possible assurance against rust.

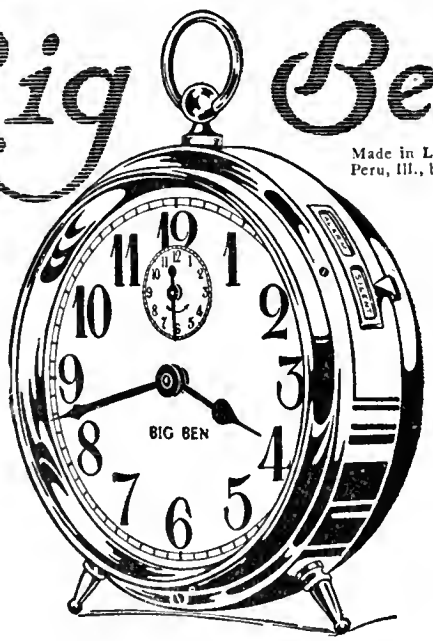
Send for Catalog

Shows many beautiful designs of fencing suitable for lawns, parks, cemeteries, etc. Agencies almost everywhere. Active agents wanted in unassigned territory.

THE BANWELL-HOXIE WIRE FENCE CO., Ltd.,
Winnipeg, Man. Hamilton, Ont.

Big Ben

Made in La Salle and Peru, Ill., by Westclox



—there's Big Ben

What if some important job calls for a get-up long before sunrise?

What if the household must be astir for a prompt breakfast right on the scratch?

—there's Big Ben.

Big Ben will get you up and out either way you tell him—with a straight five minute call or ten successive taps at half-minute intervals.

His pay for service is $2.50 in the States—$3.00 in Canada. If your dealer hasn't him, a money order addressed to his makers, *Westclox, La Salle, Illinois,* will put him in your employ.

freight. It must come in a helpful way into direct personal contact with the growers. The policy of standing aloof and regarding these people as aliens is disastrous.

Cooperation in Nova Scotia

A. E. Adams, Berwick, N.S.

The head office of the United Fruit Companies of Nova Scotia, Ltd., is at Berwick, and there are branch offices on the various markets. All European sales are controlled by the London office situated in Covent Garden Market. South American business is conducted through the Buenos Ayres office, western business through our representative at Winnipeg, potato business through our own office at Havana, Cuba. All shipping is under the watchful eye of our shipping superintendent at our Halifax office, while a representative is employed to attend to the home markets.

The strongest card that the Central has is its uniform pack. We claim that one barrel in a shipment represents the whole, and the trade on all markets has been quick to recognize the importance and the advantage of securing this pack. Owing to the fact that the Central Association now controls sixty-five per cent. of the output of the Valley it is able to practice a system of market regulation whereby overcrowding of any market is successfully avoided.

In proof of the success of our system I would like to state that in 1913, although Nova Scotia had the worst crop in its history, so far as quality was concerned, and although over sixty per cent. of the apples we shipped were the despised number three, and although we handled no less than one hundred and seventy varieties, yet the average price paid to all companies, including all grades and varieties, and after deducting all central expenses, was $2.57 per barrel.

The large proportion of the entire crop under our control enables us to make most favorable terms on all markets and further enables us to insist on fair treatment. Today it is the Central Association (the Farmers' Own Organization) that fixes the price, while in the past a small body of speculators fixed prices to suit themselves.

The apples of all subsidiary companies are pooled and an average price is paid to all on each grade of each variety. To ensure uniformity of pack, without which this system of pooling would be unjust, an inspector is employed who visits all warehouses and supervises the pack. Any company not packing up to our standard has to re-pack, but the cheerful manner in which all local managers cooperate with our inspector to maintain our uniform pack is most gratifying. There has been some objection raised to this system of pooling but with central control which is so essential if best results are to be obtained, no other system would be feasible.

Mr. W. M. Turnbull, of Galt, Ont., has originated a new pear, to which he has given the name "Sunrise." As yet it has not been tested at any of the fruit experiment stations. Mr. Turnbull writes The Canadian Horticulturist that he has been growing it in his garden for ten years. He believes that it surpasses the leading varieties of pears in juiciness and rich color. It is from medium to large, is borne in clusters and its season follows the Bartlett.

I appreciate The Canadian Horticulturist and the information contained therein.—H. Hume, Port Hope, Ont.

Oppose Rate Increases

The question of a prepaid increase in rates on transportation of fruit came before the R.R. Board in Toronto on March 29th. A large delegation of prominent fruit men from all parts of Ontario were in attendance. Mr. Geo. E. McIntosh, of Forest, Transportation Agent for the Ontario Fruit Growers' Association, presented the protest of the fruit growers against the proposed increase. He was followed by W. H. Bunting, of St. Catharines, Mr. Onslow, of Niagara-on-the-Lake, and W. W. Fisher, of Burlington, and others. These gentlemen presented facts to show that increased rates would result in serious injury to the trade, and by throttling the traffic would not be in the interests of the railway companies.

The proposed increase in rates to points in the western provinces ran from 15 to 20 per cent. It was shown that fruit would not bear such a heavy rate. While the rate for east-bound traffic was not to be so seriously increased, it was pointed out that any increase whatever would, under present prospects, seriously handicap the trade.

The whole question of increased rates is under advisement, and judgment will not be handed out by the board until all parties interested have been heard.

On Tuesday, March 30th, Messrs. W. H. Bunting and Arthur L. Craise appeared before the board in opposition to a proposed increase in rates on manure shipped into the Niagara district and delivered by the Canadian Northern Railway on its various branches. This increase was not allowed, and the Grand Trunk Railway was ordered to continue to absorb one-half the switching charges. The minimum carload was raised from 40,000 to 60,000 pounds.

Annapolis Valley Notes

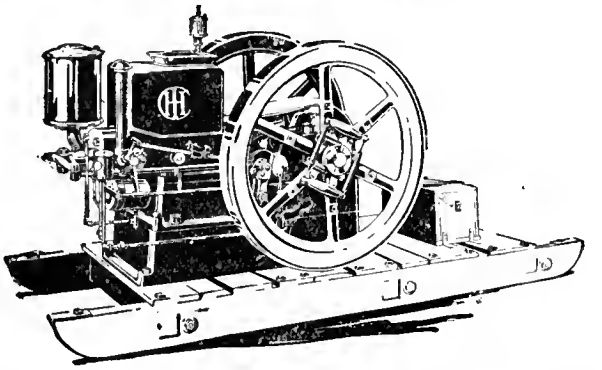
Manning Ells

The conditions brought on by the war have in some cases brought disaster to fruit-growing sections in Canada, but the Annapolis Valley, owing to her geographical situation, and the close organization of her fruit-growers, has been able to market her crop at a fairly satisfactory price. The winter has been very open and mild, and fruit trees of all kinds have come through in a vigorous condition, and give promise of a splendid bloom. Because of no snow, strawberry plantations have been exposed to every freeze and thaw, and where not carefully mulched have been much injured. Berries have been extremely high owing to winter killing and spring frosts the past two seasons.

The United Fruit Companies are now publishing their own paper, "The Cooperative News," the first issue of which appeared March 4th. They have also taken another forward step in their progressive policy by opening an all-the-year-round business in Halifax, to handle all kinds of farm produce grown by their fifteen hundred members. This is a big step in advance, and its development will be watched with interest.

The value of organization among farmers was never more strikingly shown than in the marketing of the potato crop in the Valley this past season. By chartering their own boats and opening an office in Cuba, the United Fruit Companies were able to ship all the potatoes grown by their members at as good prices as usual. New Brunswick, with no organization, has to-day hundreds of thousands of bushels on her h[illegible], with a price far below cost of production and no takers.

International Harvester Oil Engines—Mogul—Titan



THE man who buys an engine without knowing engines, takes a chance. A better way would be to take the **I H C** oil engine—recognized as standard in its construction; study its every feature closely, and use it as a basis of comparison when looking at other engines. That is the best way to choose the particular engine which will do your work best.

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Classified Advertisements

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REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. —W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS. — Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melviu Gayman & Co., St. Catharines.

$7,500.00—50-ACRE FRUIT FARM, one mile east of Beamsville, on Stone Road, 10 acres of fruit. Good house, barn and chicken houses. Property carrying $3,500 mortgage. Enquir. E. C. Morris, Ridgeville, Ont.

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ITALIAN BEES AND QUEENS reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. — Stover Apiaries, Mayhew, Miss.

ITALIAN BEES AND QUEENS as advertised on page 107. Catalogue free. — Deroy Taylor Co., Newark, N.Y.

SAMPLE QUEENS—To introduce our Moor's strain of Leather colored and Golden Italian Queens, we will send one to each applicant at 40c each, cash with order.—Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS — California queens, nuclei, and bees, bred from the best Doolittle stock, ready for shipment at once. Queens, untested, 75c; per dozen, $8.00; tested, $1.25; per dozen, $12.00; mismated, one year old, 50c; per dozen, $5.00; tested, one year old, 75c; per dozen, $8.00; nuclei, two-frame, $1.50; three-frame, $2.25; five-frame, $3.00; ten-frame colony, $4.50. Bees by pound: One-half lb., 75c; 1 lb., $1.00. Add prices of queens desired to all above prices of bees and nuclei. Delivery guaranteed. No disease. Address Spencer Apiaries Co., Nordhoff, Cal.

QUEENS—Our early queen breeding location is a long narrow oasis in the desert of Southern Nevada, which is crossed at Moapa by the Salt Lake and Los Angelos R. R. Write for our circular which gives prices of queens, bees by the pound, nuclei, etc. Booking orders now.—Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS OF QUALITY—I am booking orders for early queens now. Three-banded Italians only. Circular free.—J. I. Banks, Dowelltown, Tenn.

Protecting Fruit in Transit

G. E. McIntosh, Forest, Ont., Fruit Traffic Expert, Ontario Fruit Growers' Association

An instance of how Canadian fruit shippers are affected by the limited jurisdiction of the Dominion Railway Commission may be cited in the appeal of the Ontario Fruit Growers' Association, for a stop-over privilege of part carloads in transit for loading, shipped from original point at carload rate and weight. We pay double the rate of live stock, two and a half times that of lumber, three times the grain rate, and four times that of poles, yet these commodities have the privilege referred to, and the Commission refused our application because the transit practice, says Commissioner McLean, is a privilege, not a right, and the Board is without power to direct that this privilege be given by the railways.

The sending of a caretaker in charge of long-haul refrigerator shipments would in the judgment of a great many shippers aid both railroads and shippers, but it is a privilege over which the Commission has no jurisdiction. Shippers from the Maritime Provinces can send a man free in charge of one or more cars, and he will be returned for one cent a mile. I am not aware that British Columbia has any such privilege, and Ontario certainly has not, except from the head of the lakes, but Canadian competitors from Oregon, Washington, or Idaho, shipping over the Oregon-Washington Railroad and Navigation Co., Camas Prairie Railroad, Southern Pacific and Yakima Valley Transportation Co., into Canadian markets, have the accommodation of a man carried free both ways, which assures the placing of their product on the market in a well cared for condition, and it is well to note that these States are growing competitors. They marketed in 1913 3,958 carloads of fruit in 243 American cities, 33 Canadian cities, and sixteen European cities. Within these States it is estimated that over 500,000 acres have been planted to apple trees and 75,000 acres to other varieties of fruit, while only 10 per cent. of this came into bearing in 1912 and 1913.

Mr. H. R. Frankland, of Toronto, has been appointed chairman of the Horticultural Section of the Canadian National Exhibition, and E. F. Collins, Superintendent of the Horticultural Building. These appointments are popular ones with the exhibitors and with those who are interested in the Horticultural Department.

CLASSIFIED--Continued

BEES AND QUEENS

0 COLONIES OF ITALIAN BEES. Also all supplies. Apply to Roy Teeple, Arkona, Ont.

BEES—8 or 9 colonies, all in good shape. Guaranteed healthy. $10.00 each.—Robt. Sainsbury, Invermere, B.C.

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MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording for $1.30. Catalogue free.—Pearl Card Co., Clintonville, Conn.

The Canadian Horticulturist

Vol. XXXVIII MAY, 1915 No. 5

What Does it Cost to Grow a Barrel of Apples?

By Manning Ells, Port Williams, N. S.

IN the early days of apple growing in America the industry was very profitable. From 1854 to 1878 prices remained uniformly high, and nearly all the bearing orchards in New York State were planted between these dates. Prices then began to decline and planting practically stopped. In 1896 thousands of barrels were left to rot under the trees because there was no market for them. Many orchards were cut down, and others given over to the tender mercies of the San Jose scale. Canker worms and caterpillars each had their day until overcome by their natural enemies. Production was much decreased.

In a few years prices for apples again gained a high level, and planting was stimulated as in the years before 1878. Old orchards were pruned and cleaned up and soon began to bear as if the rest had done them good. The great west, trusting to luck and the government, went to the extreme in planting apple trees as in everything else.

The signs now all point again for the next ten years or so to overproduction and non-profitable prices. Planting already has greatly fallen off, but that will have no immediate effect on the flood of apples. In one county in New York (Munroe county), of the crop of 1908, less than six per cent. was borne on trees planted since 1878. Better methods of distribution will help, but in the days of keen competition between apple growing districts that are coming, the country that can produce good apples cheaply will have a great advantage, and may be able to stay in the game when others not so favorably situated will have to turn to other lines of farming.

It has been said that if the everyday business man knew as little about his business as the average farmer, he would soon go to the wall. Until a few years ago the farmer's ideas of his capital invested, his expenditures and income were of the most hazy character. There are many difficulties in the way of farm bookkeeping that are not met in more exact businesses. A special system had to be devised to meet the farmers' needs. Prof. Warren, in his book on farm management, explains a system of cost accounts for the different crops on the farm that would seem to fill a long-felt want. If the work is followed up, a few minutes each evening will give at the close of the year a fairly accurate idea of the actual cost of raising the different crops, and enable the farmer to know where to give his attention for the most profit.

What Is the Cost?

A question often asked in the Annapolis Valley is, "What does it cost to grow a barrel of apples"? With a year like the past, when the price has been the lowest in the history of the business, the question is a pertinent one. It was because of a curiosity to find an answer to this question that the writer kept an account with three different orchards on different parts of the farm last season. While the results are not complete, and at times estimations have to be resorted to, as to the cost of picking for instance, still an account of these results may bring out some criticisms or experiences of others who have been working along the same line.

I will take up the work of each orchard in detail, and show in what way the different charges are made.

The First Orchard.

Orchard number one has about two and a half acres of full bearing fruit, ordinary commercial varieties. Last year it produced two hundred and sixty-seven barrels of apples. All the orchards were charged with man labor at twenty cents an hour and horse labor at 15 cents an hour.

Operation.	Man hours.	Horse hours.
Pruning and hauling off brush	31	5
Plowing, harrowing, sowing cover crop	43	84
Spraying	47	28
Total	121	117

From this the account for the orchard is made up as follows:

121 man hours at 20 cents an hour	$24.20
117 horse hours at 15 cents an hour	17.65
Fertilizer and seed for cover crop	18.25
Cost of spraying material	11.25
Cost of 267 barrels at 30 cents	80.10

Branches cross-grafted to prevent breaking.

Old wounds in need of treatment.—No. 1.

Picking and hauling to warehouse, three miles, at 15c.	40.05
Total cost	$191.50

Average cost per barrel for orchard No. 1—71.7 cents.

Orchard No. 2—About five acres, one third in full bearing, the remainder about equally divided between ten and fifteen year old trees. Crop last year—209 barrels.

120 man hours at 20 cents an hour	$24.00
165 horse hours at 15 cents	24.77
Fertilizer and vetch seed for cover crop.	18.25
Cost of spray material	12.00
Cost of 209 barrels at 30 cents	62.70
Cost of picking and hauling to warehouse at 15c.	31.35
Total cost	$173.07

Cost per barrel Orchard No. 2—82.8 cents.

Orchard No. 3.—About twenty-five acres, all commercial sorts, fifteen acres full bearing, remainder ten and fifteen years set. Crop last year—1,124 barrels.

353 man hours at 20 cents an hour	$70.60
443 horse hours at 15 cents an hour	49.45
Cost of fertilizer and vetch for cover crop	85.00
Cost of spraying material and gasoline	50.00
Cost 1,124 barrels at 30 cents	337.20
Picking and hauling to warehouse at 15 cents	168.60
Total cost	$760.85

Cost per barrel Orchard No. 3—67.6 cents.

From these figures, the average cost per barrel on the three orchards on the combined crop of 1,600 barrels is 70.3 cents.

While packing in the warehouse there is a shrinkage of about sixteen per cent., that is, one hundred barrels tree run will pack on the average about eighty-four barrels. These slack sixteen barrels are credited back to the grower at twenty-five cents a barrel, and this should be credited to the orchard account. In this particular instance the sixteen per cent. slack barrels will reduce our cost just four cents a barrel, making the average cost 66.3 cents.

The reader will notice that in this account no charge is made for management, interest on money invested in equipment, and repairs and renewals or depreciation of same. For instance, the power sprayer cost three hundred dollars, and at least fifty dollars a year should be charged the orchard for wear and tear and interest on the cost of this sprayer. Repairs on the sprayer this past season cost twenty-two dollars, but the machine did outside work for the neighbors, and earned twenty dollars in this way, so that account was about squared for this one season. If fifty dollars was charged the orchard for the use of this sprayer, the cost of raising the 1,600 barrels on the three orchards would be increased about three cents a barrel.

Another item in the cost not considered here, but which always should be considered, is that of interest on capital invested. A fair value to place on orchards such as these under consideration is five hundred dollars an acre. Then against the year's crop of 1,600 barrels should be charged the interest on thirty-two and a half acres at five hundred dollars an acre, or sixteen thousand two hundred and fifty dollars at six per cent. This amounts to nine hundred and seventy-five dollars, or 60.9 cents a barrel. The average operating cost of the three orchards under consideration is 66.3 cents a barrel; allow five cents a barrel for interest and depreciation on tools and equipment, and we have the full account as follows:

	Cents.
Labor cost, fertilizer, spraying, cover crop, etc.	66.3
Interest on tools	5.
Interest on investment	60.9
Total cost per barrel	132.2

While these figures are interesting, still they do not answer the question asked at the head of this article—"What does it cost to grow a barrel of apples"? for they are only based on one year's production. One should have five years' accounts to follow as a guide. The average here given for the three orchards should give, however, a fairly accurate answer, for the size of the crop in apple growing will cause a great difference in the cost per barrel. While the cost for barrels and picking will remain constant, the charges against each barrel for spraying, fertilizing, pruning, cultivating and interest will vary greatly. To illustrate this point: In 1911 the orchards under consideration produced 2,700 barrels. Spraying, cultivating, etc., cost practically the same as last year, so if we charge the same rate for barrels and picking, and five cents a barrel for interest on equipment, we find a total cost, including interest on five hundred dollars an acre valuation, of only 97 cents a barrel, as against a cost of 1.32 cents a barrel when only 1,600 barrels were produced. From this we might reasonably draw the conclusion that the latter figure would be considerably higher than the five-year average.

Right here another question naturally comes to mind: Is there a profit in growing apples at these figures? The prices received for the past four crops will give some light on this question:

In 1911 the price received was $1.33 a barrel net
In 1912 the price received was $1.60 a barrel net.
In 1913 the price received was $2.01 a barrel net.

For last year, while the account has not been altogether made up at this date, the probable net price will be about $1.15 a barrel. This shows a loss, one year in four.

Paint and Concrete in the Orchard

H. Arnold Haigh, Stamford, Ont.

ALTHOUGH all large wounds made by the saw in pruning should be painted over, nevertheless, the paint brush is rarely taken into the orchard. This is because the results of neglecting this operation are not apparent for some time, and in many cases the wound closes over and no harm results.

A paint of white lead, with linseed oil and no driers, is as good as anything. Three coats are absolutely safe. One coat is hardly sufficient, but is better than none. Creosote or tar oil are also very good. If pitch is used, it should be applied hot. It has a tendency to run when the sun strikes it. Look over a block of, say, King trees, thirty or more years of age, where painting has been neglected, and note the percentage of large pruning wounds that have rotted, often right through the body of the tree to the roots. The King is particularly susceptible, but many varieties of apple and other fruits are more or less so, and there is a big risk with all.

If the rot has started, there is nothing for it but to clean it out, even though you have to cut the tree open to the ground.

The first of the accompanying illustrations shows a tree with two old wounds, one just above the crotch, the other just below it. Gouge and chisel were taken to this tree, and every particle of rotten or dead wood was cut away. The result is shown in the second illustration. Living wood had to be cut away down the body and up

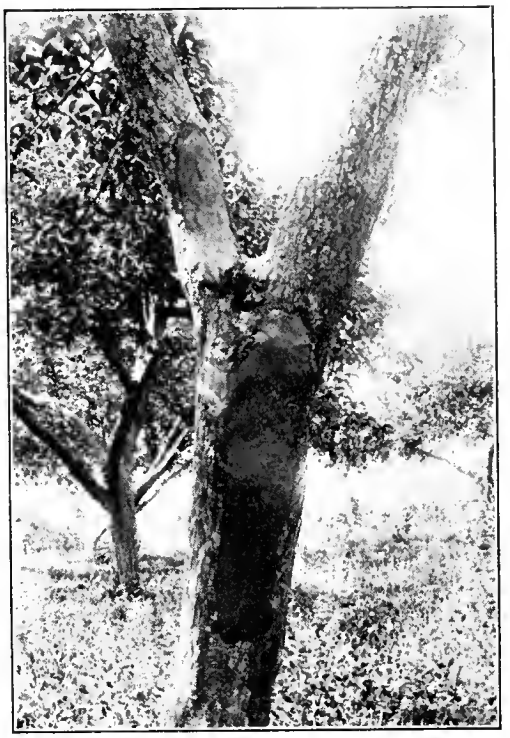
the limb to get at the rotten parts. Having cleaned the holes out thoroughly, the insides were disinfected with a solution of formalin, and a mixture of two to one sand and cement put in. The mixture was made just wet enough to enable it to be worked with a stick to all parts of the hole. To hold this in place until set, thin boards were tacked across the holes. Tar paper, or several thicknesses of brown paper, or even newspapers tied over the hole with twine, will answer the same purpose.

After a few hours, the boards were taken off and the concrete faced with a mixture of fine sand and concrete (1:1) applied with a brush. The latter operation was not necessary, but made the work look neater. The third illustration shows the work finished.

This particular case was a fairly bad one. Often the rot extends only three or four inches from the surface, when little cutting will be required and the concrete can be put in without the use of forms.

As regards tools, I find that two gouges, one about a half-inch and the other one and a half inches, and one chisel about one inch, are the most convenient cutting tools. Gouges and chisels with curved shanks are very handy in some places, but are expensive unless you have a lot of trees. In buying gouges for this work, be careful to have the bevel on the inside. A brace and a small bit, or a small auger, are sometimes useful to find the direction in which the rot runs, as it is often expedient to open up the side of the tree away from the wound or source of trouble.

This work can be undertaken successfully by anyone who can handle a chisel, and the life of the tree will be prolonged for some years. If your orchard is young, and this rotting has not started, you will find painting cheaper and much easier.



The wounds filled with concrete.—No. 3.

Spraying Cherry and Pear Trees

E. F. Palmer, Assistant Director, Fruit Branch, Toronto, Ont.

PROBABLY every reader of The Canadian Horticulturist realizes the importance and value of spraying the apple orchard to control the codling worm, apple scab, and similar pests, but possibly not all give to their cherries and pears the same attention. Yet spraying these fruits is as essential to success as spraying the apple. Spraying ordinarily will control the brown rot which annually causes great loss to cherry growers, especially those with sweet varieties. Shot-hole fungus on cherries in some years and in certain localities is so bad as to almost defoliate the trees. The cherry fruit-fly, of which we are just now hearing so much, infests some otherwise good orchards so badly that the fruit cannot be picked. Prof. L. Caesar, Provincial Entomologist, estimates that the loss to cherry growers from the cherry fruit-fly alone must amount to thousands of dollars each year, though less some years than others. The pear slug is equally as troublesome on the cherry as on the pear. The total loss from these and other less important insect pests and diseases of the cherry and pear must amount to many thousands of dollars each year, yet each insect pest and disease can, with the exception of the pear blight, be effectually controlled by proper spraying, and thus many thousands of dollars saved to the cherry growers of Ontario.

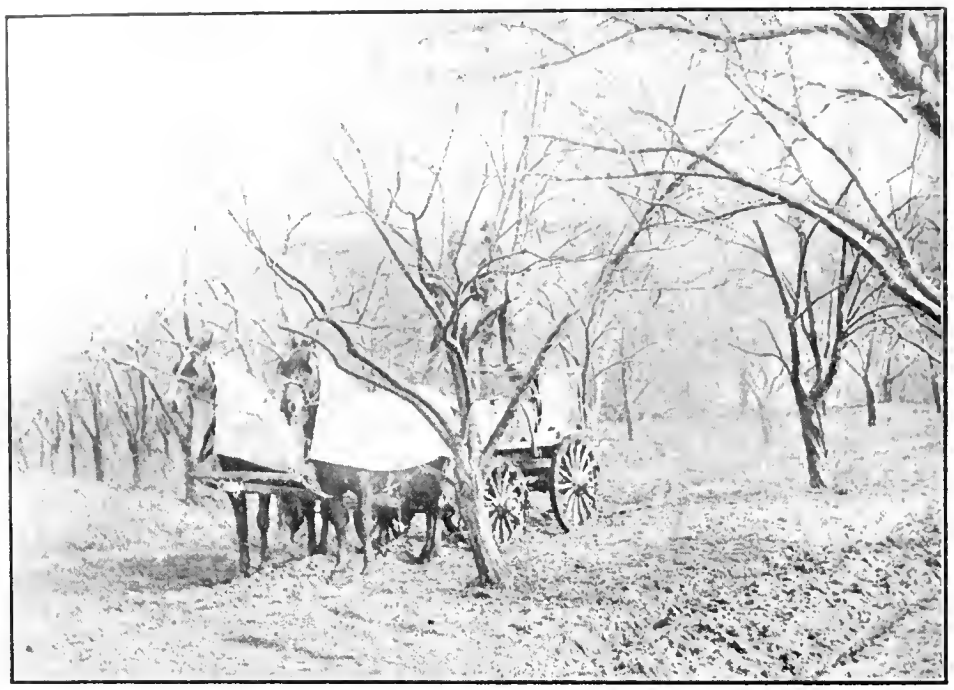
Wounds cleaned out, ready for filling.—No. 2.

Spraying the Cherry.

Of the insects attacking the cherry, the Cherry Fruit-fly is perhaps of the most importance. The adult insects are two-winged flies, about two-thirds the size of the house-fly, and with the wings conspicuously marked with dark crossbands. These flies lay eggs just under the skin of the cherry, and the larvae which hatch are full grown by the time the cherry is ripe. We are told that "What the eye does not see the heart shall not grieve," but when wormy cherries are shipped on to the market and the consuming public get a taste of them, the market for good cherries is injured. People are afraid to buy them, because it is almost impossible to tell whether a cherry is wormy or not until it is opened. Wormy cherries, too, are subject to brown rot, and help to spread this disease to sound fruit.

Spraying to Control the Cherry Fruit-Fly: From experimental results obtained in the Niagara district, Prof. L. Caesar recommends the following: Spray with two or three pounds arsenate of lead (paste) to forty gallons water, sweetened by the addition of one gallon of cheap molasses. The molasses should not be added to the water until the day the mixture is to be applied, because it will soon ferment in hot weather and cause the arsenate of lead to be precipitated in a lumpy condition. Spray first as soon as the flies begin to appear, which, in the Niagara district, will be about the end of the first week in June, and in colder districts a few days later. This will be about the time the early Richmonds are showing the first signs of a red blush. Spray again ten or twelve days later, or just before the Montmorency cherries begin to color. None of the early varieties should be sprayed at this second application because of the danger of the spray remaining on until picking time.

When applying the spray the trees should be given a moderately thorough application, so that nearly every leaf will be lightly covered. Varieties like Early Richmond and early sweet cherries are almost exempt from attack by the fruit-fly. The later sour and sweet varieties, especially Montmorency and Morello, are all attacked. The treatment advocated will effectually control this pest. The adult flies suck up the poison spray from the leaves and die before laying their eggs. The cost of spraying is small, Prof.



A power sprayer at work in the orchard of Egbert Smith, Winona, Ont.

Caesar estimating that five cents per tree should cover the total cost for two sprayings on trees fourteen years old.

The Plum Curculio, which stings the cherries, causing them to drop, can be controlled by spraying either with concentrated lime-sulphur, specific gravity 1.009, or Bordeaux mixture, with three pounds of arsenate of lead added to every forty gallons of water. The arsenate of lead controls the curculio, while the lime-sulphur or Bordeaux assists in the control of brown rot, shot-hole fungus, and powdery mildew. Another spray, using the same material and strength as for the above, should be given about two weeks later to further assist in the control of these diseases and the curculio. For the shot-hole fungus or leaf spot, as it is often called, it will sometimes be found necessary to spray again just after the fruit is picked.

For sweet cherries it would perhaps be advisable to use Bordeaux mixture for all but the first spray, as sweet cherry foliage is tender, and is liable to be burned by lime-sulphur spray. However, several growers use only the lime-sulphur spray, with excellent results.

If the pear slug is bad on either cherry or pear trees, spray with arsenate of lead, two to three pounds to forty gallons of water, whenever the slugs are numerous enough to warrant it, unless the fruit is beginning to ripen. Apply the spray to the upper surface of leaves, as it is there that the slugs feed. Dusting with hellebore, air slaked lime, or almost any finely divided dust, will also destroy most of the larvae, which are very readily killed.

It is, of course, too late now for pears to receive the regular first spray —concentrated lime-sulphur one gallon to seven gallons of water, applied just before the leaf-buds burst. If this spray has not been put on then later sprays are all the more important.

The second spray, concentrated lime-sulphur, one gallon to thirty to thirty-five gallons water, with two or three pounds arsenate of lead to forty gallons of liquid should be applied just before the blossom buds burst. This, and the next or codling moth spray are very necessary in the control of the scab, and if this disease is unusually bad, these sprays should never be neglected.

Spray again, with the same mixture and strength as for the above spray, just after the blossoms have all or nearly all fallen. This application assists in the control of the scab, and is also the codling worm spray. It is important that it be applied just after the blossoms have fallen, and under fairly high pressure, driving the spray, particularly into the calyx-end of the young fruit, as it is at this point that the majority of the worms enter. Add Black Leaf forty to this spray at the strength recommended on the cans, to control the Pear Psylla, if this pest is sufficiently serious to warrant it.

If the variety of pears grown is one very subject to scab, such as Flemish Beauty, they should receive another application, the same as that given, ten days after the Codling Moth spray. If the Pear Slug is bad, spray as for the slug on the cherry.

Spraying will not control the blight. The only way to control this disease is by keeping the infected parts cut out. Cut out carefully in winter all blighted branches and twigs, cutting a foot or more below the diseased part. If the trees are too severely blighted to save, cut them out completely and burn them. Throughout the growing season watch for and cut out promptly all blighted twigs as they appear. Burn all prunings. Disinfect pruning tools and cuts with corrosive sublimate, one to one thousand.

Preventatives in the Vineyard*

Grape vines are not often subject to attacks by scale insects, so there is seldom need for a spraying with strong lime-sulphur before growth starts. Do not use the diluted lime-sulphur at any time for grape spraying. It stunts or checks the growth of the berries. Use the Bordeaux mixture.

Downy mildew, commonly called "Red Grape," was very destructive last season, and caused large financial losses to growers who did not spray. Black rot has been a serious disease in recent seasons. Growers cannot afford to risk the loss it may cause by neglecting to spray. These diseases and others will be prevented very largely by spraying as follows:

When the shoots are about eight to ten inches long, spray with Bordeaux mixture for black rot and downy mildew.

Just before blooming spray again with Bordeaux mixture for black rot and downy mildew, and to every fifty gallons of Bordeaux add two or three pounds of arsenate of lead to poison the grape berry moth and the rose-chafer. If this latter is serious use stronger poison even up to five pounds to fifty gallons. A pint of the cheapest molasses added may help.

Just as the blossoms are falling, make another spraying like the above.

About ten days or two weeks later, it may be necessary to make another spraying like the two previous, but this will depend upon the weather conditions and the amount of rot and mildew prevalent. If later sprayings are thought to be necessary, some material should be used that will not stain the fruit, such as weak copper sulphate solution.

Flea-beetles may appear at any time, but are most likely to come as the buds open in the early spring. Spray with Bordeaux mixture and a strong poison, three or four pounds of arsenate of lead to every fifty gallons of the Bordeaux, if early in spring. Later use less poison.

For climbing cut-worms, use cotton bands or bands of sticky mixture. On tender growth these can be put on strips of paper.

*From the annual report of the Michigan State Board of Agriculture for 1914.

Preparing the Vegetable Plot

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

THE preparation of the soil for the suosequent planting of vegetable crops is one of a series of important and interesting operations of which all have their uses, and upon which depends success in the culture of any garden crop. When the soil is thoroughly pulverized in advance of planting, then, and then only, will it be possible to harvest abundant crops of first quality. A soil that is but half dug or merely scratched with a disc or cultivator will not produce maximum crops of any kind. Tap rooted crops like carrots, parsnips, beets and turnips, will invariably fail. If tap rooted crops are to be grown to perfection, that is, to exhibition quality and shape, the soil must be thoroughly and deeply worked, the necessary manure being incorporated during the operation.

Fall is the best time to dig or plough vacant lots or gardens previously uncropped, as during winter the sod will partly decompose and so supply organic matter or humus. If this was not done last fall the alternative is to plough or dig at once, burying the sod about a foot deep. It is not well, however, to plant many varieties of vegetables upon a lot broken for the first time and previously uncultivated, therefore plant potatoes and a few cabbages and so obtain good crops. Potatoes do well upon freshly broken ground.

The householder must take the soil as he finds it. He must remember, however, that upon its physical condition depends the treatment it ought to receive. A heavy clay must be lightened and aerated, a light sand should, by the addition of good soil and organic matter in the form of manure, be made more retentive of moisture, and so more productive. Many garden soils are too heavy or too light to be profitably cropped. There is, however, a way of making even the worst kind of soil yield good returns, namely, trenching. Many gardens would prove a source of greater remuneration and pleasure to their owners were they trenched in the making, and subsequently every fourth year. By this operation it is possible to deepen and to aerate the tilth, thus favoring the admission of warmth and oxygen, and the conversion of many poisonous substances into plant foods.

Trenching.

Having selected your lot or portion of land to be cropped, spread rotted manure over its entire surface, dig out a trench three feet wide and about fifteen inches deep, and deposit the soil from the excavation at the far end of the plot in a straight line, to be used in filling the final trench. With a garden line mark off another three feet, and invert the top spit into the trench. Now if the lower spit or subsoil is very heavy simply invert it one spade deep in the bottom of the trench, at the same time mixing in a considerable quantity of manure. Upon this again invert the surface soil, repeating the operation until the work is complete. In this manner you will deepen your tilth and render it more fertile, in fact sometimes to such an extent that when you again undertake to trench your ground the lower spit may be safely removed and deposited on the surface.

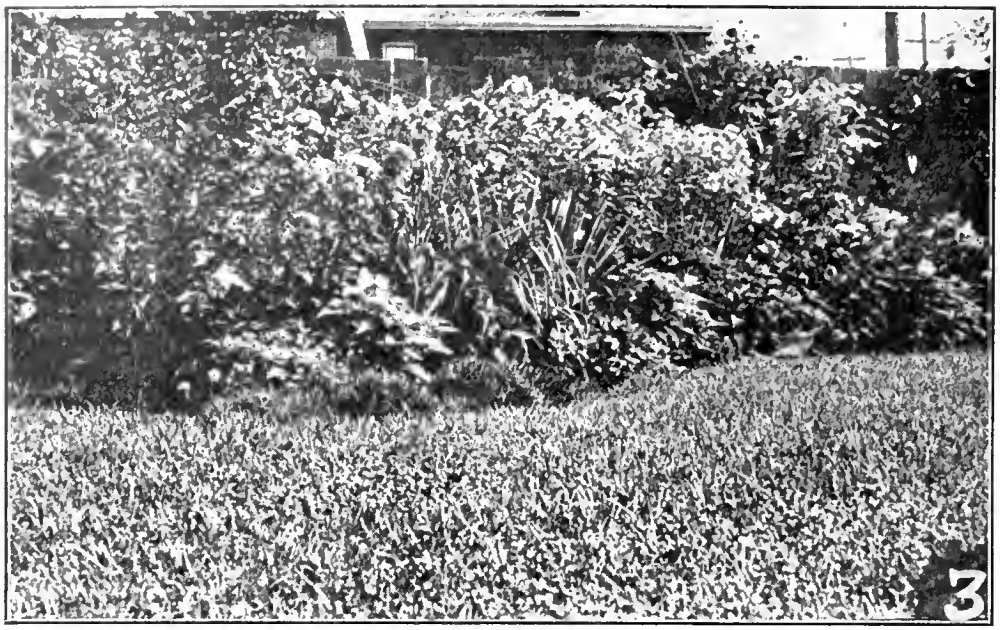
In proper trenching the lower spit or subsoil is brought to the surface, the surface soil being deposited in the bottom of the trench. It is a practice to be commended wherever the subsoil is not likely to deleteriously affect the crops. In any case, however, under the influence of sunshine and air coupled with cultural operations even a poisonous subsoil may be so ameliorated and improved as to produce the best of crops.

When trenching always pare the sod and weeds from the surface and bury them in the bottom of the trench. Keep the trenches straight by means of the line; this will ensure every square inch being thoroughly worked and will give the appearance of neatness which characterizes the true gardener. Always have a barrow or box at hand to receive tap rooted weeds like dandelions, or other undesirables, such as couch grass (twitch or spear grass), or wild convolvulus, also sticks and stones. It is a cleanly and economic practice, as apart from appearance it precludes much labor in collecting these things when the work of trenching is finished. All harmful weeds should be burned, otherwise they are liable to reappear.

Whether you have thoroughly trenched or simply dug your lot in the ordinary way you will now be concerned with the seed bed. Seeds of all kinds require a well worked and finely broken soil. Break every clod, not merely upon the surface, but throughout the entire tilth (that portion which plants grow in). It is thus better to fork rather than spade the area to receive the seeds, especially the smaller kinds.

A small quantity of finely screened wood ashes, or stable manure, will oftimes greatly benefit seedlings, if worked into the soil. It is, however, unwise to apply soluble, artificial or special manures to the seed bed or to small seedlings which are intended as transplants. For permanent crops the soil should be richly manured. In this category are carrots, turnips, beets, parsnips, peas, beans and similar crops. These occupy their positions from seed time till harvest, and are, therefore, dependent upon the soil in which they are originally sown. Transplants are not. The reader should bear in mind that the degree of success in gardening is measured by the degree of thoroughness exercised in the preparation of the garden to receive its subjects.

Anemone (2) thalictrioides (Rue Anemone), domesticated, and growing in a Hamilton garden.



A portion of the perennial border in the garden of Mr. T. H. Taylor, Hamilton, Ont.

An Amateur Rose Garden

R. Brodie, Montreal, Que.

ALTHOUGH in our severe climate, with its cold winter and hot, dry summer, we can't grow roses to such perfection as they do in the Old Country or on the Pacific Coast, yet with care we can have an abundant supply of roses in June and July, with a fair supply through the summer months till frost touches them. Last summer, when in Victoria, B.C., I spent a pleasant hour in the beautiful rose garden in front of the Parliament Buildings. There was a great variety of color, and the plants were labelled with the name of their variety, which made the display very instructive and interesting.

Roses do best in a good, strong soil, well underdrained. If it is a light, sandy soil use well rotted cow manure in beds. Place hybrid perpetuals in rows three feet apart and two feet apart in the row, the first row two feet from the side of the bed. For hybrid teas use rows two feet apart and eighteen inches in the row. In planting out budded or grafted roses cut them back to within a few buds of the stock and plant deep enough to almost cover the tips of the branches. If the season is dry water often and cultivate. The first year will give a number of blossoms.

For the winter protection of roses we gather the branches together with binder twine, dig a spade full of soil away from side of the plant and bend over and pin to the ground. Lay the bushes all one way. The first few years I covered with earth from between the rows, but now the bushes are too large, so we nail boards together A shaped and cover the bushes with them. The winter of 1913-14 was a very severe one, yet our roses came through in good condition. Our first plantation contained over 100 bushes, mostly hybrid perpetuals, although we still had a number of the old varieties, set out by my grandfather, like the old Moss Rose, the Cabbage or Province, the Maiden's Blush, etc.

The following are my favorite varieties:

White: Frau Karl Druschki, Mabel Morrison, Margaret Dickson, Mdm. Plantier.

Pink: Baroness Rothschild, Mrs. John Laing, John Hopper, Capt. Christy.

Red: Ulrich Brunner, General Jacqueminot, Alfred Colomb, Capt. Hayward.

Dark Red: Prince Camille de Rohan, Baron de Bonstetten.

Yellow: Soleil d'Or, Gloire Lyonnaise, Persian Yellow.

Hybrid Teas: La France, Pink Killarney, White Killarney.

Pick Sunny Spots for Shrubs

A. E. Thatcher

All hardy shrubs, except those which are naturally more at home beneath the shade of trees, succeed best in an open sunny position where they receive the full benefit of light and air. This is particularly true of those grown for their floral beauty. It is important, therefore, to select if possible a position which, while being sheltered from rough and cold winds, is fully exposed to the beneficial influence of the sun. This enables the wood of the current season's growth to become thoroughly ripened and consequently much better able to pass through the winter without harm.

Having selected the position, it is of paramount importance that the ground be properly and thoroughly prepared, first by seeing that it is well drained, as very few shrubs will succeed in a waterlogged soil, and then by having it well broken up to a depth of at least two feet. If the soil is naturally very heavy it is a good plan to freely incorporate decayed leaf mould and sand, but if very light and dry in character nothing is better than a good heavy loam. Well decayed manure will prove of much benefit to the shrubs if it can be worked deeply into the ground, but not otherwise.

All hardy shrubs will succeed in a loamy or peaty soil, providing it is well drained and deeply worked. It may seem to some that it is unnecessary to prepare it so deeply. It is, however, highly important, even if the expense is somewhat larger, for the difference between shrubs planted in ground which has been properly prepared and those in poorly worked soil is remarkable, and no one will question the advisability after seeing its results.

Making Garden Walks

Arthur Waller, Cobourg, Ont.

This is the way my garden walks are made: Along the edges I place a row of stones about the size of a person's fist. Ashes are then spread and raked off level. Some fine ash dust is then sifted over the surface, sprinkled with water, and rolled. After a few rollings I have a good walk that is easily kept free from weeds. I keep the walks rolled after every rain.

Floral Reminders

Pergolas or summer-houses may be made not only beautiful but useful by growing the wild grape or Beta grape over them.

Use plenty of manure in the garden. Good cultivation and plenty of plant food is responsible for most of the "good luck."

Many flowering annuals, such as petunias and portulacas, may be sown in the open ground as soon as it is well warmed.

It is easier to put up the pea trellis before the peas come up.

There is still time to do some top-working and to set out some ornamental plants and shrubs about the house.

To get a succession of gladioli, make several plantings of the bulbs.

Do not prune spring-flowering shrubs until after they have flowered.

Gladioli and dahlias may be set out the latter part of the month.

Protect and shelter the birds as much as possible. A few windbreaks or thickets of brush give the birds a nesting-place, and they pay for it by catching many injurious insects.

Growing Dahlias in the Home Garden

By Henry Gibson

THE introduction of the Cactus type gave an impetus to dahlia culture that was undreamed of by even the most sanguine, and awakened an interest that is world-wide and of growing influence. This type is the most popular, and bids fair to remain so indefinitely. Hybridizers the world over are devoting much attention to it, and the results achieved are commensurate with the efforts put forth.

Among other types of dahlias we have the "Decorative," the "Quilled," the "Singles," and the latest, the paeony-flowered type.

The single type was the original dahlia, and it must be admitted that its development by hybridization has been sensational. The small star-shaped flowers have been replaced by the large round-petalled sorts of today, with rays overlapping, color intensified, and symmetry of form which demonstrates man's ideal has been indelibly stamped upon them.

Soil and Preparation.

Dahlias will succeed in any soil that will produce good corn or potatoes; but if one can make a choice it would be better to select one rather light, well-drained, and fairly rich. More flowers, and of a better quality, will be produced in such a soil than on a heavy one with a clay bottom. In fact, the latter kind of soil is most unsuitable for the cultivation of dahlias. Should such a soil be all that is available, the subsoil will need to be broken up by trenching or double digging, and coarse sand or coal ashes added to the top soil to lighten it. Early in spring, or preferably in the fall, put on well-rotted barnyard manure, two or three inches deep, and dig or plough it to thoroughly incorporate it with the soil. Previous to planting, break up and smooth out the soil as much as possible—a very important cultural item for most crops.

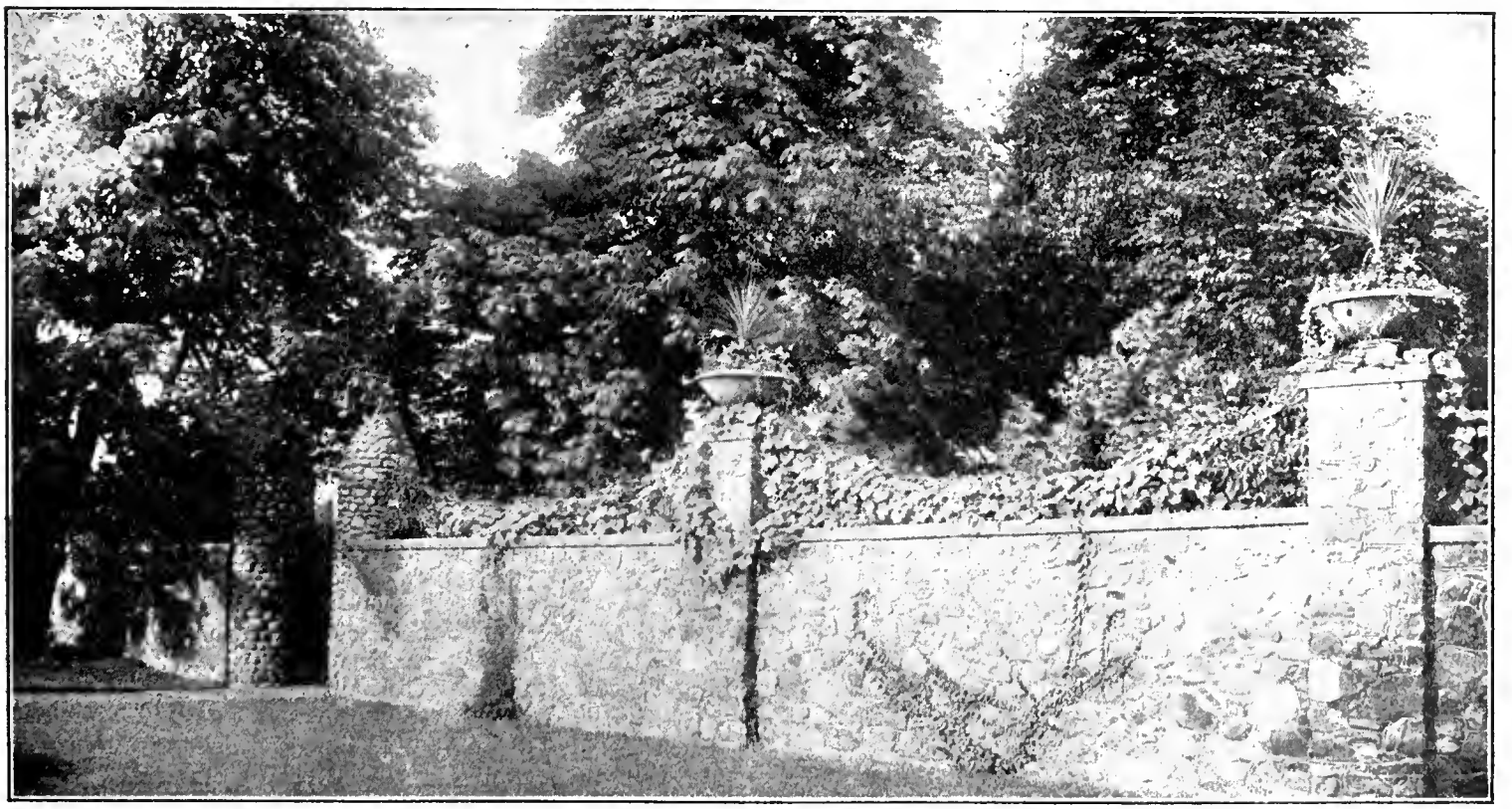
Situation.

The situation is a matter of prime importance. Never plant dahlias in close proximity to large trees which would shade them and rob the soil of its fertility. Avoid the shade of buildings also. Dahlias will grow and give some blooms under such conditions, but the results from planting in the open ground away from shade are more satisfactory.

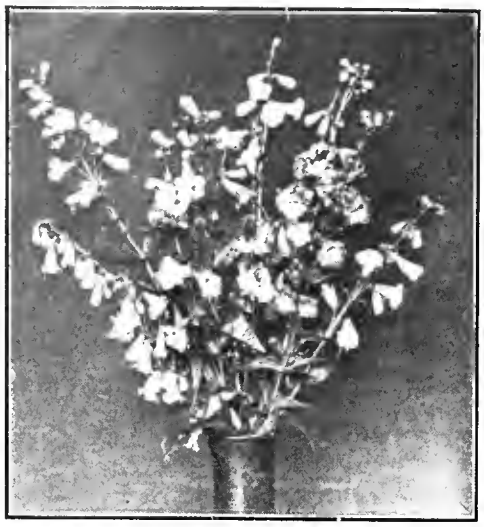
For general planting, and for those whose facilities for taking care of the green plants previous to planting out are limited, I would recommend field-grown roots. Green plants (rooted cuttings), if kept growing right along without a check until planting time, give good results; yet it not infrequently happens in some way or other they are neglected, become pot-bound, and dry out two or three times. They then become hard and stunted. A stunted dahlia is absolutely useless, and to plant such is to invite failure and disappointment.

In selecting tubers, choose only those of medium size, plump and clean. Only one tuber is necessary; but if there is danger of cutting too near the "eye," the second one may be allowed to remain. The cut surface should be immediately dipped in a saucer of flowers of sulphur, and any that sticks allowed to remain, but do not rub it in. Any bruises or abrasions may also be sprinkled with sulphur.

Local conditions have a good deal to do in determining the exact time to set the plants out. In the warmer sections of the country, planting can be done much earlier than where late frosts are prevalent. As a general rule, early planting is advisable, but late frosts are to be guarded against, as dahlias are tender plants. The first of June is



This stone fence, surrounding the garden of Mr. A. Austin, is one of the most beautiful in Toronto. On the wall are Virginia Creeper, Boston Ivy, English Ivy and Wild Cucumber, which have draped themselves on the chains. The wall is about two years old and 1,000 feet long. The large vases are thirty-six inches in diameter. At the bottom of each vase is a receptacle for water from which a galvanized iron pipe runs up to the earth in the vase and helps to keep it moist.



Many of the Pentstemon flowers here shown were over one and a half inches in diameter. These flowers should have as dry a situation as possible, as they suffer more from wet than from cold. They are very beautiful, but tender. (Photo by Wm. Hunt, Guelph, Ont.)

soon enough to plant out in Canada, and it would be better to defer the planting of young green plants that have been carried along in the greenhouse a little later than this.

Planting Distance.

The minimum distance apart for all dahlias (save the Pompom varieties, which may be planted from two to two and a half feet apart) should be from three to four feet, and if space is available an even greater distance is desirable.

In planting it is always good practice to set the stakes that are to support the plants first. These should be stout and, if possible, square, insomuch as a square stake takes a firmer hold of the ground and is not so likely to work loose, as does a round one.

For dormant tubers, dig a hole at the base of each stake about one foot square and eight or nine inches deep, taking care to have all the holes on the same side of the stakes the length of the row. This not only serves as a guide for digging the tubers in the fall, but saves damaging them while cultivating between the rows. When the holes are all dug out, put a double handful of pulverized sheep manure into each one and thoroughly mix it with the soil; then pour in a large pailful of water. When the ground has settled, all is in readiness for the actual planting. Plan to have the tubers five or six inches below the surface when the hole is levelled up. We find it a good plan to just barely cover the tubers and fill up the balance as growth proceeds.

A few days after planting, young shoots will appear, and with these begins the work of pruning and disbudding. A single stem to a plant is to be preferred; branches not being allowed to form nearer than twelve to fifteen inches from the ground. Of the shoots that start, the best-placed and most promising one should be selected, and all others be rubbed off. Never hesitate to cut away side branches and superfluous growths from about the base of the plants. It may seem like losing a good deal of bloom to do so, but the result will be a better crop of first quality flowers if you sharpen your knife and harden your heart.

Disbudding is an essential feature of the growing of first-class blooms. The buds usually are formed in groups of three; the two side ones should be pinched out, and the central one allowed to remain. This should be done as soon as the buds are large enough to get hold of.

These two items are of first importance in the successful cultivation of dahlias, and are so closely allied to each other that we can well treat them under one heading. The main object to aim at once the plants have started to grow is to keep them growing. Never let them get a check, or they will become stunted, and we have stated before in this article how utterly valueless is a stunted dahlia. Keep the surface of the soil from becoming baked by frequent stirring with the hand or wheel hoe, going from four or five inches into the ground. Stir round the plants carefully so as to avoid injuring them. As the plants commence to bloom, do not go so deep, but don't fail to keep the surface loose.

Frequent applications of fertilizers are necessary to promote free growth. Sheep manure used alternately with some of the other highly-concentrated fertilizers that are on the market is beneficial. Sprinkle a little "Bon Arbor" around the plants every ten days, and after a similar lapse of time apply a dressing of air-slaked lime and rake it in. Lime corrects any acidity of the soil and also releases the latent properties of the fertilizers that have been applied. Two weeks or so after this, a dressing of bone meal should be applied and pointed in with a spading fork, thus breaking up the surface-feeding roots, checking the rampant growth and causing the plants to set buds.

Basket Gardening

John Gall, Inglewood, Ont.

IN the limited space of a small garden, the owner should try and have as much color as possible. Over the front doorway, probably, arrangements can be made to suspend two or three baskets of growing flowers.

Although the handy man can make his own wire baskets, it scarcely pays, as these receptacles can be purchased for about twenty cents. Some people stand pots amongst moss inside their baskets, but the plants do not thus present a pretty appearance. The best plan is to obtain a piece of turf free from weeds and full of fine grasses. Line the basket with this material, so that the grass faces outward. The second method of lining a basket is with green (live) moss. Of course the sides are always lined as well as the bottom.

Whilst ordinary garden soil is likely to be a success, the ideal compost would be half and half of leaf soil, or peat fibre, and fibrous loam. To this might be added a trifle of well-rotted horse manure. The leafy substance in the leafy soil, the peat, and the manure, is retentive of moisture, and continual dampness is very desirable, seeing that the quantity of soil within the baskets is so small. Always buy pot plants. Loose roots must find difficulty in catching hold in the peculiar soil conditions. Always water with a can which is furnished with a fine rose, to avoid washing the compost out of the baskets. Twice a day is not too often for watering during the hottest weather in a sunny position, since the drainage is unfortunately too perfect. Do not water around mid-day, rather make time before breakfast and of an evening.

With regard to suitable plants, the fuchsia, erect and trailing, is pre-eminently a basket flower. Foremost among its merits is that the blooms face the ground. Then its habit of growing is so neat. The culture is easy, and the season of flower continuous and lasting throughout the summer and early fall. Fuchsias alone would furnish your baskets, planting an upright variety in the centre of each, and two or more hanging ones around. Another beautiful sight is baskets of ivy geraniums. There might be a couple of small central plants. A shoot could be allotted to each supporting wire, several stems should be trained erectly to sticks, whilst two or more ivies ought to be planted for falling over the edges.

An uncommon and very showy arrangement for an entrance or porch is a basket of antirrhinums. The dwarfer varieties could be used for the middle, and the somewhat modern, creeping antirrhinums for hanging down. Similarly can fibrous-looking begonias be planted. The blossoms of this class of the begonia incline to the ground. Plant a trailer or so around an erect-growing variety in the centre.

Plants for Shady Places

J. McPherson Ross, Toronto

INQUIRY is often made in regard to planting places frequently in prominent positions that are partially and often densely shaded by trees and buildings. Though mostly all plants require sunlight and plenty of it, yet there are many that require a cool, shady spot, while others, though they may not particularly thrive there, still grow and keep green enough to furnish some charm to an otherwise unlovely place. Many a corner or nook by the house in constant view may be made pleasing and attractive by planting it with certain shrubs and plants that will succeed there sufficiently to warrant a little trouble and care. It must be a very dark corner where ferns will not grow if kept sufficiently moist. To procure them may require a little effort and sundry excursions to near-by woods. Such trips in early spring are always pleasurable and instructive to those who observe the various plants in their natural situations and normal conditions of shade and moisture.

I am prompted to write this by a recollection of a delightful little garden arranged in the most unlikely situation and unharmonious surroundings. It was made by an old lady acquaintance with her own hands and the assistance of her daughter. Their first labors had transformed an ugly corner of the house on the north side. The space was about five feet by twenty, beginning at the house proper and ending at the kitchen door and under view from the dining-room and kitchen window, and separated from a high board fence by a narrow slat walk. An irregular row of stones formed the edge of the bed, serving to hold the soil and preventing reckless grocer boys from injuring the plants. The place never got the slightest glimpse of sunshine, yet it made the loveliest miniature wild garden imaginable.

In the extreme corner the soil was piled a foot or two higher than the main bed, and was retained in place by a log covered over with wood moss. A couple of tall shield ferns occupied this niche, while polygonums, aspidum, maiden hair and other wood ferns thickly filled the bed. One or two Thalictrums, Columbines, and a couple of fuchsias in bloom also graced the scene, while in convenient crannies were stuck dogtooth violets, Clintonias, and wood violets and Tiarellas. The whole formed a picture of greenness and grace you would never tire of admiring. It was so suggestive of the woods and nature that as you looked at it you could easily fancy you heard the sad note of the vesper thrush or the tup-tup of the woodpecker.

Many such corners exist around our homes that could be similarly beautified by a planting of ferns, columbines, periwinkles, lily of the valley, trilliums, primulas, and other shade-loving plants.

Another plant that does well on the north side of buildings or under trees that are not too dense in shade is Mahonia Aquifolia or Holly-leaved Barberry. This is one of the best of the few, too few, hardy broad-leaved evergreen shrubs we have in Canada, and is not as generally planted as it should be. Of a low spreading habit, with sturdy branches thickly covered with dark green, shiny, holly-like leaves, it bears clusters of bright yellow blossoms, followed in the fall with dark blue grape-like berries. In clumps of six or more plants, it has quite an effective appearance. They thrive in moist, shady places, particularly on the north side of buildings,, and though it winters well, it helps the foliage to throw a few pine branches on it in severe weather. The foliage in the fall that is exposed turns a deep purplish brown, and makes effective decorative designs for Christmas.

The vinca or periwinkle succeeds in shady places, and if left undisturbed soon makes a bank of growth from which springs in summer bright star-like flowers of blue. The variegated variety is extensively employed by florists in hanging baskets and window boxes.

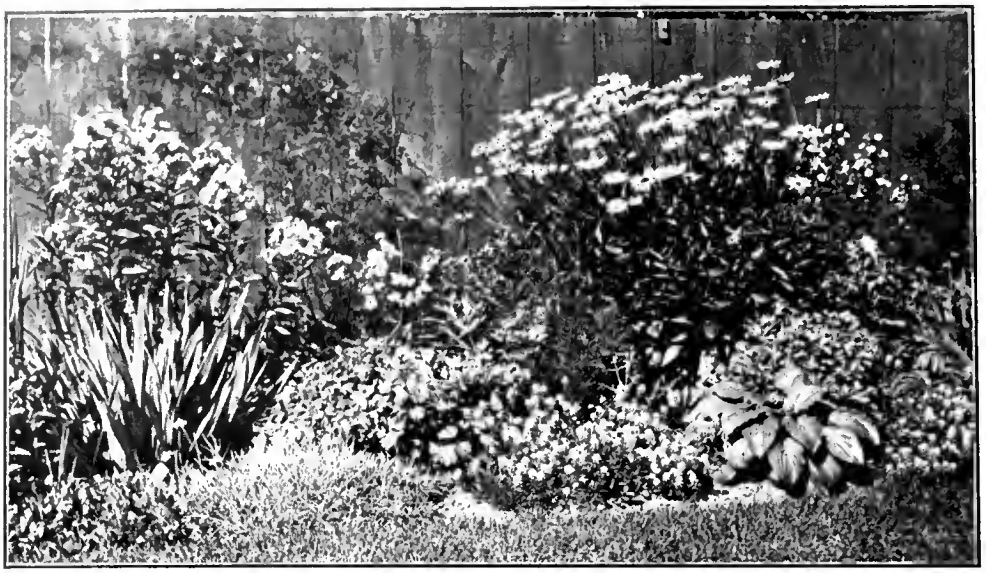
Symphoricarpus Vulgaris, a high-sounding name for a modest shrub, sometimes called Indian currant or coral berry, is a neat, pretty-foliaged shrub that will thrive in places so shaded that nothing else will grow. It is exceedingly popular with landscape gardeners for massing, as it holds its foliage late, while its stems are massed with bead-like berries late in fall. The sister shrub is the snowberry, so named from the gleaming white berries with which it is ornamented in early winter. Trilliums, violets, spring phlox, pansies, and forget-me-nots can be used to decorate bare, shady spots in early spring before dense shade comes on from overhanging foliage in later summer.

In partial shade the lovely tuberous begonia forms very showy beds. Its large sheet-like blossoms in every tint of color make it one of the most popular of bedding plants.

The day lilies also relieve many a dark, shaded situation with their abundant grass-like foliage. Unsightly corners may be often hidden by a fringe of evergreens planted across them, but not under trees, unless it is merely a temporary arrangement, as the drip from trees overhead is always fatal to evergreens. The best ever green to grow in shady places is the hemlock.

Use of shady places is often made by gardeners to rest outdoors their palms, ferns, azaleas, and so forth. Many other plants do well in shady places, but enough has been said, if acted upon, to improve many a neglected corner that is vacant because it is taken for granted that nothing will do there. Tulips and all spring flowering bulbs will do well in the most shaded places if shade is caused by deciduous trees, as their flowering season is generally past before the dense foliage is on.

Trilliums, growing on the side of Mount Albion, near Hamilton. The central part of the background was a moss-covered stone.



A portion of the perennial border in the garden of Mr. J. B. Spencer, Ottawa. A description of this garden was published in the April issue of The Canadian Horticulturist.

Vegetable Gardening for Town and City Lots

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

IT is desirable to plan the garden some time in advance in order to be able to lay it out to the best advantage. It should be planned to provide for a good assortment of vegetables, for a regular and continuous supply, and for the greatest quantity from the land available. The appearance of the garden should also receive some consideration. Certain kinds of vegetables only take a comparatively short time in which to mature; some kinds succeed best in the cooler parts of the season, either in spring or late summer; others need the hottest weather to reach their greatest perfection; while others require both the cool weather of spring and the warm weather of summer to complete their growth.

The seed of some kinds of vegetables may be sown as soon as the ground is dry enough in the spring, while the seed of others should not be sown until danger of frost is past. In order to get the best results, the seed of others must be started in a hotbed, greenhouse, or ordinary house and the plants well advanced before they are set outside. Warm soil is just as essential to the success of some vegetables as freedom from frost, and even if protected from frost they will not do well unless the ground is warm. Some vegetables, such, for instance, as celery, require considerably more moisture than others.

Seed to be sown (early in spring): Beets, carrots, lettuce, onions, parsnips, peas, radishes, kohl-rabi, garden cress, salsify, spinach, parsley, and leeks.

Seed sown (in hotbeds, but plants will stand some frost): Cabbage, cauliflower, celery.

Seed to be sown (after danger of frost is over, unless protected): Beans, corn cucumbers, melons, potatoes and squash. (Seed of late cabbage is not sown until May, but the plants will endure frost, and seed of Swede turnips should be sown late, though turnips will stand frost).

Seed sown in hotbeds, but plant will not stand frost: Melons, egg-plants, peppers.

Some plants require a much longer season than others, hence in planning the garden this should be taken into consideration.

As previously stated, a small garden should be arranged with a view to hava good assortment and a continuous supply. It should be planned so that vegetables having a long-growing season, such as beets, carrots, parsnips and onions would be grown at one side or end of the garden so that there will be no rows scattered here and there to make the garden look patchy during late summer. A small bed of asparagus and some rhubarb roots are desirable if the garden is to be permanent, and these should be put about a foot and a half from one of the boundaries so that they will not interfere with the vegetables planted every year.

Vegetables can be planted much closer in a garden than under field culture, where most of the work is done with horses, hence a foot or fifteen inches is far enough apart for the rows of a good many kinds.

Following is a suggested arrangement of a small garden, about thirty-three by thirty feet, but many other plans could be made. No provision is made for paths, but if a narrow path is found necessary, it can be put in where seems most convenient. The seeds of the kinds to be sown earliest are sown in one part of the garden and the later sowings and plantings in the other so that the ground can be newly worked if necessary for the later sowings.

For best results the surface soil should be kept loose and free of weeds during the summer, by means of the rake and hoe.

Fertilizing Made Plain

John Gall, Inglewood, Ont.

It would be worse than useless to give liquid manure to tender plants, such as young seedlings, or newly potted plants in which root action has made very little headway. Never use liquid manures when the soil is dry or parched. For example, if it be desired to stimulate the growth of sweet peas in dry, hot weather, it should be the rule to thoroughly soak them a day previous to that on which liquid manure is to be applied to the roots. This rule applies equally to greenhouse plants as to the stronger-growing plants outside.

Study the requirements of your plants which you desire to stimulate; give stronger doses to gross-feeding subjects than to weaker-growing plants, and, above all, stop the use of stimulants as soon as the highest stage of maturity is attained.

The Vegetable Garden

Don't sow seed on poorly prepared land. It means more work and often poor returns.

Plan several sowings of peas, beans, spinach, corn, radish, and lettuce.

Cabbage, cauliflower, and kohl rabi may be set out early in May.

Harden off all plants before setting in the open ground. This is done by reducing the amount of water given and giving more air to the plant. It is simply a hardening of the tissues to withstand field conditions better.

Swiss chard, or leaf beet, makes excellent greens and will last much later in the season than spinach.

Treat all potatoes before planting with corrosive sublimate or formalin for scab. Then plant on clean land.

A planting of sweet corn should be made as soon as all danger from frost is over.

Late cabbage may be sown in the cold frame or open ground.

Keep the cultivator busy in both garden and orchard. It pays.

Keep a sharp lookout for the cut worms. They will soon be active.

Plant spinach, radish, lettuce, onions, peas, and other early garden vegetables.

Start a few muskmelons, cucumbers and watermelons in pots or boxes in the cold frame.

The hop vine, wild cucumber, cardinal climber, and morning glory are good annual vines to use as screens.

Cut asparagus just below the surface of the ground rather than break it. Breaking is apt to injure the crowns.

Potting Plants

B. C. Tillett, Hamilton, Ont.

ONE of the most delightful branches of gardening work is potting plants. Perhaps one reason for this is that this work can often be carried out when the weather does not permit of work out of doors. Those who have a glasshouse or shed can enjoy this occupation under cover and derive much pleasure from it. There is a right way and a wrong way to pot a plant, just as there is a right way and a wrong way to put one into the ground, and a little skill is required in the operation. Experience is the best teacher, and if a few golden rules are observed the necessary skill can readily be acquired.

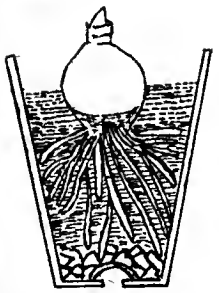


Fig. 4.—The right way to pot an Amaryllis. The roots are spread out evenly all round.

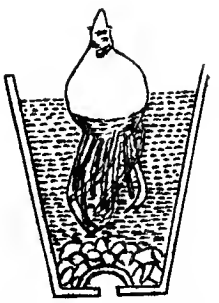


Fig. 5.—The wrong way. The roots are all bundled together.

Whatever the size of the pot, it will always be wider at the top than at the bottom. The object of this is that there may be a greater bulk of compost where the feeding roots require the food and moisture, and also that the ball of soil and roots may be the more readily removed from the pot. Newly-purchased pots should always be soaked in water before they are used. If this is not done, the moisture intended for the plant will soak into the dry pores of the new pot and the plant will make little progress. Old pots which it is intended to use again should be well scrubbed out with hot water before being used. By so doing, any disease or fungus clinging to the inside will be destroyed.

For glasshouse plants, it is well to have a little store of the soils commonly used, such as peat, leaf mould, some well-rotted manure and some loam, as well as a small supply of sand and charcoal. One of the most important things to remember when potting plants is the drainage. To secure proper drainage, every pot is provided with a drainage hole, and over this, so as to prevent the soil from being washed down and closing the hole, should be placed a crock. Pieces of an old broken pot make the best crocks. One of these should always be placed over the hole so as to form an arch. Where cuttings or seedlings of ordinary bedding plants are being potted, one crock placed over the hole is sufficient. If the cuttings or seedlings are of choice plants, then one large crock should be placed over the hole, with several smaller pieces over it. It is a good plan, after the crocks have been put in the pot, to add a little dried moss or some fine broken twigs or soil siftings, as this will still further assist the drainage.

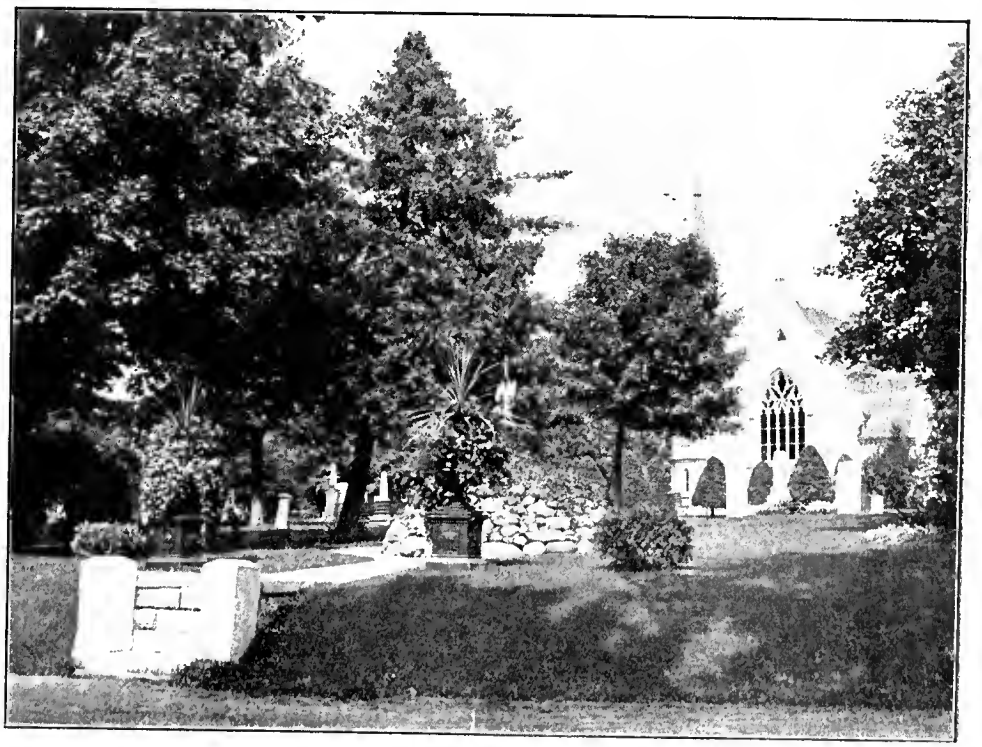
The best compost is made by mixing together the soils already mentioned. The peat and loam should be broken up until quite fine. The best method with the leaf mould and manure is to crush it through a sieve. Mix them all well together and add a little fine charcoal. The charcoal helps to keep the soil porous and sweet. A few pieces of charcoal may be placed over the crocks. Roots cling to charcoal and derive benefit from it.

When potting, hold the plant with the left hand, while with the right hand the roots are carefully and evenly spread out, taking care that the plant is exactly in the centre of the pot and upright. The soil should be filled in with the right hand, the left hand still holding the plant until it is within half an inch of the rim of the pot. A piece of wood should be used to ram the soil down firmly once the roots are well covered. A gentle tap on the bench will help to settle the soil around the roots. Having filled in the soil to within half an inch of the top of the pot, level it neatly on the surface, so that it is firm, and the operation is finished.

Soft-wooded plants, such as the geraniums, cinerarias and primulas, which have a free growth, do better when planted in a somewhat larger pot than is used for hard-wooded plants, such as azaleas. Azaleas and all hard-wooded plants, moreover, require extra care in planting, as the top of the ball of soil must be only slightly covered when repotting, and the soil must be firmly rammed.

A simple way to take a plant out of a pot when repotting, provided the plant is one which can be held in one hand, is to place the left hand over the rim of the pot so that the stem of the plant is between the first and second fingers. Then turn the pot over, plant downwards, and give the pot a gentle tap on the rim on the edge of the bench. Before repotting, the roots of the plant should be given a good watering. It is a good plan to give a plant it is intended to repot a good watering an hour or so beforehand. All old roots should be cut away and the plant repotted in a pot just large enough to contain the roots and a little soil, which must be firmly rammed down.

If a grower of gladioli discovers that he has scabby corms it is good precaution to soak them for twenty minutes just before planting, in a solution of formalin, one pint to thirty gallons of water.—John Cavers, Oakville, Ont.



The grounds of the Little Lake Cemetery Comp any, Peterboro, Ont., a portion of which are here shown, are beautifully laid out. Too many sm all towns and cities neglect to improve their cemeteries, which thus become eyesores rather than beauty spots.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited,
PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of The Ontario and New Brunswick Beekeepers' Associations.

REPRESENTATIVES

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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, $1.40 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 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1913 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Advertising Campaigns

The action of the Dominion Government last year in conducting a national advertising campaign to facilitate the marketing of Canada's bumper apple crop under war conditions deservedly met with public approval. Under conditions such as then prevailed the Government was, and always will be, justified in adopting unusual methods such as were then employed. While this was the case last year, it may not be the case this year. The success of last fall's campaign has already created a tendency among fruit growers and others to look to the Government to make such campaigns an annual affair. This the Government will not be justified in doing.

Fruit growing is a business. The men engaged in that business should be prepared to do their own advertising, just as is expected of all other classes of business men. Already an effort has been made by leading dairymen to induce the Government to conduct an advertising campaign in favor of the home consumption of Canadian cheese. Soon we might expect to see vegetable growers, poultry raisers, and producers in other lines urging the Government to assist them with specific campaigns of one kind or another. In the last analysis the only safe method is for each industry to conduct and finance its own campaign.

The California Associated Raisin Company has recently been advertising their product at an expense of $100,000 through full-page advertisements that have appeared in leading magazines and newspapers. The orange growers have conducted similar campaigns, and last year the apple growers of the United States advertised their product more extensively than ever before. This year well-thought-out local campaigns are being launched in the Niagara District of Ontario, the Annapolis Valley of Nova Scotia, and portions of British Columbia. Fruit growers who are prepared to stand on their own feet and do their own advertising set an example which other fruit growers should be prepared to follow.

Home Fields Are Best

Every little while readers of The Canadian Horticulturist ask us what we think of the possibilities of raising fruit in Cuba, the Southern United States, and other distant centres. Invariably we advise them that the probabilities are that they can do as well, and even better, in some of the leading fruit districts of Canada. An indication that this advice is sound has reached us recently in the form of a letter received from one of our readers now located in Louisiana. The author of this letter describes how he was induced to take up fruit growing in the South, and declares that his venture has proved an almost complete failure. He urges us to warn other Canadian fruit growers against making his mistake. In part, his letter reads as follows:

"This is no place for a Northerner except to get rid of his money. Conditions are so different here it takes the best man from the North at least five years before he can begin to know how to farm successfully. Weevils, caterpillars, and other pests, as well as drouths, are the curse of the growers. There are about a dozen weevils and bugs for everything you plant. Part of the year the ground is washed and soaked with heavy rains, and the balance of the year it is sun-baked and parched. I thought I had seen it rain in Ontario, but I never saw rain which in fifteen minutes would bring the water half way up to a cow's knees on level ground. My two main crops this year won't pay for the fertilizers. The winters here are fine, but nevertheless this is no place for a Canadian. I intend to return to Ontario the first chance I get."

While we cannot grow the tender fruits in Canada that can be grown in the South, we have many advantages in other ways. Any active, observant, enterprising man with a reasonable amount of capital has as good a chance to achieve success at fruit growing in the leading fruit growing districts of Canada as he has elsewhere.

The Duty on Fertilizers

The success of the campaign which was conducted recently to induce the Dominion Government to rescind its proposal to increase the duty on fertilizers raises the question of why there should be any duty? Some countries spend considerable sums of money to encourage the use of fertilizers. One country defrays part of the purchase price. The government of another country has obtained special low rates from the railroads for the transportation of fertilizers. Why, then, should Canada, instead of helping, make it more difficult for fruit growers and others to obtain the fertilizers they need? It is not because the Government needs the revenue, as the total revenue derived from this source is less than $50,000 a year.

The tax of ten per cent. on fertilizers amounts, on an average, to about three dollars a ton. It is practically a tax on fertility. Thus it is a positive check to greater production. The check to production being experienced in Europe is likely to lead to a world-wide scarcity of foodstuffs. This tax, therefore, should be removed.

Last year a number of horticultural societies in Ontario assisted in the planting of trees along the boulevards in their towns and cities by defraying a portion of the expense connected with the planting of each tree. The citizens living in the houses in front of which these trees were planted defrayed the balance of the expense. As the cost of planting amounted to considerably less than $1 a tree, it was not found difficult to induce private property owners to contribute their share of the outlay. It is not too late for this work to be pushed by a much larger number of societies this year. Why not enlist the support of your local papers, interest your school children, and have a real, old-time celebration of Arbor Day? The public will be quick to respond to and commend such an evidence of public spirit.

Although the Government of the Province of British Columbia has been even more short of funds than most of our provincial governments, its treatment of the fruit industry has, under the circumstances, been most liberal. This will be seen at a glance at its appropriations for agriculture for 1914-15, which included the following items: Board of Horticulture, travelling expenses, $1,500; fruit handling and pre-cooling investigation work, $3,000; fruit packing schools, $4,000; spraying demonstrations, $5,000; British Columbia Fruit Growers' Association, $6,500; suppression of fruit diseases, $15,000; inspection of nursery stock, trees, plants, fruit, etc., $30,000; fruit exhibitions and general publicity work, $40,000. The other provinces of Canada, including Ontario, may well note these appropriations.

An interesting example of the benefits that follow from co-operative effort conducted on a large scale has been furnished recently by a series of advertisements that have been appearing in the Fruit, Flower, and Vegetable Trade Journal. This journal has a large circulation among the apple dealers in England. It seems that the pack of the United Fruit Companies of Nova Scotia, Limited, has already become so well known on the English markets that the dealers, when they have any of this fruit to sell, are anxious to make the fact known. The consequence is that different dealers have been announcing recently in this journal the receipt of consignments of this fruit. Naturally they have lauded its merits, and thus have helped to make these merits still better known. Thus the enterprise of the co-operative fruit growers of Nova Scotia is meeting a reward which could hardly have been foreseen when their co-operative movement was first launched.

It is difficult, if not impossible, for the average fruit grower or shipper to become thoroughly familiar with the railway or express tariffs and their many supplements and changes. Therefore, it would be in the interests of the industry from a Dominion-wide standpoint for the Dominion Fruit Division to take up this line of work, keep the shippers advised of their existing privileges under the tariffs, and see that fair and reasonable concessions are obtained from time to time as traffic warrants.

PUBLISHER'S DESK

The efforts of The Canadian Horticulturist to have the apple recognized as the national dish of Canada have met with such a hearty response from the Atlantic to the Pacific we have decided to offer a prize of $10 for the best piece of poetry, not over four verses in length, extolling the merits of the apple and referring to it as Canada's national dish. We hope, for the good of the cause, that many of our readers will take part in this competition. It will close on June 20. If you have any friends who are gifted in this line urge them to take part.

The Canadian Horticulturist has subscribers in all parts of the world. We are surprised every now and then to find the remote corners of Europe and Asia to which The Canadian Horticulturist penetrates. Recently we received a letter from one of our readers, Hans Rasmussen, in Progress, Marslev, Denmark, in which Mr. Rasmussen wrote as follows: "It interests me very much to see how our fellow fruit growers on the other side of the ocean are working. In fruit growing our methods are far behind yours. I have about ten acres in fruit, mostly apples, and my orchard is one of the largest in the country. There is not a fruit cold storage plant in Denmark." Mr. Rasmussen asked for certain information relating to fruit conditions in Canada, which we took pleasure in sending him.

Recent reports issued by the Ontario Department of Agriculture, Toronto, include "The Cherry in Ontario," by E. F. Palmer, B.S.A., and "Vegetable Growing," by S. C. Johnston, B.S.A. Both reports are illustrated, and contain valuable information on the subjects mentioned. The annual reports of the Ontario Fruit Growers' and Vegetable Growers' Associations are also being distributed.

SOCIETY NOTES

Flower Shows

Dr. F. E. Bennett, St. Thomas, Ont.

Successful flower shows have been held for some years by the St. Thomas Horticultural Society. We do not offer many prizes for flowers at these shows, giving instead first, second, third, and fourth prize cards. At the spring flower show last year a cup donated to the society, which has to be won three times, was offered for the best display of tulips. At the rose show we gave a cut-glass vase for the best bouquet, and anotner for the best individual bloom. At the fall flower show we gave bronze and silver medals for the best general collections of fall flowers. When giving prizes we always select articles that are useful, of good quality, and of a horticultural nature.

Our shows are generally held in the windows of a furniture store, which are very large, but we have outgrown these quarters. When we hold a one-day show on a Saturday we receive entries from eight to ten-thirty in the morning. All entries are made by number, but we place the exhibitor's name on the prize card. We solicit entries a few days ahead by telephone. A personal invitation is worth half a dozen circular letters and away cheaper. We do the same when calling a meeting. We own our own bouquet receptacles—all glass vases, of different shapes and sizes. Our ladies auxiliary are always on hand at the exhibitions.

Stratford

During 1914 the membership of the Stratford Horticultural Society increased from 187 to 500. Over fifty flower beds were planted throughout the city. The society planted and took charge of the flower boxes in front of the city hall and post-office and planted 6,000 tulip bulbs in public beds. Four hundred shrubs and six thousand five hundred bulbs were given as options. Flower shows were held during the year—in May for daffodils and tulips, in June for roses, and in August for zinnias, salpiglossis, sweet peas, and asters. Three prizes were given in each class, consisting of hyacinth, daffodil, narcissus, and tulip bulbs. In connection with the August exhibit a sale of the flowers was held, which netted the sum of twelve dollars, which was turned over to the Belgian Relief Fund. The flowers from the other shows were sent to the General Hospital. Entries for the children's home gardens were numerous. These were graded in two classes, and bulbs were given as prizes. An exhibit for the children's home gardens was held in September, bringing out one hundred and thirty-eight entries. Three prizes in bulbs were awarded for each of the following: Beets, carrots, onions, zinnias, asters, salpiglossis, and a prize for the best collection.

Ottawa

The Ottawa Horticultural Society has announced the prizes and conditions governing the summer garden competition. The committee of judges, Messrs. W. G. Black, John Graham, and Thomas E. Davis, will examine each exhibit once each month during June, July, and August. The awards will be made on the total number of points scored.

The list of prizes is as follows: For the best and most artistically arranged garden, as seen from the street, with lots not exceeding 66 feet frontage—1st, $30; 2nd, $25; 3rd, $20; 4th, $15; 5th, $12; 6th, $10; 7th, $8; 8th, $7; 9th, $6. For the best flower box, not exceeding five feet in length—1st, $9; 2nd, $8; 3rd, $7; 4th, $6; 5th, $5; 6th, $4; 7th, $3; 8th and 9th, $2.

The basis for judging will be the same in both classes, namely: For the arrangement and artistic effect, 50 points; for neatness and cultivation, 25 points; for floral display, 15 points; and for quality and variety of plants, 10 points. A competitor may enter in both classes, but one competitor will not be awarded more than one prize. The competition is open to all within the city limits, without fee or charge.

St. Thomas

Already this year the St. Thomas Horticultural Society has passed its last year's membership mark of 1,100. Its membership now is 1,200, and still growing. The society has imported 3,000 European roses of 45 varieties. Within less than a week of their receipt the roses were gone, and about 400 more secured and distributed. The society this year has specialized in roses, selling them to its members at practically cost. The stock was excellent throughout. In addition 20,000 gladioli were ordered of the best varieties. As many as seventy-five were given to a member as an option, and members had the privilege of purchasing more at 1½ cents each. The society this year will import its bulbs direct from Holland.

An expert landscape gardener has been engaged to look after the society's public bed on the boulevard, where fifty additional beds are being put in and filled with flowering shrubs and roses. The society intends to try and make Pinafore Park the equal of Highland Park, Rochester, N.Y. This year it has donated one hundred roses to the park, and in the fall one hundred varieties of peonies will be planted there.

Walkerville

Ten flower beds were planted in prominent places around the town last year by the Walkerville Horticultural Society, in which were a total of 2160 plants. The town council kept men at work all summer keeping the boulevards rolled and grass cut, which greatly enhanced the appearance of the streets. Shade trees were well looked after, and trees planted in new sections of the town, including six hundred large elms. Messrs. Hiram Walker & Sons, who take a great interest in the town, donated prizes for garden competitions. In all $274 were given, fifty prizes going to tenants, and forty-two to owners. Roses, bulbs and plants were distributed to the members, and 11,200 tulips set out in public flower beds.

Napanee

Civic improvement is earnestly promoted by the Napanee Horticultural Society. In the town there are prominent church and school grounds and public buildings, such as the court house and post-office. The society has promoted the improvement of these grounds and those surrounding public buildings, and, besides this, has taken care of the flowers and shrubbery in a small park in the heart of the town. Through its efforts Boston ivy is now growing on nearly every church and flower beds have been established about them.

Some improvements were carried out in a cemetery on the bank of the river. No exhibition was held, as there is no suitable place. This work not only beautified the town, but furnished object lessons to the citizens.

Concerning Future Production of Apples

A MEMORANDUM has been prepared for the British Columbia Fruit Growers' Association touching on some of the essential conditions affecting the success of Canada's apple industry. The points covered include: First, the production of apples in the United States; second, the possibilities of Western Canada as a market for apples; third, the influence of United States apples in Canadian markets; fourth, Canada's orchard industry; and, fifth, British Columbia's apple industry. The bulletin was prepared with the object of showing the need for greater protection for Canadian apples. As the points touched upon are of almost as great interest to apple growers in the other fruit-growing provinces of Canada as they are to those of British Columbia, the following extracts from the memorandum are here given:

Production in the United States.

In the period 1900 to 1910 the average commercial production of apples in the United States was about 35,000,000 barrels, which, in relation to the demand, usually ensured fair prices to producers. The industry naturally began to expand, and by 1912 it was evident that production had overtaken demand. In 1914, the total production, according to the United States Department of Agriculture, equalled 86,300,000 barrels, of which about 45,000,000 went into commercial channels and much of the balance went to waste. Prices declined to a low level in 1912, and to a point disastrous to the grower in 1914.

In conjunction with the general increase in the United States production and decline in prices there must be noted the phenomenal development of apple-orcharding in the four north-western states—Washington, Oregon, Montana, and Idaho—which sections are special competitors of British Columbia. The north-western states were almost negligible in apple production even as late as ten years ago. Tremendous areas had been and were being planted, however, estimated by the state departments at about 550,000 acres of apples; and though only a small portion of this is yet in bearing, the commercial production of 1914 was about 14,000 carloads. The most conservative estimates of those intimate with the facts placed the estimated production at the present rate of increase in these States in 1920 at 40,000 to 50,000 car-loads.

The United States, generally, is evidently reaching a period of very heavy production of apples, and in the north-western states there will be a heavy overproduction in relation to normal markets for these apples in the United States.

While prices were low in 1912, they were disastrously so in 1914. In the past season the north-western states consigned to western Canada hundreds of car-loads, either without any guarantee as to minimum price, or with a guarantee of 30 cents a box on the cars at shipping point. Quite aside from all the costs of growing the apples, the 30 cents does not equal the packing and shipping costs.

Western Canada as a Market for Apples.

It is in the four western provinces that the British Columbia apple crop must be largely marketed. In 1913 the American shipments into this district aggregated nearly 2,000 car-loads, and in 1914, despite tremendous crops in Ontario and British Columbia, they still equalled 556 car-loads; the total consumption of the four western provinces was about 3,475 car-loads in 1914.

The proportion of fruit from the different sources of supply does not even suggest the effect which the American supply has had, and will continue ever-increasingly to have, unless the evil be remedied on the price.

It is true that, as to quantity, we have more than held our own. At a disastrous sacrifice of value our apples have been sold and put into consumption. The American fruit, however, sets the price, and that with the "C" grade article, which must be kept off the United States markets for higher grades, and which is surplus stock. The American fruit-grower is prepared to let that surplus stock go outside his own best markets at any price calculated to equal his out-of-pocket charges. These apples are consigned or dumped to get something back; preferably they are dumped on Canadian markets. There is a sufficient surplus to fill the whole of our market.

Under present conditions the figure at which the American will let this stuff go sets the price. This figure is never fixed, dropping lower and lower as the American stock in hand gets more congested and as the American loses confidence in his ability to move it. In these conditions and against these figures we have to market our entire crop. Our growers have done so, compelled to meet the slaughter-price quotations, and unable in time to make fixed contracts as to prices, an intolerable market condition. Having disastrous American prices for dumped fruit quoted against us daily, it has taken all our energies to distribute our stuff and get it into the market in preference to American. Had we attempted to secure reasonable prices, there is an ever-ready supply of American apples loaded on the cars to go on our markets.

Canada's Orchard Industry.

Notwithstanding the considerable imports of American apples, Canada has within her own borders an ample production of apples to meet all demands. According to the census of 1911, there were in Canada 14,830,492 apple trees, of which about 60 per cent. only were in bearing. The average production is about 5,000,000 barrels per year, equal to 15,000,000 boxes. Canada exports about 1,250,000 barrels per year. The capital invested in the orchard industry of the Dominion in 1910 was estimated by W. W. Moore, Chief of the Markets Division, Department of Agriculture, Ottawa, at $127,000,000.

British Columbia's Orchard Industry.

Encouraged by both the Governments and by the favorable market conditions prevailing up to 1910, there was a general development of the orchard industry in British Columbia, increasing, according to the census, from 8,100 acres in 1900 to 33,606 acres in 1910; and in 1913, according to the Provincial orchard survey, to 38,200 acres, an increase in thirteen years of 372 per cent.; 73.6 per cent. of the trees are apples, and in 1910 the percentage of those of bearing age was only 28.3 per cent. The value of British Columbia fruits in 1900 was $436,000, and in 1910, also according to the census, was $1,000,335.

The Provincial Statistician in his report values the British Columbia fruit crop, 1913, at $1,022,216; the crop increased about 25 per cent. in 1914, but its total value was only $996,071.

The Department of Agriculture has estimated that the capital directly invested in our orchard industry amounts to over $20,000,000, while there are directly interested some 2,500 to 2,800 orchard-owners. The British Columbia apple crop is steadily increasing in quantity: 1912 being 430,000 boxes; 1913, 477,000 boxes; and 1914, 685,000 boxes.

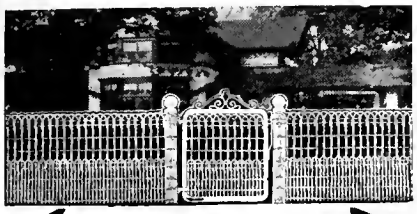
The statements of orchard areas and production show amply that all of Canada's apple consumption can readily be supplied from within our own borders. British Columbia has always looked to finding an ample market in Western Canada for the product of our rapidly growing orchards. The destructive and eminently unfair American competition is the only essential reason why we should not get the market. It is true that we can market our apples by accepting low prices. But this means ruin to our growers, and the destruction of our orchard industry would be a serious thing for our province. The orchard industry is a fundamental one, and it is of the greatest consequence to our mercantile life that it succeed.

If the failure of the fruit industry would be bad for British Columbia, it would be equally bad for the prairie provinces. British Columbia buys annually from the prairies about $12,000,000 of grain, flour, meat, hay, and other agricultural products. This is a valuable asset for the prairies, especially Alberta. Interprovincial trade—trade within Canada—we all desire to foster. Its advantages are great, and the question, in this aspect, is a national one.

In another way, the consumers of the prairies and of British Columbia are vitally interested in the success of our industry The wholesale fruit trade is highly organized, and dominated by a powerful, almost monopolistic, organization, known as the Nash houses or the American ring. The supply of imported fruit in our markets and its price rests with the wholesalers. The records of the Department of Agriculture show that, as long as there is no British Columbia fruit of any certain kind on the market, these houses hold down the importations and hold up the prices. British Columbia fruit brings down these prices at once, and the quantity increases. Were there no British Columbia fruit, the jobbers would join together to control entirely the supply of imported fruit, and increase the rate of their profits. The consumer would be handicapped permanently in his efforts to get a liberal supply of fruit at a moderate price.

The demand is for increased protection This increase must be to the point of sufficiency—adequacy. The present duty is 40 cents per barrel and 13 1-3 cents per box. These figures were originally fixed by the rough-and-ready method of considering the quantity of the contents of the package—roughly, a barrel contains three times as much fruit as a box—without taking into consideration the quality and greater relative cost of production (as to packing and package) of the boxed article. That the increase in the duty be adequate is essential. Ontario is responsible for the suggestion that the figures should be $1 per barrel and 33 1-3 cents per box. If $1 be taken as the proper figure for the barrel, it should be 40 to 50 cents on the box. Meantime, to avoid possible contention, British Columbia would concede that 35 cents per box would be adequate.

"The Disease Resistance of Potatoes," is the title of Bulletin No. 179 of the Vermont Agricultural Experiment Station, Burlington, Vt., The Virginia Polytechnic Institute, Blacksburg, Va., in Bulletin 208, describes the "Preparation of Nicotine Extracts on the farm." The Connecticut Experiment Station, New Haven, Conn., describes "Spray Treatment for Orchards" in Bulletin 184, and "Tests of Soy Beans" in Bulletin 185. The University of Florida, Gainesville, Fla., in Bulletin 125 deals with "Tomato Insects," "Root-Knot," and "White Mould." The Iowa College of Agriculture, Ames, Iowa, in Bulletin 153, gives the results of "An Apple Orchard Survey of South Mills."



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Marketing the Peach Crop.

C. W. Baxter, Chief Fruit Inspector for Eastern Ontario and Quebec.

OWING to the increased planting of peach trees in Ontario during the past few years, many of which will come into bearing this season, and owing to the anticipated large yield from the older trees, it is expected that the 1915 peach crop will be large.

The killing of the peach buds during the winter of 1913-14 was followed by an excellent growing season. The result was that the trees went into last winter under ideal conditions and with a large increase in the number of fruit spurs. Reports received up to date show that the trees have wintered well. There has been no killing of the buds by frost, and should nothing of a serious nature occur it is reasonable to predict a peach crop which will be the largest in the history of Canada.

The peach growers of Ontario experienced difficulties in marketing the large crop of 1913, and many marketed their fruit at a loss. It is necessary, on account of the very perishable nature of peaches, that the crop be moved quickly, and it is obvious that some provision should be made to obtain a wider and more systematic distribution if the difficulties experienced in 1913 are to be avoided in 1915.

With this object in view, the writer was

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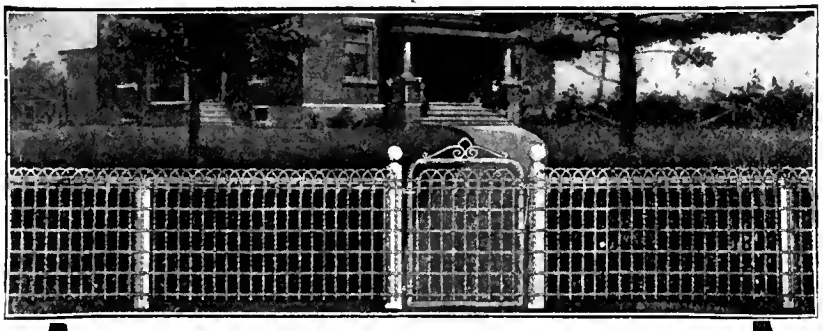

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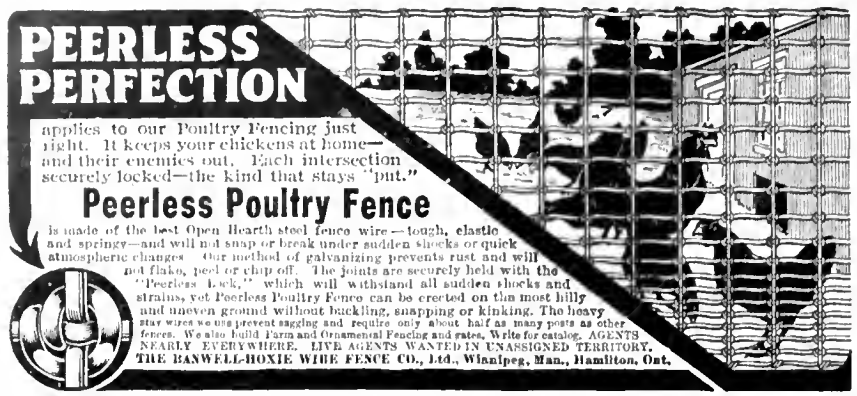

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Also some dandy Kieffer Pears at $15. These are all first-class trees in every way—2 and 3 years.

And a fine block of Silver Maples at right prices. Seed potatoes, "Early Six Weeks," and others.

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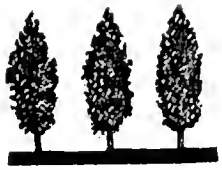

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Next, a good seed bed, as good as you can make it.
Then, make every seed piece count, one in every space and one only.
You save seed, at least a bushel per acre.

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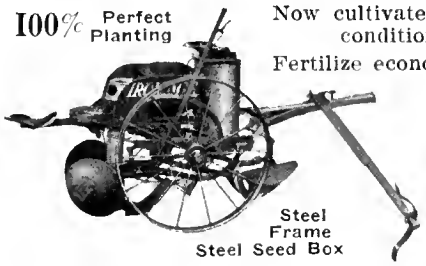

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Now cultivate often and just the right way to suit your conditions.

Fertilize economically, in the row where it does the most good.

Spray often with the right materials and a good machine—one with plenty of pressure or it won't do any good.

Dig by machine fast and safely, when the crop is right and the market ready.

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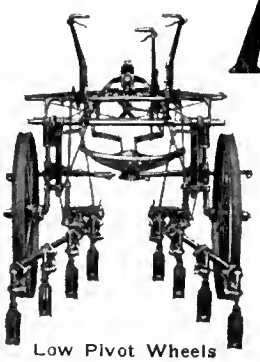

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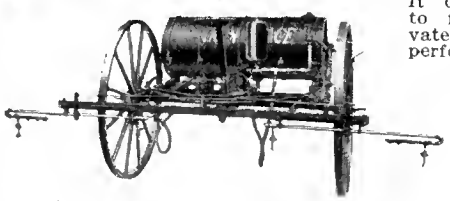
are made with just these points in view—made by people who grow potatoes for profit—made with variety in style and equipment to meet conditions in all potato growing sections. Don't buy without studying planter, cultivator, sprayer and digger—the selection may decide profit or no profit.

Four or Six Row Sprayers, 55 or 100 gallon cypress tanks, double acting pumps, hemp packing, bronze ball valves, easy to get at, no corrosion. For one or two horses. Takes practical orchard attachment.



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Diggers, four styles to suit your conditions. Plenty of power and elevator room. Close adjustment of plow to get the potatoes, but not too much ground, and perfect separation of ground, crop and vines.

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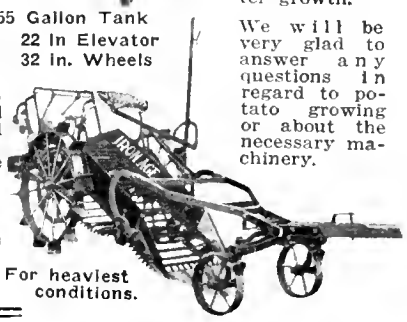

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instructed by Mr. D. Johnson, Dominion Fruit Commissioner, to visit the peach growing sections in the state of Georgia, to enquire into the methods employed in marketing Georgia peaches, and to secure any other information which might be applicable and of value to fruit growers in Canada.

Although much has been accomplished by co-operative associations, and although some individual efforts have proved successful, yet there is not to-day in Eastern Canada a central organization specially engaging in marketing tender fruit. When the peach crop is heavy, the large consuming centres are usually flooded with fruit, which means ruinous prices to the grower. At the same time many of the smaller towns and villages are paying such high prices that the consumption is materially lessened.

To successfully market a large crop of peaches it is necessary to make an early estimate of the total crop, to employ methods which will increase consumption, and to take the necessary steps to secure a wide and even distribution. The Georgia Fruit Exchange has accomplished these and other things for the peach growers of that State. This organization is an incorporated body, organized primarily for the purpose of selling and marketing fruit and vegetables, but, owing to the great increase in the production of peaches during the past few years, efforts are now practically confined to the marketing of that fruit.

In 1910 the Georgia Fruit Exchange marketed in only 80 cities. In 1914 this number was increased to 197. Previous to this extension of markets over 80 per cent. of the total crop was shipped to three centres, which were overstocked, little or no profit was returned to the producers.

In 1914 the same organization handled 68 per cent. of the total crop. The fact that 197 cities and towns were supplied, enabled individual shippers to obtain much better prices at the three centres mentioned. For example, 29 per cent. of the total crop was shipped to New York City. Of these shipments only 18 per cent. were made by the Exchange and 52 per cent. by individual shippers. Forty-three per cent. of the total crop was shipped to three other cities, and of this fruit 28 per cent. was shipped by the Exchange and 76 per cent. by private individuals.

Wider distribution is essential in the marketing of the Canadian peach crop. It

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Untested Queens, $1 each, $5 for six
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Tested, $1.50 each. Select tested, $2.50 each.
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Prices, including an untested Italian Queen:

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1-lb. package	$3.50	$2.50
2-lb. package	4.50	3.50
3-lb. package	5.50	4.50

Tested Queen included with above, 50c extra. Select tested, $1.00 extra, or best breeding Queen, $4.00 each extra. Best Italian Queens, untested $1.00; tested Queens, $1.50, and select tested, $2.00 each. Usual discounts by dozen or more.

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Are your present greenhouses perfect and up-to-date in every respect? A thoroughly modern plant means more efficiency, less running expense—a little bit of money spent on your greenhouses now may save a great deal in the course of the next year.

A little overhauling of your houses, improved ventilation or heating, or perhaps a new house or two may make a great deal of difference in the year's profits.

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Makers of Greenhouses, Heating and Ventilating Apparatus, etc.
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will result in better prices for the producer and will be a guarantee of lower prices to the consumers, as a whole.

A pamphlet dealing with the marketing of peaches in Georgia will shortly be issued by the Fruit Commissioner's Branch, and will be mailed free to any grower requesting it.

Losses Caused by Insects

Prof. L. Caesar, B.S.A., Guelph, Ont.

It is nothing but the merest of guesswork to attempt to give an estimate of the damage done to the Canadian fruit crop by insects in 1914 in the form of dollars and cents. As a rule the great mass of people who have small orchards seldom get anything worth speaking of for their fruit. This is as much because they do not know how to sell it, even if it were clean, as because of insect injuries. Three years ago I passed through the county of Oxford, when there were at least ten thousand barrels of good fruit lying on the ground. This was because the people did not know how to reach the markets with it, and there were no buyers sufficiently interested to think it worth while to purchase them.

The great mass of our best fruit is put on the market by men who are spraying their orchards, cultivating and giving them the necessary care. In these orchards, in many cases, not more than five per cent. of the apples are injured by insects. I know of many an orchard in Ontario where the insect injury is not even five per cent. In unsprayed orchards, especially in the Niagara District and the warmer parts of the province, the insect injury may amount to as high as eighty or even ninety per cent., and in the colder parts, where the Codling Moth is not nearly so abundant and there is no San Jose Scale, the injury amounts to from five to fifty per cent. The last few years this has been chiefly due to Codling Moth and Tent Caterpillars. The Plum Curculio is also a great pest and sometimes damages a high percentage of not only plums, but of apples and pears and other fruits. The probability is that in unsprayed orchards, taking the province as a whole, fifty per cent. of the fruit would be rendered culls by insects. There are, of course, a number of orchards that are sprayed and in which the insects are not at all satisfactorily controlled, because the owners do not know how to spray thoroughly and do not take the necessary pains to learn how. Such orchards might be classed among the unsprayed.

Another difficulty in arriving at an estimate of the amount of injury from insects is that in the fruit area, especially with apples, the fruit is made unsaleable both by insects and by disease; in fact, Apple Scab is probably a much greater foe in the fruit area to the fruit grower than any of our insects, that is, taking the province as a whole. An apple will often be infected both by an insect and by disease. In such a case it is unfair to attribute the injury merely to the one cause, because it would exist without the insect.

I do not know what the percentage of injury from insects would be in Nova Scotia or in Quebec, but think it would be smaller than the average for Ontario if you will take the neglected orchards into account in Ontario. The Codling Moth is not nearly so serious a pest in Nova Scotia. The Bud Moth, on the other hand, is a more serious pest. Aphids are more troublesome there than here, but Apple Scab is the great bugbear in Nova Scotia.

In British Columbia diseases are much more important than insects except that Aphids are a great trouble in parts of that province, and are likely always to be a greater trouble than in Ontario.

Prairie Dealers' Comments on the Fruit They Handle

KEEN competition has developed during the past few years among the fruit-growing sections of Canada and the United States to capture as large a share as practicable of the prairie markets. The following comments from firms on the prairies that handle considerable quantities of apples each year, in reference to the apples—more particularly those from Ontario—are full of interest:

Plunkett & Savage, Calgary, Alberta: "The Calgary market prefers apples packed in boxes. The size of the box does not matter very much, but it is our opinion that you can pack and make a more attractive package of the 18¼ x 11½ x 10½, which is the Washington standard box. These are put up in attractive style, paper-lined, and all fruit wrapped, which is a help to the apples for long keeping.

"Our trouble with Eastern apples has been to get an honest pack. We have handled thousands of barrels from Ontario, and, with possibly two or three exceptions, none of the stock has turned out satisfactorily. Apples, many times, when leaving the east, appear to be very nice, but within a month or six weeks there is a dark fungi growth and decay starts, giving the fruit a bad appearance and practically stopping its sale, excepting at a low price.

"Attractive fruit of good keeping quality and color will always demand a good price in the west. Until such time as the province of Ontario can put up such fruit, their chances of getting in on this market are very small.

"British Columbia is a strong contender in the western market. They are putting up their stock better every year and are going in for more hardy varieties and less soft varieties than formerly. The experimental stage is now past as far as growing is concerned: they are down now to well-known, stable varieties. For instance, we will give preference to British Columbia on McIntosh, Gravensteins and Wealthies over any other section in Canada or the Northwestern States that we know of, for the reason that these three varieties grow to perfection, particularly the McIntosh and Wealthies. We cannot say as much for their Spies and Baldwins; they do not appear to have as good color as the east, but on account of the fruit being large, it is attractive and is very desirable."

The Regina Trading Co., Regina, Sask.: "Ontario fruit is holding its own on the Regina market although we receive large quantities from British Columbia and Washington. For flavor and general appearance, there is nothing to equal an Ontario Northern Spy. The packing and style of the Ontario apples (in boxes) compares favorably with the districts mentioned. The boxes 18¼ x 11½ x 10½ are the best for this market.

"There is a demand for Ontario barrel apples in the country, but in the cities the trade requires boxes. While there is still a call for barrels in the city, the demand lessens each year. The grade of Ontario apples in former years has been poor. The pack has been poor. The barrels of No. 1 apples were in nearly every case No. 2 in the centre of the barrels. We handled four cars of Ontario apples one week last year, and only one came up to the standard. It was a Norfolk pack. The general outlook for Ontario fruit in the west was never better than it is to-day. The smaller fruits—plums, peaches, and pears—are in great demand.

"In the case of plums, tomatoes, and pears, the baskets in too many cases are broken. We would advise packing in the best baskets possible. One improvement last year was the new top for the baskets, instead of the ordinary net top."

Sharp Criticism.

Campbell, Wilson & Horne, Ltd., Lethbridge, Alberta: "Ontario apples have practically lost their sale on this market. The last Ontario fruit we received was in 1911. Although bought for No. 1 grade, it was very poor quality and did not compare with either British Columbia or Washington fruit.

"The Ontario fruit packed in boxes that we have received has been all right, as far as the packing goes, in comparison with other districts. The standard boxes that are put on this market are supposed to contain 50 net of apples. These are the most satisfactory. We advise all Ontario apples to be packed in boxes for this market, as they usually arrive in much better condition than those in barrels.

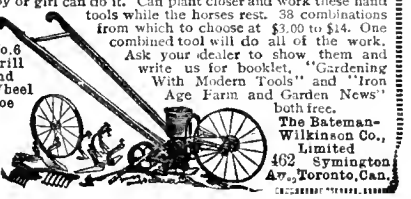
"The last Ontario fruit cars we received did not compare in quality nor were they of the same uniform sizes as those we received from packers to the west of us. The fruit was scabby and did not hold up, and we nearly lost a couple of cars by the Provincial Inspector. Unless a radical improvement is made, the time will come when it will be almost impossible for Ontario fruit to compete out here with other districts. We also believe that it will not be many years hence when apples are grown in the district surrounding Lethbridge. A number of trees are already bearing here and also in Magrath and Stirling."

A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at $3.00 to $14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.



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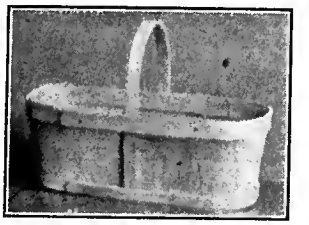
Peerless Climax Fruit Baskets



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In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

Canada Wood Products Co.

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WHITE & CO., Ltd.

Church & Front Streets
TORONTO ONT.

MAY 1915

AS one of the largest and oldest commission houses on Front Street, we have a claim on your confidence and favor possessed by few others. The two things—perhaps there are three—that matter to you are: (1) the reliability of the house you deal with; (2) the ability to sell consignment quickly; and the third matter of importance is the ability of your commission agent to get top prices. We are 100% efficient in regard to these three items. We can and

Correspond with us first, if you wish. Ship without waiting to write, if your matter is urgent. Shipping Stamps and Market Reports supplied on request.

WILL SELL
YOUR FRUIT AND VEGETABLES.

Strawberries 50 varieties

Raspberries 13 varieties

10 varieties **Seed Potatoes**

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A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL

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Prizes wherever shown—New York State Fair, Toronto Exhibition, and many other places. All shades of color in about 20 different varieties in early and late branching: Royals, Mikadoes, Rochesters, Cregas, etc. Truly the Aristocrats of the Aster Family. Plants $1.00 per hundred by express; $1.10 by mail. Packed and labelled, in wet moss and safe arrival guaranteed. Express charges prepaid on orders over 250. Special prices to Horticultural Societies. All plants cold frame (not hotbed) grown. Order early. Bezzo's Aster Plant Food, 10c. per lb. by express. Remit by Money Order.

C. MORTIMER BEZZO **BERLIN, Canada**

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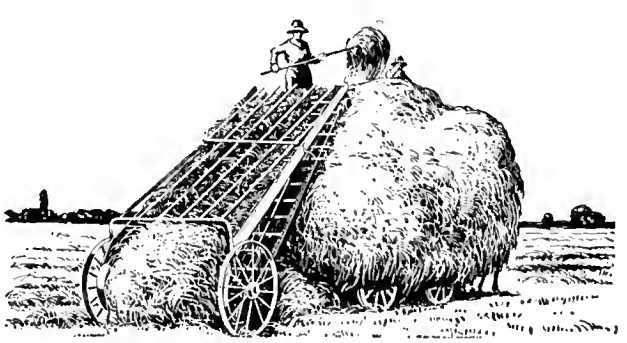

ALTHOUGH the weather and the hay crop are beyond your control, your success at haying time in getting the crop safely into barn or stack depends largely on methods and machines.

Many years of trying out in many fields have proved that you cannot do better than to make your choice from the **Deering** line of haying tools—mowers, rakes, tedders, side delivery rakes, windrow hay loaders, etc.

Deering haying tools are carried in stock or sold by **I H C** local agents who can take care of you quickly in case of accident. It is their business to see that you are satisfied with the **Deering** haying machines and tools you buy from them.

Write to the nearest branch house for the name of the nearest dealer handling **Deering** haying tools, and we will also send you catalogues on the machines in which you are interested.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

Resolutions Passed by British Columbia Fruit Growers

IN addition to the resolutions passed at the last annual convention of the British Columbia Fruit Growers' Association, some of the more important of which were published in the March issue of The Canadian Horticulturist, the following resolutions were adopted:

That whereas the American product in apples is getting too great a proportion of the Canadian north-west and Pacific coast markets to the exclusion of British Columbia fruit: "This Association, while appreciating the assistance that has in the past been given by the British Columbia Government, would urge on them that this industry, as yet in its infancy, is in urgent need of financial help, and more particularly in advertising (so as to reach the consumer) for fruit grown in British Columbia."

Resolved, That this Association heartily endorses the advertising campaign instituted by both the Dominion and Provincial Governments, and in the opinion of this Association the system of advertising should be continued and extended.

Co-operation of Selling Agencies.

Whereas the great growth of the fruit industry both in Canada and the United States has caused it to be more difficult to get profitable markets; and whereas it has been pretty well proved and is generally agreed that the cutting of prices, in order to obtain sales by agents, dealers, and others, including growers themselves, has greatly lessened the amount of money that might have been received for the fruit; and whereas the getting together of those handling fruit at least in some way that will keep prices from being unnecessarily lowered, to the ruin of the grower and injury of the whole population, is necessary: Be it therefore Resolved, That all Fruit-growers' Associations, Farmers' Institutes, Boards of Trade, business-men, newspapers, and the Government of the Province be asked to help create such a public sentiment that will demand that fruit be not slaughtered by unseemly competition. And be it further Resolved, That the British Columbia Fruit-growers' Association appoint a committee to seek to solve this problem and to help to bring together the heads of the various selling agencies.

Tariff.

Resolved, That this Association should make the strongest possible representations to the Dominion Government as to the pressing need of increased protection by duty on apples.

Cheap Money.

(1) Resolved, That in the interests of the fruit-growers there should be some means of procuring loans at a cheaper rate and on better terms than is possible under present conditions.

(2) Be it therefore Resolved, That we unite with other agricultural bodies in asking the Government as speedily as possible to arrange for loans to settlers at a low rate of interest, for improvements to farms, purchase of stock, etc., and that the funds should be administered by an impartial non-political Commission.

Control of Fruit Pests.

Resolved, That we hereby commend the Department of Agriculture and the Government for their efforts to keep fruit pests out of the Province and to clean out the blight, and we hereby pray that their activities in these lines may continue, and we pledge ourselves to co-operate with them in this as far as possible.

Reciprocity With Australia.

Whereas Canada is in a position to supply the apples required by Australia during the months of September, October, Novem-

Wood or Wire — Which?

Board Fences Must Go

They cost too much and they're ugly.

They keep off good sunlight and so check growth.

Better to have a DYER Sanitary Lawn Fence.

Look at these prices.

Style "F" as here shown, galvanized, freight paid in old Ontario on 100 ft. or over.

36 in. high..8c. per ft.
42 in. " ..9c. "
48 in. " ..10c. "

Walk Gates to match...$3.75
10 ft. Drive Gates..... $7.5

Write for prices on farm, lawn and Iron fencing. Dyer has largest range of Iron and Wire Fencing for every purpose.

Write

E. L. DYER, The Fence Man
47 B, East Wellington St., Toronto, Ont.

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

Orders Filled Promptly. Send for Prices.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

Kelly's TREES

True to Name — Free From Disease

Mr. Fruit Grower, you are looking for the best Apple, Pear, Peach, Plum, Cherry and Quince Trees you can buy.

Kelly Trees are sold at Growers' Prices

Shipped direct from our own nurseries in Dansville, N.Y., and guaranteed sturdy, free from disease and True to Name.

For 35 years we have had the name of knowing how to grow trees right. From seedling to freight car we watch our own trees personally and know we are shipping just what you order. We have an up-to-date nursery plant and can ship all orders promptly, as well as grow and ship at a low cost. We give you every advantage on price.

Write for our catalogue TO-DAY, and get our prices.

KELLY BROS. Wholesale Nurseries
305 Main St, DANSVILLE, N.Y.

You'll never regret planting Kelly Trees.

ber, and December, and in that market has already proved the excellence of the Canadian product; and whereas there is an opening for apples in our coast markets in April, May, and June, which Australia could supply: Be it therefore Resolved, That, while recognizing the good work done in the past towards the end in view, the Dominion Government be respectfully urged to continue to use every endeavor to bring about an arrangement which will give our apples and pears free entry to the Australian market and to offer reciprocal terms. Should Australia desire it, there would be no objection to their restricting the free entry to their country of our product to their off-season as mentioned, we protecting ourselves in the same way. And that there may be no check in the harmonious working of any arrangement to be made, care be taken that no regulation or law be passed dealing with size or shape of package that might later interfere with the full benefits of such arrangement.

The Apple as the National Dish.

Resolved, That this Association heartily recommends the general endorsation of the apple as the national dish of Canada.

Women on Board of Horticulture.

Whereas it has been brought to the notice of this annual meeting of British Columbia Fruit-growers' Association that women are eligible to serve on the Board of Horticulture; and whereas, up to the present time, no woman has ever been appointed to fill any vacancy on that Board: Be it therefore Resolved, That the Minister of Agriculture be requested to give due consideration to the claims of such women as are competent to fill the position when making future appointments to fill vacancies occurring on the Board of Horticulture.

In view of the present condition of the fruit industry in British Columbia, the question of reductions in freight rates to north-west and Coast points have become of urgent importance, and that accordingly this Association shall make every effort to obtain substantial reductions in existing rates east and west, and favorable rates via the new Kettle Valley route to the coast.

Reduction in Freight Rates.

Resolved, That freight rates from British Columbia to the Prairie Provinces, as compared with those from the eastern to the western Provinces, appear unduly heavy, and we recommend the attention of the Transportation Committee of the British Columbia Fruit-growers' Association to this matter for their earnest consideration.

Express Minimum.

Resolved, That we endeavor to have the minimum weight of car shipments by express lowered from 20,000 lbs. to 15,000 lb., and that the Transportation Committee endeavor to get a lower minimum from the Canadian Northern.

Ventilated Car Service by Express.

Resolved, That for the proper marketing of our berries a ventilated car service should be put on from June 1st.

ITEMS OF INTEREST.

The Niagara Peninsula Fruit Growers' Association has a committee of five at work devising ways and means to advertise the fruit grown in the district. It has been decided to have a number of small booklets printed, in which advertisements will be inserted. Advertisements will be published in papers in different towns and villages throughout Ontario advertising the fruit of the district and inviting the public to send for the booklet. Thus only those likely to be interested will receive the booklets.

Fresh Vegetables From Your Own Garden

make the meals so much more tempting—as well as much more healthful and less expensive.

But of course for a really successful garden you need the very best seeds. So it's worth while to see that you get

Ewing's Reliable Seeds

They have produced 44 successive crops in Canadian gardens and fields—they have rarely disappointed—and have so often pleased beyond all expectations.

Write at once for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, order from us direct.

The
William Ewing Co. Limited
SEED MERCHANTS
McGill Street
Montreal
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A Perfect Tomato

has been produced by us, and one which we want you to test. It is acknowledged by all who have tasted the fruit to be the finest in flavor they have eaten.

It is a great drought resister, a heavy yielder, and does not revert to "type." You want to try a packet, so drop a postal RIGHT AWAY, and for particulars of premium offer to

HILLSIDE FRUIT FARM, Dept. C.,
SIMCOE, ONT.

PATRIOTISM and PRODUCTION. Hon. Martin Burrell, Minister of Agriculture says: "There will be a demand for food that the world will find great difficulty in supplying."

Great Britain needs Food

Therefore the Canadian Department of Agriculture is wisely urging farmers to increase their production of staple crops. To encourage the use of Fertilizers the Government has exempted them from the extra war tax of 7½%.

Canada needs Bowker's Fertilizers

FOR THREE REASONS; to feed crops in order to increase yield; to hasten maturity, and to improve quality. They will ensure a yield by getting crops ahead of the frost—they virtually lengthen the growing season 15 to 20 days. Try them and see. They are no experiment. They have been used in the States 42 years and in Canada for 30 years.

If you find no Local Agent near you, write us for prices and terms.

BOWKER FERTILIZER CO. 43 Chatham St., Boston

STRAWBERRY GROWERS ATTENTION

For choice, well selected stock of all the standard varieties of strawberry plants, send us your order. List free.
ONTARIO NURSERY CO., Wellington, Ont.

HANDIEST IMPLEMENT YOU CAN HAVE

You'll find a hundred uses for the Bissel Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable.

T. E. B SSELL Company Limited, ELORA, ONT.

Write Dept. N for Folder to-day

FREE LAND
For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
Minister of Agriculture
Parliament Bldgs., Toronto

Don't Stop Spraying

It is easier to keep up than catch up. It takes two years for trees to bear after the foliage is destroyed. Remember, too, that dormant spraying is important, and in some states spraying is compulsory. Sprayed fruit is good fruit, and good fruit always brings a good price in any season.

Outside Pumps
Bronze Ball Valves
Hemp Packing
Easy to get at

IRON AGE

Bucket, Barrel, Power and Traction Sprayers include 70 combinations for orchard, field, garden, poultry house and home uses. Our "Spray" booklet shows how you can buy barrel or bucket Sprayer now and build to larger uses when you need it. Ask your dealer to show this line and write us for "Spray" booklet and our spraying guide. Both free.

Use in any wagon.

The Bateman-Wilkinson Co., Limited
464 Symington Ave. - - Toronto, Can.

Annapolis Valley Notes

The spring is not an early one in Nova Scotia. To this date, (April 20th) the buds on the apple trees have not begun to swell. Pruning is about finished, and except in very early land the farmer has time to take a long breath before the general rush of work that will begin after a few days of drying weather. Apple prices are still reported steady in the Old Country markets. This is very satisfactory to the Co-operative Companies, for this winter they have extended their shipping season much later than usual, because the Australian crop, which usually comes to England about April the first, was a failure. The irregular boat service from Halifax made a shipping season of unusual difficulty that is now drawing to a fairly successful close.

Very few apple trees are being planted this spring, but spraying will be more general than ever; the attitude of the fruit grower being to sit tight and take good care of what he has. Considerable attention is being given to strawberry culture, the high prices of the last few years will increase the planting until a big crop sends the price down. The United Fruit Companies are advising all their members to plant potatoes this summer, prophecying high prices in the fall. Their business, opened in Halifax last month to handle all kinds of farm produce grown by their 1,500 members, has already gained a large trade, and is reaching out to other parts of the province, making new connections and forming a very short link between the producer and the ultimate consumer.—Manning Ells.

Methods of Advertising Apples*

Prof. F. C. Sears, Amherst, N. S.

ADVERTISING is one of the biggest questions that faces fruit-growers today. Here are just a few sample schemes for advertising: First, use advertising displays in store windows. Here is one plan that we worked out down in Massachusetts. In the town of Brockton, about the size of Halifax, the Board of Trade became interested last autumn and thought it would be a fine thing to offer prizes to all their store keepers for the best advertising window, using apples for display. The first prize, I think, was $100, and others in proportion. It was really wonderful what they did, the forty or fifty competitors. Some of the windows were really works of art. The man who got second prize thought he would do a little advertising the week before, so he made up a window, and as a result of the advertising of that window, the week previous to the campaign he sold all the apples he had on hand and had to lay in a new stock. And the day the prizes were awarded this man sold sixty-seven barrels before one o'clock, and he had a comparatively small store at that!

A friend of mine who had charge of a big orchard estate near Newburyport, got S. S. Pierce & Company, in Boston, to let him have the use of one of their windows and put out an exhibit. It was a very attractive exhibit. One barrel of Greenings was tipped out, another of Baldwins tipped out, both showing the fine quality of the fruit. Then there were fancy packages, and orchard scenes and so on. As a result of that exhibit being there only a few days this man got over five hundred inquiries from people who had seen it, and wanted to know where they could buy such apples. At Filenes, in Boston, we put in a little exhibit in one window, and the police actually had to make them take it out,

*Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.

the people stopped the traffic so.

Second: Another thing which the individual grower could do is to send out small individual cartons with a single apple in each. Put in your card saying you are willing to ship this kind of apples at such and such a price, and send to a list of possible customers. I believe this could be done so as to develop a large trade and a particularly profitable one.

Third: We ought to do more demonstrating. If we show a person anything he is much more likely to take to it than if we merely talk to him about it. Down in our part of the country you will find demonstrating going on in one store or another all the time, demonstrating Jell-O, or Aunt Jemima's Pancake Flour, or somebody's soap or somebodyelse's tea. But did you ever see anybody demonstrating apples! I never did except once out at Spokane, Washington, at their National Apple Show. They had a room fitted up and the whole thing put in charge of the Domestic Science Department of the Agricultural College. There were a lot of gas ranges along one side of the room and girls cooking every sort of thing you can imagine and a great many that you can't, all of apples, apples, apples. And then they had the best looking girl of the lot going around and selling a pamphlet on "One hundred and Ninety-Seven Ways of Cooking Apples." This is a serious question, a question worth looking into—what can we do to induce people to eat more apples?

Fifth: My last point I will merely mention. It is that we ought to advertise more in the papers. We have some interesting information as to what has been done in this line by the citrous people. The manager of their association determined to take up the question of what could be done in the way of increasing the consumption of oranges by advertising in the local papers. They selected four of the middle western states, Nebraska, Kansas, Missouri and Iowa I think it was, and put attractive advertisements in the local papers, and as a result of this they increased their sales in that section between two hundred and three hundred per cent. That shows what can be done in one single line of newspaper advertising.

Bulletins and Reports

The Wisconsin Agricultural Experiment Station, Madison, Wisconsin, is circulating Bulletin 248, entitled "Strawberry Culture in Wisconsin."

Circular No. 151 of the Agricultural Experiment Station, Wooster, Ohio, is entitled "Methods of Soil Sterilization for Plant Beds and Greenhouses." The best tree fillings and wound dressings for orchard and shade trees are outlined in Circular No. 150, issued by the same station.

"The Gypsy Moth" is the title of Bulletin 186, published by the Connecticut Experiment Station, New Haven, Conn.

The Michigan Agricultural College, East Lansing, Michigan, has issued Bulletin 273, entitled "The Utilization of Muck Lands."

Rose growers will be interested in Bulletin 233 of the Maine Agricultural Station, Orono, entitled "Maine Aphids of the Rose Family."

The Ontario Department of Agriculture has issued Bulletin 224, by S. C. Johnston, Vegetable Specialist, entitled "Greenhouse Construction." It has also issued Bulletin

Strawberry Plants

Stocky and well rooted plants. Carefully packed. Free catalogue and price list.

S. H. Rittenhouse, Jordan Harbor, Ont.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

IMPORT BULBS

Import your bulbs direct from Holland for less than half price.

Get our import catalogue at once.

Orders must be in by June.

Morgans Supply House
London, Ont.

FRUIT MACHINERY CO.
INGERSOLL, ONT.

Manufacturers of Fruit Sprayers
and a complete line of
Apple Evaporating Machinery

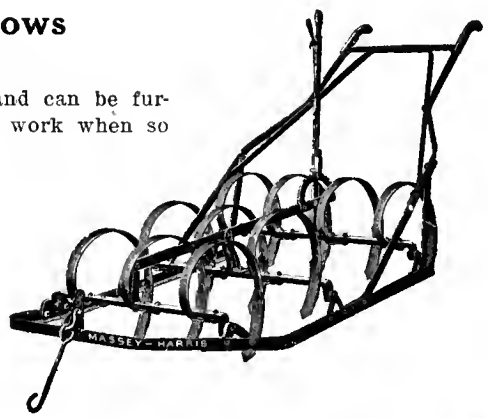
Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

Implements for Orchard and Vineyard

Spring Tooth Harrows
10, 15, or 17 Teeth

The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.

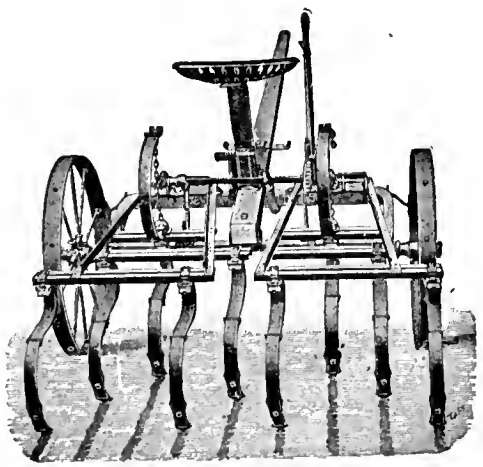


Spraying Outfits

Small outfits on skids—large outfits on wheels.

Vineyard Plows

Both Walking and Riding Plows especially built for orchard and vineyard work.



Orchard Disc Harrows

REVERSIBLE
To throw the dirt to or from the trees or vines.

ADJUSTABLE
Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

A great variety—for cultivating small fruit—for vineyards—for orchards.

Grape and Berry Hoes, etc.

TORONTO
MONTREAL
MONCTON
WINNIPEG
REGINA

Massey-Harris
Co., Limited

SASKATOON
YORKTON
SWIFT CURRENT
CALGARY
EDMONTON

Big Ben

Made in La Salle and Peru, Ill., by Westclox

For That Big Monday

Right after that Sunday rest-up—for a running start at that job Monday morning with plenty of time at noon and the work all done by sun down—Big Ben.

Set him for any hour you wish. He will have you on the job at any time you say—with one straight five-minute ring that can't miss fire or with ten gentler taps every other half minute for ten minutes.

Big Ben stands seven inches high with a clear, deep-toned bell, large black hands and bold numerals which show up clearly in the dim early light.

His price is $2.50 in the States—$3.00 in Canada. See him at your dealer's. If not there, a money order to his makers, *"Westclox, La Salle, Illinois,"* will bring him to your address—postpaid.

RENNIE'S FARM AND GARDEN SEEDS

Sold by leading merchants.
Catalogues FREE.

WM. RENNIE CO. LIMITED

TORONTO MONTREAL WINNIPEG VANCOUVER

No. 226, entitled "Plum Culture in Ontario," by F. M. Clement, B.S.A.

Foreign bulletins include the following. "Comparative Cooking Qualities of Some of the Common Varieties of Apples Grown in Oregon" and "Windbreaks, Hedges and Ornamentals for Irrigated Sandy Soils of Eastern Oregon," both issued by the Oregon Agricultural College, Corvallis, Oregon.

Bulletins 171 and 172 of the New Hampshire Agricultural Experiment Station, Durham, New Hampshire, are entitled respectively "The Apple Maggot," by Mr. W. C. O'Kane, and "Mendelism in Melons," by David Lumsden. Both bulletins deal fully with the subjects mentioned.

The University of Illinois, Urbana, Ill., has issued the following: Bulletin 174, "An Efficient and Practicable Method for Controlling Melon Lice," by C. E. Durst, Bulletin 175, "Experiments in Onion Culture," by John W. Lloyd, Bulletin 176 "The use of Commercial Fertilizers in Growing Carnations," by H. B. Dorner, F. W. Muncie, and A. H. Nehrling, and Circular No. 176, "Practical help on Landscape Gardening," by Wilhelm Miller.

Bees Increased the Crop

Many remarkable facts have been noticed by fruit inspectors, while on their regular tours of inspection, regarding the importance of bees in orchards in spring during the apple-blossoming period. In the county of Middlesex, Ontario, there were comparatively few apples one season. Practically the only exception was an orchard of twelve or fourteen acres, the proprietor of which was also an extensive bee-keeper. The explanation given was that, as the bees were kept in the orchard, they were able during even the short periods of sunshine, to fertilize the blossoms fairly well.

Bee-keeping is a paying and profitable occupation; one that should receive much more attention than is given to this very important industry. Fruit blossoms of nearly all kinds depend almost exclusively upon insects for their pollenization. The wild bees include about fifty per cent. of the insects useful to the fruit grower for this purpose, but in large plantations, such as orchards, plantations of strawberries or bush fruits, the large number of blossoms coming in at the same time overtax the usual number of wild bees in the neighborhood, so that it is advisable to have a special stock of honey bees to supplement them. More than this, tame bees kept in the immediate neighborhood, or directly in the fruit plantations, are more useful than wild bees, which may, in many cases, have to fly long distances, and cannot reach the orchards during the mild spells between showers.

WE ARE PROTECTED BY THE PRODUCE REPORTER CO'S SYSTEM — CREDIT BOOK — CHICAGO — ALL CONTRACTS GOVERNED BY THEIR TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

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

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

Major Kimmins Killed in Action.

The announcement of the death, during the recent severe fighting in France in which the Canadian troops played such a conspicuous part, of Major Albert E. Kimmins, of Winona, Ont., was heard with great regret by the fruit growers of the Niagara District,

MAJOR ALBERT E. KIMMINS

by practically all of whom he was known personally. A memorial service was held in the English Church, Winona, on April 27, at which the loss felt by the community was clearly revealed.

Major Kimmins was manager of the fruit purchasing and selling department of the well-known firm of E. D. Smith & Son, Limited, with which he had been identified for twenty-one years. During the frequent absences of Senator Smith he acted as general manager. Writing to The Canadian Horticulturist about Major Kimmins since his death, Senator E. D. Smith speaks concerning him as follows:

"Twenty-one years ago, when Major Kimmins came with us, he was a bright, smart young man. Wages at that time were low. He got the first year thirty dollars a month. His energy, honesty, and business ability soon enabled him to merit and get from us advances in pay from year to year, until last year his salary reached nearly ten times the figure that he got the first year he was with us. I do not know that I can pay any greater tribute to his business ability than that.

"He was a man who hated shams, cheats, and frauds, and as such no doubt made an occasional enemy, for he was outspoken and candid, but for every enemy he made a score of friends. Those who knew him best liked him best. He was one of the noblest characters I have ever known. While practising temperance principles of all kinds, I believe to the extent of total abstinence from either drinking or even smoking, he never obtruded his opinions upon others, though a man vigorous in speech and action. He had a strong musical bent, and was one of the leading members of the famous Elgar Choir, Hamilton. He was leader of the choir in our little English Church in Winona, which he attended regularly, practically every Sunday, and most of the time at both services, morning and evening, as leader of the choir. As a soldier it would be difficult to conceive

Flowering Bulbs

GLADIOLUS

These are most effective in the flower garden, the colors are magnificent and they are easily grown. Prices are here—we offer:

Choice Mixed—10 for 30c, 25 for 65c, $2.00 for 100.

Groff's Hybrid Seedling Mixed—10 for 40c, 25 for 75c, $2.50 for 100.

Bruce's White and Light Shades—10 for 50c, 25 for $1.00, $3.50 for 100.

Childsi Mixed—10 for 60c, 25 for $1.25, $4.50 for 100.

Bruce's Superb Mixed—made up by ourselves from all varieties—the best, 10 for 60c, 25 for $1.35, $5.00 for 100. If to be mailed add Postage at rate of 10c. for 10, 20c. for 25, and 50c. for 100.

Named Varieties—any color (see catalogue) 10c. to 50c. each; Postpaid.

DAHLIAS

Splendid Named Sorts—all colors—20c. each, 3 for 55c, $2.00 for 1 dozen.

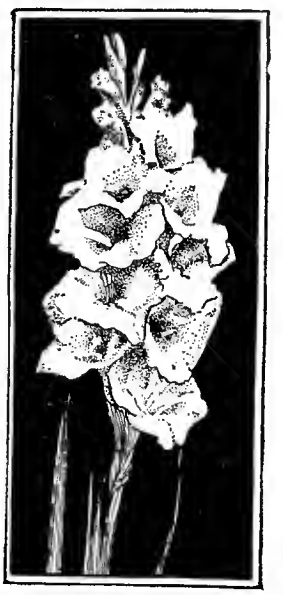
Ordinary Varieties—Mixed 10c. each, 3 for 30c, $1.00 for 1 dozen.

If to be mailed add Postage at rate of 5c. each, 50c. dozen. Where there are Express Offices, Express is cheaper than Mail for lots of over 6 Dahlias or over 35 Gladiolus.

FREE—Our handsomely illustrated 112-page catalogue of Vegetable, Flower and Farm Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc. Write for it.

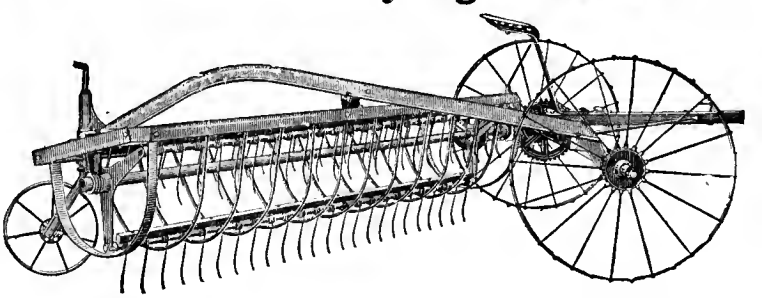
JOHN A. BRUCE & CO., LIMITED

Established 1850 HAMILTON, ONT.



When writing advertisers kindly tell them that you saw their advertisements in The Canadian Horticulturist.

McCormick Haying Machines



YOUR haying tools must be strong and steady; they must work easily and smoothly; they must get all the hay and put it into the best shape possible. That is why you should consider McCormick haying machines—mowers, rakes, tedders, side delivery rakes, windrow hay loaders, etc.—for **I H C** hay machines have never been beaten for good work in the field or for durability, at any time or place.

McCormick local agents sell these machines. When they sell you a **McCormick** machine for the harvesting of your hay crop, they sell you the best in hay machine design and construction that the market affords. Canadian farmers have called **McCormick** standard for many years. You buy a machine that you can depend upon; that will give you perfectly satisfactory service.

Drop a line to the nearest branch house and we will direct you to the nearest agent handling our machines, and will also send you interesting catalogues on any of these machines you may be interested in.

IHC MACHINES Made in Canada

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

Classified Advertisements

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gaynon & Co., St. Catharines.

BEES AND QUEENS

GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, $1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, $1.50. Nuclei, per frame, $1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

ITALIAN QUEENS, also the Golden Beauties and Carniolans. Tested, $1.00. Untested, 75c each. For bees by the pound and queens in lots write for prices. Page Bankston, Buffalo, Texas.

BEES AND QUEENS—Pure bred Poultry, prize winners, stock and eggs. Rose Comb Brown Leghorns and Black Minorcas, White Rocks, Black Langshams, White Minorcas. W. P. Collins, Boulder, Col., U.S.A.

ITALIAN BEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. Stover Apiaries, Mayhew, Miss.

ITALIAN BEES AND QUEENS as advertised on page 137. Catalogue free. Deroy Taylor Co., Newark, N.Y.

SAMPLE QUEENS—To introduce our Moor's strain of Leather colored and Golden Italian Queens, we will send one to each applicant at 40c each, cash with order. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS—Our early queen breedlug location is a long narrow oasis in the desert of Southern Nevada, which is crossed at Moapa by the Salt Lake and Los Angeles R. R. Write for our circular, which gives prices of queens; bees by the pound, nuclei, etc. Booking orders now. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

QUEENS OF QUALITY—I am booking orders for early queens now. Three-banded Italians only. Circular free. J. I. Banks, Dowelltown, Tenn.

BEST ITALIAN QUEENS AND BEES at most reasonable prices. J. H. Haughey, Berrien Springs, Mich.

BEES AND QUEENS—During spring and summer months we requeen all our two thousand colonies to prevent swarming. The queens removed from these hives are only one year old and of best Italian stock. We offer these queens at 50c each, $5.40 per dozen. Satisfaction guaranteed or money back. No disease. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

BEES AND QUEENS—California queens, nuclei and bees, bred from the best Doolittle stock. Our customers say they are hustlers. A sample order will prove it to you. We can fill any sized order at once. Queens, untested 75c, dozen $8.00; select $1.00, dozen $10.00; tested $1.25, dozen $12.00; select $1.50, dozen $15.00; tested 1 year old 75c, dozen $8.00; select $1.00, dozen $10.00; nuclei, 2 frames, $1.50; 3 frames, $2.25; 5 frames, $3.00; 10-frame colony, $4.50. Bees by the pound, ½-lb. package, 75c; 1-lb. pkg., $1.00; 2-lb. pkg., $1.75; 5-lb. pkg., $4.00. Add price of queens desired to all above prices of bees and nuclei. Special discounts on lots of 100 or more. Any one of the above queens free, or 10 per cent. discount from your order, if you will send us the names and addresses of your neighbor beekeepers. Delivery guaranteed. No disease. Spencer Apiaries Co., Nordhoff, Cal.

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, $1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

of one better fitted to be a leader. Being absolutely fearless, and possessing boundless energy and conspicuous ability, he was a most excellent officer. I can imagine seeing him leading his men to take the enemy's guns."

Thus died, in the cause of his country, "one of nature's gentlemen."

NIAGARA DISTRICT PROSPECTS.

Seldom have the prospects for a large crop of fruit been as bright in the Niagara District as they are this year. The profusion of bloom has been practically unparalleled in the history of the district. Every tree, even the smallest, has been crowded with buds.

Our oldest fruit growers speak of the prospects as being most unusual in character. Practically all varieties of fruit are equally promising.

What You Want in a Sprayi n

The first essential is thorough spraying efficiency, then freedom from defects, durability, service and dollar-for-dollar value. All this and more you get in the

Spramotor

It isn't a SPRAMOTOR unless we made it.

The supremacy of the SPRAMOTOR in every class is unquestionable. Every machine bearing the name is built to endure. Its exclusive patented features will compel you to pronounce it the best you ever saw. Write for free booklet to-day.

Made in Canada
N Duty to Pay

SPRAMOTOR WORKS
2422 King St.,
London, Canada

CLASSIFIED—Continued

BEES AND QUEENS

KEYSTONE GOLDEN ITALIAN QUEENS will please you for honey gathering; healthy brood and nice gentle bees; also Red Clover queens, bred in 8 different yards, 5 miles apart. Queens, $1.00; $9.00 per dozen. Will H. Carl, Elysburg, Pa.

QUEENS BY RETURN MAIL—When you need queens by return mail we can fill your order. Three-band Italians only, bred for business. Safe arrival and satisfaction guaranteed. Tested queens, $1.00 each; untested, $1.00, $9.00 per dozen. J. W. K. Shaw & Co., Loreauville, La.

BEE SUPPLIES

CALIFORNIA RED WOOD HIVES—Single storey, 85c; supers, 25c; frames, 1½c each; 10 per cent. discount in lots of 100 or more of any of above. Special 5 per cent. discount on all supplies. Let us show you some of our bargains by sending our catalogue. It's free. Also a fine hive scraping tool, by mail, free if you will send us names and addresses of your neighbor beekeepers. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

SEEDS AND PLANTS

READ ABOUT BEZZO'S FAMOUS PRIZE ASTERS on page 140. C. M. Bezzo, Berlin, Ont.

EARLY IRISH COBBLER POTATOES—Specially selected and Government inspected for seed. One dollar per bushel. Cash with order. Special price in lots. Have only limited quantity. H. W. Dawson, Brampton, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

Western Marketing Methods.

At a meeting of the fruit growers who are members of the Okanagan United Growers, held about the first of April, the following policy was adopted:

That earnest efforts be made to arrange a working basis with our competitors as to selling policy and prices.

To have one warehouse on the prairie and one or more representatives, the number to be increased as business warrants, and that at Vancouver we have our own representative, with necessary equipment to be obtained as required.

That we sell our own goods.

That garden truck and early soft fruits be placed direct with the retail trade by our own salesmen so far as possible.

That we sell our main carload crop chiefly to the regular wholesale trade on an f.o.b. shipping point basis.

That no goods unsold be shipped out except to our own salesmen.

That cheaper packages be used especially in handling orchard run or off varieties of apples. Baskets will also be used in making experiment shipments of soft fruits, early apples and crab apples.

That our export markets be extended.

Open Packages.

That this Association approves, at least for its own use, the adoption of an open package for apples and plums, of such a nature that the fruit may in most cases be packed in the orchard. In the case of apples the contents to be "orchard run," (without culls) of the net weight of about 40 lbs., and to be a distinct package from that used for cookers or No. 3 and this be done only sufficient to try it out this season.

We recommend the marketing of our crop without the use of brokers and wholesalers as far as possible.

A Minimum Price.

That it shall be considered a part of the duty of the executive to fix for fruit and produce of all kinds and grades a minimum price below which such fruit and produce shall not be sold without warning to the locals of the state of the markets; such minimum price to be such as will leave a small margin to the growers, after all average cost of picking, hauling, packing and selling have been taken into consideration; and that when market prices are approaching this minimum or the markets are glutted and unsettled and the prices ruling low, warning shall be immediately sent to every local which shall notify its associated growers in such way as it may deem best and thus throw upon the grower the responsibility of deciding whether he will continue the harvesting of his crops.

TORONTO

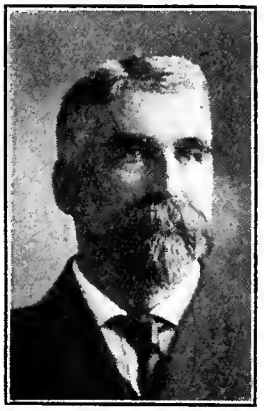
Eighteen streets were selected for street improvement last year by the Toronto Horticultural Society for each of which one silver and two bronze medals were given as prizes. In the working man's homes competitions there were two districts: Riverdale and Wychwood. Cash prizes were given in each. In the poorest parts of the city 12,220 packages of seeds were distributed to 887 families. Sixty-five per cent. of these turned out well; fifteen per cent. fair, and twenty per cent. failures—half of the latter owing to removals. Exhibitions were held as usual in May, June, July and August. The School Children's Home Gardens and exhibitions were a great success. Cash prizes and medals were awarded.

The Canadian Horticulturist

Vol. XXXVIII JUNE, 1915 No. 6

The Methods of a Veteran Fruit Grower.

ONE of the most pleasant places in eastern Canada is the village of Waterville, in King's County, Nova Scotia. Everybody there grows apples. The eye of the visitor is gladdened at this season with rich foliage and a profusion of bloom. Among the prosperous residents is Mr. W. W. Pineo, one of the veteran orchardists of Canada. Mr. Pineo began to plant an orchard forty years ago, and has planted a few acres every spring since that time. He now has one hundred and eighty acres under apple trees, of which about twenty acres are in full bearing. His orchard contains 9,000 trees, and he is setting out five hundred additional trees this spring.



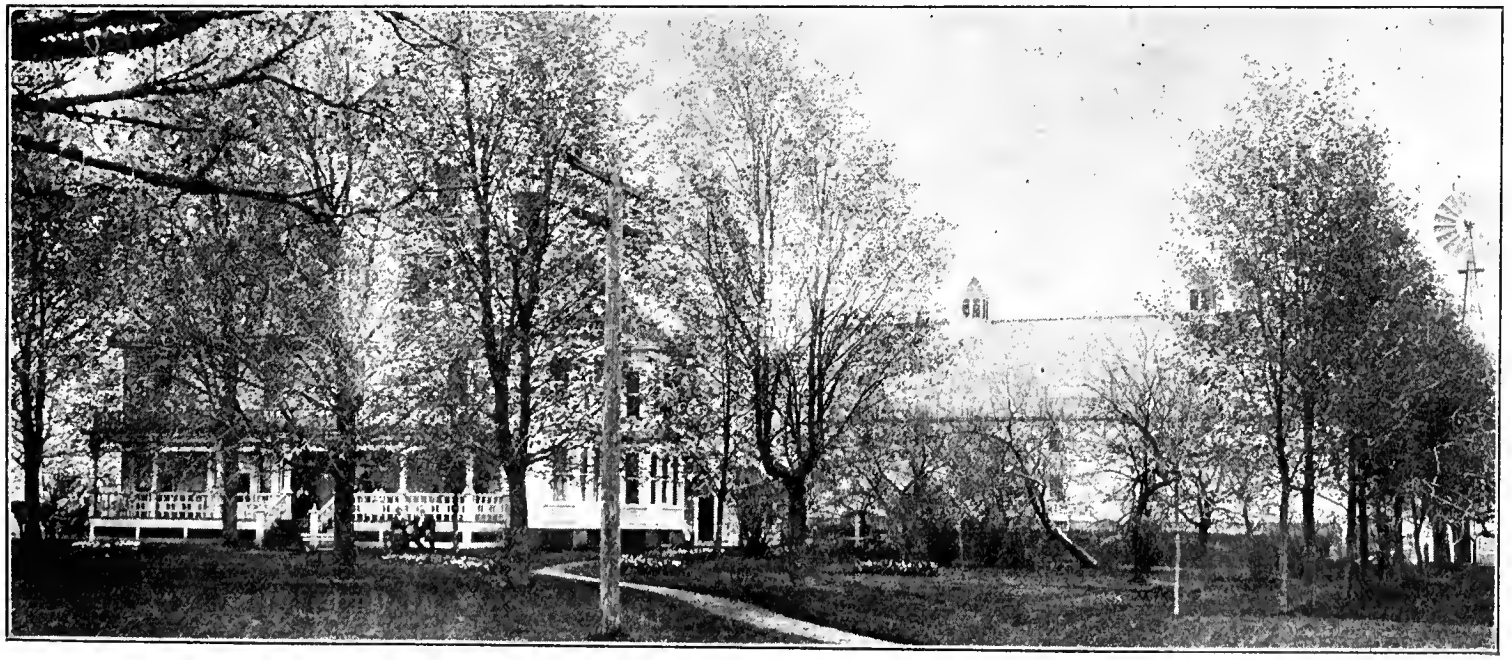
W. W. Pineo.

The varieties represented in his orchard include Gravensteins, Kings, Blenheims, Northern Spies, Baldwins, Ben Davis and Starks. He finds Kings and Ben Davis to be the most profitable varieties. "The Tompkins King," he said to a representative of The Canadian Horticulturist, "is perhaps the quickest selling of any of the standard varieties grown in this province. It is in strong demand in the English market around Christmas. It was introduced into this country about sixty years ago, and owing to its size and beauty became rapidly popular. The King is fond of a warm soil, well drained, and likes early cultivation. The claims of the Ben Davis to popularity are based on its long-keeping qualities combined with its excellent yields, and the demand that exists for it among the English costermongers in March and April. Moreover, it blooms late, and that is an advantage in this climate."

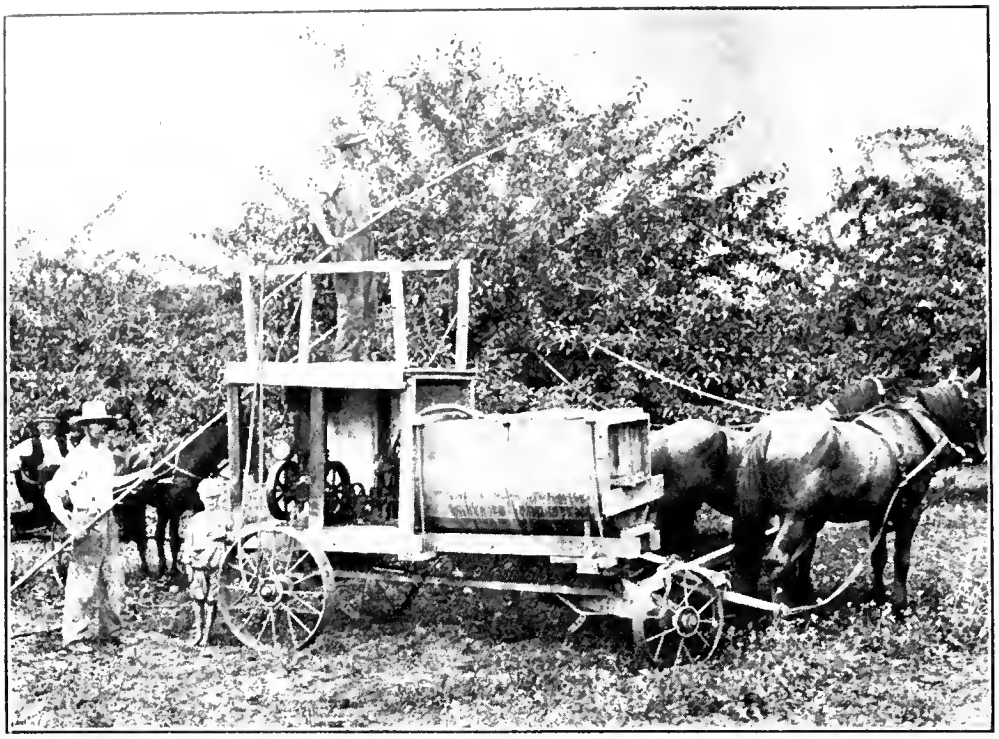
The soil of a part of Mr. Pineo's orchard is a sandy loam, and part is a gravelly loam, with a clay subsoil. Mr. Pineo obtains the best results from a gravelly soil. He thinks this is due as much to the depth and natural drainage in such soil as to any other cause. "In Nova Scotia," continued Mr. Pineo, "apples are successfully grown on nearly all kinds of soil from light sand to heavy clay. The sandy soils, when supplied with plant food and humus, become useful for orchard purposes. It is, however, on some kind of loam that most of the orchards in this province are grown. Personally, I prefer a northern slope for apple trees and a site if possible somewhat higher than the adjoining land. On such a situation there is, of course, less chance of injury from frosts, owing to the drainage of the cold air to lower levels. Moreover, I find that a northern slope tends to retard blossoming until after the period of late spring frosts."

Mr. Pineo claims that young trees from a local nursery, if well grown, are preferable to imported ones. The purchaser has the advantage of inspection before buying, gets stock with roots subjected to a minimum amount of exposure, and local stock is less apt to introduce insect pests and diseases. He uses both two-year-old and three-year-old trees, paying from twenty to thirty cents for them.

He prepares the soil thoroughly before setting out the trees. This preparation is begun at least one season ahead. A root crop is generally grown, to which is applied a liberal supply of barnyard manure. He has never utilized sod land for orchard purposes. The



The residence of W. W. Pineo, in pleasant Waterville, Annapolis Valley, Nova Scotia.



Spraying is one of the operations that Mr. Pineo insists must not be neglected. This shows his power sprayer at work.

land is always plowed and harrowed in the fall, and again in the spring before the trees are planted.

The trees are set out as early as possible in the spring, as Mr. Pineo has found that early planting allows the roots to develop ahead of the buds, so that later on the roots are able to supply the moisture evaporated from the leaves. He sets out the trees thirty feet apart each way and does not use fillers. In digging the hole, the top soil and subsoil are often placed in separate piles. In replacing this material, a shovelful of the surface soil is put in first, the tree placed in position, and the remaining top soil filled in around the roots. The subsoil is placed on top. The earth is worked in well around the tree. As soon as the trees are set, the land is given a most thorough cultivation by both plowing and harrowing. Until the trees begin to bear, the intervening ground is planted to potatoes, corn or roots. When the trees come into bearing, the land is cultivated with the harrow or cultivator every week, and after every rain, until the first of July, when a cover crop consisting of clover or buckwheat is sown.

"I am cutting out commercial fertilizers as much as possible," said Mr. Pineo, "and using barnyard manure instead. It has been my experience that not much money can be made in this country in raising apples if the grower has to depend altogether on commercial manures. I use some of the straight fertilizers—nitrate of potash, nitrate of soda and bonemeal. I have not found it profitable to use mixed fertilizers. We are told that in countries where artificial fertilizers are used in enormous quantities the use of mixed fertilizers has been almost entirely given up. Many growers in the Nova Scotia fruit belt, where the greatest quantities of commercial fertilizers are consumed, are getting more and more into the way of applying fertilizers, such as acid phosphate or muriate of potash, by themselves, according to the needs of their orchards, or of mixing these together at home when they wish to apply all the elements of plant food. I believe it would be well if more farmers would adopt this practice.

"Conditions vary very much. It would be impossible to describe a fertilizer which would be suitable for a certain crop under all conditions, as there are too many factors to be considered. A farmer, to use manures or fertilizers intelligently, must keep in mind the nature of his soil as well as the character of the crop. I keep a large number of live stock and have about eight hundred tons of manure available from that source. In addition, I buy yearly about three hundred tons of this fertilizer at from a dollar and a half to two dollars a ton, according to the state of preservation.

"We are told that a ton of barnyard manure well saved is worth in comparison with commercial fertilizers two dollars and ninety-seven cents a ton. But too often under the ordinary farm conditions the manure available has depreciated in value. Farmers are learning, however, that a manure heap may lose more than half its value in a few months through leaching and fermentation. But too many of them do not realize that out of a total value of two dollars and ninety-seven cents a ton the liquid part is worth two dollars and six cents, and the solid part but ninety-one cents. Our provincial Agricultural Department is doing excellent work in advising the use of tighter barn floors to prevent leakage, the use of more straw, earth, muck and other material to absorb the liquids and the storing of manure, whether indoors or out, in a place from which drainage is impossible. The manure heap should be kept level and as compact as possible. An uneven surface allows an easy circulation of air and, in consequence, rapid fermentation. The manure from horses, sheep and poultry, being hot, should, if possible, be mixed with the manure from the cows and hogs in one common heap. The heap should be thoroughly and frequently tramped down. The application from time to time of quantities of dry earth is useful, as the earth absorbs nitrogen and other organic gases which would otherwise be lost.

"I do not use more than ten tons of manure to the acre in my orchard. More than this sometimes causes an over-stimulation of wood growth."

Pruning Methods.

Mr. Pineo prunes lightly from the outside every June. He prunes the young stock so as to develop symmetrical, well-balanced trees. Bearing trees are pruned so that the tops are opened up for sunlight and the height kept convenient for spraying and picking. The only fungicide employed is lime-sulphur. The proportions used are six gallons of commercial lime-sulphur to two hundred gallons of water. About two pounds of arsenate of lead are incorporated with every forty gallons of the mixture. Spraying is begun just before the fruit buds burst. The young leaves are well covered with the spray and protected against scab until the second application, just after the blossome fall, can be given. Two and often three additional sprayings are applied with intervals of ten days between. Care is taken that a fine spray is produced. Nevertheless, the trees are very frequently drenched. The proportions used, however, admit of drenching without injuring the foliage, and it pays better to waste lime-sulphur than apples. A power sprayer is used at a pressure of two hundred pounds.

Sprays Thoroughly.

"I believe in the gospel of thorough spraying," said Mr. Pineo. "We must grow clean apples—nothing else counts. The orchardist who is content to grow only spotted apples is on the road to the poorhouse, and the more apples he grows the sooner he will arrive there. Scabby apples will not be worth anything in the very near future. Apples can be kept clean in the worst season if the grower knows his business. Many

people, when they spray, have in mind only the necessity of keeping the apples clean, free from diseases, so that they may look more attractive, keep better and fetch a higher price. But spraying does more than that. It prevents the premature dropping of fruit and keeps the trees in good health, so that they not only produce more fruit but actually destroy the scale insects that suck the life-blood out of the trees. We can understand how the destruction of these pests increases the vitality of the orchard."

While the orchard represents Mr. Pineo's prime interest, he recognizes that there are other means of making a livelihood on the farm. He has an average of forty acres under oats, thirty under corn, forty under rye, seventy under hay, and ten acres under roots. He keeps one hundred head of cattle, seventy-five hogs, and ten horses. He uses a pure-bred Holstein bull with his herd of high-grade Holsteins, and the results are most satisfactory. His cows are giving an average of from thirty-five to sixty pounds of milk per day.

"The cry about over-production of apples does not worry me," said Mr. Pineo, "or I shouldn't be setting out ten additional acres under apple trees this year. But there is no good reason why an orchardist should not have more than one string to his bow. Dairying and orcharding fit in very satisfactorily together. The fruit grower who keeps live stock has an immediate, a convenient, and a profitable market for his culls. A large quantity of manure is produced and returned to the soil. Moreover, while the beginner is waiting for the young orchard to grow, the cows help pay the bills. Then, by raising some cash crops, such as small fruits and potatoes, he is enabled to make a fair living, and when the trees begin to bear the apples seem to come almost like a present. The combination of dairying and orcharding enables the grower to furnish steady employment to his men during the entire year, thus solving the help question in a measure, for it is when men are idle in the winter months that they become restless and wish to get away to some other country."

Mr. Pineo keeps careful records of his farming operations. By reference to his books he was able to furnish the writer with the following statement of his yearly expenditures and receipts per acre of bearing orchard:

Rent of land	$30.00
Value of fertilizer used	20.00
Hauling and spreading manure	3.00
Sowing fertilizer	1.00
Discing and harrowing	2.00
Seed for cover crop	2.00
Sowing cover crop	.25
Spraying	3.00
Barrels	27.00
Picking, packing and truckage	25.00
Other expenses	1.00
	$114.25

Each acre of full bearing orchard yields an average of about one hundred and ten barrels. This, at two dollars, gives him a gross income per acre of two hundred and twenty dollars, and, less the expenditure, gives him a net income of one hundred and five dollars and seventy-five cents. Mr. Pineo has several times picked three hundred and fifty barrels from one acre in a season. Those were, of course, exceptional crops. His average crop over a large acreage is as stated. His average total crop per year is 5,000 barrels. It must be remembered that this is not a bit of farming on paper, but the concrete results that follow the intelligent efforts of a skilled orchardist.

Pruning Principles Simplified*

PRUNING is one of the oldest of orchard practices, and a very essential one; but without soil fertility, spraying, and cultivation, pruning will be of little value. Our object in pruning is to make the plants vigorous; to give them some desired shape; to strengthen the framework of the trees; to make them fruitful; to allow sunlight and air and to regulate the heat and sunlight so as to prevent sunburn; to aid in such orchard work as spraying, thinning and harvesting. In studying pruning, we must make ourselves acquainted with the general principles, and we should make a special study of the buds. In many cases heavy top pruning will produce heavy wood growth, and have a tendency to rejuvenate the tree. Too heavy pruning may develop a strong growth of watersprouts, which is an indication of a lack of balance between top and roots, and causes one part of the tree to live at the expense of the other.

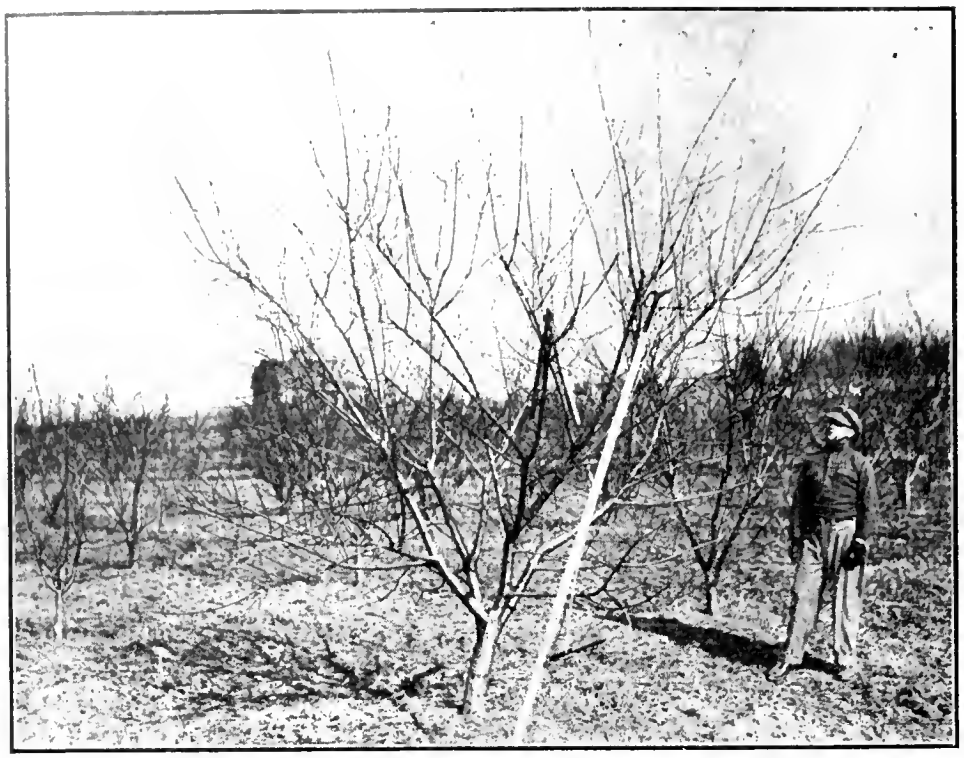
The growth habits of trees vary a great deal. Some have a close and upright habit of growth, while others are spreading growers. Some are strong and others are weak growers. These factors must all be considered in pruning the different varieties. Fruit bearing becomes very much a habit with trees. We are able to change this habit to some extent by pruning.

Summer pruning, if done at the right time and moderately, will have a tendency to produce fruit buds, while on the other hand, winter pruning has a tendency to produce wood growth. Summer pruning is usually practiced on young trees which are producing excess wood growth at the expense of fruit spur formation, up to about the sixth year. The time to summer prune will depend upon the different varieties and the length of the growing season, as we find some varieties grow much later than others, and also our trees will grow much later one year than in another.

We should aim to summer prune just before growth stops, by pinching back or cutting back part of the terminal. Pruning at this time tends to produce fruit buds. If you summer prune too early, you will get second

* Paper read at Grand Forks Farmers' Institute.

A four-year-old peach tree before pruning.



The same peach tree after pruning. Note the pruning tools used.

growth, which is tender and will freeze back. If you summer prune too late after growth is stopped, you have lost your aim, and summer pruning then becomes a case of early winter pruning.

In pruning young trees, such as apples, pears, plums and cherries, which bear their fruit on spurs, it is best to use the semi-pyramid form or shape of tree. We find that fruit trees of this type will carry a crop much easier and of more uniform size and color than the vase or pyramid form of tree. The vase or open tree is a very good form to use for peach trees. The peach tree bears its fruit on one-year-old wood. Thus, in order to keep good strong bearing wood low down on our trees, we must prune our trees hard and to an open top.

The success of our orchards will depend a great deal upon the early training of our trees. Endeavor, when possible, to secure one-year-old branch trees. The lateral branches on these trees are growing at right angles to the trunk. Head the tree to about twenty-four to thirty inches from the ground, and select three or four of the best side branches; cut them back to a bud on the top side and about eight or ten inches from the ground. The one-year-old straight or whip tree, when planted, should be cut back to a bud about thirty inches from the surface of the ground. If good growth takes place, we will get five or six side branches out from the trunk the first year. The lower branches grow at much wider angles to the trunk than those nearer the top; so remove one or two of the limbs near the top, so as to eliminate the weak crotches; start the first side limb about fifteen inches from the ground, and select three or four of these side branches well spaced on the trunk, and growing as near as possible at right angles to the trunk.

This will form the framework of the tree. Then cut the side branches back to a bud on the top side, and about eight to ten inches from the trunk of the tree. Prune the leader to a bud towards the centre of the tree. The leader should not be allowed to become more than a foot longer than the side by cutting back to a weak side limb.

The pruning of the trees after the first year, and the amount of growth to cut back, will be determined by the pruners. No fixed rule can be followed in their habit of growth. With young trees, up to about the sixth or seventh year, aim to prune to strengthen the framework of the tree and to encourage fruit spur formation.

We always find in our trees a number of small lateral branches which are a foot or less in length. By allowing these small branches to grow from the terminal bud and not pruning them back, a large portion of the side buds will develop into fruit spurs. By this practice we can force our trees into bearing much earlier. Sometimes we can let our young trees go for one year without pruning back any of the ter minal growth, and encourage fruit spur formation all along the main branches. These main branches can then be strengthened by pruning them back the next year.

After the trees commence to bear, prune to keep the trees well open to allow the air and sunlight into them to strengthen the tree and to thin the fruit. Aim as nearly as possible to let the fruit regulate the growth of the tree.

An Amateur's Fruit Garden

M. B. Davis, B.S.A., Experimental Farm, Ottawa, Ont.

FOR the amateur fruit grower, summer pruning of trees is to be recommended. In small gardens, where it is desired to keep the size of the trees down as much as possible, summer pruning is better than spring pruning. The latter part of June is an excellent time for this operation.

Bush fruits should have been pruned last month, but if this was neglected they may still be thinned out if necessary, especially the old raspberry canes, which should have been removed last fall.

Strawberries.

The new strawberry plot has probably been set out by this time. Constant cultivation will now be necessary to assist the young plants in making plenty of growth. Keep all the blossoms picked off the first year, and as soon as the young runners appear place them in the rows and place a handful of dirt on the top to hold them in position.

Spraying should have commenced earlier, but there is still need for it, as insect pests will be continually needing attention. The caterpillars on the apple trees and other tree fruits can be controlled by the use of paris green at the rate of one ounce to eight gallons of water, mixed with a little milk of lime and sprayed on the trees. This will control all biting insects on trees and bush fruits. For the currant worms, which will be now in evidence, this is excellent, until the fruit sets, when hellebore should be used instead.

For the aphis or plant lice on the young trees or bushes, kerosene emulsion made according to the following formula will do well. Tobacco extract, as purchased at the seedsman's, is also exceellent and gives a little less trouble. As these are contact sprays, several sprayings may be necessary to control the pest.

Formula for kerosene emulsion:

Coal Oil (Kerosene), 2 gallons.
Rain Water, 1 gallon.
Soap, One-half pound.

Dissolve soap in water by boiling, take from fire, and while hot turn in kerosene and churn briskly for five minutes. Dilute before use with nine pints of water.

Old apple trees should be scraped at least once in three years for the removal of rough bark that may harbor insect enemies. A hoe, hollowed out in the centre to fit the round of the tree, is the most efficient tool for the purpose.

Plant Lilies in Your Garden

B. C. Tillett, Hamilton, Ont.

IN beauty and in stateliness the lilies are unsurpassed. There is a charm, almost a mysterious enchantment about them, that is as ancient as the proverbial beauty of the rose. The superb elegance of their blooms, of wax-like whiteness, bright orange scarlet, or yellow in color, on their stately stems, compel our admiration. One wonders that the lily seems to be so often overlooked, but if it is somewhat of a rarity, this should add the more to its charms. But perhaps one reason they are not more often seen is that the bulbs, of some of them at least, take a year to bloom. Another reason may be the price of the bulbs. In considering the price of the bulbs, however, it must be remembered that, although the bulbs may cost ten to twenty cents or more each, and of some of the rarer sorts such as lilium regal, as much as two dollars each, they remain in the soil flowering year after year, and do not, like many of the cheaper bulbs, require replacing every few years. Apart from this, the magnificence of their blooms more than repays the little extra expenditure on their production.

However small a garden it is not so small, if it possesses a flower border, but that space can be found for one clump of lilies, especially as the plants do well in partial shade. The culture of the hardy kinds is very simple. The results depend largely upon the care taken in selecting varieties suitable to our climatic conditions, for some kinds are considerably hardier than others. The well-known tiger lily, lilium tigrinum, will succeed almost anywhere if conditions are at all favorable.

The golden-banded lily of Japan, lilium auratum, with its unusually large and fragrant white flowers—often twelve inches across—is by many considered the most beautiful of the lilies. It is not always quite so easy to succeed with as is speciosum and its varieties. Lilium speciosum, one of the hardiest of the lilies, although fragile in appearance, serves admirably as a pot plant as well as for the border, especially the pure white variety known as album Kratzeri. Other beautiful varieties of speciosum are S. roseum superbum, with large blooms; S. macranthum, with its deep rose flowers, and S. Henryri, which is decidedly attractive with its brilliant orange-yellow blooms. Bulbs of both auratum and speciosum cost from twenty to twenty-five cents each. Speciosum rubrum is another exceedingly handsome variety and very hardy.

Lilium candidum, often called the Annunciation, or Madonna lily, is one of the handsomest of the pure white lilies, in fact, it seems to impress one with a sense of refinement by the purity of its wax-like flowers. June sees it in all its glory, and three or four plants of this lily in full bloom make an exceedingly effective addition to the border. It is also another of the hardy kinds, and once well established in a border should be left undisturbed. Planted early in autumn, leaves will soon appear, and the stems often bear as many as twenty blooms.

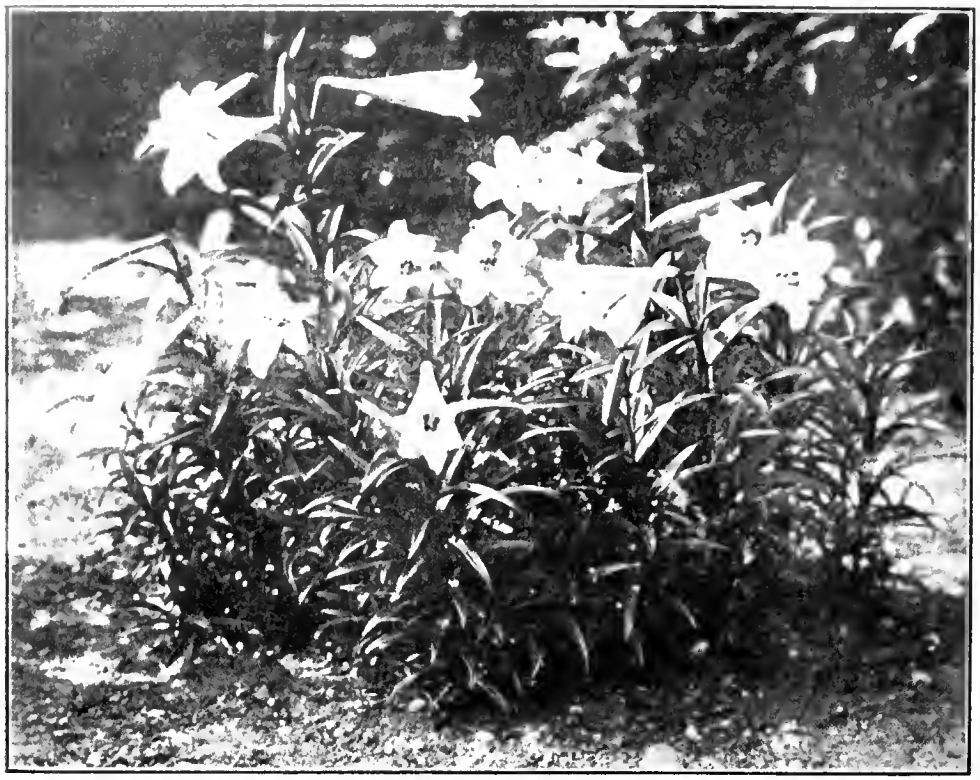
Lilium Auratum, the golden banded lily of Japan, is a white lily, spotted with gold and with golden ribs. It is considered by many the most beautiful of the lilies.

Lilium longiflorum is another of the snow-white lilies, the chief characteristic of which is its long, trumpet-like flowers, from six to eight inches in length. It flowers in June and July, and, like speciosum, is well suited for pot culture.

In a somewhat shaded position, preferably among evergreens, a striking feature can be made with a single bulb of lilium giganteum, the Easter lily of Bermuda. Towering to a height of eight or ten feet on a strong stem, and throwing out a dozen wax-white blooms, nothing could be more effective. This is a lily which produces a surprising number of blooms, and it has this advantage, that the blooms can be brought on at almost any time of the year, at Christmas or midsummer, Easter or November. If potted in August, flowers can be had in November, and a succession of blooms obtained from thence on till May, with the use of a cold frame. The flowers are delightfully fragrant, and if cut when only partially open, will keep for two or three weeks. Bulbs of this grand lily are very reasonable in price and can be purchased for twenty cents each.

Give Good Drainage.

The great secret of success with lilies is proper drainage for the bulbs. If this is secured, the cultivation of all the hardy kinds is very simple. Lilies require a very rich soil, slightly sandy. Where the soil is too clayey or loamy, it can be brought into suitable condition by adding a few shovelfuls of wood or coal ash, and sand or fine gravel, with a good heavy dressing of leaf mould well worked in. There is no better material with which to enrich soil for lilies than well rotted stable manure, the older it is the better. In addition to this, some good bone dust



Lilium Longiflorum, another snow-white lily with long trumpet-like flowers, which appear in June and July.

should be thrown into the soil. Chemical fertilizers and fresh manure should be avoided, as they are liable to injure the bulbs.

If the soil is naturally light, the best way to prepare a place for the bulbs is to trench a piece of ground about two feet square, to a depth of about eighteen inches. After the soil has been taken out, a foundation for the bed should be made with pieces of old broken bricks and stones. Over this place the prepared compost consisting of good loam, leaf mould, and well rotted stable manure, bringing this up to within six inches of the top of the hole. On this give a good sprinkling of sand and everything is now ready for planting the bulbs. Place these in the hole at distances of fourteen inches apart, putting under each bulb a handful of sand, and another handful or two around the bulb. The compost may then be gently filled in, taking care not to disturb the position of the bulbs, and firmly pressed down but not rammed.

An important point to remember when planting lilies is that some varieties have two sets of roots, one at the base of the bulb and the other at the base of the stem. To distinguish this kind they are usually called stem-rooting lilies. They include l. auratum, l. longiflorum, l. speciosum, l. tigrinum, etc. All these should be planted at a depth of six inches, or so that the top of the bulb is at least five inches from the surface. Those having roots at the base only, need not be planted quite so deep and four inches from the surface will be sufficient. Many growers plant auratum eight inches deep, and an exception to the rule is l. candidum, which is not stem-rooting and must not be planted more than three inches deep. Much depends upon the soil, for in light soils the bulbs may be put an inch or so deeper than in a heavy one. In damp situations it is a good plan to plant the loosely-formed bulbs—among these are candidum and speciosum—on their sides.

If the bulbs are to be planted in a hardy border or shrubbery, it is not always practicable to trench the bed, and the better way to proceed is to dig a hole large enough and deep enough to contain a shovelful of sand or gravel at the bottom and over this several inches of the compost above mentioned, surrounding the bulb with sand when planting. If a single bulb is being planted, a large enough hole can be made with a trowel or post-hole digger, treating the hole in the same way with sand and compost. The roots and stem will easily find their way through the sand and this porous wall will prevent standing water, manure, fertilizer, or other injurious substance in the soil from reaching the bulb.

Where it is intended to grow lilies in a collection or to obtain effect from a mass there is no better plan than making a raised bed and edging it with turf. This will both show them off to the best advantage and ensure good drainage.

October is the best month for planting most of the lilies, but the Madonna lily, testaceum, and auratum, should be put in not later than August or September. Once planted, the bulbs do not need to be disturbed, and each year become more valuable through the increasing spikes they bear. If left undisturbed the lilies will remain for years, and, if desired, the stock can be increased by saving the small bulbs or "offsets" which are formed every year. These may be planted out in the flower border. All that needs to be done is to give a mulch of dead leaves every winter when the first frosts set in, and the ground all about the bed should be well covered to the depth of a foot. A little soil may be sprinkled over these to keep them in place. When spring comes round this mulching should be gradually taken away, and when all has been removed, a little bone dust or old manure may be dug in. After the plant has finished flowering and the stems have begun to dry these should be cut off.

It would be impossible to conclude without a reference to a few other choice kinds—Chaleedoniusn, with its vivid scarlet flowers on tall slender stems; Hansoin, with its deep yellow flowers mottled with black; Lancifolium rubrum, an exquisite kind, with bright rose-colored flowers dotted with crimson spots, and what is perhaps the prettiest of all the small kinds, Tennifolium, with its small brilliant crimson flowers and delicate foliage.

Tomato Growing for the Amateur

John Gall, Ingjewood, Ont.

Neither the farm house nor the town lot should be without tomatoes for home use. They are easily grown, but good seed and good cultivation are the chief factors which lead to success. I would recommend Earliana as the variety to grow. It is extremely early, prolific, smooth, large, of the richest scarlet color, and is not prone to rot before ripening.

Generally speaking, it is more satisfactory to raise your own plants. You will then know what variety you have, and not be disappointed that the "big red kind" which you bought at the greenhouse, proves to be late and a poor bearer.

Anybody can easily grow the plants in the house window, shifting into large pots as necessary, and find the work enjoyable. In transplanting to the garden, always set them deep. Roots will form wherever the stem comes in contact with the soil, thus deep planting not only secures firmer anchorage and more numerous sources of sustenance, but the deeper the roots sink into the soil, the greater will be the resisting power in time of drought.

Dahlia Culture

Henry Gibson

It is a much-mooted question among dahlia growers how much or how little water should be given. As a general rule, under a thorough system of cultivation, we are of the opinion that enough moisture will be found in the soil by the roots of the plants. It is advisable, however, to watch your plants closely during periods of protracted drought, and should they show unmistakable signs of needing water, give it freely; enough to penetrate a foot below the surface. Superficial waterings, on the little and often plan, are worse than useless with any crops, and equally so with dahlias. Observe the principle of irrigation, i.e., give water in plenty when needed, and let that suffice until needed again. As soon as the surface dries, stir it up again.

Keeping the Flowers Fresh.

Dahlias should always be cut early in the morning, when they are full of sap. Cut just above a joint, split the stem up to the first joint, and place in cool water in a cool place away from draughts. When it is desired to keep the blooms for several days, it is best to place the freshly-cut stems an inch of their length in hot water and allow them to remain until the water cools, then place in cold water. Charcoal placed in the water helps to keep it sweet; but it should not be used, as the flowers quickly droop when removed to a warm room.

Insect Enemies.

Like almost all other garden plants, dahlias are subject to the attacks of various forms of insect pests. Chief among these are the Plant Tarnish Bug (Lygus Pratensis), the cut worm, thrips and white fly. The first named does its damage by making large gaps in the petals, spoiling the appearance of the flowers. This same pest is also partial to asters and chrysanthemums that are grown outdoors. There appears to be no known method of dealing effectively with the little pest.

The cut worm usually commences operations at the time the young growths penetrate the ground. A little corn meal with just enough paris green to color it slightly, placed near each plant at night when there is no likelihood of rain, will soon account for him.

Aphine is one of the best remedies for use against attacks of thrips and white fly. It is advisable to spray occasionally all through the growing season to keep down these pests.

The Vegetable Garden

M. B. Davis, B. S. A., Ottawa, Ont.

Cut worms will soon be preying upon young cabbage plants, cauliflowers, peas, etc. They may be controlled by the use of poisoned bran made as follows:

Bran	5 lbs.
Paris green	4 oz.

and a little molasses to sweeten. Mix thoroughly with small amount of water.

The bran is simply sprinkled around the base of the plants and is eaten by the worms when they come up to feed. This is the best method for the control of cut worms.

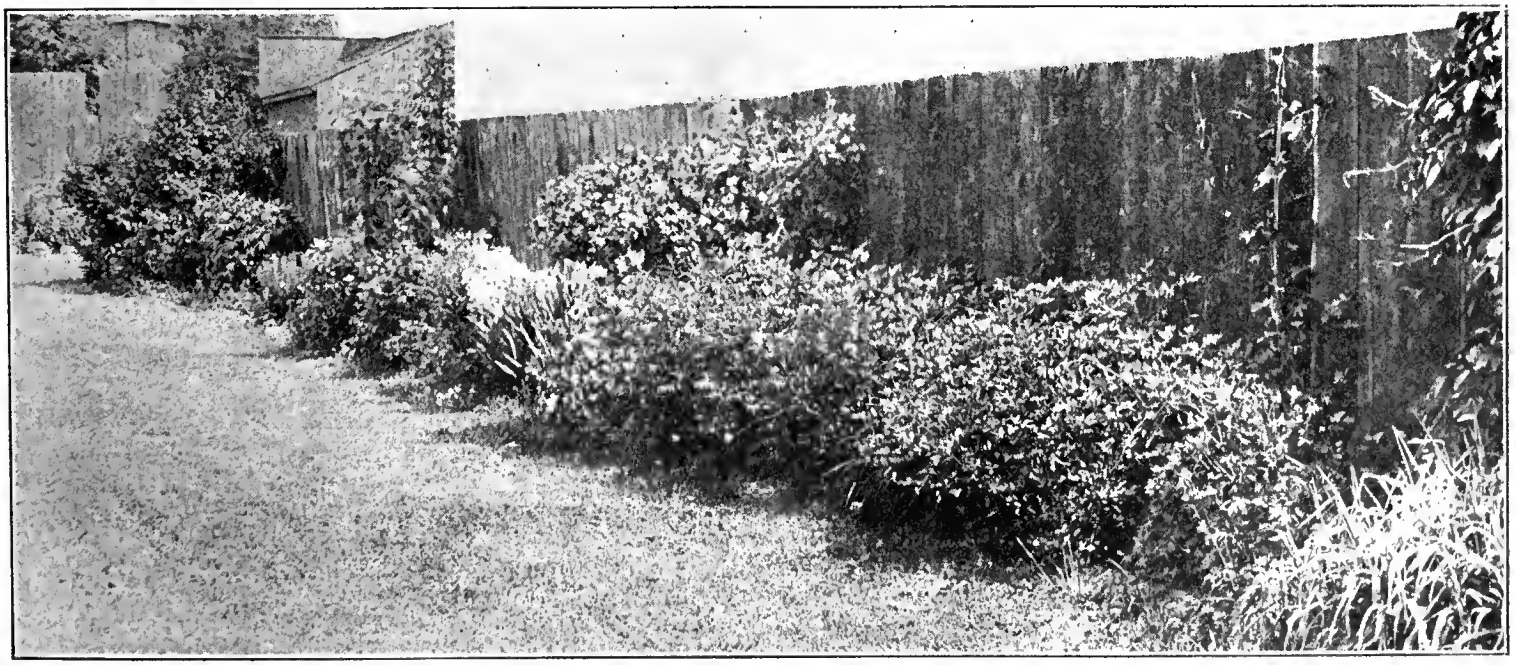
The cabbage maggots which will soon be in evidence can only be prevented. Here is a case where an ounce of prevention is worth a pound of cure. The maggots are hatched from eggs laid at the base of the stems of the plants by the small white butterfly which is seen flying about in early summer. If this butterfly can be prevented from laying her eggs on the plants, there will be no maggots. This is prevented by either covering the plants with a cheese cloth cover as soon as the butterflies appear, or by the use of a tar felt disc which is fitted around the stem of the plant at the time of setting out. This disc is simply a square piece of tar felt (not ordinary tar paper), with a slit in it, through which the stem is passed. This prevents the moth from laying her eggs at or very near the base of the plant.

The salt should have been put on the asparagus bed some time ago, but if not done it would be well to apply it at once. If it is intended to keep on cutting the rhubarb, and if good yields are desired, it should be fed with liquid manure if possible. If this is not obtainable, a little nitrate of soda dissolved in water will be a great help if applied from time to time.

The Planting of Shrubs

A. E. Thatcher

If shrubs of standard form are planted they will need some support until they become well rooted, and for this purpose nothing is better than a straight stake, sharply pointed and driven firmly into the ground as near the stem as possible without injury to the roots. The shrub can be secured to it by wrapping a neat piece of cloth or rubber around the stem and tying to the stake firmly with string, but care should be taken that no injury



A border composed largely of wild flowers in the garden of Mrs. (Dr.) Gowan, Peterboro, Ont. It includes Ribbon Grass, Columbine, Larkspur, Bleeding Heart, Iris, Golden Glow, Honeysuckle and Tiger Lillies. Mrs. Gowan is an earnest advocate of protection being afforded by our authorities to wild flowers in their natural state before many of the best may be lost forever.

A bed of Perennials as grown by Mr. Baldwin. (See accompanying article.)

is done to the shrub as the bark expands with growth.

Many beautiful American shrubs are notoriously fond of peat, and if conditions are not naturally favorable for their cultivation, liberal additions of this material should be incorporated when preparing the ground, if it can be obtained. Peat, however, is not always available, neither is it absolutely necessary, for many peat-loving subjects will succeed admirably in a mixture of fibrous loam, decayed leaf mould and sand.

An Attractive Perennial Border

Geo. Baldwin, Toronto, Ont.

The flower bed shown in the accompanying illustration consisted principally of perennials of tall, medium and dwarf growth. It was in bloom practically the whole season and needed very little attention. The places for tall perennials are many, and tall perennials are many, yet tall ones that just fit their places are all too seldom seen.

Some idea of the height of the hardy, graceful flowers shown in the illustration, with their long backs and lovely faces, may be gained from the fact that the porch door is the regulation seven feet. The boy stands five feet eight inches. The high cluster on his left consisted of Chrysanthea Uliginosum, Helianthus Rigidus, and Helianthus Miss Mellish, in front of which is the Lilium Fortunei. The tall group in the centre of the bed is the beautiful though little known Coreopsis Testacium. In front of this is the well-known Coreopsis Lancelota, with here and there a clump of Rudbeckia Newmanii, or "Black-eyed Susan." This is a very showy plant for a large border. It blends nicely with the several shades of pink, rose and white colors of the perennial phlox.

This bed started off in the spring with tulips, narcissus, and similar plants, which were followed by several varieties of German iris. In succession came early blooming phlox and a few roses. Two or three cannas were inserted in the bed to give it a better foliage effect, and a few bright colored annuals were dotted in here and there where room could be found. This bed was the admiration of every one who came to the garden. It consisted of a very cheap variety of flowers, for which reason it could be copied by any flower lover, be he rich or poor.

Success With Sweet Peas

Arthur Waller, Cobourg, Ont.

I grow sweet peas as follows: As soon as the ground is fit in the spring, I use a Planet Junior hand cultivator and plow out a furrow about nine inches deep. I then put in some well-rotted manure, sprinkle it with some fine mould, and sow the peas, covering them with about two inches of fine earth. This is pressed down firmly.

As soon as they begin to grow, I keep the ground well cultivated. I hill them up till the ground is level again.

The main point about growing sweet peas is the watering. All through the growing period I give them plenty of water. I always try to have my sweet peas as near to the hydrant as possible. I place a lawn sprinkler amongst the rows and let it run for two or three hours till the ground is thoroughly soaked. Watering like this once or twice is sufficient.

The space between the rows is used for lettuce, spinach and radish. They are done by the time the peas begin to climb. I then spread lawn clippings between the rows. This helps to keep the ground moist.

Possibilities of a City Garden

Mrs. H. D. Gibson, Ottawa, Ont.

We were surprised last year to find how much can be raised on a small area of land and the delights which the growing of one's own vegetables bring to the gardener. Our plot is about thirty feet square, and until last year had been an ash heap and grown up with weeds so that it did not give a very good start for amateurs. We had one corner about twelve feet square in corn, half of which was early, and the rest in a later variety. From this we had corn from the last week in July until the end of August. We picked eighty ears—all a very good size. We had all the green onions, lettuce, and radishes a family of four could use. We planted a couple of rows of each of these about two or three weeks later, so when the first were finished we had the second planting coming in fresh and young.

In another corner we tacked chicken wire over the fence and trained our cucumbers over it, as they take up too much room on the ground. We had all we could eat and use for pickling. I have no idea how many we had altogether. One morning I remember pickling a dozen just a nice size for eating. We had peas and beans and all the carrots and beets we could use and two gallons of carrots to bring in when the frost came. We had one and one-half dozen tomato plants from which we got lots of tomatoes to use and picked two and one-half bushels just before the frost came. We planted seed onions, but these were not a huge success on account of the maggots. A dozen cabbage plants which were planted too close were rather a failure. We grew all this in less than half of our thirty-foot plot, as our first intention was to have a flower garden, with a few vegetables as an experiment. We enjoyed having them picked fresh; and picked just when they were ready made such a difference in the flavor.

In the flower garden we had nearly four hundred gladioli bulbs, which were beautiful from the end of July until the frost came. We had also six dahlias, pansies, Shasta daisies, phlox, mignonette, larkspur, asters, nasturtiums, sweet peas, and a perennial border along one fence. We took a great deal of enjoyment out of this little garden, and this year hope to remedy some of our mistakes.

See that garden tools are in good repair and sharpened.

Cultural Hints on Vegetables

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

WHEN this article appears in print, the ambitious amateur gardener may have his garden fully cropped. If so, so much the better. His work does not necessarily end here, however; he must concern himself with the proper cultivation of his soil. One of the best ways to cultivate and so conserve moisture in the soil is to hoe or rake the surface. A good dutch hoe, six inches or eight inches wide, and a steel garden rake are two of the best tools a person can use. The former must not be mistaken for the ordinary draw hoe, a mistake which is quite common. The draw hoe is like a rake with a solid blade in the place of teeth; a dutch hoe is like a pitchfork with a flat blade on the end of the prongs or tines.

A dutch hoe is a good cultivator, is easy to handle, it is a splendid weed eradicator, and as it breaks the surface quite evenly it prevents the moisture from escaping, and so conserves it for the use of the crop. In use, the dutch hoe is so operated that a person walks backward, thus the cultivated ground is not tramped. With the draw hoe, the reverse is the case. Do not misunderstand me, the draw hoe also has its uses, namely, for making drills or for hilling crops of various kinds; but as a cultivator it is only a good second.

Even in the case of a garden fully cropped, the thought of a succession of crops will occupy the mind of the owner, and those who unfortunately have as yet not cropped their lot will also be thinking of what they shall plant. Succession crops of peas, lettuce, radishes and spinach may be sown. It is not too late for beans, corn, beets, carrots and turnips. There is still time for a late crop of potatoes, provided they are planted at once. Last year the writer planted potatoes on the first of July and harvested six bushels from three square rods. Late cabbages and cauliflowers, also celery, melons and cucumbers, may be planted. Buy large plants of these as it is too late to sow seed.

The Cauliflower Bed.

Last year perhaps you were discouraged with your cauliflowers. Many people fail with these because they do not realize that very few plants require as much moisture for their development. Its large leaves give out enormous quantities of water vapor, and if a sufficient supply is not given at the root, gnarled and dwarfed plants will result. Plant three feet apart and three between rows, so as to ensure free cultivation. Many of the large kinds, like Carter's Autumn Giant, will even touch each other at this distance. Between the rows of cauliflowers a little intensive cultivation may be practised, in that quick-growing crops, such as lettuce and radishes, may be sown and harvested ere they interfere with the main crop. Cauliflowers do well on a heavy soil made porus by generous applications of stable manure.

Celery requires even more moisture than the cauliflowers, therefore plant it in trenches in either single or double rows. Make your trench two feet wide, and at least nine inches deep. Carefully fork the bottom of the trench, at the same time working in a barrow load of well rotted stable manure to every fifty feet. Plant the rows one foot apart, and allow one foot between the plants in the rows. If your row is single, the trench should be only one foot in width. As the plants develop, gradually earth up with fine soil. This will favor even blanching. Boards are sometimes used for this purpose, but soil itself is nature's material, and has for ages given unsurpassed results. Soil will completely exclude light, and when your plants are lifted they will be crisp and toothsome. Celery loves a deep, rich and moist soil. It is almost impossible to kill it with stable manure.

Cultural Hints.

A few cultural hints will now be timely. Success in the cultivation of carrots, parsnips and other tap-rooted crops, depends greatly upon the aeration of the soil. These crops will now be ready for thinning. Thin parsnips to five inches apart and carrots three to four. Fork carefully between the rows to prevent undue hardening of the soil. In this respect, try a little experiment. Fork a certain area and compare its produce with that of an unforked area of the same size. Especially in the case of the parsnip, thorough deep cultivation is worth while, and is a necessary factor if large, well-shaped roots of good quality are desired. Only through its agency will air be admitted to the lower soil strata to which the plant reaches, and from which it takes its mineral food.

Use the hoe and rake freely among all crops. If you desire your vegetable plot to be a source of real pleasure and profit, cultivate incessantly. Cultivation is better than watering, although at times the latter is very necessary. A good dutch hoe or small cultivator, and a good garden hose with the necessary water supply, make a very happy combination.

Peonies and Iris Germanica in the garden of Mr. J. R. Thompson, Hamilton, Ont.

Pithiness in Celery

John Gall, Inglewood, Ont.

The pithiness in celery is not due to a hot, dry season, wrong time for seed sowing, to light soil, or similar causes as many growers seem to think, but to the use of a cheap, poorly grown seed. Pithiness is a characteristic of some varieties and strains of celery, just as much as form and color, and like form and color, is transmitted and reproduced generation after generation. The seed from stalks producing pithy plants will give pithiness in the offspring, while the seed from solid stalks will produce solid stalks regardless of the land on which the plants are grown.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited.

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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GREAT BRITAIN
W. A. Mountstephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 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 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907 ..... 6.627
Average each issue in 1913 ..... 12.524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Canada's Seed Supply

Last year when the European war broke out the public was advised that there was little danger of there being a shortage this year in our supply of seeds, of flowers and vegetables, owing to the fact that for the most part these had been procured before the outbreak of hostilities. We were warned, however, that should the war continue for more than a year the situation in 1916 would be more serious.

It appears to be evident that the war is likely to last much longer than was at first anticipated. The public is beginning to resign itself to the conviction that Lord Kitchener's prediction that the war would last three years may prove to be not far from the mark. This makes it important that attention should be given this year to the growing of vegetable and flower seeds so that we may be ready for all contingencies. The Dominion Government is to be commended for its action in issuing a bulletin dealing with this subject. Those who would like to undertake the growing of field root, vegetable and flower seeds, will find much helpful information in this bulletin. It is bulletin No. 22, issued by the Central Experimental Farm, Ottawa.

Eliminating the Middle Man

So much has been said of late years and so little apparently has been accomplished in the direction of eliminating the unnecessary middleman in the marketing of the fruit crop there is a natural tendency sometimes for a feeling of discouragement to assert itself on the part of the individual fruit grower. Nevertheless, the problem may be nearer a solution than many suppose.

The fact that the prices received by fruit growers are often so small whereas the sums mulucted from the consumers are often so high as to be practically prohibitive, has led to this problem being attacked from different angles. Fruit growers are organizing co-operative companies to eliminate expense in the marketing of their crop, while consumers are forming co-operative societies in order that they may be able to purchase their supplies more cheaply. In some cases fruit growers have opened up stores in nearby cities where consumers are able to purchase their fruit direct. Recently the United Fruit Growers of Nova Scotia Ltd., opened a store in Halifax which deals in all lines of farm supplies as well as in fruit and which already has worked up a large trade. In Toronto the Labor Unions have been working for some time to establish direct connection with the producers. The land question, as we have pointed out before, is a factor which must be considered before a final solution can be reached. It is gratifying, however, to note that the interest in this subject is now so general.

Spare the Native Flowers

The rapid disappearance in many sections of Ontario of some of our most beautiful native wild flowers calls attention once more to the need for united action being taken by responsible organizations for the preservation of our native plants. Several states of the American Union have enacted laws prohibiting the removal of some of the most attractive and delicate wild flowers from waste or wooded lands. The digging up of perennial roots and the plucking of the flowers of annuals have been made criminal offences.

Every spring there is a stampede by many town and city people to the adjacent woods to pick the first wild flowers. This tendency is a natural one, although it cannot be commended. Did the people who pick these flowers realize the damage they were doing they might be restrained from actions, the final result of which is the destruction of the very things they love. Lovers of wild flowers can perform a valuable educational work by writing to their local papers asking for the protection of these beautiful denizens of our woods and dells. The local horticultural societies of Ontario, acting through the Ontario Horticultural Association, might well bring pressure to bear upon the Provincial Government to have suitable legislation enacted in Ontario.

Mothers' Day

The observance of Mothers' Day this year was more general and successful than ever before. Seldom, if ever, has the observance of a general custom sprung into such hearty favor and widespread acceptance as has been the case with Mothers' Day. The demand for flowers has grown so rapidly that florists find it a difficult matter to obtain a large enough supply to meet the requirements of the public. This year this led in some centres to quite a demand for wild flowers which were picked by children and sold on street corners. It is pleasing to note that on the whole, florists appear to appreciate the spirit of the day and have not shown an undue tendency to ask unreasonable prices for flowers.

A regrettable tendency was noticed this year in some sections to use artificial flowers. Where patriotic organizations sold flowers on Mothers' Day artificial flowers were sometimes used to augment the supply of real flowers even before the latter had become exhausted. Such action is not likely to meet with public approval. If one's love for one's mother is such as to lead to a desire to evidence it by the sending or wearing of a flower, the natural impulse of the heart must be to secure the best obtainable. Naturally, this cannot partake of the artificial. The use of artificial flowers for such a purpose should be discouraged in every possible way.

Dominion Fruit Commissioner Johnson is doing things in his Department, and the things he is doing are receiving the hearty commendation of fruit growers. Two important moves he has made lately provide for the inspection of baskets used by fruit growers, as turned out by the different basket factories, and the inspection of fruit packages by the fruit inspectors for immature fruit. Action along both lines has been required for some years. It is gratifying to know that an improvement may be expected during the coming season.

A rather striking custom has sprung up in English society since the outbreak of the war. It is the wearing of purple pansies by people who have had an intimate friend or relative wounded at the front. English society has poured out the best of its young manhood for the defence of the Empire. The result is that there are few people in English society who have not had at least a friend and more often a relative who has been wounded in some of the many engagements. At some of the fashionable gatherings practically all the women of late have worn these flowers.

PUBLISHER'S DESK

Our front cover illustration this month shows a section of the paeony bed at the Guelph Agricultural College. These beautiful flowers are becoming more popular every year. They deserve to advance in public favor.

We take pleasure in welcoming a new horticultural publication in Canada known as Garden Life, the first issue of which appeared in March and which is published in Montreal. The publishers have selected as its field the interests of amateur gardeners and poultry keepers. The subscription price is $1.00 a year. The issues of this new publication that we have seen are well illustrated and contain well written articles by leading authorities. The cause of horticulture in Canada should be advanced by the advent of this new publication.

Last month we announced that in view of the success of our efforts to have the apple recognized as the national dish of Canada, we had decided to offer a prize of ten dollars for the best piece of poetry not over four verses in length, extolling the merits of the apple and referring to it as Canada's national dish. This contest is to close on June 20th. Some contributions have already come to hand. We would like to receive many more. If you are a local poet or know of any who might be interested in this contest we will appreciate it if you will take part or draw it to the attention of others.

The unanimous opinion among fruit growers that the apple shall be recognized as the national dish of Canada has naturally led to the suggestion being made that we should select a national flower. Already suggestions have been advanced that the paeony, the pansy, and certain other flowers should be chosen for this purpose. We would like to receive from readers of The Canadian Horticulturist a number of brief letters stating which flowers they would like to see selected and their reasons for their choice.

The Canadian Horticulturist desires to increase its circulation and for that purpose would like to obtain the assistance of energetic, capable representatives in the Annapolis Valley, the leading fruit districts of Ontario, and in British Columbia, as well as in some of our leading cities and towns. In the latter centers a canvass might be made among amateur flower growers. We have a liberal proposition to make to all who may be interested. Agents must submit satisfactory recommendations. Let us hear believe have impressed our readers favor- from you.

Have you noticed the improved type we are using in the headings of The Canadian Horticulturist and the general improvement in the typographical appearance? Starting with the May issue, we made some important innovations which we have reason to ably.

A slight error crept into the article entitled, "The Growing of Cabbage," by A. W. Cook, of Victoria, published in our April issue. The article stated that those who had cabbages had made a good profit last year. The article was one which had been in type for nearly a year. The words mentioned referred to the crop of 1913-1914.

The Prairies' View

(Farm and Ranch Review)

The British Columbia fruit growing industry presents a problem. It is not a pleasant task to state this problem or to discuss it, but nothing is to be gained by concealing the facts. Briefly stated, it is that fruit growing has been unprofitable and promises very little for the immediate future with the present range of labor expenses, transportation charges, commissions and consuming capacity of the natural market.

Consumers of apples on the prairies do not like to think that the fruit growing industry is in such a bad state or that it can be cured by so simple an expedient as a higher tariff. Consumers naturally claim they had no part in the senseless overcapitalization of British Columbia fruit land, and object to paying any part of the losses so incurred. They further claim that they have objected to the imposition of the tariff which has added to the cost of the production of British Columbia fruit. It is quite plain, however, that there has been waste and loss in establishing the fruit growing industry, and that there is not sufficient opportunity to recoup that loss from consumers. The single tax would have prevented such loss by removing the incentive to speculate, and the free trader denies the right of anyone to place the burden of the loss on consumers by means of a high tariff.

Prairie people are, to a large degree, disciples of Henry George and Richard Cobden and this makes the solution of the fruit growing problem much more complicated and difficult. The natural solution of the problem would be to let the burden rest upon the owners of the land and orchards (including those who sold the land to present owners at high prices) until such times as the prairie market becomes large enough to take all the British Columbia fruit at the then current prices. In time such a market will develop and the fruit lands of British Columbia will not be too extensive for the market but for the time being the fruit growing industry is like many other things, rather over done for the volume of trade immediately available.

SOCIETY NOTES

Vacant Lot Gardening

The vacant lot garden work in Regina has made satisfactory progress. Before the end of April 538 lots were taken up, and it was expected that the 600 mark would be passed before the planting season closed. Dr. Andrews, in writing concerning this work, states that "the Bureau of Public Welfare is planning to take two blocks of lots for the use of families that they have had to help. They will advance them the seed and pay for the plowing of their lots. The Bureau will hold their leases and expect to be recouped when the garden stuff is ready to be sold. In most cases the Bureau may take it off their hands at a valuation and credit the gardeners with it, for their winter supplies."

Dr. Andrews states that "general interest in gardening will mean about 2,000 more gardens in the city than last year. Many back lots are being dug up which were never cultivated before. Many of the best citizens are taking vacant lots to supplement the home garden in the back lot."

Horticulturists Visit Rochester

The deputation of members of horticultural societies in Ontario, organized by a special committee of The Ontario Horticultural Association, composed of J. W. Burgoyne of St. Catharines, F. E. Bennett of St. Thomas, and J. Lockie Wilson of Toronto, which visited the famous parks of Rochester, New York, on Sunday and Monday, May 23 and 24, had an enjoyable trip. The party comprised excursionists from Toronto, St. Catharines, Hamilton, Grimsby, Brantford, Stratford, Guelph, Cayuga and St. Thomas. Sunday, May 23rd, was Flower Day at Rochester, and it was estimated that 30,000 to 50,000 people visited the famous Highland Park of that city.

Rochester is a noted floral centre. In its Highland Park may be found a wonderful assortment of the leading shrubs and flowers of the continent, as well as many varieties imported from Japan, China and other foreign countries. Flower Day is held at one of the most favorable seasons of the year for seeing the Park to the best advantage. The excursionists from Ontario had a most profitable trip.

St. Thomas

The St. Thomas Society recently received an extra shipment of 20,000 gladioli from Holland, the result of a mistake in cabling. Ten thousand were disposed of to the Stratford and Windsor societies and other places, and the remaining ten thousand to local members, making a total of 30,000 bulbs planted by our members, of such varieties as Faust, Baron Hulot, Willie Wigam, America, Lily Lehman, Halley, and Princeps.

Two flower shows were held in May. The first was for early tulips and other spring flowers. About one hundred and fifty varieties of tulips were exhibited and about five hundred entries were made. The Darch & Hunter silver cup for largest and best exhibit was won for the second time by Dr. F. E. Bennett, with an exhibit of 125 distinct varieties of early tulips. Mr. Frank Arnold won a cut glass vase for the best six bouquets of tulips of six blooms each. The show was for two days. An orchestra was present on both evenings. It was held in the Library Auditorium, and from an educational standpoint was the most successful show ever held. All the tulips were classified and named so that visitors to the show could select the varieties that they fancied and order them through the Society later on. The second show was for Darwins only, some sixty varieties being shown. Among the largest exhibitors were J. C. Crowbie with about 25 varieties, F. E. Bennett with 49 varieties, and Frank Arnold with 15 varieties. This show was purely educational. No tickets were awarded nor judging done. It was held for two days and placed in a store window. The interest created was even greater than with the early tulips, and St. Thomas' reputation as the Tulip City will be well earned next spring.

Eighteen large cement urns of artistic design, four feet high, with a bowl 22 inches across, are being put on the street corners at suitable places on Talbot St. They are being filled with the choicest geraniums, vines, coleus, etc.

In the Niagara District, in spite of two heavy frosts which injured the strawberries and early tomato vines, the fruit crop promises to be a large one.

Better Methods of Marketing Required

C. W. Baxter, Fruit Division, Ottawa

IS the retailer's profit on apples excessive, and does he control the situation in the matter of increased consumption? I am convinced that in too many cases the profit on apples is exorbitant and much in excess of many articles which the retailer sells. Under our present system the retailers control the situation to a great extent.

Apple growers have devoted their time to production. Few have studied market conditions. They are unorganized, and have done nothing to create a demand or to increase consumption. If we can increase the demand and obtain better distribution, we can secure better prices. Although we are convinced of the excessive profit frequently made on apples, we are also convinced that the net profit of the retailer (with special reference to the grocer) is anything but great. In fact, the net profit is less than on most lines of business which requires so much hard work. And the question here presents itself, does the apple grower contribute to the cost of selling other products? If it costs the retailer, for example, 18 per cent. to do business and he is selling other lines which the organized efforts of manufacturers and keen competition compel him to sell on a 7 or 10 per cent. advance, the difference must be made up on other goods. All too frequently the profits on apples, I believe, do contribute to this deficiency. It is not the fault of the retailer, but the system, and the remedy is in the hands of the grower.

Another important feature connected with the retail end of apple selling is the question of waste. The waste is altogether too great and the retailer must protect himself against this. Whether the fruit has been sold f. o. b. cars or in the orchard unpacked, the distributor must take all chances against waste, and owing to the very careless methods of handling the fruit in picking and packing, the waste is enormous. The practice of picking and packing a few windfalls, which at the time appear to be undermarked, with hand-picked fruit which in winter varieties is bound to fall down in a short time, is responsible for a portion of this waste. Overpressing is another reason for waste. I am satisfied that overpressing is responsible for three-quarters of it. In the course of our inspection work we frequently find long keeping varieties with apples split open, one-third down in the barrel. Just so long as this condition of packing exists, just so long will the retailer provide for this waste.

We have mentioned some of the evils of the industry from the point of production to the consumer and can only conclude that the fault does not lie with the producer, nor yet with the distributor, but with the system. The remedy for most of these evils is in the hands of the growers.

Just as a number of the evils of the marketing and distribution of the fruit of growers in Nova Scotia and the Pacific Coast states have been overcome by the organization of a central body, the same business methods applied to the industry in Ontario and Quebec would bring about similar results. In order to obtain this, growers must first organize into local associations. A central selling organization of the fruit growers of the province of Quebec may seem to be impracticable, but local conditions are excellent for local organizations, and if this were done a central body would surely follow.

In British Columbia there are certain varieties of apples which grow better there than anywhere else. It is the same in Ontario and the Maritime Provinces. Nowhere can the famous McIntosh Red and Fameuse apples be grown as well as in the province of Quebec and eastern Ontario. These two varieties, admittedly the best of all dessert varieties, are of the highest commercial value. Has the grower of these varieties received a fair share of the price paid for them by the consumer? Compare the price the consumer is paying to-day for these varieties, with the price the grower received. Some may say that the difference is due to the unsettled condition of the market, but so far as these varieties are concerned, this year does not differ from any other, for the reason that the supply has not been equal to the demand at the prevailing prices of other good varieties, and the consumer is prepared to pay a higher price.

Organization has not yet overcome all the evils connected with the marketing and distribution of fruit. We have, however, excellent examples of the great advantages it has over individual efforts. The solving of these problems is too great a task to be accomplished by the individual grower. The only remedy is through systematic co-operation, and the adoption of twentieth century business methods, which will give the grower control of his fruit from orchard to market and a more equitable division of the profits.

Fruit Refrigeration Investigation at Grimsby

By Edwin Smith, B.Sc., in Cold Storage Experimental Plant, Grimsby, Ont.

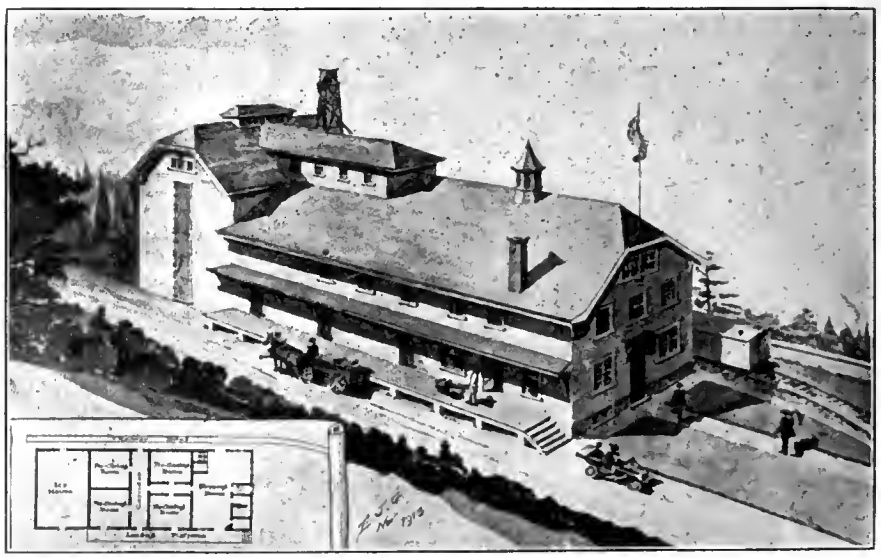
IT has for a long time been believed that refrigeration facilities located in country points for the use of fruit-growers and shippers in the pre-cooling, assembling or cold storing of tender fruits, offered great possibilities for the improvement of the fruit trade. Many of these possibilities were demonstrated and their value realized in practical use last season in connection with the experimental pre-cooling and fruit storage warehouse at Grimsby, Ontario.

The total failure of the peach crop in this part of Ontario greatly cut down the fresh fruit shipments, but even with cherries, plums, tomatoes and pears the plant operated at about one quarter full capacity. Thirty-nine cars of pre-cooled fruit were handled, many of which were assembled over three or four days. Many growers held medium or small lots of tender fruits for a few days for better markets. Blockades in transportation and marketing that often cause heavy losses in tender fruits were met by holding fruit a few days in cold storage. During the winter the warehouse was used for the cold storage of apples, pears and cabbage.

The project is having its greatest effect in a demonstrative way. In many instances from $50 to $200 per car was gained by taking advantage of this plant. In the case of the raspberry crop, which is not important in this district, $3,000 was saved the vicinity in a single week.

During the winter and spring the Grimsby equipment has been put into shape to operate at full capacity during the coming season, in view of the present prospects for a heavy fruit crop. The services of Mr. J. M. Creelman of Guelph, have been secured as scientific assistant. Mr. Creelman has had a wide experience in handling fruit in Ontario, British Columbia and California.

The work during 1915 will be carried on in three divisions: (1) Commercial Service; (2) Experiments and Demonstrations in Shipping; (3) Scientific Records on Fruits under different Cold Storage Conditions. The first division will cover the pre-cooling and shipping of fruit for shippers and growers in a strict commercial manner, charging fixed rates for the service. The second will take up the handling of fruit as well as its refrigeration; experimental shipments in carload lots will be carried out, using packages and methods that are not now in vogue in the Niagara district, but which are satisfactory in other fruit districts and markets; a study of the costs and returns from these methods and packages; the effect of careful handling upon long distance shipments; methods of loading and icing refrigerator cars; the rate of pre-cooling and its effect on fruit, etc.



Government Pre-cooling and Cold Storage Plant at Grimsby, Ont.
The refrigerator capacity is 50,000 cubic feet. The space on the ground floor is divided into four rooms, each large enough to handle two carloads of fruit at the same time.

Under the third division comes the experiments with small lots of the leading varieties of fruits under different cold storage conditions, carrying on the work started last year which covered the following:—

Strawberry—Williams.
Cherries—Governor Wood, Early Richmond, Montmorency.
Gooseberries — Columbus (European), Downing (American).
Black Currant—Prince of Wales.
Red Currant—Red Dutch.
Blackberry—Lawton.
Blueberry—Canada.
Raspberry—Cuthbert.
Plums—Bradshaw, Washington Gage, Yellow Egg, Reine Claude, Grand Duke.
Tomatoes—Earliana, Chalk's Jewel, Danish Export.
Grapes—Niagara, Concord, Agawam, Lindley, Wilder, Catawba, Vergenne.

Canada's Fruit Exhibit

Wm. Hutchinson, Canadian Commissioner General

The Canadian Palace at the Panama Exposition in San Francisco, Cal., is a rectangular building 330 x 210 feet, and a welding of New-Greek and Colonial architecture. Impressive British lions guard the main entrances, and numerous huge columns all around the building contribute to give it an imposing and stately appearance. Gardens surround the majestic edifice. The materials used in the construction of the pavilion are wood, plaster and cement.

Perhaps Canada's boldest display is in her fruit, for here she brings her strawberries, her pears, her peaches, her apples and all her native fruits to compete with the great products of California. Here Canada beards California in her own den, as it were, and the display of fruit she makes is an admirable one. The blush of nature has not yet left it and it looks very fresh, very inviting and very beautiful.

In one corner are shown the orchards from which all this delightful fruit comes. These orchards placed among fields of blue grass are inhabited by men, women and children in miniature, busily engaged in gathering apples, pears, plums and peaches. On the ground are seen hundreds of baskets of real fruit, put there to show the world the sort that Canada grows. In another part, in jars, is a display of table fruits and jams.

Quebec's Demonstration Orchards

Prof. T. G. Bunting, B.S.A., Macdonald College

THERE have been a number of demonstration orchards established in the better-known fruit sections of this province, which have been under the management of the Department of Agriculture and the Pomological and Fruit Growing Society, and these have been successful in encouraging the taking of greater interest in the many old orchards of these respective sections.

In recent years there has been a very keen demand for information and instruction in apple growing in some sections where apple growing has not been put on a firm basis. Realizing this, the Horticulture Department of Macdonald College has been holding orchard demonstrations in pruning, spraying, grafting, and management of orchards in various districts. These meetings have been held in orchards at the following places:—Ayer's Cliff, North Hatley, Smith's Mills, Rockburn and Shawville, and at other points as opportunity occurred. In addition, it has been deemed wise to establish a number of illustration orchards at central points in sections outside of the better-known apple districts. At Lennoxville and at Shawville, small apple orchards of 50 trees of McIntosh and Fameuse have been planted, and it is the intention to add more varieties to these in the near future and also to establish other plantings of a similar nature elsewhere. Only those varieties that are perfectly hardy and most likely to be satisfactory are being planted. The orchards are intended to be a gathering place for meetings in the future as well as a demonstration of just what may be accomplished in apple growing in these sections.

The two orchards already planted are under the management of the Macdonald College demonstrators located at Shawville and Lennoxville, and both of these orchards have done exceptionally well during the past year. Plans are now being made for the planting of several more orchards in the spring.

British Columbia Fruit Prospects

R. M. Winslow, Victoria, B.C., Provincial Horticulturist

The general outlook is for a fruit crop in British Columbia slightly in excess of last year. There has been very little winter injury and only slight injury from spring frosts. Soil moisture conditions are generally favorable throughout the interior, but unusually dry weather in all Coast and Island sections to date makes considerable rain necessary for normal yields.

Orchards are generally receiving care, at least as good as previously, while generally better care is noted in most interior sections. Dormant sprays were applied on about 75 per cent. of cared-for orchards in the Island and Coast sections, while about 25 per cent. of Dry Belt orchards were given the dormant spray. In the interior humid

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Get our import bulb catalogue at once. Orders must be sent in this month.

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For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
Minister of Agriculture
Parliament Bldgs., Toronto

Douglas Gardens
OAKVILLE, ONT.

Hardy Plants
Grown in Canada

We name below a few things that we desire to emphasize, viz.: Anemone Japonica, "Alba" and "Mont Rose," each 15c, 10 for $1.25; Aquilegia (Columbine), each 15c, 10 for $1.25; Arabis Alpina, each 15c, 10 for $1.25, 100 for $10.00; Artemisia Lactiflora (new), each 25c; Asters, hardy (Michaelmas Daisies), 12 varieties, each 15c, 10 for $1.25; Delphiniums (Gold Medal Hybrids), each 20c, 10 for $1.50; Helenium, "Riverton Beauty" and "R. Gem," each 20c; Hemerocallis, 3 sorts, each 15c and 20c, 10 for $1.25 and $1.50; Kniphofia (Tritoma) "Pfitzeri," each 15c, 10 for $1.25; Pansies, in separate colors, 10 for 45c; Shasta Daisies, 3 sorts, each 25c, 3 of each for $1.80; Dahlias (plants only), 10 sorts, each 15c, 10 for $1.25; China Asters, grown in pots, 6 sorts, 10 for 25c, 100 for $1.25; Antirrhinums, including Silver Pink, 10 for 60c; Salvia, "Bonfire," each 10c, 10 for 75c; Hollyhocks, 5 sorts, each 20c; Hardy Garden Pink, "Mrs. Sinkins," each 20c; Digitalis (Foxglove), 4 sorts, 1-year plants, each 20c. Geraniums, Scabiosa, Stocks, Gladioli.

Please add postage, as per schedule, when remitting.

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Climax Fruit Baskets

Heaviest, Strongest and Best

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Northern Bred Italian Queens

Guaranteed as good as can be had. Leaflet, "How to Introduce Queens," 15c; "How to Increase," 15c; both, 25c.

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Three-Banded Italians

Twenty years' selection and breeding is why Murry's queens are better. A trial order will convince you. Safe arrival and Satisfaction guaranteed. Prices after May 1st:

	1	6	12
Untested	.75	$4.00	$7.50
Tested	$1.25	6.50	12.00

Bees, by the pound, $1.50. Better let me book your orders now.

H. D. MURRY

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THREE BANDED ITALIAN
BEES AND QUEENS

Bred from good, hardy, industrious stock in a locality where disease has never been known. We have a large, well-equipped queen rearing yard, and can usually fill all orders promptly. Purity of mating, safe arrival and satisfaction guaranteed. Ready in May.

Untested Queens, $1 each; 6, $5; 12, $9.
Tested, $1.50 each. Select tested, $2.50 each.
Breeding Queens, $5.

½ lb. package of bees ..... $1.50 each
1 lb. package of bees ..... $2.50 each
Add the price of Queen if wanted.

Prices for larger quantities furnished on application. Send for a price list.

H. C. Short, Rt. 2, Winchester, Ohio, U.S.A.

Queens

"Reared in Canada"
from the best Italian stock

ONE DOLLAR EACH
Six for Five Dollars

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CARNIOLANS Only

Carniolans build up fast in the spring. Are very prolific, very gentle, cap honey very white, enter comb honey supers readily, gather almost no propolis, and are the best of honey gatherers.

Untested Queens, $1 each, $9 dozen; Tested Queens, $1.50 each, $12 dozen; 1 lb. package, with Queen, $2.50.

Delivery after May 15, depending on the season somewhat.

ALBERT G. HANN

CLINTON, N.J. U.S.A.

Bees and Queens

Ours are choice stock and Northern Bred; are more desirable for Canadian Beekeepers. Ask for Catalogue B.

Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.

Berry Baskets, ask for Catalogue C.

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ITALIAN QUEENS.

A choice stock of Italian Queens from northern bred stock will be ready for shipping from either of our apiaries after June 20th.

At $1.00 each, or 6 for $5.00.

Also some fine tested one-year-old queens from our Marshfield apiary at $1.00.

At the end of June when re-queening we will have a number not quite so good at 50c. You can depend upon our service, backed as it is with 45 years of experience.

Vermont Apiaries Marshfield, Ill.
DeLand, Fla.

CANADIAN-BRED, LEATHER COLORED, ITALIAN QUEENS

Untested Queens, $1.00 each, $10.00 dozen; warranted Queens, $1.10 each, $12.00 dozen; tested after July 1, $1.50 each; breeding Queens, $5.00 each. Place your orders early. I guarantee you a square deal.

JOHN A. McKINNON - St. Eugene, Ont.

Early Queens

Italian and Carnio-Italian

Vigorous queens from clean, healthy colonies. Safe delivery at your post office guaranteed. Dozen, untested, $10; tested, $15.

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Everything in the line of bee supplies. Weed process comb foundation, Bingham smokers, Porter bee escapes, improved model hives, etc.

Bees by the pound package. The best way to make increase. Hardy Canadian-bred Italian stock; sure to please. Full instructions for handling with each shipment.

Prices, including an untested Italian Queen:

	June.	July 1 to Sept. 15.
1-lb. package	$3.50	$2.50
2-lb. package	4.50	3.50
3-lb. package	5.50	4.50

Tested Queen included with above, 50c extra. Select tested, $1.00 extra, or best breeding Queen $4.00 each extra. Best Italian Queens, untested $1.00; tested Queens, $1.50, and select tested, $2.00 each. Usual discounts by dozen or more.

Write us if you have any Beeswax to offer. Catalogue upon application.

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A full line of Beekeepers' Supplies, including our justly celebrated Double-walled Hive. The pound package our specialty. We have a few choice Colonies of Bees not sold yet. We want Bees Wax. Have you got our handsome catalogue of "Perfection Brand" Goods? It's free.

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25 years of knowledge and experience we give you in every order.

sections the use of lime sulphur before buds open is declining, but scab spraying is much more general. Fruit pests are in evidence. Various insects, especially aphis, are more in evidence than usual, and much peach leaf curl is reported in the Lower Okanagan. Fire Blight is only occasionally active as yet, which is promising.

Strawberries.—The bearing acreage is about equal to 1914. In the Coast sections rain is needed to give crops equal to last year. Dry Belt strawberries usually promise a much better yield, while in the West Kootenay the yield is likely to be lighter than last year.

Raspberries.—The bearing acreage has increased slightly, and all districts report plantations as promising for good yields.

Sour Cherries.—The condition is about the same as last year, with prospects for about the same production, or slight increase.

Sweet Cherries.—Generally in fair condition, with prospects for practically as large a yield in the interior but a considerable decrease on the Coast.

Peaches.—In the Okanagan many trees have been cut out and a serious amount of peach leaf curl is present, but the set is exceptionally heavy with prospects for shipments much greater than last year.

Plums.—In nearly all sections there are prospects for a plum crop just about equal to last year, occasionally heavier, but in the Okanagan a yield of two-thirds of last year is to be expected.

Pears.—Blossomed heavily in all districts, and usually a crop equal to last year and increases up to 25 per cent. greater are reported.

Apples.—The Coast apple crop seems likely to equal 1914, the winter varieties being in best condition. In the Thompson River section the yield will not equal last year, the present prospect being for 60 per cent. In Salmon Arm-Armstrong district the old trees are generally rather light, and the total yield will be somewhat less than last year. In the Okanagan, Vernon is reported as having a very fair increase in prospect, while Lake Points show a slight decrease. Total shipments may slightly exceed last year. In the Boundary, the apple crop will be slightly less than last year, while in the West Kootenay the increase will be very considerable. While the season is generally reported as a week or ten days ahead of normal, prospects are still far from definite, and this report gives only the most general outline, which may be modified very considerably before the end of June.

Northwestern States.—It seems certain that the apple crop of the Northwestern States will fall short of 1914, especially in Yakima and Spokane. Wenatchee expects much the same apple crop as last year.

Marketing Immature Fruit

D. Johnson, Fruit Commissioner, Ottawa

The Dominion Fruit Inspectors will be instructed this season to pay particular attention to the matter of maturity of the different fruits as they come upon the market. Objections have been raised in the past to the packing of grapes, for instance, before they were properly mature. Some shippers have even gone so far as to over-face their baskets, placing well-ripened grapes on the top row, while underneath the fruit was so green as to be unfit for use.

Practices such as those described have had a very depressing effect upon the market, as the consumer who once bought a basket of such fruit would not buy again. Our inspectors are being instructed to take special precautions to see that no such fruit goes on the market this season. Any cases

of over-facing arising from the packing of immature fruit will be followed by prosecution for violation of section 321 (c) of the Inspection and Sale Act, Part IX.

NOVA SCOTIA SHIPMENTS.

Shipments of last season's crop of apples were made by the United Fruit Growers of Nova Scotia, Ltd., as follows:

London	155,813	barrels
Liverpool	83,704	"
Glasgow	25,087	"
Manchester	36,138	"
Newfoundland	7,912	"
Western Canada	22,351	"
Local Sales	41,836	"
Local Consigned	18,356	"
Boston	2,096	"
South Africa	1,008	"
South America	12,000	"
Total	406,301	"
Potatoes	64,405	"
	470,706	

In the figures given boxes are included, reckoned as three for a barrel. The frost in the Baldwins caused a tremendous shrinkage, and also caused many thousands of barrels to be packed under individual names, as the Company prevented, as far as possible, any fruit thus affected bearing the U.F.C. Brand.

Bulletins and Reports

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: "Marketing Georgia Peaches," by C. W. Baxter, being circular No. 1 of the Dominion Fruit Division, Ottawa. "Manures and Fertilizers," by Frank T. Shutt, being circular No. 8 of the Dominion Experimental Farm, Ottawa. The Central Experimental Farm has also issued a Summary of Results in Horticulture for 1914. It tells the story of results experimentally achieved in all parts of the country and under varying conditions in the cultivation of many species of vegetables, fruits, trees, plants and flowers. Results of hot-house as well as outdoor experiments are detailed. Two other bulletins of the second series distributed by the Central Experimental Farm are entitled: "The Planting and Care of Shade Trees," by F. E. Buck, B.S.A.; and "Growing Field Root, Vegetable and Flower Seeds in Canada," by M. O. Malte, Ph.D., Dominion Agrostologist, and W. T. Macoun, Dominion Horticulturist. An interesting announcement contained in this latter bulletin is that the Dominion Government is willing to aid seed growers by cash subventions, particulars of which may be obtained from the Seed Branch, Department of Agriculture, Ottawa.

IF GOOD QUEENS ARE WANTED

I have the goods. The pure three-banded Italians and the pure Carniolans, both races from imported mothers. Prices, untested, each 75c; dozen, $8.00. Tested, $1.25 each; dozen, $12.00. Circular Free.

GRANT ANDERSON, SAN BENITO, TEXAS

BEES FOR SALE

Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; all with Queens. Italian Queens, 75c each; 6 for $4.00. Complete catalogue free.

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Miller's Strain Italian Queens

By return mail, after June 5th to 10th, or money refunded; bred from best red clover strains in United States, in full colonies, from my Superior Breeders, northern bred for business, long tongued, three-banded, gentle, winter well, hustlers. Not inclined to swarm; roll honey in. 1 untested, $1.00; 6, $5.00; 12, $9.00. 1 selected, untested, $1.25; 6, $6.00; 12, $11.00. A specialist of 18 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, Brockville, Pa., U.S.A.

PRICE LIST

of

Three Banded Red Clover Italian Queens

Bred from Tested Stock

Untested Queens, $1 each, $5 for six

Selected untested, $1.25 each, $7 for six

Tested Selected Guaranteed Queens, $2 each

Cash With Order

W. R. STIRLING

Box 214 Ridgetown, Ont.

The Beekeepers' Review

The Beekeepers' Review is now just beginning to publish those valuable papers read at the National Beekeepers' Convention at Denver last February. If you were to begin your subscription with the May number none would be missed. We will be pleased to receive your subscription for the last eight months of the year for an even 50c, post-paid to Canadian subscribers. In remitting, say begin with the May number, so as to miss none of those valuable papers. Those papers are only a part of the valuable material we have on hand that will appear during this year, so we are very sure you will receive your money's worth by subscribing for the Review at this time. The Review is Owned and Published by the Honey Producers Themselves, consequently is published wholly to our interest. Kindly remit by postal note, not stamps, as we cannot use Canadian stamps. Address, with remittance, The Beekeepers' Review, Northstar, Mich.

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THOROUGHBRED QUEENS

Three-band and Golden Italians my stock. I secured the best stock obtainable, unexcelled for honey gathering and very gentle. No better queens to be had, no matter what price you pay.

	May 1st to July 1st.			July 1st to Nov. 1st.		
	1	6	12	1	6	12
Untested	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.75
Select, untested	1.25	6.00	11.00	1.00	5.00	9.00
Tested	1.50	7.50	12.00	1.25	6.00	10.00
Select, tested	2.00	10.75	18.00	1.75	9.00	16.00
Breeding queens	5.00					
Nuclei—1 frame	1.50	8.00	15.00			
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When ordering Nuclei select the queen you wish from the above list and add price to same. No foul brood or diseases. Safe arrival and satisfaction guaranteed to all in the United States and Canada. Address

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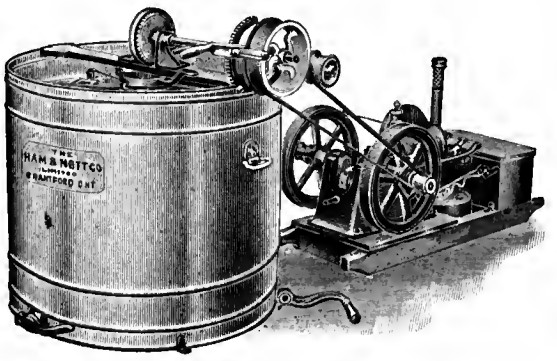

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REGISTERED
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Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

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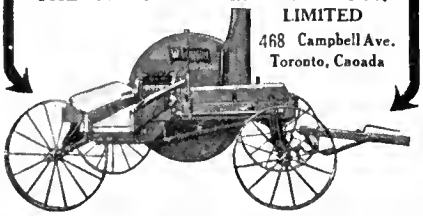

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ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

HANDIEST IMPLEMENT YOU CAN HAVE
You'll find a hundred uses for the Bissel Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable.
T. E. BISSELL Company Limited, ELORA, ONT.
Write Dept. N for Folder to-day

Make Your Farm
PAY

WITH a good prospect of high prices for farm products in sympathy with the advance now taking place in wheat and grains, the coming year should be a good one to crowd production, and make your farm *pay.*

You Can Do It With
Bradley's Fertilizers

They have been for over fifty years the standard by which other fertilizers are judged. They have always brought good crops and improved the soil. They are *"crop producers and cost reducers."* Old friends will continue to use them. We invite new ones to investigate their merits.
Send for descriptive booklet.

The American Agricultural Chemical Co.,
92 State Street, Boston 2 Rector Street, New York
Buffalo, Philadelphia, Baltimore, Etc.

The Entomological Division of the Dominion Department of Agriculture, Ottawa, is distributing bulletin No. 9, entitled: "The Army Worm," by Arthur Gibson, Chief Assistant Entomologist. The habits of the worm and methods of destroying it are described.

The Annual Report of the Fruit Growers' Association of Ontario for 1914 is being distributed by the Ontario Department of Agriculture.

"Experimental Results in Young Orchards in Pennsylvania" is the title of bulletin No. 134, issued in April by the School of Agriculture, State College, Pennsylvania. The Wisconsin Agricultural Experimental Station at Madison, Wis., has issued bulletin No. 252, entitled: "Potato Seed Certification in Wisconsin," by J. G. Milward.

British Columbia

Considerable attention is being given by fruit companies in the Summerland District to the export trade with Australia, New Zealand, The Orient, South America and South Africa. One firm has received more foreign orders than it will be able to fill.

The executive of The United Growers in the Summerland District has decided to make a change in the method of grading apples. Summer and fall varieties will be packed in different groups. The O.K. brand of the main crop will be reduced to twelve varieties and graded Nos. 1, 2 and 3. These varieties are: Delicious, Grimes' Golden, Jonathan, McIntosh Red, Winter Banana, Yellow Newton Pippin, Northern Spy, Ontario, Wealthy, Wagner, Spitzenburg and Winesap. The other varieties formerly marketed under this brand and the best varieties marketed last year under No. 2 special will form another brand similarly graded into Nos. 1, 2 and 3. All others will be shipped as orchard run under a third brand, probably "Economy."

It is probable that a veneer box with solid ends will be used for No. 3 apples, and a slat crate for orchard run.

Inspector Cunningham stated recently that the financial stringency and low prices obtained for last year's crop have not prevented orchards being kept this year in even better condition than they were a year ago. In the Summerland District 90 barrels of Lime Sulphur were used in the spring as compared with 20 barrels during the same period last year. Much of this spraying was against the Peach Borer, which caused heavy losses last year. Peach Leaf Curl is prevalent in some orchards.

As a result of the change in the duty on Black Leaf Forty, the price this year has been $12.50 a can as against $18.50 last year.

The Coldstream Estate has discontinued its nursery. This will mean a considerable loss to the fruit interests of the Province.

Mr. Randall, who was the horticulturist at the Coldstream Estate for a number of years, has been appointed to succeed Mr. Treese as Inspector for Summerland and Naramata.

A conference of Union managers was held in Vernon about the middle of May with Mr. Jackson, the new Manager of the Central Agency, and with former Manager Robertson. It was decided to reduce the wages paid fruit packers. The price paid for packing apple boxes will be five cents instead of six cents as formerly, and peach crates two and a half cents instead of three cents. Basket packing will be done by day work instead of by piece work. Some experimental shipping will be done in connection with baskets for plums, cherries, prunes, peaches, grapes, apricots and crab apples. The baskets will be four, six and eleven pounds, the latter being almost equal to the ordinary peach crate or box. If they prove successful for the soft fruits they may be more largely used in future.

The crate will be introduced for orchard-run apples, replacing the box. Thus the cost of orchard-run apples will be made as low as possible. No. 3 apples will also be shipped in crates. Arrangements will probably be made so that both orchard run and No. 3 will be packed in the orchards

instead of at the packing houses, for the sake of economy. Some of the very early apples such as Red Astrachans, Yellow Transparent and Early Harvests, will be shipped in the eleven pound baskets.

NOVA SCOTIA PRICES.

The following average prices on last year's apple shipments were realized by members of the United Fruit Growers' Co., Ltd., of Nova Scotia:

	No. 1	No. 2	Co-op.	No. 3	No. bbls.
Blenheims	$1.54	$1.30	$1.00	$ .90	6,451
Baldwins	1.76	1.50	1.08	.90	58,510
Bishop Pippins	1.38	1.11	.89	.75	5,580
Gravensteins—					
1st averaging	1.80	1.41	1.50	.90	9,860
2nd averaging	1.16	.90	.67	..	55,714
Mean averaging.	1.31	1.05	.75	..	...
R.I. Greenings	2.00	1.50	1.00	.90	8,231
Kings	2.04	1.75	1.30	1.02	32,197
Pewaukee	1.70	1.38	.90	.90	2,422
Ribston	1.50	1.33	1.03	..	31,604
Starks	1.75	1.51	1.14	.90	12,061
Seeks	1.85	1.40	1.25	.85	1,485
Twenty Ounce	1.70	1.46	1.13	.90	1,403
Wealthy, 1st aver.	1.86	1.63	1.02	..	206
Wealthy, 2nd aver.	1.30	1.03	.70	.70	998
Wagner	1.60	1.40	.90	.80	3,171
Wellington	1.82	1.40	1.20	..	2,184

ITEMS OF INTEREST.

A heavy frost was experienced practically all over Ontario the night of May 26th. It was one of the worst frosts experienced at that season of the year in twenty-five years. In some districts the fruit crop will be affected.

Reports from Buffalo concerning the damage to fruit and vegetables caused by the heavy frost of May 27th place the damage for eight western New York counties at $2,000,000. The temperature dropped as low as 26 degrees. Some districts suffered heavily, while other nearby sections escaped.

The executive of the Niagara District Fruit Growers' Association will conduct an advertising campaign in about 250 papers, located in the chief consuming centres of Canada. The first fruits of this year's crop will be sent to invalided soldiers of Canada on overseas service for the Empire.

The Canadian Express Company has issued instructions to its agents to sell shipments of fruit which miss train connections and which would be likely to deteriorate if held over for later trains. In all such cases the agents at the shipping points must be notified by telegram. This action has been taken after consultation with many of the shippers in the Niagara District.

The death occurred recently in Toronto of Mr. Ernest T. Cook, F.L.S., F.R.H.S. Mr. Cook was a well-known author on horticultural subjects, and for some years was the editor of one of the leading horticultural magazines in England. Since coming to Canada a few years ago he succeeded in forming the Ontario Rose Society, of which he was the first president.

Protecting Vines Against Frosts

A system of protection against spring frosts was organized in the district of Sauternes (Gironde) in 1913, with good results. The land of each commune was divided into a number of section; in each commune one of the growers volunteered to give the alarm; he issued a notice at nightfall if a frost seems likely, and when the fires were to be lit, and again in the morning when the temperature rose above freezing-point.

Fire places were fixed in the alleys of each section at intervals of ten to thirty yards,

What a Million Mothers Avoid

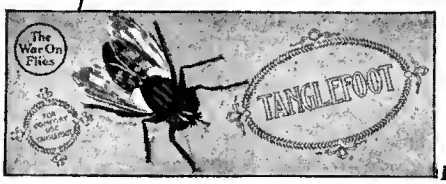
More than a million careful mothers have intuitively known the dangers of poisonous fly destroyers. They have known that such preparations contain arsenic in deadly quantities. They have realized the peril to little children that accompanies the use of fly poisons.

But for those who have not learned of these dangers, we quote from a recent issue of the Child Betterment Magazine, which comments upon 35 cases of children being poisoned last year:

"The danger to children is great, and the danger to adults is by no means inconsiderable."

In the December issue of The Journal of the Michigan State Medical Society, an editorial on the same subject cites 47 cases, and goes on to state:

"Arsenical fly poisons are as dangerous as the phosphorous match. They should be abolished. There are as efficient and more sanitary ways of catching or killing flies. And fly poisons, if used at all, should not be used in homes where there are children, or where children visit."



TANGLEFOOT
"The Sanitary Fly Destroyer"
Non-Poisonous
Catches the Germ with the Fly
Made in Canada by
THE O. & W. THUM CO.
Dept. 271 Walkerville, Ont.
American Address: Grand Rapids, Mich.

Deering New Ideal
The Binder for Your Fields

A **Deering** New Ideal binder will give you the best possible results at harvest time. However lodged or filled with green undergrowth your crops are, the **Deering** binder harvests all the grain.

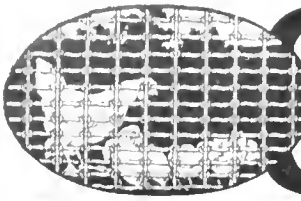
The **Deering** binder elevator, open at the rear, delivers the grain properly to the binding attachment. Because the elevator projects ahead of the knife it delivers grain to the binder deck straight. A third discharge arm keeps the bound sheaves free from unbound grain.

The T-shaped cutter bar is almost level with the bottom of the platform and allows the machine to be tilted close to the ground to pick up down and tangled grain without pushing trash in front of the knife. Either smooth section or serrated knives can be used. The **Deering** knotter needs no recommendation.

The **Deering** local agent will show why **Deering** New Ideal binders and binder twine are always satisfactory. See the agent, or, write to the nearest branch house for a catalogue.

IHC MACHINES
Made in Canada

International Harvester Company of Canada, Ltd.
BRANCH HOUSES
At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton



PEERLESS POULTRY FENCE

A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Company, Ltd.,
Winnipeg, Man., Hamilton, Ont.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

SKINNER SYSTEM OF IRRIGATION

THE RAIN MACHINE

Write for six books on indoor and outdoor irrigation.

The Skinner Irrigation Co., 223 Water St., Troy, O.

HAMMOND'S SLUG-SHOT 1880 1915 AN INSECTICIDE FOR GARDEN USE USED SINCE 1880 TRADE MARK

Cabbage Worms Destroyed by Dusting with Hammond's Slug Shot

So used for 30 years. **SOLD BY ALL SEED DEALERS.**

For pamphlets worth having, write

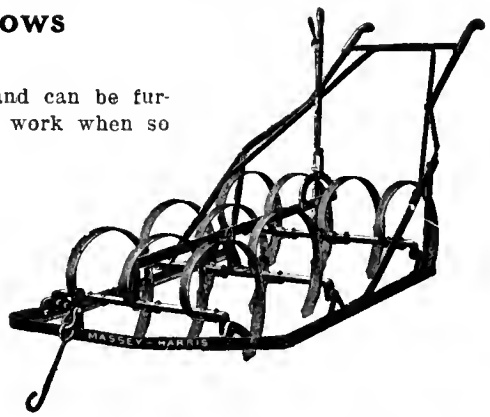
B. HAMMOND, Fishkill-on-Hudson, New York.

Implements for Orchard and Vineyard

Spring Tooth Harrows

10, 15, or 17 Teeth

The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.

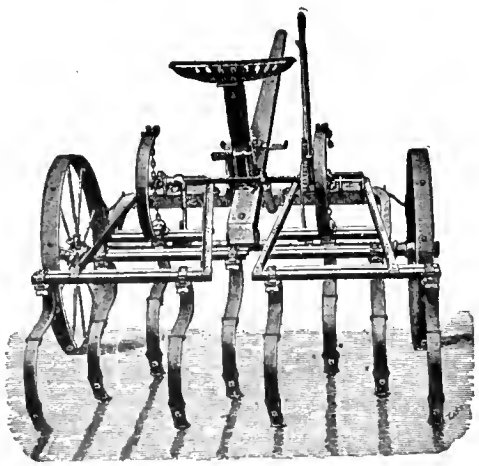


Spraying Outfits

Small outfits on skids—large outfits on wheels.

Vineyard Plows

Both Walking and Riding Plows especially built for orchard and vineyard work.



Orchard Disc Harrows

REVERSIBLE
To throw the dirt to or from the trees or vines.

ADJUSTABLE
Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

A great variety—for cultivating small fruit—for vineyards—for orchards.

Grape and Berry Hoes, etc.

TORONTO
MONTREAL
MONCTON
WINNIPEG
REGINA

Massey-Harris Co., Limited

SASKATOON
YORKTON
SWIFT CURRENT
CALGARY
EDMONTON

and besides them one cauldron on wheels, was supplied for every twelve acres or so; this moved up and down in a cross shape. The cauldron was half full of coal tar, which was lit by means of pine branches; it was occasionally sprinkled with water to increase the denseness of the smoke. The fixed fires were made of green pine branches, litter, and green grass. By this means a dense smoke was obtained, so that it was difficult to find one's way about; this completely prevented further radiation from the ground. In case there is much current of air, it is well to have extra cauldrons producing smoke on the windward side. At Preignac, in 1913, the cost of smudging on three mornings in April for about five hours each was about eighty-five cents per acre for materials alone.

Marketing this Year's Crop

(Co-operative News, Berwick, N.S.)

We have recently advised the management of all companies to discuss with their members the advisability or otherwise of supporting the Nova Scotia Fruit Growers' Association extension of market scheme. We trust that all companies will give this matter their most urgent attention, for should we have the 2,000,000 barrel crop which seems probable the present method of disposing of the apple crop will be totally inadequate.

A really live and vigorous system of market extension is essential and of vital importance, if we desire to maintain our position on the English market. Should two million barrels really materialize, the present haphazard method of shipping the crop will result in disaster. The English people must be educated not only to eat apples, but to eat Nova Scotia apples.

England can take care of about 3,000,000 barrels of imported apples and maintain fairly good prices. Let the importation exceed that quantity, the returns are altogether unprofitable.

As the greater portion of our 2,000,000 must be placed on the English market, there is only a small balance left for the United States and it is a safe prediction that the United States will not be content with the remnants.

Whether we in Nova Scotia are alive to the seriousness of the approaching fight or not, our United States cousins are, for we learn that they have already organized a most formidable combine for the purpose of extending their marketing operations in all directions, including England.

The huge combine will be known as "The General Sales Agency of America" and embraces nearly all the large fruit concerns of America, including such important organizations as The California Fruit Distributors, The North Western Fruit Exchange, and The North American Fruit Exchange. When we see such names as Arthur Rule, Geo. A. Chambers, Chas. Virden and William Farley on the working executive, we know that we have an organization that intends to capture every market entered.

The question is do we intend to act the ostrich and hide our heads in the sand, so that we cannot see the gathering clouds, or are we going to immediately prepare to protect our interests and secure for ourselves an impregnable position in the English market, which is our natural and only market. Prompt action is essential and we rely on our members to do their share by raising a special fund to meet the situation.

Potato Inspection in Practice

By H. T. Gussow, Dominion Botanist

The potato regulations under the "Destructive Insect and Pest Act" have been given a preliminary test as to their practicability, their effect upon general shipping, and the quality of potatoes generally. The inspection of potatoes was primarily undertaken with the view of preventing the disease powdery scab from being dispersed over uninfected areas in Canada, and of controlling it as much as possible within the infected area.

Provision was made under the Act in agreement with the United States, permitting the entry into the United States of potatoes free from powdery scab, subject to rigid inspection and to the condition that all such potatoes were grown from clean seed and on land that has never been infected with powdery scab. For this purpose, growers who had such potatoes (or believed they had) furnished a statement that the conditions were fully complied with. Either the growers have not yet become fully cognizant of the importance of powdery scab, or they cannot distinguish common scab from powdery scab, which is indeed most difficult. The result of this attitude was that the inspectors had frequently to condemn potatoes as unsuitable for "first grade." As far as the inspection of the potatoes themselves was concerned, it was found humanly impossible, under the existing conditions and because of the general distribution of powdery scab, to continue safely the shipments to the United States. Comparatively few carloads were shipped to the United States—only 63 in number—when one car was found by the United States potato inspectors in Boston to contain potatoes affected with powdery scab; which resulted in the withdrawal of the necessary United States permits for the entry of potatoes into the United States for this season.

From December 12th, 1914, when the inspection work commenced in New Brunswick, up to February 24th, 1915, the following quantities of potatoes were shipped from the province of New Brunswick:—

Total number of bushels Table Potatoes inspected from December 12, 1914, to February 20, 1915....	278,927
Total number of bushels First grade Potatoes for U.S.A.....	49,343
Total number of bushels First Grade Potatoes for Canada	4,500
	332,770

The result of the potato inspection this season must be regarded as satisfactory; the preference given to potatoes not affected with powdery scab will eventually induce the growers to take every precaution to get rid of this disease, which he can if he only makes up his mind to do so. The appreciation of the inspected potatoes from New Brunswick clearly shows the value of inspection as an aid to establishing a good name for same. The disease-free New Brunswick potatoes were even given a preference of ten cents a barrel over stock from the state of Maine, when sold in the United States. Growers are again cautioned to take every precaution this spring in planting seed potatoes free from scab of any kind on land that has, preferably, not produced a crop of potatoes before

BEZZO'S FAMOUS PRIZE ASTERS.

A few plants of choice varieties left at $1.00 per hundred by express, $1.10 by mail. Charges prepaid on orders over 250. Remit by Money Order.

C. MORTIMER BEZZO,
Berlin, Canada.

GILSON Johnny-on the-Spot
A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P.
Gilson Mfg. Company.
5 York St
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1 1-2 H. P. Gasoline Engine. Skid or truck. Sizes up to 15 H.P.
$47.50

Apple Box Shooks

Use the package which gives the best results. -:-

WRITE US FOR PRICES

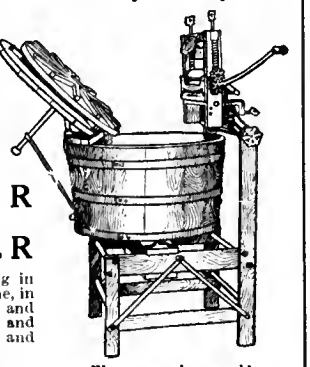
Wilson Box Co. Ltd.
St. John, N. B.
Mills at Fairville, Westfield and Bonny River, N. B.

It is not a question of "Do you wash clothes?" but "How do you do your washing?"

On the same old-fashioned back-breaking rub board? The results never can warrant the hard slavery this entails when the

CONNOR
Ball-Bearing
WASHER

will do the Washing in less than half the time, in the most modern and least fatiguing way, and without any wear and tear on the clothes.



Why not let us send you our booklet on this machine?

We can supply a machine anywhere in Canada

Write to-day to

J. H. CONNOR & SON, Limited
Established in 1881 OTTAWA, ONT.

Let Us Figure on Your Next Greenhouse

There are so many uses for a greenhouse on the farm that we feel sure this house will fill a real need.

As the demand for the food supply of Canada increases, so is it necessary to keep up with that demand by having sufficient glass under which to grow vegetables out of season and bedding out plants for the TRUCK FARM. By building now you can have your house ready in good time for winter. "Procrastination is the thief of time," and nowhere is this more true than in the management of a commercial garden.

The above type is built entirely for efficiency rather than appearance, and consequently is comparatively inexpensive to erect, though it is of the very best materials and design throughout. This is a small size, but we have built houses of this type 61 ft. x 400 ft.

Further information about it and other greenhouses is contained in our booklet B, which we would like to send you.

GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.

Dept. B, 201 Church Street, Toronto
P. O. Box 1042, Montreal

Horticultural Demonstrations in Prince Edward Island

L. Tennant, B. S. A., King's County

THE grant made to Prince Edward Island under The Agricultural Instruction Act has enabled the local Department of Agriculture to do considerable demonstration work along horticultural lines. This work included pruning, spraying, grafting, instruction in the general care and cultivation of orchards, and demonstrations in the grading and packing of apples. Many of the Island orchards were set out some years ago, and in several instances these orchards have become unprofitable, either on account of lack of care or the fact that many of the trees are of poor varieties. The question of the renovation of the orchards of the Island is, therefore, an important one.

Many orchard owners have rather hazy ideas regarding the pruning of an apple tree. Too frequently they measure the success of their operations by the quantity of wood which is removed from the tree. The object of pruning is not to cut out a large amount of wood, but to leave as much bearing wood as possible, to have this wood evenly distributed throughout the different parts of the tree, and to give each branch and twig sufficient light and air so that the fruit it bears will mature and color properly. In our work the cutting out of large branches was avoided as far as possible. The pruning largely consisted in thinning the outer twigs and branches. In some cases where the trees had been neglected for some time it was found necessary to remove large branches, but wherever this was done the cut was made as close to the main limb as possible, and the wound was covered with a good paint.

Here and there were found trees that would be very liable to split in a high wind, or when carrying a heavy load of fruit. To prevent this, the main branches on opposite sides of the tree were tied together. Screw eyes were placed in these branches between two and three feet from the crotch. These screw eyes were joined together by a loop of heavy galvanized wire, which was twisted tight. By this means the tree was supported and the danger of splitting avoided.

A small amount of grafting was done in a couple of orchards. There are several instances in which top grafting could be done quite profitably. A considerable number of trees in many orchards are either early varieties, or varieties that do not find a ready sale. By changing these trees over to varieties that are in demand and that will keep well, the returns from a large number of orchards would be materially increased.

Demonstration work in spraying was done in several localities last year, and was attended with good results. Home-made concentrated lime-sulphur and arsenate of lead were the materials used. The orchards on the Island were all fairly free from insect attack last year, so that there was not much difference in this respect between sprayed and unsprayed orchards. In a few unsprayed orchards the Oyster Shell Bark Louse is quite bad. In the control of scab, however, there was a big difference between the sprayed and unsprayed orchards. In the sprayed orchard a large percentage of the fruit was No. 1, but in the unsprayed orchard the bulk of the fruit that was marketed was of No. 2 grade, and the percentage of culls often ran as high as 35 to 40. A large quantity of home-made concentrated lime-sulphur was manufactured at Charlottetown and sold at cost.

Wilkinson Plows

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the standard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

The Bateman-Wilkinson Co., Limited
461 Symington Avenue, Toronto Canada

Repairs for all Wilkinson Plows

Big Ben

Made in La Salle and Peru, Ill., by Westclox

—always on the Job

Big Ben is known as the watchlike alarm clock with a human brain—a clock smart enough to call just *when* and *as* he's told.

He's ringing up more than three million families each day of the year—some with a steady five-minute call, and some on the "installment" plan.

Big Ben stands seven inches from tip to toe—big, faithful and exact—with bold numerals and clean-cut hands which show plainly in the dim, early morning light.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't got him, send a money order for $3.00 to his makers *Westclox, La Salle, Illinois*—and he'll come to you prepaid.

Glass vs. Cotton

Referring to the use of cotton instead of glass for covering cold frames and hot beds, Dr. Andrews, of Regina, Sask., writes, "Glass has its uses. But many of our gardeners leave home in the morning, which may be cloudy, clearing up by nine o'clock and our hot sun is apt to raise the temperature too high. Cheesecloth quilted double by sewing across every twelve inches is preferable. It is like ventilated underclothing, open but warm on account of imprisoned air.

"Hard cotton is of little use, or rather of less use than one more open. We are simply using the same protection and means of ventilation which is making the cotton window so satisfactory in some of the public schools, and in sleeping rooms during the winter. I hope many will try the new device. The plants are hardy, and stand transplanting well. The cost of cotton is so low that one can afford to have a large area of cold frames and hot beds for melons, squash, tomatoes and bush beans and protect them from autumn frosts."

The Commission of Conservation of Canada at Ottawa is distributing a little booklet dealing with "Town Planning." It is being a special issue of their magazine, entitled "Conservation of Life."

The Tournament of Roses is an annual event conducted in California that has attracted wide attention. A special booklet dealing with this event and beautifully illustrating this great event and beautifully illustrating it has been issued by the Pasadena Daily News, Pasadena, Cal.

Okanagan Valley, North

Chas. Webster, Armstrong, B.C.

Fruit trees were in bloom quite three weeks earlier than last season, and blossoming time was unusually free from frosts. Sweet cherries, which are not widely grown here because of their susceptibility to frost, are in most cases well set. Apple orchards bearing very heavily last year, are, as a rule, much lighter this season. Altogether, the fruit prospects are equal to a year ago.

Mr. F. T. Jackson, until lately partner and manager in the produce firm of Daykin & Jackson, of Armstrong, has taken the place of Mr. R. R. Robertson, as manager of the Okanagan United Growers, at Vernon. The growers hope for the pursuance of a policy which will leave more returns with them, and less with the fruit brokers and wholesalers.

A slatted crate is to be tried out this season for shipping a portion of the apple crop to the prairie markets. The package will be less costly than the usual one-third barrel box, and packing a little less elaborate. This is another effort on the part of the growers to place apples with customers at a price that will not restrict consumption. By the way, if consumers were making as earnest efforts to deal more directly with the grower as growers have for years been endeavoring to have their fruit sold to the public at a reasonable margin above what they receive, plus transportation charges, there would be more hopes of closer relations. Several public markets have been opened at places on the prairies, some of which I understand are not as well patronized as was expected. Okanagan fruits and vegetables would certainly reach these markets if the people were there to buy them. Perhaps one result of these war times will be less frequent shopping by phone, less patronizing of the palatial but expensive down-town fruit stores, and more attention to the public markets, where one can see what is offered, get a good knowledge of values, and the growers get there almost directly to the buyers.

Smith & Gorham, of the Hullcar Nurseries, Armstrong, have, in spite of the depression in orcharding, found a steady sale for their stock in northern Okanagan, Salmon Arm, etc. Their trees being grown under unirrigated conditions, find favor in these districts.

A large area has been gradually getting into alfalfa around Enderby. A plant was erected some time ago for the production of alfalfa meal for poultry, etc. The output has had a good reception throughout the province.

British Columbia

The following grants for horticultural purposes are called for in the estimates of the British Columbia Government for the year ending 31st March, 1916:—

Board of Horticulture—expenses of members attending meetings, $500.00; Crop competitions in commercial fruits and vegetables, and garden and vacant lot competitions and demonstrations, $2,000.00; Demonstration orchards and experimental trees, $2,000.00; Demonstration spraying, $1,500; Fruit-handling, cold-storage, and pre-cooling investigation work, $2,000.00; Fruit-packing Schools, $2,000.00; In aid of British Columbia Fruit-growers' Association, $5,000.00; Inspection of nursery-stock, trees, plants, etc., $20,000.00; Suppression of diseases affecting fruits, vegetables, plants, etc., $15,000.00.

BASKETS

We supply hand-made fruit baskets, crates, etc. Well made, strong and guaranteed to give every satisfaction.

Let us quote you prices this season. Can supply any quantity.

Hewson & Farrell

Box 244, Grimsby, Ont.

Landscape Gardening

A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL

DEPT. C.F. - SPRINGFIELD, MASS.

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

Orders Filled Promptly. Send for Prices.

THE FOSTER POTTERY CO., Ltd.

HAMILTON, ONT.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

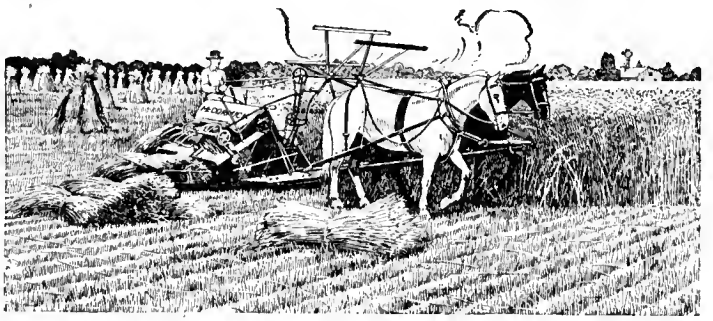
and a complete line of

Apple Evaporating Machinery

Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

McCormick Binders



PRACTICAL farmers who know what harvesting difficulties must be overcome in Eastern Canadian fields, urge the use of the **McCormick** binder. Ask them. You will find the **McCormick** has an unusual number of good, strong points that insure as complete a harvest as it is possible to get, even under worst field and grain conditions.

For Eastern Canadian fields the **McCormick** binder is built with a floating elevator which handles varying quantities of grain with equal facility. The binder guards are level with the bottom of the platform so that when the machine is tilted to cut close to the ground there is no ledge to catch stones and trash and push them ahead of the binder to clog the machine. These and other features you will appreciate.

Look for the same high-grade workmanship, the same famous **I H C** quality, in **McCormick** twine and in **McCormick** mowers as well as binders. Make the most of your crops. See the agent for catalogues and full information, or, write the nearest branch house.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gaymon & Co., St. Catharines.

BEES AND QUEENS

GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, $1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, $1.50. Nuclei, per frame, $1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

KEYSTONE GOLDEN ITALIAN QUEENS will please you for honey gathering; healthy brood and nice gentle bees; also Red Clover queens, bred in 8 different yards, 5 miles apart. Queens, $1.00; $9.00 per dozen. Will H. Carl, Elysburg, Pa.

SAMPLE QUEENS—To introduce our Moor's strain of Leather colored and Golden Italian Queens, we will send one to each applicant at 40c each, cash with order. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, $1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

ITALIAN QUEENS, also the Golden Beauties and Carniolans. Tested, $1.00. Untested, 75c each. For bees by the pound and queens in lots write for prices. Page Bankston, Buffalo, Texas.

BEES AND QUEENS—California queens, nuclei and bees, bred from the best Doolittle stock. Our customers say they are hustlers. A sample order will prove it to you. We can fill any sized order at once. Queens, untested 75c, dozen $8.00; select $1.00, dozen $10.00; tested $1.25, dozen $12.00; select $1.50, dozen $15.00; tested 1 year old 75c, dozen $8.00; select $1.00, dozen $10.00; nuclei, 2 frames, $1.50; 3 frames, $2.25; 5 frames, $3.00; 10-frame colony, $4.50. Bees by the pound, ½-lb. package, 75c; 1-lb. pkg., $1.00; 2-lb. pkg., $1.75; 5-lb. pkg., $4.00. Add price of queens desired to all above prices of bees and nuclei. Special discounts on lots of 100 or more. Any one of the above queens free, or 10 per cent. discount from your order, if you will send us the names and addresses of your neighbor beekeepers. Delivery guaranteed. No disease. Spencer Apiaries Co., Nordhoff, Cal.

QUEENS—Our early queen breeding location is a long narrow oasis in the desert of Southern Nevada, which is crossed at Moapa by the Salt Lake and Los Angeles R. R. Write for our circular, which gives prices of queens; bees by the pound, nuclei, etc. Booking orders now. Ogden Bee & Honey Co., Ogden, Utah. Timberline Riggs, Breeder.

BEES AND QUEENS—During spring and summer months we requeen all our two thousand colonies to prevent swarming. The queens removed from these hives are only one year old and of best Italian stock. We offer these queens at 50c each, $5.40 per dozen. Satisfaction guaranteed or money back. No disease. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

ITALIAN BEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. Stover Apiaries, Mayhew, Miss.

QUEENS OF QUALITY—3 band Italians by return mail, 75c. each, $8.00 per dozen. J. I. Banks, Dowelltown, Tenn.

ITALIAN BEES AND QUEENS as advertised on page 159. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED ITALIAN QUEENS—June to October, mothers selected from more than 100 colonies and reared in hives running over with bees, according to the latest scientific methods. Every queen a dandy. Satisfaction guaranteed. Each 75c, per dozen $7.20, per hundred $50.00. Also bees and honey. J. H. Haughey, Berrien Springs, Mich.

BEES AND QUEENS

FOR SALE—Three banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75c.; 6, $4.25; 12, $8.00. Tested queens, $1.25; 6, $7.00; 12, $13.00. Selected queens, add 25 cts. each to above prices. Breeding queens $3.00 to $5.00 each. For queens in larger quantities, write for prices and circulars. Robert B. Spicer, Wharton, N. J.

IMPROVED three banded red clover ITALIANS, bred for business. Untested $1.00, dozen $10.00; Select $1.25, dozen $12.00; Tested $1.50 each. Bees in 9 and 10 frame Langstroth Hives, $9.00 each, price of queen to be added. Safe arrival guaranteed. Charlton & Jones Co., Ltd., Walsh, Ont.

QUEENS OF QUALITY — Our Hand-Moore strain of 3-banded Italians are beautiful and good honey gatherers. Secured 223 sections comb honey from best colony 1914 season. Only drones from selected queens near mating yard. Breed strictly for business. Untested, 75c; half doz., $4.00; Select, $1.00. Queens mailed promptly or money returned. W. A. Latshaw Co., Clarion, Mich.

HARDY NORTHERN QUEENS — Moore's strain of Italians. Untested $1.00 each, 6 for $5.00. Less in large numbers. P. B. Ramer, Harmony, Minn.

FOR SALE—20 or 30 Colonies of bees to reduce my stock. 10 frame Langstroth. Jacob Alpaugh, 46 Cherry St., Stratford, Ont.

BEE SUPPLIES

CALIFORNIA RED WOOD HIVES—Single storey, 85c; supers, 25c; frames, 1½c each; 10 per cent. discount in lots of 100 or more of any of above. Special 5 per cent. discount on all supplies. Let us show you some of our bargains by sending our catalogue. It's free. Also a fine hive scraping tool, by mail, free if you will send us names and addresses of your neighbor beekeepers. Spencer Apiaries Co., Nordhoff, Cal., U.S.A.

BEE SUPPLIES for beekeepers in Northern Ontario. I have a full supply of goods for shipping on short notice. Write for catalogue. Scott Fraser, Gore Bay, Ont.

WANTED—Second-hand four-frame (Langstroth) reversible extractor. M. L. Newland, R. R. No. 2, Cainsville, Ont.

SEEDS AND PLANTS

READ ABOUT BEZZO'S FAMOUS PRIZE ASTERS on page 163. C. M. Bezzo, Berlin, Ont.

EARLY IRISH COBBLER POTATOES—Specially selected and Government inspected for seed. One dollar per bushel. Cash with order. Special price in lots. Have only limited quantity. H. W. Dawson, Brampton, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

Annapolis Valley

Manning Ellis

This is one of the coldest and latest springs on record. The oldest inhabitant will have to search his memory to remember another May with as many cold east winds and rainy days. Spraying has not begun, or is only being started May 24th, when at that date in other years the Gravensteins were in bloom. The Valley fruitgrower, unless he uses the spray pump very vigorously this season, is sure of a wonderful crop of Black Spot.

Apples and other fruits give promise of a splendid bloom that two weeks of fine weather, if we get it, will change into growing apples, plums and pears. Strawberries wintered well, and if they get through the frost season will mean money in the fortunate grower's pocket when he needs it the most. More interest is being given to berry growing, due no doubt to the high prices of the last three years. Many new plantations are being set this spring.

To date, the green aphis, that did such great injury in the Valley two years ago, is not showing on the young twigs, and Prof. Brittain, the Provincial Entomologist, reports there is little danger from them this year. This information will make quite a difference in the spraying expense, as "Black Leaf Forty" is the most expensive of the spraying ingredients.

A local branch of the Maritime Bee Keepers' Association was formed in Kentville this spring to promote more and better bee keeping in the Valley. The importance of bee keeping to the fruit growers is now becoming generally recognized, and many are buying hives to place near their orchards for the good the bees do these with the honey as a secondary consideration. This will lead to a more general consumption of honey in the home, and an appreciation of its value as a food that is now too often overlooked.

Inspection of Basket Factories

D. Johnson, Fruit Commissioner, Ottawa, Ont.

There are in Ontario some twenty-five factories manufacturing fruit packages. The majority of these are in the Niagara Peninsula, though there are individual factories in practically every section of the province.

Formerly there has been no general inspection made of these factories. Occasional visits have been made to them by a qualified officer of this branch, but these visits were not frequent, as it was generally considered that the manufacturers were turning out packages that conformed to the requirements of the Inspection and Sale Act, Part IX.

During the past two years, many complaints have been received from growers regarding the packages supplied to them. The poor quality of the veneer and the faulty nailing were particularly complained of, and in some cases the baskets were not of legal size. On account of these complaints it has been decided that a frequent inspection of basket factories is necessary in order to protect both the shippers and the consumers.

One such inspection has just been made, and certain features noted. The most essential requirement, so far as the manufacturers are concerned, is that any particular package made by one factory should be uniform in size to the same package made by any other factory. Unless that requirement is enforced, there is a strong temptation to make a "short" package, popular to some growers, but unfair to the consuming public and to the honest manufacturer. In order to effect uniformity, a standard form must be introduced which every factory will be required to use.

The use of a two-piece stapled bottom in six and eleven quart baskets, and the inadequate nailing of the side bands and handles are features which in many instances will have to be removed. The immense number of baskets which are broken during the shipping season can be greatly lessened by having every basket nailed in a more secure manner.

During the coming summer every basket factory in Canada will be visited once a month, and by this means it is hoped that more care will be given by manufacturers to the strength and uniformity of the packages they are making.

"The Canadian Horticulturist is an excellent paper, complete with good instructive articles and well worth the money."—H. T. Rutherford, "Graylands," Duncan, B. C.

The Canadian Horticulturist

Vol. XXXVIII JULY, 1915 No. 7

Home Markets Unreached by Our Fruit

H. Bronson Cowan, Editor The Canadian Horticulturist

THE problems confronting the fruit grower are becoming more complex in character. A few years ago it was the common belief that if fruit growers would merely increase their production their most pressing difficulties would be solved. In time it became apparent that other factors had a determining influence on the prosperity of the fruit grower, and activities were started to secure lower freight and express rates, and ultimately for the appointment of a railway commission. About this time also the importance of marketing fruit on a better and more economical basis was recognized, and cooperation as a remedy was advocated. Growing out of all this, as the local markets became supplied, came the call for wider markets, and experiments were started which had for their object the obtaining of varieties of fruit which would stand shipment, and also to ascertain the best methods of packing for distant markets.

Until recently most of our fruit growers have felt that the fruit growers in other provinces and districts were their competitors, and that there was little in common between them. Recently we have begun to recognize that anything which will benefit the fruit growers in other sections is likely to have an important bearing on our own prosperity. A striking evidence of this new way of looking at things occurred at the Dominion Fruit Conference in Grimsby last August. The delegates from Nova Scotia were seeking the cooperation of the delegates from the other provinces in order that pressure might be brought to bear on the Dominion Government to have it use its influence to obtain a reduction in steamship rates on fruit from Nova Scotia to the British markets. Their case was listened to with attentive interest by the fruit growers from the other provinces, who seemed, however, to think that the point at issue constituted a local problem which the fruit growers from the Martime provinces should solve for themselves. When, however, one of the Nova Scotia delegates pointed out that if these steamship rates were secured it would enable them to market the bulk of their crop in Europe, while otherwise they would be forced to ship to Ontario and the Western markets, thus possibly glutting these markets, the fruit men of Ontario and British Columbia were quick to see their interest in the situation. Within a few minutes they decided to cooperate with the growers of Nova Scotia, and had appointed a representative committee to wait on the Dominion Government, and thus help to obtain the improved steamship service desired by the Nova Scotia growers. In passing, it might be added that their joint efforts proved successful. This incident shows the identity of interest that exists between the fruit growers of all our fruit provinces.

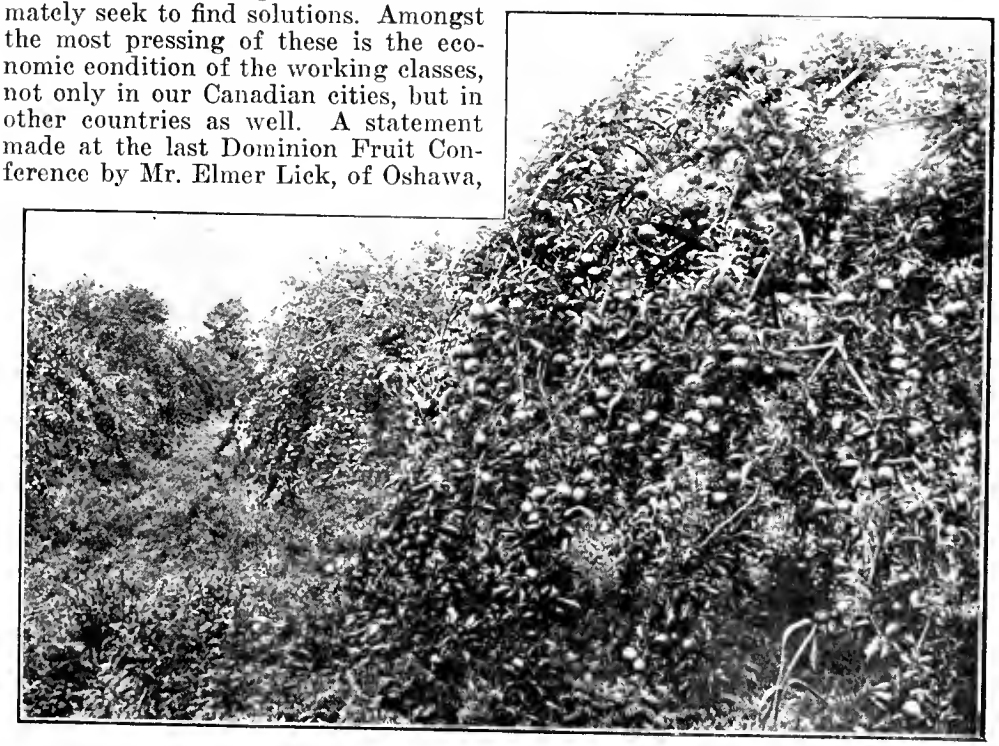
Other Problems.

Leading fruit growers are now beginning to realize and admit that the various complex problems already mentioned do not begin to exhaust those for which the fruit growers must ultimately seek to find solutions. Amongst the most pressing of these is the economic condition of the working classes, not only in our Canadian cities, but in other countries as well. A statement made at the last Dominion Fruit Conference by Mr. Elmer Lick, of Oshawa, revealed as though by a lightning flash something of the nature of this problem. While discussing the problem of wider markets, Mr. Lick made this remark:

> "The disturbing feature that "confronts us when we attempt to "find an outlet for our apples is "the large percentage of the peo- "ple in our cities who are unable "to buy fruit at any price."

The importance of Mr. Lick's remark was recognized by all present, but no one seemed to think that the question was one which the conference was called upon to deal with. The problem Mr. Lick called attention to is such a large one it cannot be more than touched upon in this issue of The Canadian Horticulturist. For the present, therefore, let us merely examine the bearing the economic condition of the working classes in our cities at home has on the prosperity of our fruit growers.

One of the enigmas of our modern



A Nova Scotia orchard of King apples, in full crop, in which vetch was used as a cover crop. (Photo furnished by Manning Ells, Port Williams, N.S.)

One of the many young orchards in British Columbia that is now in bearing.
—Photo by R. Leckie-Ewing, Okanagan Landing, B.C.

civilization is the fact that large crops of fruit, which should bless both the producer and the consumer, often do not bless either, at least to the extent they should, because they result in prices which while so low as to leave the producer little or no profit, are not low enough to bring the fruit within the reach of most of the working classes of our large industrial centres. Let us see how this condition works out.

Divisions of Wealth.

In a large city like Toronto there are different degrees of wealth. Supposing peaches were a short crop and hard to obtain. Ten families in Toronto might be able to pay as high as $50 a basket and not feel the price. Fifty other families might be able to pay $25 a basket; 100 families $10 a basket; 200 families $5 a basket; 2,000 families $2.50 a basket and 5,000 families $1 a basket. Should the crop be a large one and the price of peaches drop to 50 cents a basket there might be 10,000 families who could afford to buy peaches at that price. Below this number there might be 40,000 or more families who after paying for their clothes, fuel, rent and other absolutely necessary expenses, could not afford to buy peaches even when as low as 50 cents a basket.

How the Market Price is Set.

At this point a factor enters which should be recognized: That is that the market price of fruit in effect is always fixed by the lowest price the bulk of it is sold for. If there were only enough peaches to supply the demand of the 10 families who could pay $50 a basket for them, the price of peaches would be $50 a basket. When, however, the supply exceeded such a demand but did not exceed the requirements of the 100 families who could pay $10 a basket, then the price of peaches would drop to $10 a basket and the 10 families who could pay $50 a basket and the 50 families that could pay $25 a basket would pay only $10 a basket for their fruit. In other words, the amount produced determines the selling price. When peaches are so plentiful that in order that they may be sold the price drops to 50 cents a basket, all families alike pay only 50 cents a basket for their peaches even if many families can afford to pay much more. Should there be more than enough peaches to supply the demand at 50 cents a basket, then the growers are forced to seek for a market amongst the 40,000 families or more who cannot afford to pay 50 cents, and in consequence the price must drop to 40 cents or 30 cents, or to whatever point is within the reach of those people. Supposing this price should be 30 cents a basket it means that the fruit must be sold at a loss to the fruit grower or, as sometimes happens, not be marketed at all.

Where the Trouble Lies.

Here then is where the real basis of the marketing question comes in. The level of a large part of the possible home market for fruit has sunk below the cost level of production. The trouble is not that too many peaches are produced, but once more in the words of Mr. Lick, "there is such a large percentage of people who are unable to buy fruit at any price." It is this condition which knocks the bottom out of the market whenever there is a large production of fruit, for if all the families in our cities could afford to pay 75 cents a basket there would not be enough fruit to go round.

In time we will realize that the only real and lasting cure is to so change the conditions of the masses that they will be able to pay a price for fruit that will ensure growers receiving a profit for their product. This then is where the fruit grower's interest in the economic condition of the so called working classes comes in. When such a condition is brought about the bugbear of large crops will lose much of its terrors for the producer. To many this problem seems incapable of solution. There is, however, no certainty of this. When we, in common with other classes in the community who are equally affected by it, approach this side of the marketing problem with the same earnestness we have displayed in other matters a remedy for it will be found.

Harvesting and Marketing the Berry Crop

Grant S. Peart, Burlington, Ont.

FOR years fruit growers have devoted their attention mainly to increasing their production. The problem of marketing our fruit to advantage is now forcing itself upon our attention. At present, the trend of opinion among fruit growers favors an increased effort in advertising our products through government agencies and in other ways. The Niagara Peninsula Fruit Growers, for example, have subscribed money for the purpose of advertising their fruits. This is good, as far as it goes, but growers can supplement these efforts to no little extent, by individual effort in the direction of placing more attractive packs on the market. We refer more especially to the small fruits.

It is deplorable how careless many growers are in the proper marketing of their fruit. Having taken pains to develop a first-class strawberry bed or raspberry plantation they seem to loose their grip when they try to sell their fruit, and therefore sell it at a disadvantage both to themselves and to the trade. When we visit the markets during the fruit season we are surprised to note the quantity of inferior grades of fruit offered for sale. These are inferior because the boxes or baskets are slack, the berries soft, or there may be too many green berries. These are the prineipal troubles found in many packs. Such defects tend to discourage the consumer. We can hardly blame him, therefore when, after pay-

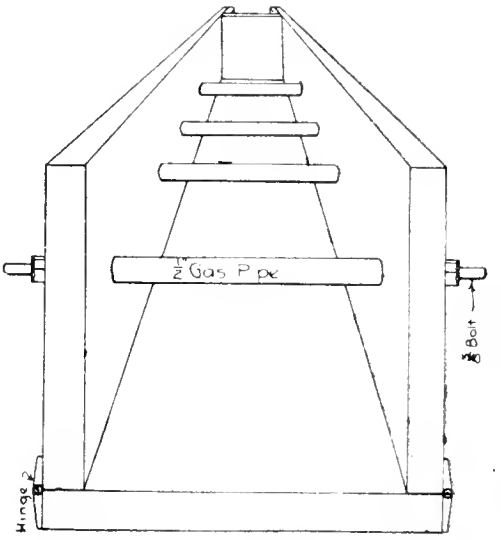
ing a fair price for some trashy home-grown fruit, he buys bananas for a while instead of strawberries.

In part at least it is inexcusable for such defects to be found in our fruits. Slack boxes and baskets are due, among other things, to the racking in transportation, to the use of inferior varieties that are poor shippers, and last, but not least, to neglect to fill the corners of the boxes or baskets properly. The former trouble is beyond the grower's control, but the latter two are under his direction. There would be fewer slack berry boxes if they were properly filled at the packing house.

Fruit should not be picked when damp with dew or rain. The pickers should be taught to pick only the matured berries and to leave the half-green strawberries in the patch. We require strawberries to be three-fourths red or more when fit to pick. The patch should be gone over at least every other day during the two weeks of the crop, so as to insure no waste through over-ripe fruit.

Some varieties produce softer fruit than others. The Glen Mary, for instance, we consider inferior. It appears perfect at the packing house and wasted on the market thirty-six hours afterwards. The Gibson, Parson's Beauty and Williams hold up much better.

The writer notes that inspectors with the Dominion Fruit Branch are making an increased effort this year to show growers the advantage of giving full measure and eliminating immature and over-ripe stuff. Let us co-operate with our fruit branch in this effort and do our best to market a superior article.



The form used for casting concrete trellis posts.

Grape Vine Posts of Concrete

THE advancing cost of lumber of all kinds has driven many fruit growers to experiment in the use of concrete for grapevine posts. Some of these experiments have proved successful. This has been due in part to the fact that concrete posts have such rigidity and strength that they can be planted farther apart than is customary with wooden posts, thus requiring fewer in number. When properly placed, they keep in alinement, and there is no decay at any point, whereas wooden posts may rot at the ground level.

The posts here shown were made of concrete consisting of one part Portland cement, one and a half parts sand, and three parts small stone. They were reinforced by placing in the corners of each post, about one inch in from the surface, a five-sixteenth inch square twisted rod. Three-eighths inch round rods could be used in place of square rods. The posts were ten feet long, of which four feet was beneath the ground and six feet above the ground. They were six inches square at the lower end, tapering to four inches square at the top. Through each post five holes were provided to receive the wires, upon which the vines were trained. At the end posts the wires were fastened to eye bolts, three-eighths inch in diameter, and about twelve inches long. These bolts extended through the end post and were threaded with a nut for tightening the wire. The bolts and fastenings are clearly shown in the illustration.

In the construction of the trellis, the slanting brace for the end post was cast in place. A notch was left in the post and the form for the brace was set up. The reinforcement of the brace projected beyond the end of the form and into the notch, the end of the form merely fitting up against the post. At the ground end of the brace an excavation was made. When the concrete was placed this excavation was also filled, thus forming a bulb or enlarged end, which answered the purpose of an anchor. The brace form was then filled with concrete, which was worked into the notch, entirely surrounding the ends of the reinforcing rods, the latter being curved at the ends to firmly anchor them. It would be feasible, however, to precast the brace, merely providing for it a notch in the post. The notch could be easily formed by nailing a triangular block to the side of the form. The post end of the brace should be set in cement mortar.

The form for casting the posts is very simple. It consists of three boards, which form a trough the exact size of the finished post. The side boards are attached to the bottom piece by hinges so that they can be readily swung down when the post is removed from the mold. The wire holes are established by placing at the proper points short pieces of half-inch gas-pipe cut so as to fit between the side boards of the form. Through these short lengths of pipe, which are left in the concrete, are placed temporarily three-eighth-inch bolts. These bolts, which also go through the side forms, serve to clamp the forms together while the pipe spaces them at the exact distance. This method of fastening is shown in the accompanying drawing. The mold should be oiled with a heavy lubricating oil before casting each post. This permits easy removal of the finished post. Under ordinary conditions the posts shown should be made at a cost of about thirty cents each.

Concrete posts are used in the vineyard. They never decay.

A useful garden implement that soon pays for itself.

July Work in the Orchard

Thorough cultivation in the orchard is important in the early part of the summer in order that moisture may be conserved and an abundant supply be available for the growing tree and the developing fruit. In some parts of Canada where the seasons are comparatively short and the winters are cold, it is very important to stop cultivation during the latter part of June in order to make conditions favorable for a thorough ripening of the wood. If the wood is not well ripened the danger of winter-injury is very great, and late cultivation induces late growth. Where the seasons are long and there is little or no chance of winter injury, cultivation may be continued until the middle of July, especially if the season is a dry one.

As soon as cultivation is discontinued in the orchard it is important to sow seed for the cover crop, which is an important factor in good orchard practice. The cover crop, growing during the latter part of the summer, uses considerable moisture and plant food and so helps to check the growth of the tree and ripen the wood. When ploughed under, the vegetable matter adds humus to the soil and so makes it more retentive of moisture. In the case of leguminous crops nitrogen is also added to the soil by this means.

Where it is important to hold the snow in winter to protect the roots of the trees the cover crop is valuable. If the soil is in good condition a non-leguminous crop, such as buckwheat, rape or millet, will make good growth and serve the purpose of checking tree growth and furnishing vegetable matter for ploughing under. If the soil is rather poor the summer vetch makes a good crop, and where clovers do well red clover or crimson clover are satisfactory.

Many fruit growers, if they spray at all, do not spray after they have sprayed for codling moth when the petals of the flowers fall. In some seasons there is little danger of scab after this spraying, but in wet seasons another spraying two weeks later and possibly still another will pay well. Sometimes scab develops in late summer when the grower may not suspect it, and a late spray sometimes makes the difference between a profitable and an unprofitable crop. Bordeaux mixture and lime sulphur wash are about equally effective in controlling apple scab, but there is less danger of russeting the fruit if lime sulphur is used.

Fire Blight and Cankers

The summer is the time when much can be done to prevent "fire or pear-blight" from becoming serious. It costs little to remove all dead twigs or limbs in the summer, when they will show up well; and the doing of this prevents a lot of serious damage. Fire blight, black rot and other fruit diseases will destroy twigs, and, if not removed in time, "hold-over cankers" will form on limbs or trunks, which you cannot remove without spoiling the tree. If you do not remove such dead twigs during the summer months, your trees will always go back, because you aid in the propagation of these diseases, and sooner or later you will have to remove the whole tree.

Do a little work now and save the tree; but do it well. Take a knife or shears or saw, and sterilize them in a solution of one part of Perchloride of Mercury to 1,000 parts of water, and cut off the diseased twigs well below the diseased tissues. After using the implements, dip them into the disinfecting solution before making another cut. Burn all cut-off material without delay.

Orchard Suggestions

Keep the cultivator going. Every weed allowed to go to seed now means many weeds next season.

Plums and apples may be budded the latter part of July or early in August. Try a few. It is an easy way to increase good varieties.

Now is the time to buy a home canning outfit. The June issue of the Minnesota Horticulturist contains a good paper on home canning.

Cover crops of oats or buckwheat may be sown in the orchard now to hold the snow next winter and check the growth of the fruit this autumn.

GARDEN SPRAYS.

Fruit growers at this time of the year should watch their shrubs closely so that attacks of insects may be controlled before they become serious. The lice are found on the under side of the leaves, causing the leaves to curl.

Currants are likely to suffer from plant lice at this time. Spraying should be done before the leaves are badly curled. The spray to use is tobacco extract—a forty per cent. solution at the rate of one tablespoonful to a gallon of water, with about a half-pound of soap for each five gallons to make the spray stick.

The currant saw fly or "currant worm" also appears about this time. Spraying early with arsenate of lead will prevent injury to the currant, but if the berries are well grown when the worms make their appearance, hellebore should be used as this will not be poisonous on the fruit. Hellebore is a powder and should be freshly bought and sprinkled over the plant while the dew is on.

The currant worm can be killed also with tobacco extract. If the aphis is also present, probably a thorough spraying with tobacco is the best treatment.

A Correction.—In the June issue of The Canadian Horticulturist there appeared an error in connection with the article of M. M. B. Davis, on "Vegetable Gardening." The White Butterfly, as described in this article, is the adult of the green cabbage worm, not the adult of the cabbage maggot. The adult of the cabbage maggot is a small insect resembling the house fly. The methods for the control of this cabbage maggot are as described in the article; the only error was in the description of the adult female insect.

Garden Reminders for July

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

PLANTS of annuals and also those of tender perennials, such as petunia, verbena, salvia, ageratum, sown out of doors early in the season, will soon require the final thinning for flowering purposes. The distance apart to thin the different species and varieties depends much on the habit of growth of the plant, and whether dense masses of inferior flowers are required rather than a smaller quantity of first-class blossoms. The fertility and nature of the soil has also to be considered.

In good loamy soil, rich in fertilizers, plants can be given more space than in sandy or heavy clay soils not so rich in fertilizers. For very tall plants, such as ricinus (castor oil plant), cosmos, African marigold, and some of the branching annual sunflowers, eighteen inches to two feet apart is not too much. Asters, ten-week-stock, balsams, zinnia, celosia or plumed cockscomb, French marigold, dwarf nasturtium, calendulas (pot marigolds), and plants of a similar sturdy, bushy habit of growth, should be thinned to about eight inches apart. Coreopsis, phlox drummondii, silene (catchfly), mignonette, poppies, gypsophila elegans, godetia, virginia stock, as well as almost all of the dwarf edging plants, such as sweet alyssum, candytuft, portulaca, ageratum, may be given less space and be thinned to from four to six inches apart.

Dahlias.

Do not forget to stake dahlias early enough, as the stems are very brittle and liable to be broken off by high winds or heavy rains. It is best to place the stake in position when the plants or roots are set out, then the tying up is an easy matter. A strong stake, five feet in length, is necessary. Be careful and not bind the stems around too tightly with the tying material. Only two or three main stems at most should be left to flower on each root. Cut out the small, weak shoots close to the ground, leaving only the strong, vigorous canes or stems.

The lower lateral or side shoots that grow on the main stems should be kept pinched off as soon as they appear, to about eighteen inches from the ground, according to the height and habit of growth of each variety. Pinching off these laterals throws the strength of the root into the upper part of the flower-producing growth. Dahlias should be watered and sprayed liberally in hot, dry weather.

The tarnished plant bug (Lygus pratensis) commences it destructive work on dahlias as soon as hot weather commences. It is best to anticipate the visits of these destructive pests and start to dust the terminal points of all growth with pyrethrum or Persian insect powder. This is more as a prevention than a cure for the attacks of these little fly-like bugs that are so destructive to asters and chrysanthemums as well as to dahlias and other flowers. Dust them, as stated, early and often when the plants are damp (not too wet). Dry, finely-powdered coal soot or wood ashes are also good remedies used in the same way as the pyrethrum powder.

Gladioli.

Gladioli require very little attention during the summer except perhaps tying and staking. Unless a very severe drought sets in, they seldom require water if the soil is suitable for them and not of too sandy a nature. It is well to keep the old blooms as well as the old flowering stems cut off, so as to prevent seed from forming on the plants. If seed heads are allowed to form, it proves a great strain on the strength of the plant and prevents the production of lateral or side spikes of bloom, as well as retarding the full growth of the new corm or bulb.

To have gladioli at their best for vases indoors, the spike should be cut when only two or three of the lower flowers have developed. The balance of the buds will usually open well indoors and the spike present a much better appearance than if left longer on the plant. Change the water they are in every second day, and cut off the base of each stem half an inch.

Sweet Peas.

In very dry weather, water sweet peas thoroughly. Soak the ground profusely about once every two weeks. This is better than light surface waterings given more frequently. As the heat increases, look out for insect pests. Aphis and red spider are the two worst pests. Spraying the plants frequently with clear or soapy water under pressure, especially the under side of the foliage, and dusting the plants when

A delightful but inexpensive lily pool in the garden of Mrs. McNair, 141 Dundurn St., Hamilton.

It is well worth while preserving grand old trees such as this one. The rotted wood having been removed, there does not seem to be much good wood left. Note accompanying article.

slightly damp with dry, finely-powdered flowers of sulphur, is a good remedy for red spider. Any soap or tobacco solution, or both combined, is a good remedy for these insect pests.

Boiling soap suds poured on tobacco of any kind, covered up close and allowed to steep until cool and applied with a fine spray under pressure, is a good remedy or preventative for almost all summer insect pests. Sulpho-tobacco soap, to be bought at seed and drug stores, is a good remedy for insect pests on any plants. The spikes of blossoms should be kept picked off every second day at least, to prevent seed forming, and thus prolong the season of flowering and secure larger flowers.

Paeonies.

Cut the seed heads off paeonies at once after the flowers have dropped their petals. It will help the roots to develop for next season's flowering.

House Plants.

All house plants, such as palms, ficus (rubber plants), dracaenas, callas, English ivy, fancy pelargoniums, and similar plants, should be stood out of doors in partial shade where they do not get the heat of the sun during the middle of the day during July and August. Plunging or sinking the pots up to the rim in the soil—or, better still, in coal ashes—helps to keep the plants in better condition than if stood out on the ground. Whether the pots are stood out or plunged as stated, it is always best to have two or three inches of coal ashes under them to prevent earth worms getting into the pots and thus often choking the drainage.

Many flowering plants, such as impatiens (bloom for ever), marguerite daisies, chrysanthemums, and similar soft-wooded plants, may be planted out in the garden during the heat of summer to advantage.

Saving The Old Trees

Many old trees that have afforded pleasure to their owners and to the public for years, but which through rot which may have affected their trunk or branches, have begun to lose their vigor and beauty, might be saved and their life prolonged indefinitely by the application of right methods of treatment. While we do not as yet appreciate the worth of our old trees as do the people from older lands, such as England, yet already we have lost so many magnificent specimens that more interest is now being taken in this subject than ever before. In recent years, men have commenced to make a business of doctoring and preserving trees. In many cases their services are paid for at remunerative figures by wealthy people who desire to preserve trees surrounding their homes and beautifying their gardens.

When the tree doctors, as they are sometimes called, commence to treat an old tree that is badly decayed in the trunk and branches, their first act is to prop up the branches so that there will be no danger of their breaking off during the process of the work of treatment. They then proceed to cut and saw and scrape until all the decayed matter in the tree has been removed. Often the trunk and branches have to be opened up and hollowed out in order that the dry rot may be followed to its very extremity, and until the quick of the tree shows clear and white. The tree is then disinfected and washed with ship tar. In cases where it becomes necessary to give extra support to the heavier branches, iron rods, bolts, and turnbuckles are used in such a way as to secure an even and normal strain on the supporting parts of the tree.

The holes in the trunk and branches are filled with cement until the original shape of the trunk and branch have been regained. This is often covered with sheet tin, which is let into the quick of the surrounding bark. In time this tin becomes covered with new skin and bark, which encroaches on the tin till it closes together. While this treatment does not always prove successful, it has been attended with excellent results in many cases. Only experts who understand the work should be engaged to perform such work, as, if conducted by novices, the trees may be more damaged than benefitted by such treatment.

Balsams in the Garden

W. G. McNair, Hamilton, Ont.

THE balsam is a garden annual which is not appreciated in Canada as its merits deserve. I grow the camellia-flowered variety, which is the best strain. Most of the garden balsams are now double or semi-double. It is the full double forms that are known as the camellia-flowered varieties.

When we mention balsams, most people think of a slender plant about one foot high and perhaps five inches in width, having perhaps a dozen flowers growing on the base of the leaves. That seems to be about the size of the plant grown in the average garden. Where good care is given, splendid results follow. I have had plants over two feet six inches high and two feet wide, with a central stock two inches and more thick. Plants of this size resemble azaleas, especially when a few of the leaves have been removed in order that the blossoms may be seen to better advantage.

A bed ten feet by twelve feet is suitable for these flowers. It should be dug thoroughly and raked nice and level. The soil in my garden is a sandy loam and fairly rich, so I have never had to use manure on the beds. Where the soil is not rich, a little well-rotted manure dug in thoroughly would do good.

I mark out the bed in squares by making rows two feet apart each way. At the point where these rows intersect, I sow about five seeds. This helps them to break the soil. When they are about two inches high, I thin them out to one plant, leaving only the strongest one at each point. The plant should be kept free from weeds and cultivated each way. I use a garden rake for the purpose, and aim to keep a dust mulch on the soil all summer.

To obtain the best results, balsams must be well watered and never allowed to droop, especially when the flowers start to appear. As the season advances, they will branch out and assume the shape of miniature trees and fill in the space between the plants. When in full bloom, the lateral branches can be cut and placed in vases, where they will last for some time. I generally remove a leaf here and there to allow the flowers to show to better advantage. If anyone will try this plan of growing balsams, they will be well repaid for their trouble. They can be grown in borders if plenty of room is left for their development.

Troublesome Rose Pests and Their Cure

J. M. Bryson, Moore Park, Toronto

MILDEW is one of the worst and most prevalent diseases to which the rose is subject. It is known to most lovers of roses, forming as it does a white dust like mycelium, first of all, usually, upon the young foliage. The portions of the roses attacked cause the rest of the bushes to curl up their leaves. In some cases where mildew has been allowed to go unchecked for any length of time, the leaves begin to drop, and, where it attacks the buds, they open to a very hard flower, looking very much as though they had been blistered.

Methods of cultivation are often the direct cause of mildew, as, for instance, an excessive use of fertilizer or turning the hose on the bushes on a humid morning, especially if the bushes are not robust in character. The most common cause of mildew on outdoor roses, however, is rapid changes of temperature, from hot days to cool nights. This disease is rarely troublesome until August, when night fogs are prevalent, although such varieties as pink and white Killarney, Harry Kirk, His Majesty, Her Majesty, and Mrs. Sharman Crawford, usually are subject to this pest from the outset of their growth.

For a mild attack of mildew, equal parts of quick lime and flowers of sulphur dusted over the affected parts will in most cases be found effective, or the use of grape dust in the same manner, but these remedies must be applied in such a way that they come into actual contact with the mildew. For a bad attack of mildew, use sulphite of potassium or flowers of sulphur, on heavy bushes, at the rate of half an ounce to one gallon of water, applied cold with a sprayer or syringe. Give weak bushes half the above quantity. Abol is another excellent remedy for mildew, the directions for which are supplied with each carton. This is a non-poisonous preparation, and it will cure mildew.

Black Spot.

Black spot is caused by an entirely different fungus from that which causes mildew. As the mycelium is underneath, or, to be more correct, partly inside the leaf, it is hard to reach it by spraying, unless a fungicide be used, which, besides destroying the black spot, also causes the loss of the foliage. However, defoliation usually follows in the wake of this disease. The leaves should be carefully gathered and burned forthwith.

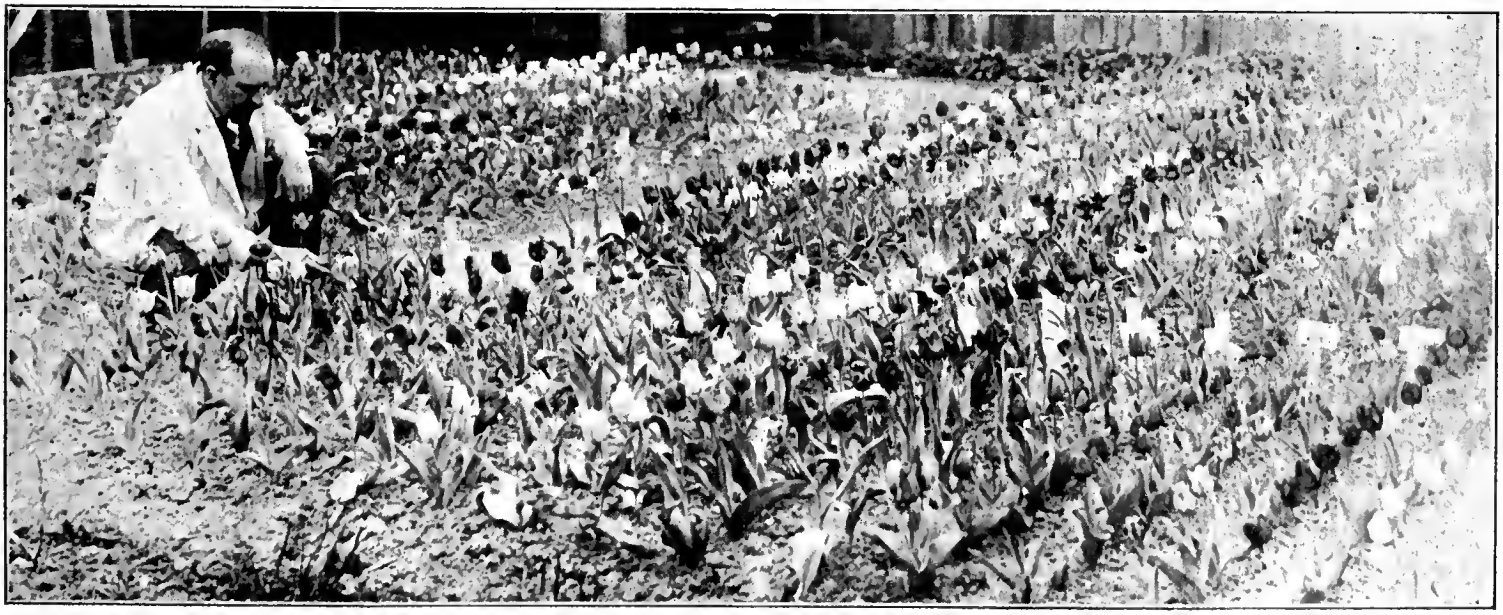
The symptoms of this disease are brownish-black spots, some round and some large and oblong, which cover half of the leaf. A solution of sulphide of potassium, the same strength as for mildew, is a corrective only if it is applied weekly throughout the growing season, at the same time spraying the ground under and around the bushes. It is best to use this mixture on a dull day, as if used persistently in the sun, scorching of the foliage is apt to result.

The most effectual remedy I know of for this disease is to drop three or four, not more, crystals of permanganate of potash into a gallon of water and water the plants at the root with this mixture once a month, giving each bush affected one pint of the mixture, and apply it after sundown. I am convinced that this disease must either be treated from the root or else sprayed with a solution strong enough to kill the foliage, which will of course begin to grow again, but if an early, severe frost should happen to strike them during the growing period, which, by the way, is during September and October, it would simply mean that the weakening of the bushes consequent upon the disease and also the use of strong fungicides, combined with the frost, would likely cause some of them to wither and die.

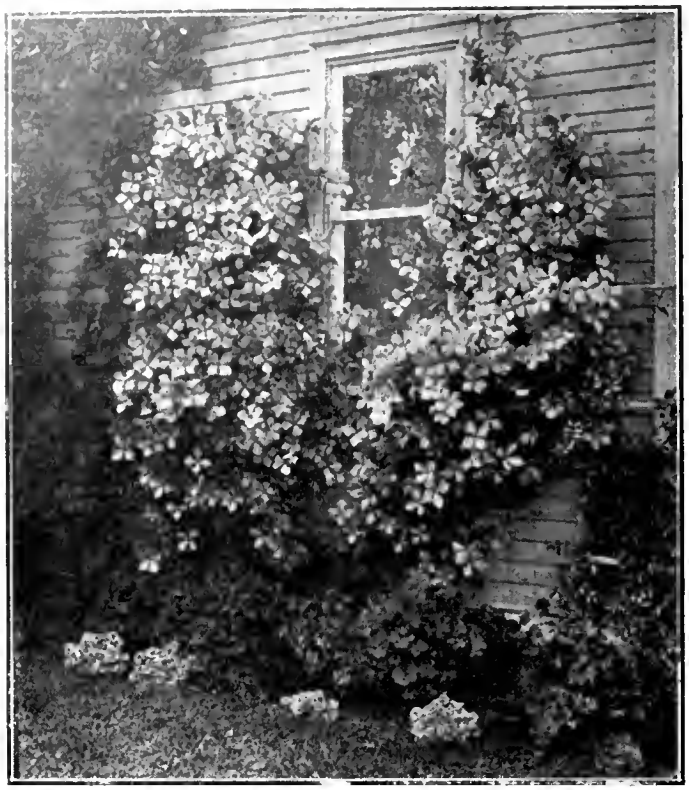
The Carpenter Bee.

This is a small black fly with a pointed sting which is used with deadly effect upon not only roses but anything of a thorny nature. In some stages, the effect that the sting from this bee has upon rose foliage resembles the Irish gooseberry blight. The rose is attacked in the following manner. On the extreme end of a shoot from which a bloom has been cut, it makes a small puncture, where it deposits its larva, which when incubation starts, works down the pith section, drawing the sap from the leaves to sustain it during the cocoon stage, which results in black spots appearing upon the leaves, and the ultimate drying up of the rose bush.

This insect will kill an acre of rose bushes in a week's time if it is not at once checked. The only method I know of to combat it is to cut below the spot where the cocoon has penetrated. This can easily be determined by slicing the shoot lengthwise, and if it has been penetrated to union or callus, the bush must be taken up, root and branch, and at once burned, and a strict watch



Dr. Frank E. Bennett, president of the St. Thomas Horticultural Society, among his tulips. At a spring exhibition this year Dr. Bennett showed 125 varieties of tulips, winning a silver cup for the second year in succession.



How the Clematis Jacmanii Flourishes in Northern Ontario.
This vine was grown by Mr. MacMillan, the president of the Haileybury Horticultural Society.

kept daily to see that there is no return of it. It is most prevalent during June and July, and again in October.

Green and brown aphis, commonly known as rose bugs, are not nearly so troublesome as another parasite of the name. The green and brown fly usually attacks the young growth and leaves during June and July, and does not, apart from its unsightly appearance, do much harm to a rose, unless it becomes chronic, when a sticky mass is formed, composed of millions of aphides and their secretions. The most simple remedy for a small collection is the garden hose fitted with a fine nozzle and supplied with the necessary pressure, which not only washes them off, but the force of the water, if the hand is held at the back of the part being sprayed, kills them. Whale oil soap applied at the rate of a half pound of soap to five gallons of water cold with a sprayer will not only kill the aphis, but it imparts a gloss to the foliage which in a rose is very desirable.

There are various kinds of sawflies. Some cause the leaf to curl up, others eat away the leaf or part of it, leaving nothing but its structure, which soon dies and drops off. Others, again, puncture the leaves with holes. The remedy is hellebore powder, one ounce to four gallons of water, with a little molasses mixed in to make it adhere to the foliage, and applied with some strength with a coarse syringe.

The rose beetle is an insect which attacks the young buds. It is also called the bud worm. Hand-picking is the only remedy for this pest, as it is also for any form of the worm or caterpillar.

The diseases which I have mentioned are the most common amongst outdoor roses, although there are many others, which are not so troublesome. It must be borne in mind that any rose, irrespective of type or variety, is liable to attacks from these pests, but badly-cultivated and sickly bushes more readily succumb to attacks of black spot and mildew The grower must strive at all times to keep his bushes in a vigorous and healthy state. Avoid over-feeding and stagnation, which are caused by over-watering. At the first sign of anything being wrong with the roses, the remedy must be at once sought for, applied and persisted in until the attack is beaten off and subdued. By good cultivation and strict attention to detail, it will be found that success in the culture of the queen of flowers is not a difficult thing to acquire after all.

Flower Pointers

Leave no vacant places in the garden. Replant for fall use.

Sow perennial flower seed early in July for next season's flowers.

Stake gladiolus plants unless they have been planted very deep.

Early summer-flowering shrubs may be pruned just after flowering.

Keep sweet peas, pot marigolds and other annuals picked if you would have good flowers all summer.

Lime of sulphur dusted over rose bushes or other plants that are beginning to mildew will often stop the trouble.

No one should be without a few iris and peony plants in the yard or garden. Probably no two perennials give more satisfaction in their season, year after year, than these. They both come in a wide range of color.

The Sweet Pea*

H. M. Lay, Walkerton, Ont.

Nearly all varieties of sweet peas are benefited by shading during the height of summer. Even in England this is found necessary for such varieties as the Orange and Scarlet. For some of these a very short exposure to the direct rays of the sun is sufficient to disfigure the bloom. Our awnings are made of light weight factory cotton sold at about seven and a half cents a yard, and a yard wide. By means of brass rings sewn on both edges about three feet apart it is arranged to slide on stout supporting wires. These are arranged over the row by means of cross bars with screw hooks to hold the wire. The cross bars are attached to the stakes supporting the trellis work at an angle of about twenty degrees and so that the west side from which the hot afternoon rays of the sun will strike the row, will get most protection. On the approach of rain, of course it is most necessary to slide off your awning, which can be done in a few minutes.

Insect Enemies.

The only serious insect enemy the sweet pea has is the green fly, and he can be kept in control by spraying with whale oil soap and water or in bad cases with kerosene emulsion. A twenty gallon barrel mounted on wheels with a spray pump attachment, such as is advertised by the manufacturers of spraying supplies, enables one to polish off Mr. Aphis with comfort. Two or more rows can be sprayed in one trip down the rows and the whole plantation covered in a very short time.

Cutting Sweet Peas.

In cutting the blooms of sweet peas a pair of fairly long sharp scissors should be used and a supply of thread rubber bands is handy for bunching. If on cutting a spike it is found that the flowers are more or less wound round with tendrils from adjacent vines, do not attempt to pull the spike by the flower end, for in most cases you will break the spike. Seize it by the butt end and pull steadily when it will be found that in most cases the impeding tendrils will break without damage to the bloom.

When To Cut.

Peas should be cut early in the morning or in the late afternoon and if possible when there is no dew or rain upon them. Place in water as soon as cut. If it is intended to ship some distance by rail, allow them to stand over night or for several hours in water. When ready to pack wipe the stems dry; by no means attempt to wrap the stems in any wet material of any kind. The water the

*Extract from a paper read at the last annual convention of the Ontario Horticultural Association.

stems have absorbed will be sufficient to keep them fresh for several hours, but the blooms will assuredly be spoiled, especially in hot weather, if allowed to be wet. Therefore, pack them perfectly dry. Simply wrap the ends of the stalks in a little oiled paper and wrap your bunch in half a sheet of tissue paper. Pack in a wooden box with sufficient firmness to prevent movement in transit. It is well to have the boxes labelled conspicuously on top. "This side up," and "Cut Flowers, with care," You may then despatch your treasured blooms, praying that the express company's employees will not stand your boxes on end or place them in an uncongenial neighborhood in the car. A year or two ago I was sending some boxes of flowers by express for exhibition in another town, and of course could not keep away from them while changing cars. My feelings can better be imagined than described when I saw my delicate "Queens" and "Countesses" being loaded on a truck pell mell with enormous boxes of white fish and salmon trout fresh from Lake Huron. The ice alone might not have been too bad, as it was a day when the thermometer stood at ninety degrees in the shade, but I had horrible visions of the drippings soaking through, and the aroma of the fish did not appear calculated to improve the perfume of my flowers.

Vegetable Reminders

Keep flowering stalks off of the rhubarb.

Another planting of string beans may be made.

Try one more planting of sweet corn.

Rutabagas may be sown now. New land is the best to use.

Celery plants may be set out for a late crop.

Tie tomato vines to stakes. Better not let more than one or two stems grow.

Plow your old strawberry bed and set the late cabbage, or sow rutabagas on it.

It is often a good plan to pinch back musk melon and cucumber vines to make the fruit grow more rapidly.

Are the onions growing nicely? Hen manure or nitrate of soda may be sown broadcast over the field or cultivated in if they appear to be standing still.

Training Tomatoes

Geo. Baldwin. Toronto, Ont.

The variety of tomato shown in the illustration on this page is the well-known Chalk's Early Jewel. It is one of the three best varieties for a back garden which is circumscribed by the usual unsightly board fence.

There are many systems of training and attending to tomatoes. I have tried training them in almost every conceivable manner and have proved to my own satisfaction that the system here shown is the best method.

Four stakes are driven into the ground at an angle of about 75 degrees, outwards, about six inches from the root, and four feet six inches above the ground. The vine is tied to the stakes with raffia every eight inches up the stake. All laterals and suckers are removed as soon as they come. The fruit is picked as soon as ripe. The roots are kept moist and the foliage dry, and the leaves snipped off a piece at a time wherever they keep the sun from getting at the fruit. I recommend the rake for cultivation instead of the hoe, as with the latter there is a tendency to injure the roots which grow close to the surface.

Thirty-six and a half pounds of fruit were taken from this one plant. This should prove convincingly that it is a good policy to keep the plants off the ground.

A simple method of training tomatoes. See accompanying article.

Peeling Vine Rods

B. C. Tillett, Hamilton, Ont.

Should vine rods be peeled? Some growers make a practice of peeling all loose bark from the rods, others leave the loose bark on. Some even go so far as to entirely remove the bark so that the green and white wood of the vine is exposed. Having been privileged to watch an expert pruner at work, I am able to say I never saw him do more than remove such loose strips as could be readily removed by a mere rubbing of the hand along the rod, and such as were unsightly.

If bark is removed I would recommend that only loose bark be removed. If a vine is free from insects and clean there is really no good purpose served in removing the bark, but when infested with insects it is a good plan to remove it and apply one of the approved sprays.

When vines are pruned rather late in the season, as is sometimes the case, they are liable to bleed badly when the sap rises. To avoid excessive bleeding the cut ends should be painted with knotting or styptic as soon as the pruning is finished.

Ginseng Growing

Wm. Gilgour, Peterboro, Ont.

It is less than twenty years since some interested men studied the theory of how to grow ginseng successfully under cultivation. Since then, there have been small gardens planted over different parts of Canada and the United States.

Occasionally we hear of men having made fortunes by growing ginseng by the acre. This is nonsense. It is a question if there are fifteen acres under cultivation in Canada and the United States. Men who are in a position to know, say there are not ten acres, and it is a well-known fact that so far as the Northern United States and Canada are concerned, the wild root is nearly exterminated. When we consider that we have to depend on these gardens for our future supply of dry roots and stocks for planting and the long time required from when the seed is planted until it matures, those in the business need have little fear of a fall in prices for the next thirty years at least.

Take time to visit the nearest park or a neighbor who has been successful in growing trees, fruits, or flowers and study his plants and methods of growing. It is not a difficult matter to have an attractive home yard and it adds much to the pleasure of living.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal. Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 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 1913. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1913 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Effects of the War

The great war which is raging not only in Europe but in portions of Asia and Africa as well is proving a most disturbing factor in business circles. Naturally, fruit growers are wondering to what extent the price of fruit will be affected by it next fall and winter. To our mind, trade will not be greatly affected by it during the next year, if the war lasts that long. The serious effects of the war are not likely to become apparent until the war has lasted for a couple of years or more or until its close, when ever that may be.

Some optimists contend that the war is bound to prove a blessing from a commercial standpoint to Canada. They base this claim on the ground that Canada will have to produce those things which the warring nations will require, and therefore that our Canadian trade is sure to be maintained at a high level. This reasoning does not satisfy us. It neglects to consider certain factors that control the situation.

Over 20,000,000 men in Europe are fighting under the flags of the different warring nations. In addition several million men are engaged in the manufacture of war supplies of one kind or another which presumably will soon be destroyed in the conflict that is raging. A year ago these men were engaged in profitable production. Some were farming and thus producing necessities of life. Others were engaged in mercantile and manufacturing industries and thus were providing such essentials to our comfort as boots, shoes, clothing, and other needed articles. Now all this useful labor has been stopped. Already a shortage of these essentials is becoming apparent in a number of lines and prices are advancing. This tendency will develop with increasing rapidity the longer the war lasts. Sooner or later, if the war continues, prices for many articles will advance beyond the reach of the poorer classes. Thus if the war continues indefinitely hard times are certain to develop.

Should the war end soon, it will be difficult if not impossible to avoid at least a brief period of commercial depression while conditions are readjusting themselves. Lines of trade which have been broken cannot be reestablished in a few weeks or months. The moment the war ceases thousands of factories which are now engaged in the manufacture of war supplies will have to close or will operate on short time while picking up the tangled skein of former business activities. Hundreds of thousands of the men now engaged in war will find it difficult to obtain profitable employment. While it is true that there may be a demand for the goods which Canada should be able to produce, there is a strong probability that the people who would like to buy these goods will not be in a position to pay for them. Thus for a period at least a certain degree of commercial depression appears to be inevitable.

The truest patriotism is that which strives to look conditions in the face and then to deal with them on their merits. Fruit growers will do well to do this. Courage and faith in the ultimate outcome are what are required. The agencies of production are now so enormous we venture to predict that within a short period after the war closes business will begin to reestablish itself on sound lines. Any period of depression there may be will be shortened if we plan now to prepare for it and strive to improve our methods of business in every way that lies within our power.

A New Factor in Fruit Growing

Fruit growers throughout Canada as well as in the United States are beginning to launch out into the broad sea of advertising. This sea is a much larger one than most people realize. It has many shoals and rocks which have wrecked numerous commercial enterprises and only pilots of known experience and ability should be engaged to navigate its many cross-currents and treacherous tides.

The great success which has attended many vessels which have navigated this sea and which have unloaded large cargoes in markets where they have realized fancy prices is apt to prove a lure to the unitiated. Always and ever there are those who are quick to jump to the conclusion that because some people have done certain things in certain ways everybody can follow their example and prove equally successful. This is not the case in the field of advertising.

Of late years advertising has been reduced to a science. The principles of advertising practice are now being taught in a number of universities. They are outlined in several hundred books and magazines. Most mistakes in advertising ventures have occurred through the neglect of the advertisers to consider advertising in relation to other factors connected with it. For instance, much depends upon the style of copy used, and the mediums selected. Many ventures have failed because of a neglect to prepare suitable follow-up material to place in the hands of the people replying to the advertisements and thereby convert their enquiries into sales. One of the greatest defects has been due to the neglect of the advertiser to furnish a product equal to the expectations of the buyer. Thus, repeat orders have failed to materialize.

Elsewhere in this issue appears an article by Mr. Grant S. Peart, who emphasizes the importance of fruit growers endeavoring to market a strictly high-class product. Unless this is done by associations and individuals who undertake to create a demand for their goods through advertising much of their expenditures for this purpose will ultimately be wasted. Now that our fruit growers are commencing to advertise they should plan to adopt brands for their product and then see to it that nothing but high-class fruit is sold under their brands. In this way their brands will ultimately acquire a commercial value of great importance.

Much of the success which has attended the efforts of the fruit growers of California to advertise their fruit has been due to the fact that they lost no time in adopting trade marks which, like the "Sunkist" brand of oranges, now have a national reputation worth millions of dollars. By all means, let us advertise our fruit, but let us also see that the responsibility for doing so is placed in the hands of men of good judgment who understand the essentials of advertising success.

Recent decisions of the Dominion Railway Commission as announced elsewhere in this issue by Mr. Geo. E. McIntosh, traffic expert for the Ontario Fruit Growers' Association, will impress the public as being eminently reasonable and in the interests of the public, while not being unfair to the railway companies. It is just as fair that railway companies who have once iced cars should not be held responsible for damage to the fruit carried in these cars which is caused by the failure of the fruit grower to load the cars

promptly, as it is that railway companies shall not escape responsibility for acts within their control, even although they may have succeeded, through bringing pressure to bear on the grower, in inducing him to agree not to hold them responsible for such losses. The Dominion Board of Railway Commissioners is one of the most popular judicial bodies in Canada. This is because it has established a reputation for brushing technicalities and superficialities to one side and dealing with each question in a broad way and on the merits of the points involved.

PUBLISHER'S DESK

Our front cover illustration this month shows a bush honeysuckle (Lonicera) in bloom. Such shrubs have formed beauty spots in many Canadian gardens within the past few weeks.

* * *

Our contest for the best piece of poetry not over four verses in length extolling the merits of the apple and referring to it as Canada's national dish closed on June 20th. A number of contributions were received. These are being judged. The results will be announced in our August issue when the winning poem will be published.

* * *

Subscription agents for The Canadian Horticulturist are able to obtain such satisfactory returns in the leading fruit districts and floral centres of Canada we would like to see more at work. Any of our readers who have time that they can devote to this work are invited to write us for particulars. We have some good openings for representatives in the fruit districts of Ontario and in the Annapolis Valley.

* * *

Are there any subjects that you would like to see dealt with in the columns of The Canadian Horticulturist? If so, write and let us know what they are and advise us if possible of parties whom you would like to see discuss them. We desire to make each issue as interesting and instructive as possible and invite suggestions from our readers.

* * *

The September issue of The Canadian Horticulturist will be our Fifth Annual Exhibition and Fall Packing Number. We are planning to make it the best we have yet issued. It is going to be representative of the fruit districts of Canada and, as usual, well illustrated. We will tell you more about it in our August issue.

* * *

Many of the readers of The Canadian Horticulturist have kodaks and delight to secure illustrations of beauty spots in their gardens and orchards. We would like to secure some of the best of these illustrations for publication in The Canadian Horticulturist. If our readers who have photographs of this character will submit them to us we will have an enlargement made from those we accept for publication and will return the enlarged photograph as a premium to those sending us the illustrations. Readers who would like to have their films returned are requested to so state when they forward their illustrations and their request will be complied with. * * *

Every now and then we experience the pleasure of receiving letters from old readers of The Canadian Horticulturist who have been taking The Canadian Horticulturist ever since it was first published in 1878. Some of these readers have advised us that they have never missed an issue all that time. Two readers whom we have in mind are Robt. McLagan, of Stratford, Ont., and Mr. Daniel B. Hoover, Almira, P. O., York County, Ont. We would like to get in touch with as many of these old readers of The Canadian Horticulturist as possible and would appreciate it if they would send us their photographs and a few notes advising us of the conditions under which they subscribed and about their connection with the horticultural interests of Canada. We hope to hear from many of our old friends. Let us have a good-fellowship meeting.

Horticulture in Alberta

George Harcourt, B.S.A., Deputy Minister of Agriculture

Alberta has no orchards or vineyards, or fruit plantations—nothing but possibilities—and they are so full of potentialities that no one can foretell the great things that may come out of these possibilities.

The wild gooseberry, currant and raspberry grow profusely wherever there is shelter, while the wild strawberry is found practically everywhere. In addition to these universally known fruits there is the blueberry, high and low bush cranberry and the saskatoon. The latter is peculiar to the prairies and responds to cultivation readily but the fruit is flat tasting and not held in very high esteem. Where the wild fruit grows it is generally conceded that the tame or cultivated variety will succeed. It may take a little time and numerous experiments to find just how to attain success, but sooner or later a way will be found.

Small plots of cultivated strawberries are to be found from one end of the province to the other; while here and there a more enterprising pioneer has large sized plots and is placing strawberries on the market.

The black, red and white currants and raspberries are to be found in hundreds of gardens but have not been grown as yet for sale in any quantity.

So uniformly successful has the effort been to grow all of these fruits that there is no excuse for any farmer not having all the strawberries, raspberries, currants and gooseberries needed in the farm home. Windbreaks are necessary and the plants have to be held back in the spring by winter mulching to guard against late spring frosts.

Practically all the varieties of the small fruits that have proven most desirable in Eastern Canada have given best results here also. Of the larger fruits a less hopeful report must be made. It is said where the wild plum, the pin-cherry and the choke-cherry are to be found the apple, pear and plum will grow. The two varieties of cherry are to be found growing in practically every ravine or coulee where there is a good shelter of trees. This would indicate that where a shelter built of trees is grown it may be possible to grow hardy apples. That there are possibilities in this direction and that these possibilities deserve most careful study is indicated by the fact that there are apple trees growing and bearing in the province even as far north as north of Edmonton.

SOCIETY NOTES

MARKDALE.

The Markdale Horticultural Society last year conducted a campaign to beautify the town. The first step was to plant trees along the principal streets. The owner of the property in front of whose place the trees were planted had to pay forty cents for each tree. The society paid the remainder. The society planted seventy-five trees, the majority of which are living. The work of tree-planting is to be continued this year.

NEWCASTLE.

The Newcastle Horticultural Society last year planted one hundred young trees in the spring on the streets. Trees and vines were planted on the High School, church grounds, and power-house. Window boxes were placed on post-office windows. A children's public market was held every Saturday during the summer months. The Government supplied and gave them the choice of flower or vegetable seeds, and the children raised the plants, which were sold on the market, and kept the money so earned. The society judged the display and gave them marks. On the final market day prizes were awarded for vegetables, flowers, bouquets, and designs.

A group of members of Ontario horticultural societies who visited the famous parks of Rochester, N.Y., on May 23 and 24, to obtain helpful pointers. A number of well-known Ontario enthusiasts are shown.

Demonstration Work in B. C.

H. Thornber, Assistant Provincial Horticulturist

OWING to the many and varied conditions met with in British Columbia by the fruit grower, a large amount of demonstrational and experimental work has been found necessary. This work has served a double purpose; first, it advances the industry at a more rapid pace than when left to the observations of the fruit grower, and, second, it prevents many costly mistakes from being made by the fruit growers in their attempts to grow orchards.

While the few pioneer orchards located at various points in the province have been of some value in determining the proper varieties for those districts wherein they are located, they have often served to mislead growers as to the exact value of some of the most important varieties. To-day, many mistakes are being discovered regarding varieties, and many of them can be attributed to observations made on the results in these orchards.

Previous to 1900, little authentic information regarding the best varieties for each district had been compiled. There was also a great diversity of opinion regarding the selection of nursery stock; the proper distances for planting; proper methods of pruning; when and how to spray; how to cultivate; and last but not least, practically nothing was known regarding the cost of these various operations. During the past fifteen years, and especially since 1909, much definite information has been collected on these subjects. The origin of the greater portion of this information has been from demonstrations and experiments in old orchards and from the results of the orchards under the supervision of the Government which were called Demonstration Orchards.

These orchards were started in 1911. At present there are sixteen, located at the following points:—Cowichan, Nanaimo, Hammond, Aldergrove, Lower Nicola, Walhachin, Shuswap, Salmon Arm, Willow Point, Rossland, Birchbrook, Waldo, Windermere, New Denver, Wardner and Golden. There is also a small-fruit plantation at Chilliwack which is under management similar to the orchards.

The area of each of these orchards is about five acres, and it is set aside for the use of the Government for five years. The owner agrees to clear and fence, to provide and maintain the irrigation system; to bear the cost of cultivation; furnish all necessary implements; keep records of the cost of each operation, and, if requested, make reports on the progress of the orchard from time to time.

The Government provides the trees, plants and prunes them, and gives instructions, through the district horticulturist, regarding the care of the orchard; and pays any outside expenses in excess of those necessary for the actual management of the orchard. At the expiration of the agreement, the orchard becomes the property of the owner.

These orchards contain the most suitable varieties for the respective districts. As a rule, fillers are used. Some of these orchards are intercropped with small fruits, potatoes or root crops, while others are cultivated during the summer season and seeded to a cover crop in the fall to aid in ripening the trees and to improve the soil. The pruning is done by the local horticulturist in order to demonstrate different systems and to ensure uniformity.

At various times during the year these orchards are used for demonstration work in spraying, pruning, etc., and the orchard is open to the inspection of the public at all times. The public meetings are arranged through the Farmers' Institute or by the horticulturist in charge. The attendance at these meetings is usually good, and much interest is taken by the neighboring orchardists as well as by the owners.

Other forms of orchard demonstration work are being carried on also. Among these, packing, pruning, spraying, thinning and fertilizing demonstrations and tests are the most important.

The Apple Packing Schools were inaugurated in 1911, when thirteen were held. This number increased to 30 in 1912, and to 41 in 1913. In 1914 the number of classes decreased to 37, and in 1915 only 25 have been requested to date. This decrease does not indicate a decline in the interest taken in packing, but shows that a sufficient number of packers has been produced to handle the bulk of the crop. In 1914 it was estimated that 75 per cent. of the crop was packed by pupils of the Government packing schools. The packing schools consist of twelve 3-hour lessons extending over six days. The minimum number of pupils is 12, and the maximum number allowed is 16 for each school. A fee of $2.00 is charged for admission.

These schools have been very successful and have been adopted in parts of Australia and Tasmania, as well as in Nova Scotia and Ontario.

Aside from the numerous pruning demonstrations which are held under the direction of the Farmers' Institute in the Demonstration Orchards, and in the orchards of fruit growers, a distinct line of pruning instruction was installed in the spring of 1914. This resulted from the fact that sufficient information regarding pruning could not be given in a single demonstration. These "Pruning Schools," as they are called, were patterned after the Apple Packing Schools, and are conducted by the assistant horticulturists. Briefly, they consist of ten 3-hour lessons extending over five days. A minimum of eight, and a maximum of twelve pupils is allowed for each school. The admission fee is $1.00 for each student. Last year, 26 pruning schools were held, and this year, at the present writing, over 55 have been applied for, and more applications are coming in every week.

Spraying demonstrations have also been given at various places in the province. These have been divided into two general classes. First, demonstrations have been given under the auspices of the Farmers' Institute, to show how to mix and apply the sprays; and the value of the different nozzles with various sprays. Second, experiments have been made to test the value of the different sprays. The three sprays mainly under consideration were Lime Sulphur, Soluble Sulphur and Bordeaux. These were used last year for Apple and Pear Scab in orchards at Salmon Arm and Harrop. As high as 97 per cent. clean fruit was secured by the proper use of Lime Sulphur. Similar results were secured by Bordeaux, but a considerable amount of russetting was noticed which was not present when Lime Sulphur was used. The Soluble Sulphur gave fair results, but until further tests are made, it cannot be recommended for general use. Other spraying experiments have also been made by the Inspection Branch of the Department of Agriculture, with good results.

One experiment was made in thinning apples. The increase in favor of thinning was between 130 to 150 per cent. over the unthinned trees. More experiments in thinning will be conducted in the future, and if they give such promising returns as these have in the past, it will become a much more general practice. Fertilizer experiments have also been started, but from the nature of these no results will be published for some time yet.

Transportation Matters

G. E. McIntosh, Transportation Agent for the Ontario Fruit Growers' Association

As the fruit shipping season approaches and with it perhaps unusual difficulties, owing to market conditions, Ontario growers are requested to advise me of any matters which in their opinion should be undertaken to improve transportation service for the coming season. The following information may be of value:

The express merchandise receipt form was recently the subject of discussion before the Board of Railway Commissioners as a result of complaints made by the shipping public. It was stated that the express companies had sought refuge from payment of certain claims behind the wording of sub-section (C) of section 5 of the receipt, which provided that the company would not be liable "for any loss, damage or delay caused.....from conditions beyond its control."

Complainants held that the express companies had taken the position that acts of the railway company occasioning loss, damage or delay were "conditions beyond its (the express company's) control. As the Commission states, the express company engaging to perform the contract of carriage agreed to, has the right to do it in any way it pleases so far as the shipper is concerned, as long as the method adopted does not damage the shipment or cause the shipper loss either by undue delay or for any other cause.

The Commission has ordered that the receipt be amended by substituting for the present protested conditions a phrasing under which the express companies will not be permitted to relieve themselves from liability for acts or default of the railways over whose lines they operate.

Double Charges.

The Commission has also dealt with the question of collection of express charges at destination on prepaid shipments, and has ordered that in future the companies shall firmly affix to every shipment a label which will clearly show whether or not the charges have been prepaid. Shipments composed of two or more packages may be dealt with by affixing a label to one of the packages, providing the label states how many packages are in the shipment.

A complaint was made by W. H. Bunting, of St. Catharines, against an increase by the G. T. R. in the rates on manure in carloads, from Toronto, for Canadian Northern orders that the rate of 3¾ cts. per 100 lbs. be disallowed, and the rate of 2¾ cts. per 100 lbs. previously in effect be restored, subject to a minimum carload weight of 60,000 lbs.

Loss and Damage Decisions.

A shipper of peaches who should ordinarily have loaded a car in 10 hours took 34 hours to do it, by which time the ice which had filled the bunkers melted so that it would no longer protect the shipment. The carrier receipted for the peaches as in apparent good condition. As soon as the car was loaded, it was taken to a re-icing station. The Commission held, that when the carrier sent the car fully iced to the

shipping point they had fulfilled the duties incumbent upon them, and, if the shipper unnecessarily delayed the car until the ice had melted below the safety point, the carrier cannot be held liable for the results.

The Commission has ruled that a carrier is not entitled to either demurrage or freight charges on a shipment destined to a consignee who has a private sidetrack, until the shipments are actually placed on such track, thus completing the transportation.

It is the duty of a carrier to apprehend that at certain seasons of the year shipments of perishable produce are liable to freeze.

The Carrier Liable.

A carrier is liable for injuries caused by freezing in spite of the fact that the bill of lading contains a notation that the shipper assumes the risk of freezing, where the shipment was delayed four days in transit, as the carrier cannot exempt itself from liabilities through negligence.

A carrier cannot excuse delay in transporting freight on account of shortage of cars and unprecedented amount of business, where it accepts a shipment without notice of those facts to the shipper.

It is firmly established that a common carrier may by special contract limit its liability, at least against all risk but its own negligence or misconduct. The duty of the carrier is to exercise reasonable care and diligence in transportation, to transport in a reasonable time, without unnecessary delay, to prevent so far as is reasonable and practicable any loss or damage which may be occasioned by delays in transit. What is reasonable diligence, where reasonableness is the standard, must depend upon the circumstances of the particular case.

Fruit Inspection Statistics

The following figures indicate the ratio between the number of packages of fruit inspected by the officials of the Dominion Fruit Division in the season of 1914-15, and the total number of packages in the lots inspected. These inspections were made by the staff of Fruit Inspectors, temporary and permanent, numbering about fifty in all. The figures also show the total number of inspections which were made:

Variety. 1914-15.	No. of Lots Inspected.	No. of Pkgs. in Lots Inspected.	No. of Pkgs. Inspected.
Apples, barrels....	8,926	765,445	59,602
" boxes, ..	2,769	457,055	36,118
" baskets .	191	29,476	3,994
Crab apples, boxes	38	2,443	951
Pears, boxes	894	91,121	9,760
Peaches, boxes ..	735	183,952	10,035
" baskets ..	147	17,797	2,422
Plums, baskets ...	643	180,154	12,294
Tomatoes, baskets.	305	103,742	12,171
Small fruits, quarts	1,162	1,529,598	151,559
Grapes, baskets ..	244	308,728	22,394

The Chinese Market for Apples

One of the representatives in China of the Canadian Department of Commerce reports that selected apples were recently being sold on the Hankow market under the description "Finest American." On investigation it was found that these apples were grown in the Okanagan Valley of British Columbia. Other apples available on the Chinese market are imported from the United States, Australia and Japan. Australian apples do not compete with Canadian, as their season is different.

The price of British Columbia apples—Mexican $12.00 to $14.00 per case—is prohibitive to general use. Japanese apples of good quality are sold for Mexican $3.50 to $5.00 per case. If Canadian apples could be sold for Mexican $7.00 to $8.00 per case they would, owing to their superior quality, be in great demand.

Ontario Basket Factories

A second visit has recently been made, by a representative of the Dominion Fruit Branch, to the basket factories of Ontario. At the time of the first inspection—mention of which was made in the June issue of The Canadian Horticulturist—there was a great lack of uniformity in the sizes of packages which were then being made. The manufacturers were shown where alterations and improvements were necessary.

The last inspection showed that practically all fruit packages now being made are of correct dimensions and of strong material. The managers have corrected their previous mistakes and the result is that no discrimination can be shown by growers in favor of any one particular factory. In order that this state of things may continue, frequent inspections will be made by the government throughout the year.

A Well Managed Concern

The general manager of the California Fruit Growers' Exchange claims that the selling costs in the case of fruit dealt with by the exchange are lower proportionately than in the case of any other agricultural product in any part of the world. The actual working expenses of the exchange organization, including office expenses, salaries, legal expenses, the cost of the daily telegraphic service and a share of the expenses of the Citrus Protective League, amounted to 4¼ cents per box, or 1 3-5 per cent. of the gross sales. To this must be added 1¼ cents per box spent by the exchange in advertising the products which it sells, although this expense is to a large extent an investment made to ensure the sale of future crops. But even if this whole amount be added to the working expenses the selling costs per box amounted to 5¾ cents, and the total selling costs to 2 1-5 per cent. of the gross sales.

These figures relate to the working expenses of the Central Exchange and the seventy agencies maintained by it. They do not include the expenses of the District Exchanges, which act as intermediary organizations between the growers and the Central Exchange. The average cost of maintaining the District Exchanges amounts to less than one cent per box.

During the year 1913-14, the members of the Exchange purchased through the Fruit Growers' Supply Company—an association which, though it has a separate organization, is in effect a branch of the Exchange—packing material, fertilizers, fungicides, heaters, oil and sundry orchard supplies to the amount of $3,319,000, an amount which represents an increase of 50 per cent. upon the business done in any previous year.

The directors of the Exchange are faced with the need of finding new markets for their fruit, or increasing the demand in existing markets. By regulating the shipments from California in such a way that each market is supplied strictly according to its needs, the Exchange ensures that consumers in every part of the country have a constant supply of fruit of good quality at reasonable prices. This alone increases the demand, and the per capita consumption of oranges and lemons in the United States has in fact increased enormously during the last ten years. But a still greater increase must take place if

Douglas Gardens

OAKVILLE, ONT.

We have a surplus stock of some sorts of Irises growing in our Gardens. We offer this surplus, some 15,000 plants in 28 varieties at much reduced prices for all orders received in the month of August next—August is the best time for planting most Irises.

The following are examples of the reduction in prices taken from the special sale list which will be sent to all names on our mailing list and to others on application, viz:—

Mme. Chereau, each 10c, 10 for 75c, 100 $6.00.

Purple King, each 15c, 10 for $1.25.

Wyomissing, each 50c, 10 for $4.50.

This list embraces such fine modern Irises as Juniata, King of Iris, Lohengrin, Mrs. G. Reuthe, Princess Victoria Louise, Rhein Nixe, Wallhalla, etc.

This sale applies to orders received in the month of August only. Normal prices will prevail after 31st August.

Send name and address for a copy of this Iris list and the Paeony list for 1915.

JOHN CAVERS

Peerless Climax Fruit Baskets

Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

Canada Wood Products Co.

St. Thomas, Ont.

CARNIOLANS Only

Carniolans build up fast in the spring. Are very prolific, very gentle, cap honey very white, enter comb honey supers readily, gather almost no propolis, and are the best of honey gatherers.

Untested Queens, $1 each, $9 dozen; Tested Queens, $1.50 each, $12 dozen; 1 lb. package, with Queen, $2.50.

Delivery after May 15, depending on the season somewhat.

ALBERT G. HANN

CLINTON, N.J. U.S.A.

BRED IN CANADA, leather colored Italian Queens. Untested, $1.00 each, $10.00 a doz.; in lots of 25 or more, 75c each. Warranted purely mated Queens, $1.10 each, or $12.00 a dozen; tested Queens, $1.50 each; Breeding Queens, $5.00 each. I guarantee you a square deal.

JOHN A. McKINNON

St. Eugene - - - Ont.

When good queens are wanted I have the goods. Pure Italians from imported mothers. Also pure Carniolans and Caucasians from imported mothers. 75c each, $8.00 per dozen. No disease.

GRANT ANDERSON

Riv Handa - - - Texas

Queens

"Reared in Canada"

from the best Italian stock

ONE DOLLAR EACH

Six for Five Dollars

P. TEMPLE

438 Gladstone Ave., TORONTO, ONT.

Leather Colored Italian Queens

Bred for Honey Production

Queens are reared from select mothers, record breakers, taken from our honey producing apiaries of over 1,000 colonies. We guarantee our queens to live as long and to give as good or better satisfaction than any of the so-called "Hardy, northern bred," high priced queens. We invite closest comparison with the best.

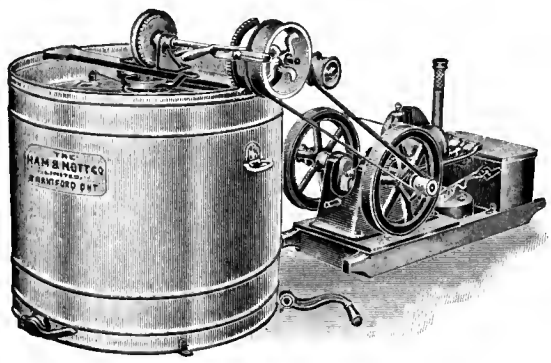
Untested queens, 60c each, $6.00 per dozen

Warranted purely mated, 75c each, $8.00 per dozen.

Tested queens, $1.10 each, $12.00 per dozen.

Safe arrival and satisfaction guaranteed. No disease.

BROWN & BERRY, Hayneville, Ala.



Power Honey Extractors

Friction drive or with special cut gears, smooth and easy running. Speed control is perfect and simple. If you are thinking of purchasing a power outfit, write us at once.

The Ham & Nott Co., Ltd.

BRANTFORD, ONT.

THOROUGHBRED QUEENS

Three-band and Golden Italians my stock. I secured the best stock obtainable, unexcelled for honey gathering and very gentle. No better queens to be had, no matter what price you pay.

	May 1st to July 1st.			July 1st to Nov. 1st.		
	1	6	12	1	6	12
Untested	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.75
Select, untested	1.25	6.00	11.00	1.00	5.00	9.00
Tested	1.50	7.50	12.00	1.25	6.00	10.00
Select, tested	2.00	10.75	18.00	1.75	9.00	16.00
Breeding queens	5.00					
Nuclei—1 frame	1.50	8.00	15.00			
Nuclei—2 frame	2.50	12.00	22.00			

When ordering Nuclei select the queen you wish from the above list and add price to same. No foul brood or disease. Safe arrival and satisfaction guaranteed to all in the United States and Canada. Address

L. MORRISON, R. M. D. No. 1, Argenta, Ark., U.S.A.

The Beekeepers' Review

The Beekeepers' Review is now just beginning to publish those valuable papers read at the National Beekeepers' Convention at Denver last February. If you were to begin your subscription with the May number none would be missed. We will be pleased to receive your subscription for the last eight months of the year for an even 50c, post-paid to Canadian subscribers. In remitting, say begin with the May number, so as to miss none of those valuable papers. Those papers are only a part of the valuable material we have on hand that will appear during this year, so we are very sure you will receive your money's worth by subscribing for the Review at this time. The Review is Owned and Published by the Honey Producers Themselves, consequently is published wholly to our interest. Kindly remit by postal note, not stamps, as we cannot use Canadian stamps. Address, with remittance, The Beekeepers' Review, Northstar, Mich.

The Beekeepers' Review, Northstar, Michigan

California growers are to find an outlet for their rapidly increasing production, and the California Fruit Growers' Exchange carries on an active advertising campaign with the object of popularizing the consumption of oranges and lemons by making known their valuable food properties and instructing the public in the many different methods of preparing them. The directors realize that unless by some such means the demand can be made to keep pace with the increased production due to the fact that young groves are now reaching the bearing stage, the stability of the whole industry will be seriously threatened by the fall in prices which must inevitably result from an overabundant supply. They are preparing to meet this situation when the time comes.

Manitoba

W. C. McKillican, B.S.A., Superintenden, Brandon Experimental Farm

Some of the hardiest varieties of standard apples are being tested at the Brandon Experimental Farm, but the situation does not seem favorable and the results up to the present are not encouraging. Good results have been obtained with cross-bred varieties originated by the late Dr. Wm. Saunders who was for many years Director of the Experimental Farms. These were produced by crossing standard varieties with (Pyrus baccata), a native of Siberia, very hardy but producing small astringent fruit. Some of the hybrids originating from these crosses have proved to be of great value for prairie conditions. Many trees of this type fruit abundantly at Brandon each year. The fruit is about the size of an ordinary crab apple and makes delicious preserves and jellies.

A new line of experimental work has been taken up in recent years in the hope of developing hardy varieties of standard size and quality. Thousands of seedlings of the hardiest standard apples are being grown in nursery rows. At present about 11,000 of these seedlings are under observation at Brandon. It is hoped that greater variation and consequently greater opportunities for selection will be gained by the use of large numbers. These seedlings will first be rigorously selected for hardiness, then the most hardy will be brought to the fruitage stage, while the nursery rows will be filled again with fresh thousands of seedlings. It is hoped in this way that out of the many thousands of seedlings with the great variations that seedlings show, that a variety may be found that will be hardy under the most rigorous conditions, and yet bear fruit of good size and quality.

Plums.

The different varieties of plums that are recommended for western conditions such as Cheney, Aitken and the numerous varieties originated by Professor Hansen of South Dakota, are being tried at Brandon. These all succeed well, but none are so satisfactory on the whole as some of the best strains of Manitoba Native plum. One of the best and earliest of the latter has been called the Major plum. Further work is being done in developing and isolating improved strains of the native plum.

Bush Fruits.

Currants, gooseberries and raspberries all succeed well. Experiments are being conducted in testing out the different varieties of bush fruits. Different methods of mulching and winter protection are also being tried.

Strawberries have been grown with great success for many years. Experiments with varieties and winter protection are being conducted.

LAST CHANCE

to import your Bulbs. Next fall you will have to pay regular prices for your Bulbs, when, by ordering them now, you get them for half the money.

Get our import Bulb catalogue at once. Orders must be in by July 10th at the latest.

Morgan's Supply House

London, Ont.

Bee supply catalogue free.

LEATHER COLOR ITALIAN QUEENS

Bred for Business

Untested, $1.00 each, $9.00 per dozen.

No disease.

A. E. CRANDALL & SON, Berlin, Conn.

QUICK SHIPMENT OF QUEENS

of 3-band stock, reared for honey gathering qualities. Untested, June $1.00, later 75c. Tested $1.50, select tested $2.00. Send your orders now and be assured of having queens when you want them.

R. A. Shults, Cosby, Tenn.

Northern Bred Italian Queens

Guaranteed as good as can be had. Leaflet, "How to Introduce Queens," 15c; "How to Increase," 15c; both, 25c.

E. E. MOTT, GLENWOOD, MICH.

THREE BANDED ITALIANS

Twenty years' selection and breeding brings Murry's queens above the average. Untested, 75c; 6, $4.00; 12, $7.50. Tested, $1.00; 6, $5.50; 12, $10.00. Safe arrival and satisfaction guaranteed.

H. D. MURRY, MATHIS, TEXAS.

BEES FOR SALE

Italian Queens and Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; all with Queens. Italian Queens, 75c each; 6 for $4.00. Complete catalogue free.

THE DEROY TAYLOR CO.

BOX C - NEWARK, N.Y., U.S.A.

YOUR OPPORTUNITY

to start in bees, make up winter losses, and increase your apiary cheaply by placing an order for a pound package of bees. Price, including a choice young Italian queen and full directions how to handle, $2.50; six for $13.00.

Choice young Italian queens, each 75c, six $4.00, 25 for $15.00. Satisfaction guaranteed. Reference, DuBois National Bank, DuBois, Pa. **J. B. HOLLOPETER, Box 156, Pentz, Pa.**

MILLER'S STRAIN ITALIAN QUEENS

By return mail or money refunded; bred from best red clover strains in United States, in full colonies, from my superior breeders; northern bred for business, long tongued, three-banded, gentle, winter well, hustlers. Not inclined to swarm; roll honey in. One untested, 75c; 1 select untested, $1.00; 6 untested, $4.00; 6 select untested, $5.00; 12 untested, $7.50; 12 select untested, $9.00. A specialist of 18 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, Brockville, Pa. U.S.A.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail.

J. P. MOORE,

Queen-breeder. Route 1, MORGAN, KY.

The Root Canadian House

185 Wright Ave. TORONTO, ONT.

Quality counts. Try our Queens; three banded, golden Carniolans or Caucasian, from best U.S.A. breeders; also from our own yards. Everything in Bee Supplies, Root's Goods; also "Made in Canada" Bee Journals and Books. Catalogue Free.

Honey Pails & 60lb. Cans.
Glassware & Shipping Cases.
Bees. Queens. Honey. Wax.

CHAS. E. HOPPER & CO.

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Bees and Queens

Ours are choice stock and Northern Bred; are more desirable for Canadian Beekeepers. Ask for Catalogue B.

Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.

Berry Baskets, ask for Catalogue C.

M. H. HUNT & SON

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LEININGER'S STRAIN OF ITALIANS

have a record of 30 years. Our experience in the queen-rearing business dates back over 30 years. They are excellent honey gatherers and gentle to handle. We will sell queens from this famous strain during July and August at the following prices: Tested queens (one year old), $1.00 each; 6, $5.00. Untested queens, 75c each; 6, $4.50. Satisfaction guaranteed.

Fred Leininger & Son, Delphos, Ohio.

PRICE LIST

of

Three Banded Red Clover Italian Queens

Bred from Tested Stock.
Untested Queens, $1 each, $5 for six.
Selected untested, $1.25 each, $7 for six.
Tested Selected Guaranteed Queens, $2 each.
Cash With Order.

W. R. STIRLING

Box 214 Ridgetown, Ont.

Beekeepers

Everything in the line of bee supplies. Weed process comb foundation, Bingham smokers, Porter bee escapes, improved model hives, etc.

Bees by the pound package. The best way to make increase. Hardy Canadian-bred Italian stock; sure to please. Full instructions for handling with each shipment.

Prices, including an untested Italian Queen:

	June.	July 1 to Sept. 15.
1-lb. package	$3.50	$2.50
2-lb. package	4.50	3.50
3-lb. package	5.50	4.50

Tested Queen included with above, 50c extra. Select tested, $1.00 extra, or best breeding Queen, $4.00 each extra. Best Italian Queens, untested $1.00; tested Queens, $1.50, and select tested, $2.00 each. Usual discounts by dozen or more.

Write us if you have any Beeswax to offer. Catalogue upon application.

F. W. JONES, Bedford, Quebec

NOTICE TO QUEEN BREEDERS

If you want to sell Queens and Bees advertise in the AMERICAN BEE JOURNAL. Read what some of our advertisers have to say about the pulling power of our advertising pages.

We have advertised in the American Bee Journal for thirty years. Have always found it a good advertising medium.—J. W. K. Shaw Co., Loreauville, La.

My advertisement brought all the orders I wished for. In fact, more than I was able to supply—quite a number of orders had to be returned.—J. A. Simmons, Sabinal, Texas.

The Reasons are self-evident—a good bee paper is taken by live and wide-awake beekeepers, and these are the kind that are always in the market for good bees and good Queens.

Rates on space are not high. Display at 15c a line, or $2.10 per inch. Classified, 15c a line. Send in your order with copy to-day and get rid of your surplus Queens.

AMERICAN BEE JOURNAL, - Hamilton, Ill.

GOLDEN ITALIAN QUEENS

Reared from superior mothers, mated with select golden drones, 3½ miles from three-band apiary. These queens are large, vigorous and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival (U. S. and Canada), and satisfaction guaranteed.

July 1st to November 1st.

QUEENS.	1	6	12
Untested	$ .75	$ 4.00	$ 7.50
Select untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select tested	2.00	10.00	18.00

After July 1st, $60.00 per 100.
Breeders, $5.00 to $25.00.

BEN. G. DAVIS, - Spring Hill, Tenn.

THE
COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited.

NICHOLSON & DEMPSTER
88 Colborne St., Toronto, Ont.
Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS
88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
See advertisement on page vii.

H. J. ASH
44-46 Church St.
TORONTO - ONTARIO
Consignments of fruit and vegetables solicited. We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

WANTED — Consignments of tomatoes, peaches, cherries, grapes, and all kinds of fruit and basket apples, also carlot apples. Centrally located; convenient to all car tracks.
LAING BROS.
Wholesale Fruit Merchants
307-309 Elgin Ave. : Winnipeg, Man.

SIMONS FRUIT CO.
David L. Dick, Manager
27 CHURCH ST. : TORONTO, ONT.
Representatives:
Simons, Shuttleworth & Co.
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Simons, Jacobs & Co. Garcia, Jacobs & Co.
Glasgow, Scotland London, England.
Receivers of Apples and Pears.

The Oldest Commission House in Toronto
McWILLIAMS & EVERIST
Send your Consignments.

This space costs $1.40 or 5s. 9d. per insertion

Order it now for the next 5 months

ANNAPOLIS VALLEY NOTES.

Manning Ells.

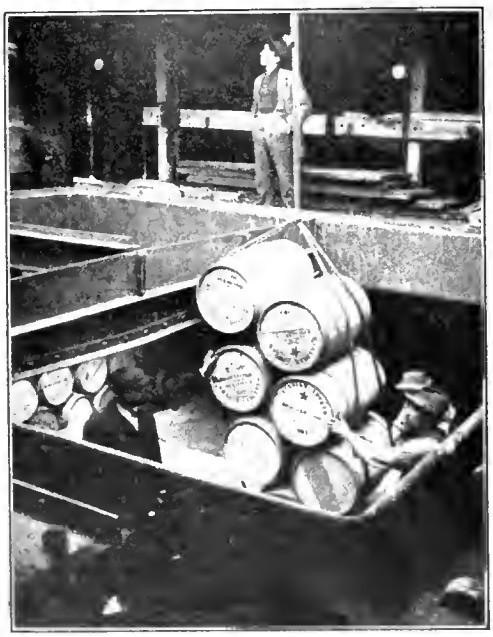
Never did the orchards of the Valley show more abundant bloom than this year and the weather on the whole has been favorable for pollenization. Early varieties especially seem to be setting well and from present prospects we should harvest sixty per cent. more apples than last year.

Black spot is showing on the leaves of unsprayed orchards and with perfect weather to date for its development it may be a serious factor in determining the number of barrels of marketable apples that will be gathered in the fall. To date there are no serious insects pests more numerous than usual. The bud moth showed up strong early in the season, but the two sprays before the blossoms opened pretty well wiped them out. They have done a good deal of damage on young trees, however, where spraying is not practised.

Strawberries are setting well. We will have the best crop for some years. There was no frost anywhere and the rains have kept the plants growing vigorously. Plums promise half a crop. Other small fruits are all that could be desired.

The only people with long faces in the Valley this season are the tree agents and the nurserymen. Practically no commercial orchards are being planted and this after only two or three years when the demand for trees seemed unlimited. Nurserymen who set heavily the past two years are left with a serious loss as this crop must be sold when ready and no one can tell when the grafts are set what the demand will be when the trees are ready to sell. The bugbear of over-production seems to be in every one's mind and it will probably be some time before the planting of apple trees will be taken up strongly again.

CHOICE APPLE BARREL STOCK



Staves, Hoops,
Heading, Head Liners
Coopers' Nails

For Packers who are unable to get barrels made, we can arrange to furnish them with Apple Barrels at lowest prices for first-class Barrels.

THE SUTHERLAND-INNES CO., Ltd.
CHATHAM - - - - ONTARIO

Central Annapolis Valley

Ennice Buchanan

The spraying of orchards seems to be undergoing a phase of transition in the Berwick vicinity. Many are using soluble sulphur just after the buds burst, while others use it entirely on a portion of the orchard only. There have been cases of leaf burning from this spray, probably due to using it too strong. A few orchardists have gone back to the Bordeaux mixture, while the majority continue to use lime-sulphur.

Aphis have made their appearance in some orchards, particularly on the Blenheims. Blossoming was late; the Gravensteins opened on June 3rd. Later the weather was ideal for the flight of insects and pollenization.

On May 16 we had a severe frost, but vegetation was too backward to be affected. On May 27th there was a snow storm and our last frosts (we hope) occurred on May 29th and June 2nd, but they were so slight that only the tender shoots on wild plants in low lying places were hurt, and as far as we can learn no serious damage was done. Now that the anniversary of last year's severe frost is past, June 4th, people are beginning to breathe freely; never before has there been such promise for an enormous apple crop. Cherry blossom is heavy, but plums are lighter. Wild strawberries, usually the first to suffer from frost, have an abundance of perfect blooms.

Prevention of damage by frost with fire pots is as yet in the experimental stage here. On the night of June 2nd Mr. S. B. Chute had a block of orchard protected with them. Mr. Chute says that by putting one hundred pots to the acre the temperature can be raised eight degrees; but he thinks that forty pots to the acre would be sufficient in a favorable location. The pots are made locally, costing eight cents each. Crude oil is used, one gallon to each pot, costing eight cents per gallon, or with labor ten dollars ($10) per acre.

Ontario Horticultural Exhibition

The directors of the Ontario Horticultural Exhibition are anticipating that it will be possible to hold the exhibition this year as usual. The only thing which may interfere is the difficulty of obtaining a suitable building. Last year's exhibition had to be post-

THE SUGAR THAT GIVES PERFECT PRESERVING RESULTS

Remember, that Sugar plays a very important part in your Preserving.

On its purity and even granulation, depend the success of your Jellies and Jams. This is why it is so important that you demand

LANTIC SUGAR

Insist on having this pure Cane Sugar in original packages, and your preserving success is assured.

Your grocer should have LANTIC SUGAR in 2 and 5 pound cartons, and in 10, 20 and 100 pound bags.

FRUIT JAR LABELS, FREE

Send us the small Red Ball Trademark cut from top end of carton or from 10 or 20 pound bags, and we will send you, free, a Book containing 50 gummed preserving labels for your fruit jars.

Lantic Sugar

Address

Atlantic Sugar Refineries Limited

Dept. E. Montreal

HANDIEST IMPLEMENT YOU CAN HAVE

You'll find a hundred uses for the Bissel Steel Stone Boat. Every Fruit Grower needs one. Made in several styles and sizes. Stiff, durable, unbreakable

T. E. BISSELL Company Limited, ELORA, ONT.

Write Dept. N for Folder to-day

Landscape Gardening

A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL

DEPT. C.F. - SPRINGFIELD, MASS.

HAMMOND'S SLUG-SHOT 1880 1915 AN INSECTICIDE FOR GARDEN USE USED SINCE 1880 TRADE MARK

Cabbage Worms Destroyed by Dusting with Hammond's Slug Shot

So used for 30 years. SOLD BY ALL SEED DEALERS.

For pamphlets worth having, write

B. HAMMOND, Fishkill-on-Hudson, New York.

Kelway & Son SEED GROWERS and NURSERYMEN

LANGPORT, ENGLAND

Announce that their MR. H. A. NALDRETT has just arrived for an extended business trip throughout the United States and Canada Mr. Naldrett's address while in this country will be in care of

Messrs. T. Meadows & Co.

8 10 Bridge Street, Battery Park, New York

Protect Your Fruit

BY USING

WARNER'S
APPLE BARREL PADS

A pad placed in each end of the barrel holds the apples firm and absolutely prevents them from being bruised when heading the barrel and shipping

It costs very little and pays well.

R. B. Warner, Inwood, Ont.

—PRESERVE—

Your Fruit this season with

DOMINION CRYSTALS

A sugar that is absolutely pure and fully guaranteed. If you are buying sugar to feed BEES, be sure to get Dominion Crystals.

Ask your Grocer for it.

DOMINION SUGAR CO., Ltd.

Wallaceburg and Berlin, Ont., Can.

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

Orders Filled Promptly. Send for Prices.

THE FOSTER POTTERY CO., Ltd.

HAMILTON, ONT.

Look Over Your Greenhouses

Methods of greenhouse building have changed radically in the last few years.

Steel construction, throwing less shade, and a single large house in place of several small ones, have resulted in greatly increased efficiency and economy in every way.

Are they large enough to accommodate all your needs? Are they up-to-date and efficient in every way? Would a new house or an overhauling of your old ones save you money in operating or give you better growing facilities?

Every day, almost, brings forth new ideas in greenhouse construction, tending to more economical operation and better growing.

The plant which keeps up with them is the money-making plant. Remember that to-day's expenditure is to-morrow's saving.

Write us for booklet B and further information.

GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.

201 Church Street, Toronto
P. O. Box 1042, Montreal

poned because the buildings on the Exhibition Grounds, where it was proposed to hold the exhibition, were in use by the militia. It is not certain as yet whether or not any of these buildings will be available this year. At a meeting of the directors, held June 25, the secretary was requested to ascertain if any of the buildings on the Exhibition Grounds could be obtained for the purpose of the exhibition. If it is found that these will not be available, the manager of the exhibition will ascertain if any other building, such as the Arena, can be secured.

In the fruit section this year it is proposed to discontinue offering prizes for barrel exhibits. Prizes for cones of apples will be offered again this year after having been discontinued for a few years. There will be very little, if any, change in the vegetable and flower prizes. It is probable that there will be an especially large exhibit of honey and of good quality.

Mr. Manton suggested that this year the prize winners be asked to contribute their prize money to the funds of the Red Cross Society, as it was proposed to do last year. Action was deferred until the different organizations represented under the management of the exhibition could be consulted on this point.

A feature of the meeting of the directors was the presentation of a handsome leather arm chair to Mr. E. T. Reed, the capable and well-liked manager of the exhibition. The presentation was made by Messrs. Hodgetts and Manton. Words of hearty appreciation of the good work that has been done by Mr. Reed as manager were expressed by all the directors present.

Niagara District

As a result of investigations made by W. A. McCubbin, of the Laboratory of Plant Pathology, at St. Catharines, it has been reported that powdery mildew has appeared in the vicinity of Jordan and Vineland on strawberries. The disease generally is not serious, but owing to favorable weather conditions has assumed considerable importance this year. The Vineland Experiment Station is experimenting with remedies.

The fruit inspectors this year, in accordance with the instructions sent out some time ago by the Dominion Fruit Division, have been watching carefully for shipments of immature fruit and improper packing, and as a result a number of growers have had their shipments returned.

The heavy frost the latter part of May caused more damage than was at first anticipated. Strawberries suffered heavily, as have grapes and the more tender plants and vegetables.

The published report that large orders for jam have been placed by the British Government with Canadian jam manufacturers was welcome news. Most of the factories have been carrying considerable stocks of jams. This condition has not improved the demand from the factories for fruit.

The staff of the Vineland Experiment Station has been increased by the addition of two graduates of the Ontario Agricultural College in the persons of Messrs. A. G. Harris and O. J. Robb. Mr. Robb is succeeding the late Mr. Lund in the conduct of the vegetable department.

Ontario Crop Prospects

Fruit crop prospects in Ontario were described as follows by the Ontario Department of Agriculture, Fruit Division, the last week in June:

East of Toronto, inciuding the counties of

GILSON Johnny-on-the-Spot

A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P.

$47.50

1 1-2 H. P. Gasoline Engine, Skidder truck. Sizes up to 15 H.P.

Gilson Mfg. Company, 5 York St Guelph, Canada.

SKINNER SYSTEM OF IRRIGATION

THE RAIN MACHINE

Write for six books on indoor and outdoor irrigation.

The Skinner Irrigation Co., 233 Water St., Troy, O.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

SANDER & SONS
ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest Stock in the World

Catalogue on Application

FRUIT MACHINERY CO.
INGERSOLL, ONT.

Manufacturers of Fruit Sprayers
and a complete line of
Apple Evaporating Machinery

Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

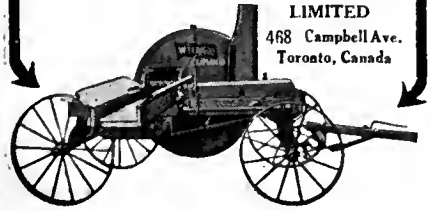
TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada



What a Million Mothers Avoid

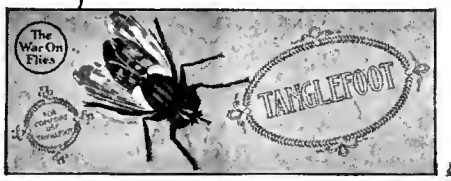
More than a million careful mothers have intuitively known the dangers of poisonous fly destroyers. They have known that such preparations contain arsenic in deadly quantities. They have realized the peril to little children that accompanies the use of fly poisons.

But for those who have not learned of these dangers, we quote from a recent issue of the Child Betterment Magazine, which comments upon 35 cases of children being poisoned last year:

"The danger to children is great, and the danger to adults is by no means inconsiderable."

In the December issue of The Journal of the Michigan State Medical Society, an editorial on the same subject cites 47 cases, and goes on to state:

"Arsenical fly poisons are as dangerous as the phosphorous match. They should be abolished. There are as efficient and more sanitary ways of catching or killing flies. And fly poisons, if used at all, should not be used in homes where there are children, or where children visit."



TANGLEFOOT
"The Sanitary Fly Destroyer"
Non-Poisonous

Catches the Germ with the Fly
Made in Canada by
THE O. & W. THUM CO.
Dept. 271 Walkerville, Ont.
American Address: Grand Rapids, Mich.

Canadian National Exhibition

"PATRIOTIC YEAR"

March of the Allies — Aug. 28 to Sept. 13 — Review of the Navy

Mammoth Fireworks Display, War Trophies, captured from the Germans, Bigger, Better, Grand Stand Performance, New Midway Attractions, Model Farm under Cultivation, Canada at a Glance.

Fruit Growers and Shippers

We have opened up a Commission House in Winnipeg and solicit your consignments.

Our books are open for your inspection and we will gladly furnish you with the names of purchasers of your fruit.

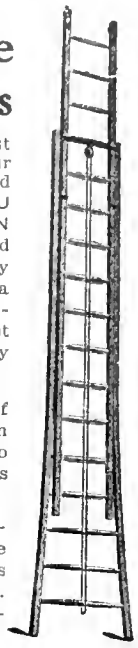
Commission - - - 10%

Send us a trial shipment and be convinced.

HYSLOP & SONS, 132 Princess St., Winnipeg, Man.

References—any Mercantile Agency, or Bank of Hamilton, Hamilton.

Own These Two Ladders



YOU needed a ladder last winter to get at your roof, take the snow off, and to fix the chimney. YOU NEED LADDERS NOW IN YOUR ORCHARD. You need a long ladder often, every year—and you also need a step-ladder. We make several other varieties not shown, which are especially for Fruit Picking purposes.

Do you know that 75% of the homes in Canadian towns and cities own no ladder? Just carelessness and neglect—not the cost.

Look at the extension ladder at the right. Notice the extension features. It locks automatically at every rung. Light and strong and soundly made, as are all

Stratford Ladders

NOW look at the step-ladder illustrated below—the type of ladder wanted 50 times a year in every home. A strong ladder, well braced. No better model made.

Go to your hardware dealer and ask him for the "Stratford" model. If he can't or won't supply "Stratford" ladders, communicate with us. Ask for our ladder catalogue E

We are prepared to supply Co-operative Associations with their requirements in ladders.

Stratford Mfg. Co., Ltd.

STRATFORD, ONT.

MERRYWEATHER'S ROSES

are noted throughout the world

They are Cheap; they are True to Name; the Trees are Strong and Sturdy. They defy Competition.

ALL THE

NEWEST VARIETIES

Dwarfs, Standards, Climbers, also Fruit Trees, Shrubs, Ornamental Trees

Send for Catalogue, Post Free

Henry Merryweather & Sons
Limited
SOUTHWELL, NOTTS., ENG.

FREE LAND
For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
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WESTERN FAIR

London's Popular Exhibition

September 10th --18th

Fruit and Flowers a Prominent Part of this Great Exhibition

$30,000.00 in prizes and attractions. Special programme twice daily. Fireworks every night. New Steel Grand Stand. Single fare over all railways west of Toronto. Prize lists, entry forms, and all information from the Secretary.

EVERYBODY COME

W. J. REID, PRESIDENT. A. M. HUNT, SECRETARY.

Ontario, Durham, Northumberland and Prince Edward, apples generally promise a fair to good crop, probably 60 to 70 per cent. of that of last year. Duchess and other summer apples are reported a nearly full crop. Fall apples medium, Spies only fair, Greenings fair to good, Baldwins and Russets good. Ben Davis very good. Pears and sour cherries very good.

Halton and Wentworth Counties.—All varieties of apples generally reported a fair to light crop only, with Spies and Kings better than other varieties. Early and late pears are variously reported a failure to a good crop, averaging probably fair, with Keiffers good. Plums and cherries a full crop.

Niagara District.—Elberta peaches are a fair to good crop with other varieties very good. Early and late pears generally light, with the exception of Keiffers, which promise a good crop. Plums probably will be a medium crop only, reports varying greatly from very light to good. Cherries generally do not promise as big a crop as last year. Frost also is reported to have caused considerable damage to cherries and plums, many growers reporting a heavy drop of fruit. Currants, gooseberries, raspberries and blackberries give promise of a good crop, though considerable winter killing of raspberry canes is reported. Grapes, especially back from the lake and in low places, suffered considerably from the frost of May 27th. Probably the total crop will be affected 25 per cent. or more.

Fruit generally through the Niagara District is reported looking well, but not growing very much at the time the reports were sent in, owing to continued cold weather, many growers looking for a heavy drop of fruit.

Norfolk.—All varieties of apples give promise of a light to fair crop only. Pears are a fair crop.

Middlesex reports heavy damage from frost of all varieties of fruit, most correspondents stating that the fruit crop is practically ruined, with the possible exception of Spies, which were hardly in bloom at the time of the frost. Fruit prospects were fair up until the time of frost.

Lambton County suffered severely in many parts from the frost, especially orchards on low-lying lands. Generally speaking, the Lambton apple crop will be light, though Kings and Russets are fair to good. Peaches on low land are also severely frosted. Plums are a medium crop. Pears light.

Huron, Grey, Bruce and Simcoe report a fair to light crop of apples, the frost doing severe damage in many sections, some reports stating that the crop was practically ruined.

Canning factories generally seem to be offering prices if anything a little below those of last year. Prices reported for strawberries range from $1.50 to $1.60 per 24-qt. crate; for raspberries, $1.60 to $1.68.

British Columbia

A conference was held recently between the managers of the fruit shipping associations of the Okanagan Valley and Mr. W. B. Lanigan, Assistant Freight Traffic Manager of the C.P.R. Following this conference it was announced that substantial reductions would be made in the rates on car-load lots of fruit and vegetables between Okanagan points and Vancouver. The new rate on apples, soft fruits and vegetables will be 30c a 100 pounds, as against a former rate of 40c on apples and 48c on soft fruits. A crate of peaches can be shipped to the coast for 6c and a box of apples for 13½c. Favorable through rates to points served by the

The Canadian Horticulturist

Regular Edition.

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The British Columbia Fruit Growers' Association is distributing 20,000 copies of a fruit booklet in the Prairie Provinces to stimulate the consumption of British Columbia fruit. It gives 225 recipes for the use of different varieties of fruit, and includes illustrations of the best-known varieties of apples, with explanations as to the months when they can be used for culinary and dessert purposes to the best advantage. Methods of preserving fruit without sugar are described.

Provincial Horticulturist, R. M. Winslow, has predicted that the apple crop of the Okanagan Valley will be fully as large as

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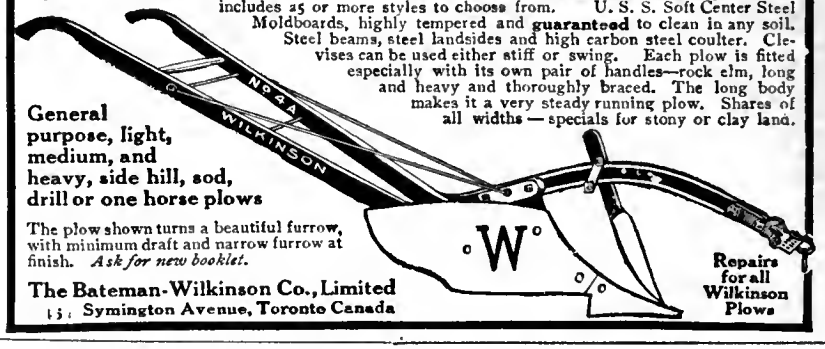

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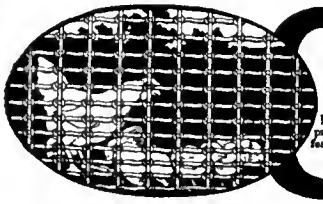

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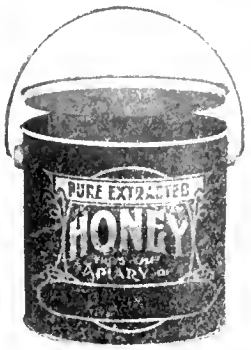

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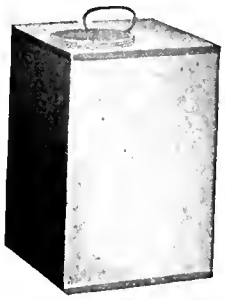

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GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, $1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, $1.50. Nuclei, per frame, $1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

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ITALIAN BEES AND QUEENS as advertised on page 159. Catalogue free. Deroy Taylor Co., Newark, N.Y.

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ITALIAN BEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. Stover Apiaries, Mayhew, Miss.

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BEES AND QUEENS—Why not re-queen your bees this fall with the best of Doolittle stock? We offer special prices of 75c each, $7.20 per dozen, or $54.00 per hundred. It will pay you to give this stock a trial. Spencer Apiaries Co., Nordhoff, Cal.

ITALIAN QUEENS—For sale at 60c each, $7.00 per dozen. Safe arrival guaranteed. T. J. Talley, R.R. No. 3, Greenville, Ala.

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MOORE'S STRAIN AND GOLDEN ITALIAN QUEENS, untested, $1.00; 6, $4.50; 12, $8.00; 50, $32; 100, $60. Carniolan Caucasian, untested, $1.25; 6, $5.00; 12, $9.00. Tested, any kind, $1.25; 6, $7.00; 12, $12.00. Choice breeding queens of any kind, $5.00 each. Circular free. W. H. Rails, Orange, California.

QUEENS OF QUALITY — Our Hand-Moore strain of 3-banded Italians are beautiful and good honey gatherers. Secured 223 sections comb honey from best colony 1914 season. Only drones from selected queens near mating yard. Breed strictly for business. Untested, 75c; half doz., $4.00; Select, $1.00. Queens mailed promptly or money returned. W. A. Latshaw Co., Clarion, Mich.

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WOULD LIKE TO EXCHANGE mushroom spawn for bedding stock or cuttings, plants or bulbs. Canadian Mushroom Growers, Limited, Lindsay, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

last year. The peach crop will be about equal to last year.

Fire Blight has made its appearance in a considerable number of orchards in the Southern Okanagan. Fruit growers have been urged to watch for it and to cut out affected wood immediately upon its appearance.

There is a possibility that the pre-cooling plant in the Summerland District may not be operated this year. The Government has offered to rent it to the fruit growers at a rental equal to six per cent. interest on the capital invested. The growers have claimed that this charge is too high. They have offered to operate it if they can obtain it at what they consider a nominal rate.

One of the pioneer apple exporters of Ontario in the person of Daniel L. Simmons died at Colborne, Ontario, on June 15th. Mr. Simmons is said to have been the first Canadian to ship apples to the English markets, where his D.L.S. brand has been well known for a third of a century. The success of his initial shipments encouraged a greater production of apples in Ontario.

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REVERSIBLE
To throw the dirt to or from the trees or vines.

ADJUSTABLE
Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

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The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.

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Small outfits on skids—large outfits on wheels.

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The Canadian Horticulturist

Floral Edition

Vol. XXXVIII AUGUST, 1915 No. 8

Winter Injuries in 1915

W. A. McCubbin, M.A., Field Secretary, Entomological Division, St. Catharines, Ont.

So many cases of damage due to winter conditions have come under my observation during the past two seasons that a few words on the subject may be of interest. The term winter injury may be used to include those injuries due to winter sustained by plants which are either dormant, are about to become so, or which are emerging from the dormant condition. It should be noted that while extreme cold may at times cause damage it is where the low temperature is associated with other factors that the greatest injuries occur. Among these contributing factors there are several important ones from the point of view of the general grower. Variations in temperature, especially if sudden and extreme, are to be considered. A tree which would be uninjured by a week's zero weather if during the preceding and succeeding weeks the temperature gradually fell to and rose from the low level, would be badly hurt by a very cold week suddenly following a warm spell or a warm period abruptly ensuing after a very cold period.

There is also the protection of the tree to be considered. In the natural state a tree would have a humus-filled soil, an old sod, or a matting of weeds and old leaves around it which would modify very materially the effects of frost. In cultivated orchards where the bare soil is left freezing takes place more suddenly and extends more deeply, while thawing is more rapid in the spring. This is especially true of hard and earthy soils which lack humus, and in such cases freezing of the roots may be expected.

The most important factor, however, is the dryness of the plant tissues. When a tree prepares itself for winter growth ceases and the tissues undergo certain changes, associated with which is the drying out of the surplus water. Every effort is made to keep as little water as possible. Here again our methods of cultivation sometimes interfere with nature's processes and our trees are hindered from getting rid of water, when, of course, they are not fit to meet the cold of winter, and are frozen. We commonly speak of this as "ripening" of the wood in the fall, and while the presence of too much water is the main factor which prevents proper ripening, there are others which also hinder the process to some extent. Among these may be mentioned severe summer pruning, which stimulates a late growth and leaves unripened wood to face the winter. Similarly defoliation by insects or fungi may start the tree to putting out new leaves and shoots which are liable to be immature when winter comes on. Also young, newly-set trees which do not have an early start in spring may not get a proper chance to ripen up in the fall. In many trees which are unhealthy the growth processes are slow and an early cold wave may damage them before their wood has had time to become mature.

In a climate like ours, where there are such variations and sudden changes, we can scarcely hope to entirely banish winter injuries. We can, however, help our trees to pass the winters with more security than has been customary in the past by paying some attention to the factors concerned in the problem. One might sum up the general methods that may be followed to assist nature in bringing the orchard safely over the winter, as follows:—

1. Plant trees known to be hardy for the locality.

2. Keep the orchard vigorous and healthy.

3. Avoid late growth of the orchard. Give it every chance to ripen the wood in the fall. Especially see that it has not too much water in fall.

4. Protection measures may be useful. A humus-filled soil is good insurance against collar rot. A mulch of straw or strawy manure or even a heap of earth will in some cases modify the sudden changes to which an earthy soil is liable.

Dieback of Shoots: This is a very common form of winter injury. It may be seen in almost any orchard. The shoots are killed back from the ends for varying distances. It is extremely frequent among tender trees like the peach, and among trees not quite hardy for the locality, as for instance,

Indian women picking gooseberries, which have been grown as fillers between the fruit trees, in the orchard of Mr. Bell, of Burlington, Ont.

The Skinner Sprinkler System as used in his celery patch by Mr. Buck, of Freeman, Ont. The pipes can be turned to throw water to either side.

the mulberry in the colder parts of Ontario.

It might be noted that this dieback is only a mild form of what occurs normally in many of our perennials, where all the top above ground dies back each fall.

Bud Killing: This is very common also. The buds, and especially the flower buds, are frozen and drop off. In many cases only the delicate stamens and pistils are destroyed and the flower opens but remains sterile.

June Drop: Each year after the fruit has set a large number of fruits, especially among peaches, plums and cherries, drop off in June. Sometimes this is only due to a natural pruning which nature gives to a large crop. A weak tree, or one which bore heavily the preceding year, will suffer in this way. In many cases noted in 1915, however, the June Drop was due to a lack of fertilization brought about by very cold weather during the blooming season.

Spotting of Plums and Cherries: This effect of late spring frosts was very noticeable this year. It was frequently mistaken for Brown Rot, and while spots were brownish in color they did not increase in size as the fruit ripened. In many cherries examined the spot on the outside had a small counterpart on the pit directly beneath it.

Sun Scald: This term is used to denote the long dead areas on the trunks of apple, pear, plum and peach trees. Plums are especially troubled in this way and whole orchards may be seen in which every tree has a dead strip on the south or southwest side of the trunk. In this case the trouble seems to be due to sudden changes of temperature in March and April. A calm, bright day raises the temperature on this side of the tree and starts a little growth. The sudden fall of the temperature at night is then too much for the tender tissue and a strip on the exposed surface dies. A board loosely nailed on the south side of the tree, a coat of whitewash on the trunk, or a cylinder of building paper loosely wrapped around the trunk have been used to prevent Sun Scald. These, of course, should be put on in the late fall. When the damage is already done, sun scald areas should be cleaned out and the wood painted to prevent decay.

Crown or Collar Rot: These names are used to denote a killing of the stem of a tree at the ground or below it, and it often involves the roots as well. Very many orchard trees of all ages die annually from this trouble, which is the direct result of freezing of the part below ground. Such trees in spring may put out leaves and flower and then suddenly wilt and die. More frequently, however, the girdling is not complete and the tree lives for two or more years after the injury was sustained, the small living connection with the roots sufficing to keep it alive. Such trees are characterized by small and yellowish leaves and many dead twigs. When one side of the trunk only is frozen in this way the branches above it may be unhealthy and the rest of the tree normal. If not too badly injured the tree may recover, but when such freezing takes place at all it is usually bad enough to kill most of the way around the base of the trunk. One can easily determine how bad the damage is by cutting into the bark of the underground stem. The normal bark is greenish white, while the dead tissue is quite brown clear to the wood beneath. Collar rot is prevalent on low, wet soils, especially if these lack humus. It has also been found that a mulch of straw or barnyard manure or a heap of earth around the trunk helps trees to pass the winter without this root freezing, presumably because they tend to prevent sudden changes of temperature in the soil. It may be noted here, also, that where a budded tree is used and the stalk grows faster than the scion, or is imperfectly united to it, the liability to injury of this kind is greater than where the two parts of the tree are uniform in size and there is a perfect union. There is a strong suspicion also that the stock used in certain cases is one that does not possess the hardy qualities that ought to be expected of it.

Black Heart: One often meets with fruit trees in which the whole of the heart wood has taken on a brown or dark color and to these cases the name Black Heart has been given. They are due to winter injury also, and it is a very unwise proceeding to plant out nursery stock affected in this way. Apple, pear, plum and peach trees are all subject to this form of injury and experience shows that if such trees live at all they make little growth for the first two or three years. When the injury occurs on a tree that is established it may not do much harm unless the injury is very severe, and flourishing orchards can be seen which years ago had their heart wood browned and darkened by some exceptional winter. It is advisable, however, to examine nursery stock and see that it is free from Black Heart, for nothing but dissatisfaction will come from planting out an orchard with trees affected by this sort of winter injury.

Strawberry Root Killing: A great many complaints have been made this summer of the death of plants in strawberry beds. They usually looked well in spring, and put out leaves and flowered in a normal way, but when the soil dried out they shrivelled up and died out singly and in small areas all over the bed. This killing was variously assigned to the use of too strong manures, to the strawberry mildew which was unusually prevalent this season, or to the "white grub" which has recently done considerable damage to strawberry plantations in various districts. It was not due to these, however, but to the freezing of the strawberry roots, possibly in early spring after growth had begun. In the plants which are beginning to wilt the root system can be seen to be brown and dead. In older plants the outside or cortical part of the roots brown normally in winter more or less, but in

these the central part is also dead and, of course, useless. The lower part of the crown tissue above the roots also shows in most cases a like discoloration.

Chlorosis or Yellowing of Grapes: The foliage of a very large number of grapes shows this year a pronounced yellowish tinge, due to early spring frosts. Wordens have been noted as especially troubled in this way. The strips or areas most affected by the disastrous frost of May 27 now show more of this chlorosis than the rest of the grape district. It is not thought that any permanent yellowing will result, but that it is a temporary condition only that will disappear next year.

Asparagus Curl: Many of the late asparagus shoots come up curled and dwarfed with a brownish streak on the inner side of the curl. This also was due to the late spring frosts which slightly injured the shoots on one side near the growing point and brought about an irregular growth when the shoot elongated.

Success in Strawberry Growing

UNUSUAL success has attended the efforts of Mr. Geo. Johnson, of Peterborough, Ont., as a grower of strawberries. His start was made almost by accident. While busily occupied a few years ago farming ninety acres of land, he yielded to the suggestions of his family and put in five rows of strawberries at one end of a small field, "just for family use." That was four years ago. The small family-sized plot of berries proved a pleasant revelation to Mr. Johnson of the possibilities of intensive cultivation, as the five rows which had been intended to supply only the requirements of the family yielded an additional revenue of $104 from berries sold.

The following year, Mr. Johnson set out half an acre. This also proved profitable, with the result that the next year he had one and one-half acres in bearing. Markets favored his new venture, and all of the crop was sold at prices ranging from twelve cents to eighteen cents a box. From his one and one-half acres, Mr. Johnson picked 5,100 boxes. When the boxes had been paid for and picking expenses deducted, he found that he had realized $670 from the small area in fruit.

In 1915 the market was not so favorable, and equally satisfactory returns were not realized, but still they compared to advantage, considering the labor and capital expended, with the returns from the remainder of the farm, on which general farming was still practiced. Herbert raspberries have been added, and have proved almost equally satisfactory with the strawberries.

"Senator Dunlap and Parsons are my favorite varieties," Mr. Johnson informed a representative of The Canadian Horticulturist who visited him in the picking season this summer. "We set the rows three and one-half feet apart, and the plants two feet apart in the row. We allow the runners to run freely, and all the training they get is that given by the cultivator. Of course we aim to cultivate the same way each time. We aim to take two to three crops off a bed. I have made more money by following this practice than by plowing down after the first crop has been harvested."

In one respect, Mr. Johnson's methods differ radically from the methods of other fruit growers in his section. "Many have the idea," he said, "that the strawberry plantation should be kept clean the first year but not touched the following spring until the crop is off. We followed the common practice at first, and one year the weeds stood a foot high over the whole bed, but we did not dare to pull them. That year was the first cropping season for the bed, and we should have got a maximum crop. Instead, we got a poor crop. The next year we cleaned that bed thoroughly in the spring, and the result was larger pickings throughout the season."

The cultivator is kept going constantly in the Johnson plantation, even during the picking season. "Moisture conservation is an absolute necessity to a good crop of berries," said Mr. Johnson. "Rain will spatter more sand on the berries than the scuffler ever does."

Barnyard manure is the staple fertilizer. Mr. Johnson plans to grow roots the first year, applying a good coat of manure to them. Berry plants are set the following spring, and they receive a second and equally heavy coat of manure.

Factors which have contributed to Mr. Johnson's success have been the fact that the soil on his farm is particularly suited to small fruit culture, while one of the best markets in Ontario, the city of Peterborough, is only a couple of miles distant. These conditions have enabled him of late to secure a larger return from his what are now five acres in small fruit than he formerly obtained from his farm of ninety acres.

The strawberry patch from which Mr. Johnson, of Peterboro, has obtained his profitable results.

The Berry Patch

What treatment should be given the raspberry plantations which have borne berries this season? The best treatment is to cut out the old canes as soon as they are done bearing. The new canes should also be cut to the proper number in each place, usually about five. The material which has been cut out should be carried out of the patch and burned. In this way much decay and other fungous trouble will be avoided. There are also many insects in the various stages from egg to adult which are destroyed by this practice. Another thing that is gained is the better development of the canes which are to bear next year. They get more sunlight by such a plan.

When the canes have been cut out and burned, it is a good plan to cultivate between the rows. Stir up the ground which has been tramped by the pickers and thus put it in condition for the continued growth of the plants.

A group of highbush cranberries in the back yard not only adds color to the yard in autumn, but also furnishes a good jelly material close at hand.

Mr. Geo. Johnson, of Peterboro, Ont., in a section of his raspberry patch.

Orchard Reminders

M. B. Davis, B.S.A., Ottawa, Ont.

Late July and early August, although not nearly as busy a time of year for the amateur fruit grower as the spring, still has its duties. The raspberry plants can now be attended to, to good advantage. The fruiting season is over by now, and the wood which bore this year's crop is probably dying and should be removed this early autumn. If your plantation is infested with raspberry cane blight it will be showing now, by the discoloring of the canes, which will just begin to die by wilting at the tips. These discolored canes should at once be removed and burned; in fact it is a good rule to remove all dead wood and burn it at once so that in case a disease is present it will not be a further source of infection.

If you have black raspberries growing, cut back the new canes as soon as they have reached the height of two and a half feet to three feet, otherwise they are very difficult to handle.

In the gooseberry plot preparation should now be made for propagating next year. The best method for propagation is layering, and if it is intended to layer next season the bushes should be severely pruned early this autumn, which will induce a strong wood growth next spring. As soon as this growth is practically complete, which will be about next July, earth should be heaped around the bush so as to cover everything except the young tips of the new shoots. This soil is packed down and then a mulch of fine soil is put on top of this. By autumn the young shoots will probably have rooted when the mound can be removed and the rooted shoots separated from the mother plant, and set out in the places intended for the new plantation.

The strawberry beds should receive attention. If in the old bed you are troubled with leaf spot or rust, care should be exercised to keep it off the new forming foliage of the runners. In some cases this may be effected by picking the diseased leaves from the old plants and burning them, while in cases where the disease is bad, frequent sprayings with Bordeaux mixture will be necessary to keep the young foliage free of rust.

Approved Orchard Methods Again Prove Profitable

THE possibilities that lie in many a neglected orchard have been revealed, among others, by F. H. Johnson, of Bridgetown, N.S., who for some years has obtained an average profit of one hundred dollars an acre from a reclaimed orchard. These results have been accomplished by the thorough application of the principles of orchard practice frequently described in the columns of The Canadian Horticulturist.

Mr. Johnson's orchard comprises ten acres, five of which are in full bearing. When he purchased his farm in 1899, the orchard contained 300 apple trees. The trees had been badly neglected, having been left in sod, seldom pruned and never sprayed. They were covered with a growth of moss, and had a starved and stunted appearance. The annual crop was about one hundred barrels of inferior apples.

As soon as the land was fit to work, the spring after he took charge, Mr. Johnson plowed up the orchard and kept the ground thoroughly cultivated until the first of July. A cover crop was then sown. Meanwhile the trees were sprayed regularly. In the autumn his efforts were rewarded by three hundred barrels of clean fruit of good size. The orchard now contains 1,000 trees, one-half of which yield an average crop of 800 barrels of first-class merchantable apples. When asked by a representative of The Canadian Horticulturist for details of the methods by which these results had been reached, Mr. Johnson readily responded.

"I attribute," he said, "what success I have met with to four operations: First, spraying; second, cultivation; third, fertilizing; and fourth, pruning. The best soil for an orchard is a light or a gravelly loam. Mine is a light loam. My orchard is situated on the crest of a hill and slopes to the north, west and south. So far as I can see, the slope of the orchard does not make any difference in this part of the country. Of course we are not troubled with spring frosts here. It is possible, perhaps, that where these are prevalent a northerly slope would possess slight advantages.

"I have practised thinning for ten years with good results. About the first of July I go through the orchard for this purpose. This practice gives me larger fruit, more even in size and better colored. Moreover the fruit can be handled much more quickly in picking and packing. Thinning is one of the important operations in growing first-class fruit. The superintendent of the Dominion Experimental Station has directed experiments in thinning in my orchard. The Blenheim variety was selected for the test. Five trees were thinned and these were compared with seven trees unthinned. The trees were uniform in size and were equally well set with fruit. About seventeen per cent of the apples were removed from the thinned trees on July 15th. The apples were counted when picked and were packed by the Co-operative Fruit Company of Bridgetown. All the barrels were marked so that the shipment could be traced to the selling point. The apples were sold on their merits and the purchaser knew nothing of the nature of the experiment. The number one fruit from the thinned trees sold at thirty-four cents per barrel more than for the same grade from the unthinned trees."

Cost of Production.

Mr. Johnson values his bearing orchard at five hundred dollars an acre, which at six per cent. is a rental of thirty dollars. He has kept complete records of his expenditure and receipts. The fertilizer used per acre averages eleven dollars and 50 cents. Sowing the fertilizer costs one dollar an acre, discing and harrowing five dollars, seed for the cover crop two dollars and fifty cents, barrels thirty dollars, spraying twelve dollars, and picking, packing and truckage thirty dollars. The total outlay per acre of bearing orchard he places at one hundred and twenty-two dollars. For the past number of years he has averaged one hundred and twenty barrels to the acre, and his average price for all varieties has been one dollar and eighty-five cents a barrel. This gives him a gross income per acre of two hundred and twenty-two dollars and a net profit of one hundred dollars an acre. These returns show an encouraging improvement over those formerly obtained from this land.

An Amateur's Homemade Greenhouse

F. E. Ellis, Peterboro, Ont.

THE two and one-half dozen tomato plants growing in our backyard garden were started by a neighbor of ours in a simple greenhouse of his own construction. They are even more vigorous and promising this year than those we grew last year, although then we had a bumper crop. Our asters, which will soon show a beautiful bank of bloom on two sides of the house, have also made an unusually satisfactory growth. The cold weather that we have had does not account for their success this year. We attribute it also to the exceptionally strong plants which we secured from this same neighbor. Our neighbor is Mr. A. McKenzie. The story of his success with his greenhouse is an interesting one.

Mr. McKenzie is a foreman in one of the big factories of our city. Gardening has always been his favorite hobby. His backyard has always produced abundantly of the many good things that gardens grow when given intelligent management. Last winter times were dull and the foreman and men of the factory in which Mr. McKenzie was employed, were working on part time and short pay. Mr. McKenzie decided, therefore, to turn his hobby to profitable account. In the time that would otherwise have been idle on his hands, he constructed a 10 x 15 foot greenhouse in one corner of his backyard. Much of the material was obtained from odds and ends around his house. In this he installed a small jacket heater and ran a couple of wires from his residence to light the greenhouse. The completed house, as seen in the illustration herewith, cost about fifty dollars for materials.

As soon as the house was completed it was put into use. During the late winter and early spring, thousands of plants of such vegetables as tomatoes, cauliflower, cabbage, onions and peppers were grown and hardened off in six cold frames which had been built in conjunction with the house. Plants of such annual flowers as asters, carnations, stocks and lobelia, were also grown for sale. Geraniums and foliage plants were also grown to a limited extent. Mr. McKenzie took the very best of care of his greenhouse stock, hardening it carefully in the cold frames. When he started he did not know where he was going to find a market for his stock, but customers came readily and naturally and he disposed of it all among his neighbors and could have sold many more plants had his producing capacity been greater.

Mr. McKenzie plans to start his greenhouse earlier in the season next year. If others who purchased plants from him have had as good success as we have had, he again should have no trouble in disposing of his stock. This year, of course, Mr. McKenzie had a considerable outlay in building his greenhouse and it will add but little to his income. Next year, however, without further capital expenditure to make and as a result of experience gained this year, he expects to find his greenhouse a source of considerable revenue as well as a pleasant hobby.

A simple greenhouse, erected at an expense of about fifty dollars, by Mr. A. McKenzie, of Peterboro, Ont., who may be seen in the doorway. (Note accompanying article.)

Garden Reminders for August

J. McPherson Ross, Toronto, Ont.

THIS month is the clearing house for the garden, for our successes and failures are so well defined by this time as to enable us to profit by this year's experiences in next year's operations. A garden diary is a useful thing to keep, as the mere act of writing down sundry notes of the different operations or certain facts in regard to the various plants serves to impress them on our mind, and adds to the store of knowledge which time and experience gives to the most skilful of gardeners.

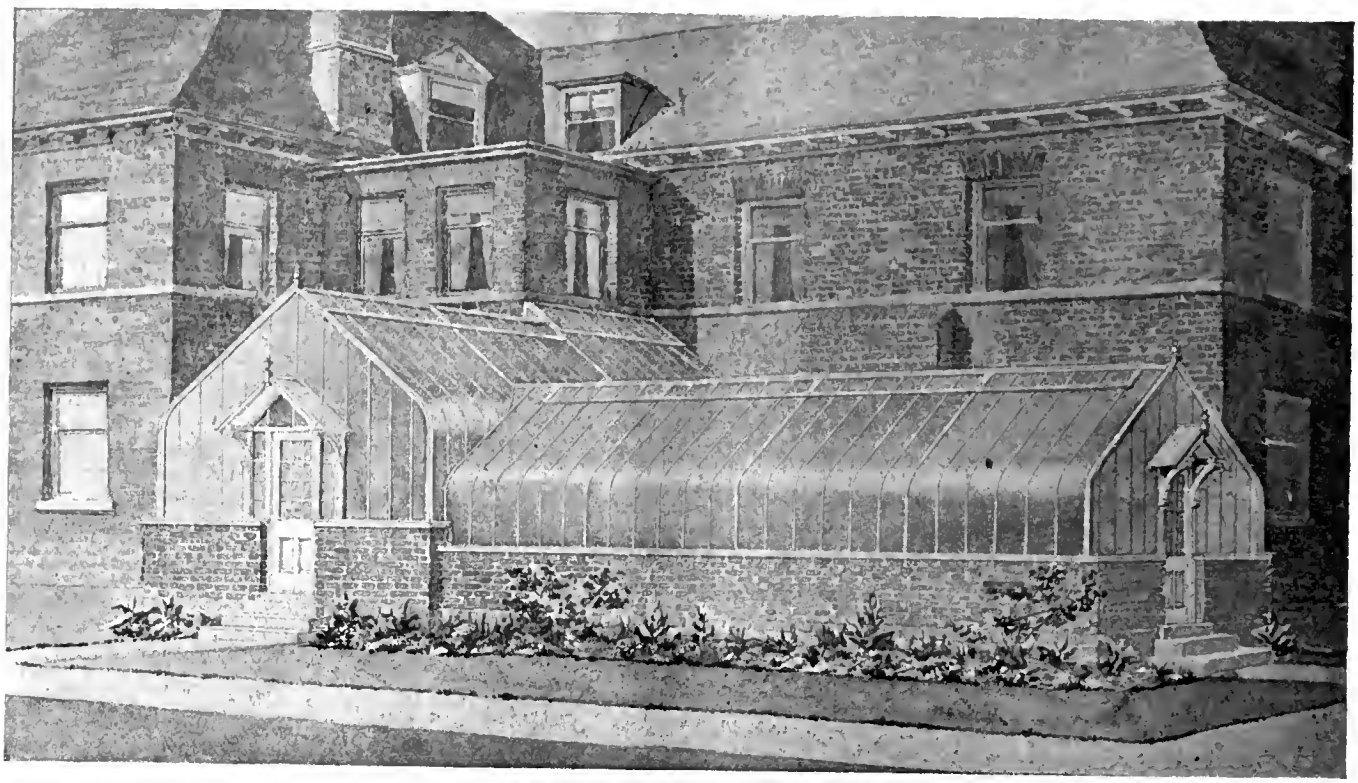
While our garden now is at its best, with its flowering results, we can see how best to make changes for the better another year. By changing such a tree or shrub, creating a new bed here, or a border there, we can improve on the picture the garden now presents. We cannot too strongly advise the garden maker to plant in masses or groups whenever possible. While every plant or shrub is desirable in itself, still a dozen plants in bloom of one variety in color has more effect than a dozen plants each different in kind. For instance, the African tamarisk is a dainty shrub with fine heath-like foliage, with spikes of delicate pink flowers. It grows into a tree-like shrub, most graceful in character, and is always beautiful. As an individual shrub, best plant a dozen of them in a row, or in a group, and it makes a picture indescribably beautiful, calling forth loud expressions of admiration from the least observant.

This is the time to stimulate your dahlias with copious waterings of liquid manure, or failing that, place a liberal mulch of well rotted manure around the base of the plant in a saucer-like depression made in the soil to hold the water.

Sow seeds of all the biennials and perennials. If this is done in the early part of the month you will have plants strong enough to prick out into a cold frame or well prepared bed of good soil. Pansies, daisies, campanulas, foxglove, sweet william, pyrethrum, and many other garden favorites may be thus reproduced by the hundred for permanent planting in the borders.

In the latter part of the month one can get a border ready for planting during September of such varieties of perennials as they desire. In order to have good lasting results it will pay to do it thoroughly by trenching it.

Trenching is a term used by gardeners when they dig the soil at least two spades deep, incorporating at the same time a liberal coating of well rotted manure. Such a spot, of course, should be well drained. Preparing the ground this way is particularly useful if of a stiff or clayey nature. Breaking up



A type of greenhouse that is being constructed in considerable numbers. Note the curved eaves. Lapped glass is here used.

the hard pan beneath allows the roots to penetrate deep in the cool, loose subsoil, and to draw moisture from beneath, giving luxuriant foliage and abundant bloom, even though the weather may be particularly dry. Paeonies, phloxes, hollyhocks, and in fact all the garden favorites luxuriate under such conditions. As soon as the border is ready you can commence planting your paeonies, cutting off the foliage down to a couple of inches of stem. The old roots may be carefully divided if you want more plants; if not, plant the old roots whole. All your herbaceous plants will be the better if replanted into a new bed if they have been growing for several years in the one spot. As a general rule, plant the latest growing at the back of the border, or if it is in the centre of the garden, in the middle, and grade down to the lowest, which should grow by the edges. The charm of a border is in the contrasts of color and forms of foliage, so plant in groups or masses as before advised.

So much is to be said about planning changes in the garden that one can hardly mention everything in a short article, but do not overlook having some evergreens in your garden somewhere.

Of late years many gardens have been enriched by the planting of the Colorado blue spruce, juniperus, Virginiana glauca, abies veitchii garden cedars, and the beautiful retinosporus. The latter evergreen requires a little protection from strong winds and the winter sun until it gets well established. They do best in a moist situation; in fact, they are an evergreen that requires a lot of water, in common with their American cousin, the common white cedar. If you have not succeeded with this class of evergreens try growing them in a moister situation.

Insects have been a great pest in gardens this summer, particularly the aphis. For the common green aphis spray frequently with kerosene emulsion. For the black aphis, which bother the heleniums and rudbeckia, use a solution of nicotine, a preparation from tobacco, sold by the seedsmen, and particularly useful in destroying these pests outside and in greenhouses.

Any time now make cuttings of geraniums and other soft wooded plants, placing them in a mixture of soil and sand in shallow boxes called flats. Put them in thickly to allow for failures, and place the boxes in some shaded, sheltered corner. Water whenever dry. They will root and make good plants for early potting when you start up your greenhouse in October.

The Vegetable Garden

M. B. Davis, B.S.A., Ottawa, Ont.

In the potato patch attention to the potato bug and to the late blight will still be necessary. The ravages of the potato bug will, of course, be fairly well over, but in case they are not, spray the foliage with some poison. Spraying for late blight of potatoes should have been commenced as soon as the plants attained a height of four or five inches. For the late blight Bordeaux mixture is recommended, and by adding paris green or arsenate of lead the potato bugs may also be controlled. To properly guard against the blight frequent spraying at say intervals of about two weeks will be necessary. The formula to use is: Blue stone, five pounds: lime, four pounds; paris green, twelve ounces; water, forty gallons.

The blue stone is dissolved in twenty gallons of water, and the lime is gradually slaked in the same quantity of water. After both are thoroughly in solution and in suspension they may be poured together and the paris green added. This should be used at once. If it is desired to keep same on hand, keep the two stock solutions of copper and lime separately but not mixed together.

If troubled with celery blight, bordeaux mixture of the strength of four pounds blue stone, four pounds lime, and forty gallons of water is good. Spray frequently and thoroughly.

Preparing Violets For Winter

B. C. Tillett, Hamilton, Ont.

CERTAIN delicate varieties of violets, such as the Neapolitan, that fragrant variety with lavender color flowers, and other choice kinds, repay the grower for the little extra trouble of growing them in frames. This affords them just that protection which they need from the heavy rains or frosts experienced in the fall and the severe cold of the winter months. Plants sheltered in frames or in the greenhouse for preference, produce finer and more fragrant flowers.

The plants should be placed in the frames in September. August, therefore, is the month when the frames must be prepared. The frames should be in the most sheltered position which can be selected and, if possible, with a south aspect.

The finest bed on which to put the frame is one made of leaves. These should be well trodden down, so that when firm the frame is about three feet from the ground level. Having placed the frame on the leaves, fill in to a depth of eight or ten inches a compost of loam and leaf mould, and let it be well mixed and firmly trodden down. The compost should consist of one part leaf mould to three of loam.

Before taking up the plants for the frames it is advisable to give them a good watering. If this is done a good ball of soil can be taken up with the plants, so that the roots are not disturbed. The plants must not be placed too closely together in the frame and not nearer than nine inches—twelve inches is better if we want the best results. Violets vary in growth, and those of a more vigorous growth necessarily demand more space. After all the plants are set out, give a sprinkling of coarse sand, but take care not to let any soil get into the crown of the plant, and finish up with a good watering. Shade the plants for a few days.

It is advisable, when fixing the frames, to give them a decided pitch to the south. In this way they will secure a maximum of warmth from any sunshine there is. The grower's chief concern during the winter months will be to keep the plants in a healthy condition and free from insect pests. Should the plants show any signs of unhealthiness, insects or mildew will probably be found to be the cause, and if so the plants must at once be given a dusting of sulphur and plenty of air. In severe weather frames will need to be well banked up and covered with a good layer of straw or litter; in fact, they may be completely covered over with litter, so as to afford the plants still greater protection. Care must, however, be taken that the plants do not become too dry, and to avoid this a good watering should be given between the rows if the soil appears to be getting dry. The morning is the best time for this.

Summer Preparations For Winter Flowers

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

THE work of preparing and of propagating garden plants for housing during the winter should now be given attention. Sometimes frost suspends growth very early, therefore from late August onward advantage should be taken of every opportunity to propagate all kinds of bedding plants.

If you own a small greenhouse, cuttings of the following and many other subjects may be taken and inserted in the propagating bench—geranium, fibrous bedding begonia, ageratum, coleus, iresine, pentstemon, antirrhinum, telanthera of various kinds, abutilon, shrubby veronica and mesembryanthemum, trailing plants for window and verandah box decoration such as vinca, ivy leaved geraniums, Senecio scandens, and choice lobelias. A careful selection of cuttings of subtropical bedding plants should also be made, in fact this class should be propagated first as the plants usually take longer to develop to a serviceable size. Progagate shrubby evergreens, like broad leaved laurel, and Aeuba, green and variegated euonymus, and box wood of various kinds. Many of these will make compact bedding plants by June of the second year, and the following winter may be used for greenhouse or for home decoration. When propagating, the choicest and most delicate plants should be first selected, as more time will thus be afforded the grower to increase his most desirable stock.

Without a greenhouse the grower is at a disadvantage. There is, however, much that may be done to increase and so carry over the stock of the hardier perennial garden plants. Make a cold frame at once, have it slightly higher at the back than at the front, see that the sash fits snugly (double glass sash is preferable for this work) select a

This hydrangea, in the garden of Dr. J. M. Forbes, Caledonia, Ont., is 30 to 40 years old. It is 13 feet high, 15 feet across, and blooms profusely every year.

A banana tree grown in an ordinary living room by Walter T. Ross, Pleton, Ont. See page 193.

sheltered position and place the frame on light ground if possible. Ascertain carefully that the position is high and dry enough to escape the rains of early fall, and the thaws of spring. Remember that plants winter better when soil and atmosphere is fairly dry. Having placed the frame, carefully fork the ground inside, at the same time adding and mixing fifty per cent. of sand, rake the surface finely, and finish it off by smoothing with the back of a rake or board. Your propagating bed is now complete. In this you may insert cuttings or divisions of pansies and violas, arabis, hardy chrysanthemums, aubretia, and a host of similar subjects. Many rare herbaceous plants may in this way be propagated and preserved. Remember that propagation must be done while the temperature is still favorable for growth, therefore you cannot do it too quickly. See that the right method is pursued, as for instance in the case of the pansy and hardy chrysanthemum. In these cases the choice of cuttings is the most important factor. Cuttings of these must be taken from the base of the plant or those portions which spring directly from the ground. The thick aerial stems are usually hollow, therefore inferior and almost worthless. If portions of rooted plants are available they will make equally as good plants as those which strike as cuttings, provided that the portions are young and vigorous.

How to Layer Carnations.

If you have a collection of valuable border pinks (carnations) which are liable to be killed by winter frosts, layer them at once. Layering is a simple operation and consists in selecting strong grass (growths which spring from the ground) not the flowering stems. An oblique incision is made at a joint as near the base as possible and upward through the joint. The stem is then bent so that the incision rests on a small mound of finely prepared soil, and it is secured in place by means of a suitably bent piece of wire. The incised part of the stem is then covered with a mixture of finely screened sand and soil. When the layers have rooted sufficiently they may be severed from the parent, be potted into small pots, or planted in the cold frame in which, with proper protection, they will survive the winter.

Many kinds of seeds may now be sown in the cold frame to be used as flowering subjects for next year's garden. Whether the stock is raised from seed or by other means provision must be made to protect the contents of the frame from frost and at the same time allow sufficient light for the welfare of the plants. During winter manure banked against the sides of the frame and a layer of straw on the sash with a heavy mat as covering will usually suffice for the purpose. The mat and straw may be removed at any favorable time to allow of light and air being admitted. Try the experiment of raising plants in this way, and see how many beautiful and choice subjects may be raised, which to buy, in the case of many amateurs, would be impossible.

(To be continued in the September issue.)

Conservatory and Greenhouse Construction

GREENHOUSES may be built for either a few dollars or for several thousand dollars, depending upon their size, form of construction and the purses of those who own them. Small greenhouses, constructed largely out of window frames and old lumber, and heated by stoves, have been erected at an expense of not over twenty-five to fifty dollars, and have given surprisingly good results, under the watchful, earnest care of their owners. From simple starts such as these some of our largest greenhouses in Canada have arisen. Up-to-date greenhouses and conservatories of modern construction, and with proper ventilating and heating facilities, cost from hundreds to thousands of dollars, and are worth the money.

A greenhouse differs in construction from an ordinary house. Its purpose is different. An ordinary building is designed mainly to provide comfortable shelter from the elements. A greenhouse is required to not only furnish shelter for tender plants, but the most favorable environment possible for development and growth. In fact, it is designed to overcome the laws of nature, as without its aid nature would prevent the production of tender plants and vegetables in our cold climates at the seasons of year when greenhouses are in use. Thus it is essential that the greatest care shall be taken to ensure obtaining the highest possible degree of efficiency in the new greenhouse, when the construction of one is under contemplation.

Whether one desires to build a large greenhouse or only a small one, which may be enjoyed as a family luxury in the modest home, the points to be considered are much the same in character. Aim always to use the best available materials, to install a reliable heating system, provide for thorough ventilation and look carefully to the interior arrangement so as to facilitate work among the plants, and reduce labor after the greenhouse has been completed.

The Scriptural warning against building a house on sand applies to the foundation of the greenhouse or conservatory. See that it is made of substantial material. The frame work can never be depended upon if the foundation is not secure. The best materials are stone, brick or concrete. Local conditions should determine which of these it is desirable to use. See that the material is not skimped, and that the work of construction is well done.

If your means permit, erect an iron or steel frame. They are more durable, withstand the elements better, admit the light more freely, and in every way give better satisfaction. Where it is deemed necessary to use wood in the frame, excellent results may be obtained from the use of cypress. This wood wears well and is admirably suited for such a purpose. See that the stock is carefully selected.

The construction of greenhouses has become such an important industry that information concerning the best methods of construction and cost are readily available. It is not safe to trust the work to an ordinary carpenter or architect. They probably have had little or no experience in the construction of such houses. They are seldom willing, however, to confess their ignorance, and generally will undertake to build a greenhouse when asked to do so. Their lack of knowledge of the importance of light, ventilation and modern bracing methods, generally leads them to construct buildings of too heavy material, and lacking in many of the essentials of a good greenhouse. It is possible to purchase the necessary materials, with such complete plans for its construction, that it is a comparatively simple matter for even an amateur to erect a greenhouse when the materials have been received. This method saves much time and worry to the would-be builder, where

his means permit of his adopting it. Any of the greenhouse firms who advertise in The Canadian Horticulturist will furnish estimates of the cost of constructing such a house, willingly, upon application.

Nothing has been said about the importance of selecting a convenient and suitable site. This should be the first point considered. If the greenhouse is to be constructed near a house or garage, a different form of structure may be required, owing to the shade from the buildings, or other similar considerations, than would be where it is to be erected in the open. If one is living in a large centre, where it is possible to visit a number of conservatories or greenhouses, much benefit can be derived by so doing.

The Cost of a Greenhouse

What does it cost to erect a greenhouse or small conservatory?—H. L., London, Ont.

A small greenhouse need not cost much to erect beyond the price of the necessary lumber and glass. To make it reasonably permanent a very little iron work is required. With it the necessary plans for erection are supplied. The worst feature to overcome, both as regards expense and trouble, is the heating system. Any person has got to have more than an ordinary love for flowers, who will get up in the middle of a cold winter's night to take note of the temperature in their greenhouse and make up fires to suit. Neglect to do this, however, on even one occasion may mean the total loss of the growing plants, or a disastrous chill, with consequent sick plants to nurse through to health.

A well kept conservatory is a luxury mainly for the wealthy who can afford the expense that goes with it. Notwithstanding this, there are some who keep a small greenhouse or conservatory without paying for help, but they have to be enthusiasts of a special kind, which it is hard to find. Again there are those who, having no children to raise, are prepared to adopt the next best thing and adorn their homes with buds of another kind, and for which, to nurse up to maturity, a conservatory is required.

For those desiring a rough estimate as to cost of a small greenhouse we give the following example:

The material for a greenhouse outlined and proportioned as shown below, fourteen feet wide, can be supplied for about three dollars and twenty-five cents a lineal foot of house. The ends extra are twenty dollars each. This allows for light curved iron eaves, supported on iron posts, to be cemented in the ground, and iron cross tied together, so making the house reasonably permanent. It has also continuous ventilation the whole length of the ridge, operated by a hand wheel. The cresting at the ridge is not included in this price. The superstructure may be set on a brick or stone foundation, but the price includes the usual house siding and sheething from wall plate to the ground.

Should the greenhouse be in connection with a dwelling or building having a pit or basement, the heating boiler may be located therein, or the greenhouse may be served from the house boiler if of sufficient size. Should the greenhouse be separate from any other building, a very efficient and simple arrangement is shown in the illustration.

A few feet, sufficient for a work shop or potting room, may be partitioned off from the main structure, and a leanto extended on a line with the roof, as shown, to cover a boiler pit and coal bin.—Answered by R. W. King, Toronto, Ont.

A Canadian Banana Tree

The illustration of a banana tree on page 192 shows a most remarkable growth in an ordinary living room. The picture was taken about six months ago. The tree is much larger now, with a shoot or sprout about two and one half feet high, which takes the place of the old tree.

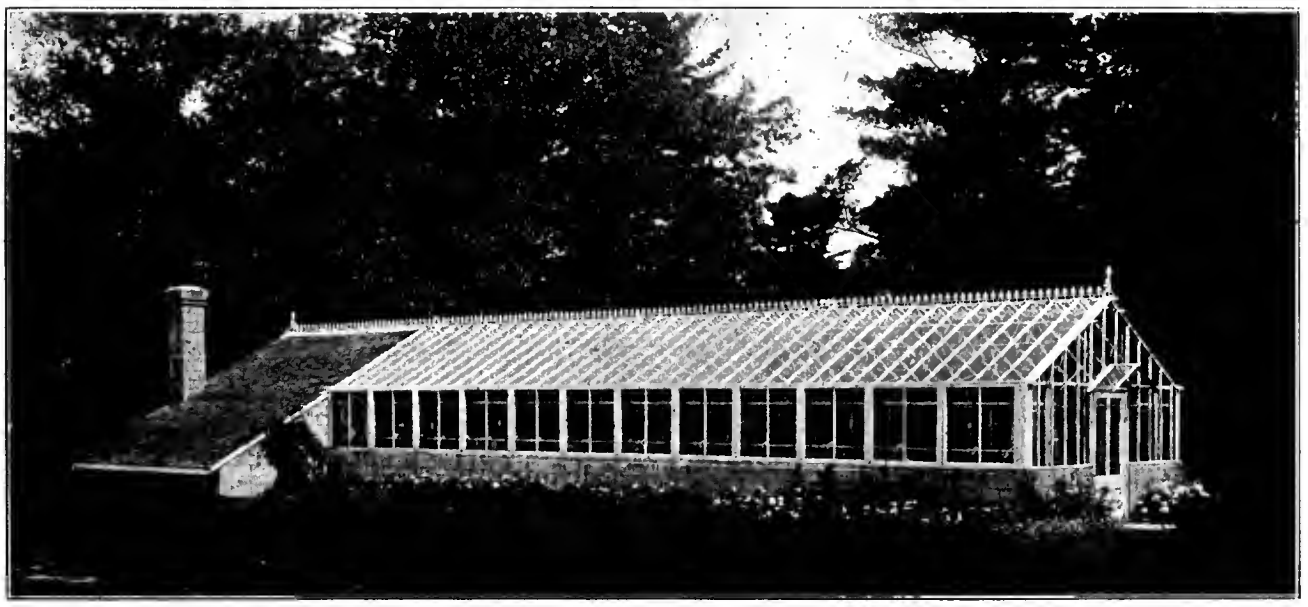
The banana tree only yields one bunch of fruit. It is then cut down, the shoot forming a new tree for the next season. The leaves are three and one half feet long, and about two feet wide. The growth of the tree shown in the illustration seems healthy and vigorous. The variety is the dwarf Cavendish. It attains a height of only six to eight feet. There is no sign of fruit yet. The tree is growing in the office of Mr. Walter T. Ross, Secretary of the Picton Horticultural Society, Picton, Ont.

Saving Tomato Seed

John Gall, Inglewood

If you wish to save your own tomato seed from a few large fruits for another season, break up the fruit into a dish of cold water. In a day or so the seeds will sink to the bottom and may be transferred to the seed packet as soon as dry.

When the first frost threatens, cover a part of the vines with straw or paper. Pull up others by the roots and hang them in a cool place in the cellar. The green fruit will thus continue to ripen, a few at a time.



Note the freedom of obstruction to light in this type of house. The cost of its construction is outlined on this page.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

REPRESENTATIVES

UNITED STATES
STOCKWELL'S SPECIAL AGENCY.
Chicago Office—People's Gas Building.
New York Office—Tribune Building.

GREAT BRITAIN
W. A. Mountstephen, 16 Regent St., London, S.W.

1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 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 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

The Single Tax

One of our valued correspondents in British Columbia takes us to task in a friendly way elsewhere in this issue for laying, what he considers, undue emphasis on the importance of taxing land according to its value and thereby minimizing the necessity for co-operative efforts among fruit growers in the direction of marketing and handling fruit on a more profitable basis. We hope that this view is not held by any considerable number of our readers. A careful perusal of the columns of The Canadian Horticulturist, including the editorial page, would show that it is not justified.

The Canadian Horticulturist was one of the earliest advocates in Canada of the use of co-operative methods by fruit growers. Practically since the inception of this publication nearly forty years ago this question has been urged consistently and continuously. Scarcely an issue has appeared in which co-operative effort in one form or another has not either been advocated or commended. At present, for instance, we favor the fruit growers of Ontario uniting in a large central agency similar in scope and character to that of The United Fruit Growers' of Nova Scotia, Ltd., and of the Grain Growers' Grain Co. of Manitoba. For similar reasons we have supported all efforts by fruit growers to deal unitedly with transportation and other similar problems.

While we believe in and advocate the extension of these movements we are, however, not among those who believe that they will ever permanently solve the problems they are primarily intended to dispose of unless the land question is dealt with in connection with them. A careful investigation extending over some years has satisfied us of the correctness of this belief. Take as an example, the country of Denmark. Nowhere in the world has the principle of co-operation been worked out so successfully as by the Danes. Co-operative organizations in one form or another not only assist the producers in the purchase of their supplies at the lowest possible cost but facilitate the marketing of their products to the best possible advantage. Nevertheless the farmers of Denmark are not as prosperous as a class as the farmers and fruit growers of Canada. This may surprise many of our readers, because of the widespread publicity which has been given to the success of co-operative enterprises in Denmark, but it is a fact which is susceptible of proof.

In Denmark each new success in the direction of co-operative effort has been followed in a short time by an increase in land values, until land which years ago could be purchased at reasonable prices has advanced in price until it costs several hundred dollars an acre. These prices and the rentals charged are so high that the men who work the land are not on the whole as prosperous as our Canadian farmers, who still are able to obtain land at reasonable prices. Over two hundred thousand Danish farmers have petitioned their government to increase the tax on land values.

Space does not permit of our dealing with this matter fully. Suffice it to say that we hold the view that fruit growers, as a class, while introducing co-operative methods should at the same time work for those reforms which will tend to remove an increasing proportion of the burden of taxation from improvements to land values. This will tend to check undue speculative increases in land values and at the same time ensure the people who cultivate the land receiving a larger return for their labors. The subject is being given more and more consideration by those who have been led to realize its importance.

Spare the Tree

As more and more of our town and city streets are swept clear of shade trees, through the construction of concrete sidewalks and paved streets, the public is slowly awakening to the importance of adopting methods of protecting the shade trees that still remain. It is well that this is the case, as hardly anything more offending to taste, good health, and civic pride exists than busy streets devoid of all shade, the place of the shade trees having been taken by ugly telegraph and telephone poles in endless profusion.

In the United States the resentment against the needless destruction of shade trees has reached the point, in some states, where stringent legislation has been secured for their protection. In New York recently a construction company has been ordered to pay a fine of five hundred dollars a tree, with one thousand dollars additional punitive damages, for cutting down some trees that obstructed their work on one of the city streets. Although the verdict against the company was repealed from the lower to the higher court, it was sustained by the State Supreme Court. We need similar protection for the shade trees on our Canadian streets. The Canadian and Ontario Horticultural Association might well unite their efforts to obtain an improvement in these conditions.

Tariff Difficulties

Reports of the conference of fruit growers, commission men, and consumers held recently in Calgary, quote Mr. R. M. Winslow, provincial horticulturist for British Columbia, as having stated that the cost of material and labor is some twenty-five per cent. higher in British Columbia than in the neighboring Pacific states, owing to the Canadian tariff. This, he pointed out, places the producers in British Columbia at a disadvantage in the matter of cost of production as compared with their competitors to the south. He urged, therefore, that the duty on fruit imported from the United States should be increased. This suggestion met with the opposition of the consumers, as has always been the case.

If the figures given by Mr. Winslow are correct—and there is no reason to doubt them—it would seem as though the producers in British Columbia would be justified in demanding a reduction in the duty on their supplies. The industries connected with the furnishing of these supplies are not to be compared in importance and extent with the fruit industry. Even if they should suffer by a reduction in the duty on their supplies, the resultant benefit to the fruit growers would more than compensate the country for such a loss. The consumers, as well as producers, would favor such a modification of the tariff, as it would benefit them almost equally with the producer. Is this not the line of least resistance along which the producers should endeavor to move?

Among the many excellent publications received from time to time by The Canadian Horticulturist none are so fine as certain of the publications issued by the Department of Agriculture of the State of New York.

Recently we have received a copy of the book entitled "The Cherries of New York," by U. P. Hedrick. It is a remarkably fine volume. It constitutes the fourth monograph on the fruits of New York State, prepared by the horticulturist of the New York Agricultural Experiment Station. Besides describing fully the leading varieties of cherries grown in the state, the volume contains many full-page color plates of cherries that are practically exact reproductions of the fruits shown. These illustrations, with the notes that accompany them, are highly educational in character. Not every provincial or state institution can afford the expense involved in issuing publications of this character. We would like to see more of this work done by national departments of agriculture, in order that they might then be adopted as standards for the country at large.

PUBLISHER'S DESK

Our front cover illustration this month shows the gathering of the cherry crop in a Kelowna, B.C., orchard, one of the pioneer orchards in that district. Note the Chinaman. Chinese laborers are used extensively in some of the fruit districts of the province. The photograph is by G. H. E. Hudson, Kelowna, B.C.

* * *

In this issue of The Canadian Horticulturist, considerable attention has been given to the subject of greenhouse construction. Year by year the number of private conservatories and greenhouses in Canada is increasing. As many readers of The Canadian Horticulturist are anxious for information of this character, we purpose giving more attention to it as space permits.

* * *

Occasionally helpful and interesting papers on horticultural subjects are read at meetings of local horticultural societies. As a rule, nothing more is heard of these papers. We would like to have the authors of these papers, or the secretaries of the socieites, send us copies of them or the originals, in order that they may be published in full, or extracts from them may be used in The Canadian Horticulturist.

* * *

Fruit growers may obtain splendid results by representing The Canadian Horticulturist in their districts and introducing it among their friends. We desire to obtain more representatives in the leading fruit districts and have an interesting offer to make to responsible parties who may write us in regard to this.

* * *

Although we had expected to announce in this issue the results of our contest for the best piece of poetry extolling the merits of the apple, and referring to it as Canada's national dish, the award of the judge of the competition, Prof. T. G. Bunting, of Macdonald College, Quebec, had not been received at the time of going to press. As soon as the result is known, we will advise the winner by letter and will publish the results and the winning poem in our September issue.

* * *

The September issue of The Canadian Horticulturist will be our fifth ANNUAL FALL PACKING AND EXHIBITION NUMBER. As usual, it will be crowded with unusually interesting illustrations and articles by well-known authorities in the leading fruit districts of Canada. Prof. J. W. Crow, of the Guelph Agricultural College, one of the best-known fruit judges in Canada, will contribute an article on "The Judging of Fruit." Mr. F. H. Grindley, of the Fruit Commissioner's Office, Ottawa, will write on "Needed Improvements in our Marketing Methods." A subject that has been attracting more and more attention in recent years has been the possibility of using fire pots as a means of preventing damage by frosts. Extensive experiments in this direction have been carried on at the Central Experimental Farm, Ottawa. The results of these experiments will be described by Mr. M. B. Davis, in an article entitled "Fire Pots as Protection Against Frosts." Rev. Father Leopold, the former President of The Quebec Province Fruit Growers' Association, saw a fruit grading machine advertised in The Canadian Horticulturist by an American firm, and purchased it for use in the orchard of the Agricultural College at La Trappe, Que. It has proved a success. Its operation will be described in our September issue. Mr. A. E. Adams, the secretary of The United Fruit Growers of Nova Scotia, Ltd., will explain how the fruit growers of Nova Scotia market their crop by co-operative methods. Prof. T. G. Bunting, of Macdonald College, Quebec, will contribute an interesting article, the subject of which we are not as yet able to announce. The floral articles will also be strong. Space does not permit of our enumerating them in detail. Advertisers are urged to send copy early for space in the September issue, as it will be at a premium and the best places not already spoken for will soon be disposed of.

SOCIETY NOTES

LONDON.

The flower show, held in Hyman Hall, London, Ontario, this summer, under the auspices of the London Horticultural Society, was one of the best displays of flowers ever seen in London. The members took a deep interest in their exhibits, and a friendly rivalry existed as to who could make the best display. Although the season was somewhat backward, there were some beautiful displays of peonies and roses. Several thousand visitors were in attendance during the two days of the show, and expressed themselves as exceedingly well pleased. The London Horticultural Society is doing good work, and many homes throughout the city are being beautified through its influences.

ST. THOMAS.

During July, the St. Thomas Horticultural Society mailed an order to Holland for 75,000 bulbs, mostly tulips and hyacinths, about 500 of the choicest tree and herbaceous peonies, and a few choice tropical plants. Every bulb and plant was ordered by the members of the society, and further orders of several thousand were expected. This year, nothing but the best-named varieties of tulips have been ordered, mostly of the Darwin sort, this being the educational result of the spring flower shows and liberal advertising. The society planted 20,000 tulips in the 150 public beds, every bed being planted with a different variety of single early tulips, all beds labelled with the variety contained.

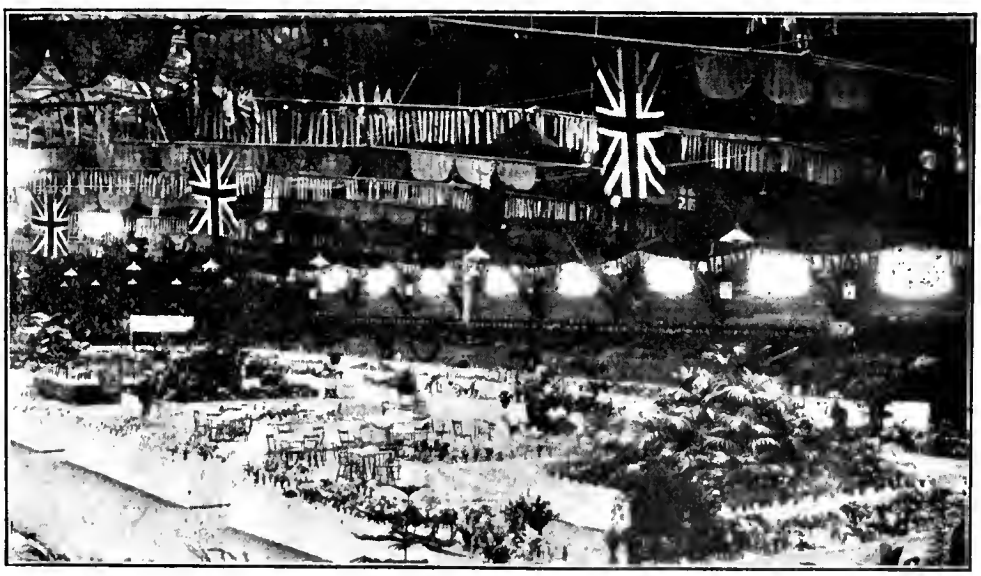
Pinafore Park will receive 111 varieties of herbaceous peonies, a half-dozen tree peonies, 50 varieties of one dozen each of the choicest tulips, three dozen assorted narcissus and daffodils, 1,000 Japanese iris, one dozen kaempferi iris, and three dozen assorted lily bulbs. The Board of Education has not overlooked the schools, and is ordering over 8,000 tulips and 25 peonies. The City Hall, Separate school, library, banks and business houses have all joined in the good work.

Grants for Flower Shows

Mr. W. E. Scott, Deputy Minister of Agriculture for British Columbia, has announced certain expenditures in connection with assistance to flower shows given by Women's Institutes throughout the province. The assistance given may be summarized as follows:—

A per capita grant of 25 per cent. in addition to the grant made under the authority of the Agricultural Associations Act, 1914, will be given to Institutes holding flower shows or an exhibition of women's work, or a combined flower show and such exhibition, in their own district.

Prizes will be offered for competition at such shows for collections of bulbs, sweet peas, roses, dahlias, and perennials, or other varieties as may be decided by the Institute, the prizes to consist of books awarded by the Department, as follows: Adults, 1st and 2nd prizes. Juveniles, three prizes.



A general view of a horticultural exhibition, held by the Calgary Horticultural Society, in August, 1914.

Nova Scotia Growers Review Their Year's Results

THE shareholders of The United Fruit Growers of Nova Scotia, Limited, held their annual meeting the last week in June. The following extracts are taken from the annual report of the Board of Management:

Your Board of Management have pleasure in submitting for your consideration their report covering the third year's operations of The United Fruit Companies of Nova Scotia, Limited. It was realized at the commencement of the year that unusual difficulties were to be encountered on account of the great crops reported from all sections. When a little later, Europe, our greatest market, was plunged into a fearful devastating war, those difficulties were increased tremendously, but your management were quick to understand and take advantage of the fact that these very difficulties but provided opportunities for Co-operative Centralization to accomplish useful work and to demonstrate to the world what could be accomplised by the united efforts of a community banded together for mutual assistance and protection.

In reviewing the results of the marketing operations of the many apple-producing countries of the Northern Hemisphere, it is evident that Nova Scotia has fared far better than any of her competitors. Without investigating and passing judgment publicly on the reason for the lack of success on the part of our competitors, which is, after all, their business rather than ours, we know that it was the inspiration of this organization that provided the courage for the Valley and prevented the greater portion of Nova Scotia's apple crop being sacrificed at ridiculous prices or left to rot on the ground.

Panic commenced early in the season to take hold of the fruit growers. So convinced were we that disaster would follow such panic that we felt it incumbent on us to issue a warning, which we did through the columns of the Co-operative News, early in September.

While we felt sure of all this, yet we knew also that advantage would be taken of war conditions to advance expenses and the cost of many necessities, and we prepared to meet any such attempts. Our purchases of feed and flour alone totalled $108,561.16. This was turned over to the local companies at very little more than cost.

Through the work of your officials, having behind them the united support of the fruit growers of the Valley, the threatened increase in steamship rates was prevented from going into effect, thus saving the Valley about $140,000.

While we have been much more fortunate than our competitors during the past season in the matter of transportation, yet we have had to a certain extent to work under difficulties and have had to make the best of what opportunities presented themselves to ship your apples.

Liverpool, which at many times was by far the best market for much of the fruit we had to handle, was absolutely inaccessible except for very small parcels. Therefore, our opportunities to regulate supplies to the best market were limited, but we did, during the season, withhold considerable quantities from markets which would otherwise have been overcrowded.

Yet in spite of these difficulties and restrictions, we have been able to so well place your fruit that we have paid to subsidiary companies for Numbers 1, 2 and 3 of 231 different varieties, a net average of $1.67 per barrel, and in addition to this have been able to place to reserve fund a sum of $7,500. Such a return for all grades must have given our membership a splendid tree-run return.

In reckoning apples tree-run there are many matters that must be taken into consideration, the principal of which is that many co-operators do not bring in full barrels, their apples being often several inches down in the barrels. The manager of one of our largest companies has stated that it takes one barrel in eight to fill up slacks, so that the growers bringing in 100 barrels thus slack should only really reckon that they have brought in 87 barrels of apples.

The average prices on standard varieties was as follows:

	No. Bbls.	No. 1.	No. 2.	Co-op. No. 3.	No. 3.
Blenheims	6,451	$1.54	$1.30	$1.00	$ .90
Baldwins	58,510	1.76	1.50	1.08	.90
Ben Davis	27,381	1.90	1.65	1.51	1.25
Bishop Pippins.	5,580	1.38	1.11	.89	.75
Fallawater	9,092	2.20	2.00	1.60	1.36
Gravenstein—					
1st ave.	9,860	1.80	1.41	1.50	.90
2nd ave.	55,711	1.16	.90	.67	
General	65,574	1.31	1.05	.75	
Golden Russet .	20,232	2.70	2.51	1.80	1.78
Greenings	8,231	2.00	1.50	1.00	.90
Gano	1,040	1.80	1.62	1.15	1.02
Kings	32,197	2.04	1.75	1.30	1.02
Mann	3,400	1.33	1.25	.90	.75
Nonpareils	28,248	2.35	2.16	1.50	1.33
Pewaukee	2,422	1.70	1.38	.90	.90
Pomme Gris ...	1,363	2.35	2.04		1.60
Ribston	31,604	1.50	1.33	1.03	1.03
Red Russett ..	1,690	1.80	1.53	1.20	1.15
Stark	12,061	1.75	1.51	1.14	.90
Northern Spy .	12,305	2.00	1.65	1.25	1.00
Seek	1,485	1.85	1.40	1.25	.85
Twenty Ounce.	1,403	1.70	1.46	1.13	.90
Wagner	3,171	1.60	1.40	.90	.80
Wellington	1,184	1.82	1.40	1.20	

During the season your Central has handled 406,301 barrels of apples.

These have been disposed of as follows:—

London	155,813	barrels
Liverpool	83,704	"
Glasgow	25,087	"
Manchester	36,138	"
Newfoundland	7,912	"
Western Canada	22,351	"
Local Sales	41,836	"
Local Consigned	28,356	"
Boston	2,096	"
South Africa	1,008	"
South America	12,000	"

Out of this quantity there were 203,564 No. 1's; 94,910 No. 2's; 51,232 Co-op. No. 3's; 56,595 small No. 3's; and 231 Varieties.

The figures given represent a return far in excess of the average received for that portion of the fruit outside of the Co-operative Movement.

During the season your Central loaded apples and potatoes onto 138 boats. Of these, 19 were mail boats doing the trip in seven days; the others were boats many new to the apple trade. Our regular boats were early in the season requisitioned by the Government, but Messrs. Furness, Withy & Company looked after the trade in a most creditable manner, drawing on their almost inexhaustible supply of boats and maintaining a regular service to London throughout the season. Owing to the negotiations started by Messrs. MacMahon and Adams, when in Ottawa and subsequently carried on by your secretary, a subsidy of $4,000.00 was procured from the Dominion Government in respect of the four transatlantic boats, this money representing $4,000 of the amount being placed to reserve fund. These chartered boats made good trips and landed cargoes in excellent condition; they also performed a splendid service in providing transportation to Liverpool and Glasgow at a time when only London boats were available, thus keeping 40,000 barrels off that Market.

We have handled, during the Season, 15,034 boxes. For some time to come we shall have to limit our box trade to certain varieties and certain markets. The time is far distant when any considerable quantities of our apples will be so packed.

The principal reason for this is the fact that boxing brings us into direct competition with the better colored and perfectly packed fruit of the West in which competition we suffer by comparison.

Throughout the season we adhered to the system inaugurated last year and have promptly, at the end of each month, mailed statements and cheques in settlement to all Companies covering all apples shipped during the month.

As soon as average prices have been ascertained, cheques have also been mailed in payment of balances.

It has been obvious for some time past to those closely connected with the management of subsidiary Companies that some method of financing that would enable substantial advances to be made to members on account of winter fruit stored in the warehouses would have to be devised. The fact that no funds were available for such purposes has been used frequently as a very telling argument against the Co-operative Movement.

To work out a scheme whereby such funds would be available, was entrusted to your secretary and we are pleased to be able to report to you that arrangements have now been concluded whereby a sum of about $200,000 will be at your disposal for this purpose.

It has not been easy under existing financial conditions to negotiate this matter; it has been necessary for us to guarantee that these funds shall be used only for the purpose intended and no advance to any one company may exceed $5,000. We feel that the facilities provided by this arrangement will be welcomed by all Companies and will do much to provide members with money at a time when funds are most urgently required.

Year's Turnover.

Although the season under review resulted in a short crop, thus considerably reducing the volume of business possible, your turnover was no less than $1,130,770.55. This was compiled as follows:—

Apples	$ 714,162.22
Potatoes	131,773.84
Feed and Flour.....	111,059.79
Fertilizer	102,316.64
Seeds	21,613.49
Spray Material	30,062.07
Merchandise	17,641.39
Insurance	2,141.11
	$1,130,770.55

The expenses incurred in running this business amounted to $28,781.84 or 2.54 per cent. of your turnover. Applying $3,000.00 of that sum to cover your supplies business and the balance to cover your apple and potato business, we find that the output of 406,301 barrels of apples and 64,405 barrels of potatoes, has been marketed at an expense per barrel of 5 1-2 cents.

These expenses were compiled as follows:

Salaries—	
S. B. Chute.....	$3,000.00
A. E. Adams.....	1,500.00
J. N. Chute.....	1,500.00
F. M. Chute.....	1,000.00
A. E. MacMahon.....	1,200.00
R. N. Clark.....	600.00
Manning K. Ells.....	500.00

T. H. Morse	300.00	
C. O. Allen	1,000.00	
Board of Management	1,030.00	
Office Salaries	2,280.00	
		$13,910.50
Expenses—		
Telegrams, Cables and Telephone	$1,723.54	
Advertising Account	1,167.32	
Board of Management	159.90	
Inspection	827.85	
London Office	1,190.71	
Halifax Office	745.68	
South America	1,413.00	
Western	647.00	
Havana Office	1,769.80	
Home Markets	575.75	
Delegates and Directors	470.98	
Co-operative News	375.28	
General Expense	2,824.23	
Interest and Discount	980.40	
		$14,871.44
		$28,781.94

This expense is somewhat in excess of our estimates and 1 1-2 cents higher than last year but is still exceptionally low compared with the expenses of any similar organization and is insignificant compared with the tremendous results accomplished.

Great Savings Effected.

Not only have great savings been effected for our membership by co-operative buying of feed and flour, fertilizers, spray materials, etc., but considerable reductions in the cost of handling of your fruit on the European market has also resulted. For instance, on a barrel of apples selling in Liverpool at 12s your organization saves 17 cents, compared with the independent shipper. Therefore, as we shipped 83,704 barrels to Liverpool and our average price equals about 12s per barrel, we soon estimate that the advantages enjoyed by this organization over competitors on that market has saved us no less than $14,229.68.

In London, owing to lack of organization on the part of the trade, the savings are more difficult to arrive at, but for the purpose of giving you reliable data we have collected a large number of account sales of independent shippers and we find that, partly on account of the advanced charge added to bill of lading by agents, which varies from 7 to 10 cents, the difference in our favor in placing a barrel of apples on the London market varies from 15 cents a barrel in some cases to 22 1-2 cents per barrel in others.

We are safe, therefore, to reckon 17 cents in London as well as in Liverpool, in which case your organization has saved you $26,488.21, your total English shipments thus effecting a net saving in charges, compared with the independent shipper of $40,717.89.

What Has Been Saved.

In arriving at that conclusion, we have not taken advantage of the still greater saving effected on large parcels of fruit shipped direct from docks to wholesalers, thus saving cartage expenses and commissions. The savings effected in that direction, together with reduced cost of Marine Insurance and refund of Dock Dues, can be placed at another $10,000, thus showing a net saving of $50,000 on transportation and handling charges alone.

Keeping that in mind and also remembering the large savings on supplies already referred to and the more important work of scientific marketing and the protection this organization provides for the fruit industry, no reasonable person can criticize the cost of running.

Western Sales.

Our operations in the West were entrusted again to Mr. T. H. Morse, who was successful in selling 22,351 barrels; of these, 13,211 barrels and 1,200 boxes were Gravensteins. Owing to the panic which seized the fruit growers of British Columbia and Ontario, the Western business was very difficult to handle. With the nearby Ontario growers ready to accept any price for their fruit, with British Columbia flooding the West with their crop all on consignment, it was a difficult proposition for any representative to sell Gravensteins at any price. Mr. Morse succeeded, however, in selling 29 cars at from $1.90 to $2.00 for No. 1's and No. 2's. After he had secured that business, he met another competition much harder to overcome, namely the competition from his own province. The unorganized growers selling their Gravensteins to speculators at $1.00 to $1.25, enabled these gentlemen to quote Gravensteins on the Western market at $1.35 to $1.40 per barrel.

Business was also opened up by Mr. Morse with the Grain Growers' Association, 50 carloads of various winter varieties being shipped.

Use Care in Handling Fruit

The fruit growers of British Columbia have petitioned the express companies, through the secretary of the British Columbia Fruit Growers' Association, to issue the following notice and cause it to be conspicuously posted on the inside of the sliding doors in all express cars in use during the shipments of soft and perishable fruit, and also on the inside of the sliding doors to express or warehouse rooms at stations:

Notice.

Express station agents and others handling extra perishable fruits, such as berries, tomatoes, plums and peaches, in

Douglas Gardens

OAKVILLE, ONT.

We have a surplus stock of some sorts of Irises growing in our Gardens. We offer this surplus, some 15,000 plants in 28 varieties at much reduced prices for all orders received in the month of August next—August is the best time for planting most Irises.

The following are examples of the reduction in prices taken from the special sale list which will be sent to all names on our mailing list and to others on application, viz:—

Mme. Chereau, each 10c, 10 for 75c, 100 $6.00.

Purple King, each 15c, 10 for $1.25.

Wyomissing, each 50c, 10 for $4.50.

This list embraces such fine modern Irises as Juniata, King of Iris, Lohengrin, Mrs. G. Reuthe, Princess Victoria Louise, Rhein Nixe, Wallhalla, etc.

This sale applies to orders received in the month of August only. Normal prices will prevail after 31st August.

Send name and address for a copy of this Iris list and the Paeony list for 1915.

JOHN CAVERS

HAMMOND'S SLUG-SHOT 1880 1915 AN INSECTICIDE FOR GARDEN USE USED SINCE 1880 TRADE MARK

Cabbage Worms Destroyed by Dusting with Hammond's Slug Shot

So used for 30 years. **SOLD BY ALL SEED DEALERS.**

For pamphlets worth having, write

B. HAMMOND, Fishkill-on-Hudson, New York.

Where is that ladder?

EVERY home needs two ladders—one to reach the roof and the tree tops; the other for indoor use and for use with low trees or low branches. Yet more than 75% of Canadian homes have no ladder at all. It isn't the cost of a ladder, it is pure and simple neglect.

The "STRATFORD"

See the two illustrations.

Note particularly the long extension ladder—locks at every rung automatically, and so is safe. Strong, yet light.

The step ladder is strongly made, is most serviceable, and the best ladder of the kind on the market.

Get these ladders from your hardware dealer. Say "The Stratford," please. Take no others. If he can't or won't supply "The Stratford" ladder write to us. Ask for our ladder catalogue E.

We are prepared to supply Co-operative Associations with their requirements in ladders.

THE STRATFORD MFG. CO.

STRATFORD, ONT.

YOUR OPPORTUNITY

to start in bees, make up winter losses, and increase your apiary cheaply by placing an order for a pound package of bees. Price, including a choice young Italian queen and full directions how to handle, $2.50; six for $13.00.

Choice young Italian queens, each 75c, six $4.00, 25 for $15.00. Satisfaction guaranteed. Reference, DuBois National Bank, DuBois, Pa. **J. B. HOLLOPETER, Box 156, Penlz, Pa.**

LEININGER'S STRAIN OF ITALIANS

have a record of 30 years. Our experience in the queen-rearing business dates back over 30 years. They are excellent honey gatherers and gentle to handle. We will sell queens from this famous strain during July and August at the following prices: Tested queens (one year old), $1.00 each; 6, $5.00. Untested queens, 75c each; 6, $1.50. Satisfaction guaranteed.

Fred Leininger & Son, Delphos, Ohio.

QUICK SHIPMENT OF QUEENS

of 3-band stock, reared for honey gathering qualities. Untested, June $1.00, later 75c. Tested $1.50, select tested $2.00. Send your orders now and be assured of having queens when you want them.

R. A. Shults, Cosby, Tenn.

Beekeepers

Everything in the line of bee supplies. Weed process comb foundation, Bingham smokers, Porter bee escapes, improved model hives, etc.

Bees by the pound package. The best way to make increase. Hardy Canadian-bred Italian stock; sure to please. Full instructions for handling with each shipment.

Prices, including an untested Italian Queen:

	June.	July 1 to Sept. 15.
1-lb. package	$3.50	$2.50
2-lb. package	4.50	3.50
3-lb. package	5.50	4.50

Tested Queen included with above, 50c extra. Select tested, $1.00 extra, or best breeding Queen, $4.00 each extra. Best Italian Queens, untested $1.00; tested Queens, $1.50, and select tested, $2.00 each. Usual discounts by dozen or more.

Write us if you have any Beeswax to offer. Catalogue upon application.

F. W. JONES, Bedford, Quebec

Northern Bred Italian Queens

Reported that they winter fine in Canada. Untested, 75c. Leaflet, "How to Introduce Queens," 15c. "How to Increase," 15c. Both, 25c.

E. E. MOTT, GLENWOOD, MICH.

When good queens are wanted I have the goods. Pure Italians from imported mothers. Also pure Carniolans and Caucasians from imported mothers. 75c each, $8.00 per dozen. No disease.

GRANT ANDERSON

Riv Handa - - - Texas

BEES FOR SALE

Italian Queens and Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; all with Queens. Italian Queens, 75c each; 6 for $4.00. Complete catalogue free.

THE DEROY TAYLOR CO.

BOX C - NEWARK, N.Y., U.S.A.

QUEENS.

Give us a trial for Queens. We have established a Queen repository where Queens are placed when imported, so as to be ready for shipment when orders come in. We also breed from the best worker stock in our own Queen yard. We can furnish Leather colored, Goldens, Caucasians or Carniolans. Prices right. Satisfaction guaranteed.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., - - Toronto, Ont.

THREE BAND ITALIAN QUEENS.

Gentle, good winterers and the best honey producing strain I have been able to find in over 20 years' experience.

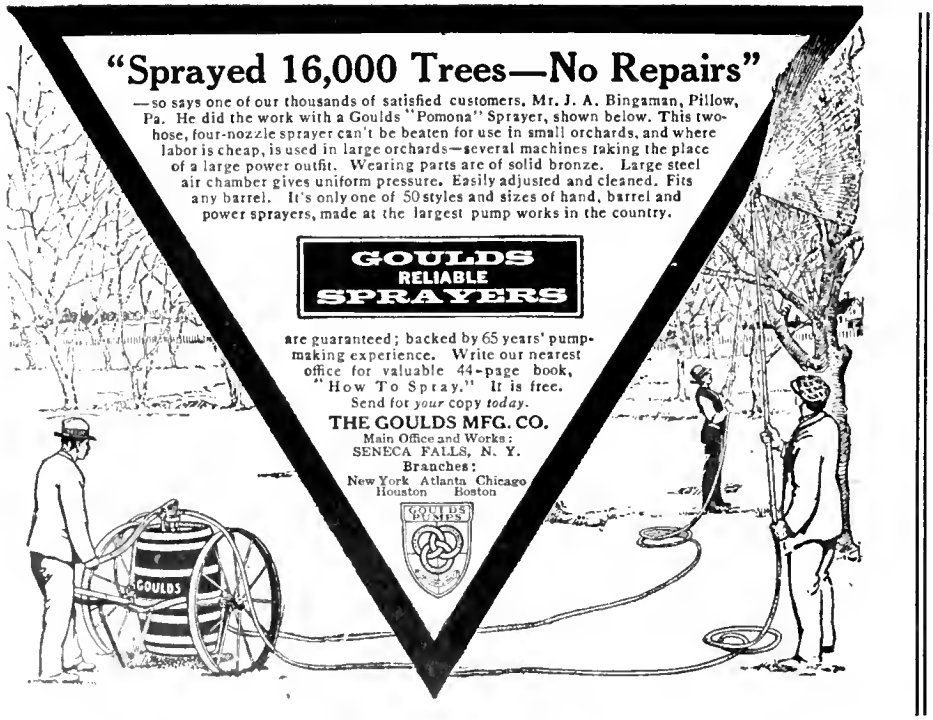
Untested, $1.00; 6, $5.00; 12, $9.00.
Select Untested $1.25; 6, $6.50; 12, $12.00.
Tested, $1.50—$3.00.
No disease, a square deal.
Money back if not able to fill orders soon, if so requested.

A. J. SEAVEY, R. F. D. No. 2, Farmington, Me.

UNTESTED ITALIAN QUEENS, 75c EACH.

Warranted purely mated, $1.00 each, $10.00 per dozen. Breeding queens, $5.00 each. I guarantee you satisfaction.

JOHN A. McKINNON
St. Eugene, Ont.



transit, are respectfully requested to observe the following rules:

1. Take firm hold on the package when shipping or moving it from place to place.

2. In handling, avoid tilting the package beyond 45 degrees from its horizontal position.

3. Never let go your firm grip on the package till it is gently placed in its place (a dropping jar to a crate of ripe, juicy strawberries, raspberries, peaches, or tomatoes, will easily knock 25 cents of value out of it).

4. Pile crate firmly in express cars or on trucks to avoid rocking motions. These motions on a long journey will reduce value of goods from one-half till worth less than express charges.

5. Always have in mind that the effects of damage to goods by unskilful, thoughtless handling never stops till part of it gravitates right back to you, and affects your economic progress, although you never thought of it.

6. All persons having interests in fruit of any kind, observing careless violation of the above rules, will confer a favor upon the company as well as the public by taking such notes as will enable the officials of the company to trace the violation to the guilty party.

All such notes should be addressed to the division superintendent respective of the place of occurrence, where records are kept and employees scored by their efficiency.

Increases Production

F. H. Johnson, Bridgetown, N. S.

My apples are packed and marketed through the Bridgetown Co-operative Company. My experience in co-operation has convinced me of the importance of the production of fruit of the best quality. An improvement in the quality of fruit produced invariably results from successful co-operation. The best methods of one grower soon become the common methods of all. The members of the co-operative society to which I belong meet frequently during the winter months. At these meetings methods of cultivation, of spraying, of picking and packing and of the general care of the orchard are discussed, and the methods that have proved most advantageous are brought to the attention of all.

Not the least of the many advantages of co-operation is the inspiration which the members get from each other in the encouragement to raise more and better fruit. One member sees the fruit grown by his fellow member to be so much superior to his own, or the packing room tally sheet shows him how many more number one apples his neighbor packs than he does. This naturally sets him to thinking that if his brother member can do so well there is surely a chance for him also. So he faces another fruit season with determination to raise better fruit than ever.

Webster defines co-operation as "the association of a number of individuals for their common benefit." The definition exactly describes the purpose and intent of a co-operative association of fruit growers. In these organizations individual fruit growers associate together for their common benefit—to enable themselves to raise better fruit, to have that fruit better packed, to handle it with greater economy, to find the best market, to obtain the highest prices. Co-operation among farmers and fruit growers is, to my mind, the natural result of increased intelligence and a more thorough education. The day of small things in the apple business is past and the prospect now is that in a very few years co-operative associations will control the export of the apple crop of Nova Scotia.

IF GOOD QUEENS ARE WANTED

I have the goods. The pure three-banded Italians and the pure Carniolans, both races from imported mothers. Prices, untested, each 75c; dozen, $8.00. Tested, $1.25 each; dozen, $12.00. Circular Free.

GRANT ANDERSON, SAN BENITO, TEXAS

The Root Canadian House

185 Wright Ave. TORONTO, ONT.

Quality counts. Try our Queens; three banded, golden Carniolans or Caucasian, from best U.S.A. breeders; also from our own yards. Everything in Bee Supplies, Root's Goods; also "Made in Canada" Bee Journals and Books. Catalogue Free.

OUR
ANNUAL EXHIBITION
and
FALL PACKING NUMBER
will be published September 1st.
Send in your copy early.
Forms close August 15th to 25th.
The Horticultural Publishing Co., Ltd.,
Peterboro, Ontario.

PRICE LIST

of
Three Banded Red Clover Italian Queens
Bred from Tested Stock.
Untested Queens, $1 each, $5 for six.
Selected untested, $1.25 each, $7 for six.
Tested Selected Guaranteed Queens, $2 each.
Cash With Order.

W. R. STIRLING
Box 214 Ridgetown, Ont.

Berry Boxes, Baskets, Etc.

The Arkona Basket Factory can supply you with the article that holds and helps to sell the fruit. Order now to secure prompt delivery from the old reliable,

THE ARKONA BASKET FACTORY
Samuel Rivers Arkona, Ont.

FRUIT BASKETS

Eleven-quart, 9-quart, 6-quart, 4-quart and Pony sizes, with or without leno covers. For favorable prices and a good article address

Gull River Lumber Co. Ltd.
Lindsay, Ontario

BASKETS

We supply hand-made fruit baskets, crates, etc. Well made, strong and guaranteed to give every satisfaction.

Let us quote you prices this season. Can supply any quantity.

Hewson & Farrell
Box 244, Grimsby, Ont.

ITALIAN QUEENS

3 banded, disease resisting, for Canadians to requeen with for August and September, 75c each, $7.50 the dozen, 50 for $30.00.

Had from the next largest queen-breeder in Tennessee.

CURD WALKER, Queen-Breeder,
Jellico, Tenn.

MILLER'S STRAIN ITALIAN QUEENS

By return mail or money refunded; bred from best red clover strains in United States, in full colonies, from my superior breeders; northern bred for business, long tongued, three-banded, gentle, winter well, hustlers. Not inclined to swarm; roll honey in. One untested, 75c; 1 select untested, $1.00; 6 untested, $4.00; 6 select untested, $5.00; 12 untested, $7.50; 12 select untested, $9.00. A specialist of 18 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, Brockville, Pa. U.S.A.

Honey Pails & 60lb. Cans.
Glassware & Shipping Cases.
Bees. Queens. Honey. Wax.

CHAS. E. HOPPER & CO.
126 Simcoe St., TORONTO, ONT.

Leather Colored Italian Queens

Bred for Honey Production

Queens are reared from select mothers, record breakers, taken from our honey producing apiaries of over 1,000 colonies. We guarantee our queens to live as long and to give as good or better satisfaction than any of the so-called "Hardy, northern bred," high priced queens. We invite closest comparison with the best.

Untested queens, 60c each, $6.00 per dozen

Warranted purely mated, 75c each, $8.00 per dozen.

Tested queens, $1.10 each, $12.00 per dozen.

Safe arrival and satisfaction guaranteed. No disease.

BROWN & BERRY, Hayneville, Ala.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail.

J. P. MOORE,
Queen-breeder. Route 1, MORGAN, KY.

Queens

"Reared in Canada"
from the best Italian stock

ONE DOLLAR EACH
Six for Five Dollars

P. TEMPLE
438 Gladstone Ave., TORONTO, ONT.

CARNIOLANS Only

Carniolans build up fast in the spring. Are very prolific, very gentle, cap honey very white, enter comb honey supers readily, gather almost no propolis, and are the best of honey gatherers.

Untested Queens, $1 each, $9 dozen; Tested Queens, $1.50 each, $12 dozen; 1 lb. package, with Queen, $2.50.

Delivery after May 15, depending on the season somewhat.

ALBERT G. HANN
CLINTON, N.J. U.S.A.

QUALITY HILL QUEENS

"The Queens You'll Eventually Buy."

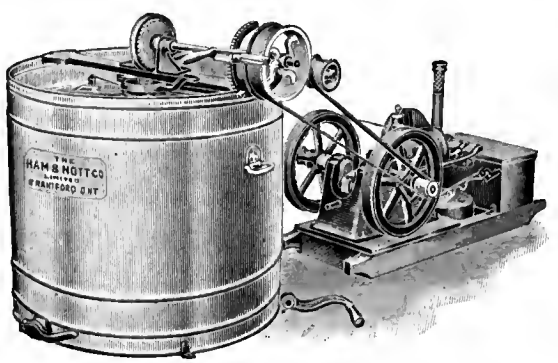
Quality Hill Queens are of a famous strain, greatly improved. All cells are built in 10-frame colonies, brimful of bees and during a continuous honeyflow. For hardiness, gentleness, and honey-gathering qualities they are better than most. Four-frame nuclei used for mating. Many report them very resistant to European Foul Brood. No disease. Italian.

Our Guarantee.—All queens will reach you alive, in good condition, purely mated, and will give satisfaction. Queens which prove to be injured in the mails will be replaced if returned. Reference: Plainfield, Ill., State Bank.

Queens	1	6	12		1	6	12
Untested	.80	$4.00	$7.50	Tested	$1.50	$8.00	$15.00
Select Untested	$1.00	$5.00	$9.00	Sel. Tested	$2.50	$10.00	$18.00

Breeders $4.00 and up.

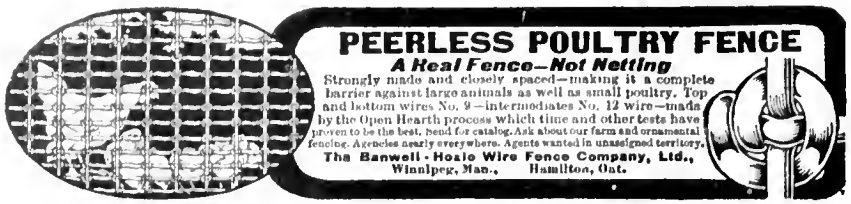
KENNITH E. HAWKINS
Plainfield, Box 366, Illinois.



Power Honey Extractors

Friction drive or with special cut gears, smooth and easy running. Speed control is perfect and simple. If you are thinking of purchasing a power outfit, write us at once.

The Ham & Nott Co., Ltd.
BRANTFORD, ONT.



The Beekeepers' Review

The Beekeepers' Review is now just beginning to publish those valuable papers read at the National Beekeepers' Convention at Denver last February. If you were to begin your subscription with the May number none would be missed. We will be pleased to receive your subscription for the last eight months of the year for an even 50c, post-paid to Canadian subscribers. In remitting, say begin with the May number, so as to miss none of those valuable papers. Those papers are only a part of the valuable material we have on hand that will appear during this year, so we are very sure you will receive your money's worth by subscribing for the Review at this time. The Review is Owned and Published by the Honey Producers Themselves, consequently is published wholly to our interest. Kindly remit by postal note, not stamps, as we cannot use Canadian stamps. Address, with remittance, The Beekeepers' Review, Northstar, Mich.

The Beekeepers' Review, Northstar, Michigan

NOTICE TO QUEEN BREEDERS

If you want to sell Queens and Bees advertise in the AMERICAN BEE JOURNAL. Read what some of our advertisers have to say about the pulling power of our advertising pages.

We have advertised in the American Bee Journal for thirty years. Have always found it a good advertising medium.—J. W. K. Shaw Co., Loreauville, La.

My advertisement brought all the orders I wished for. In fact, more than I was able to supply—quite a number of orders had to be returned.—J. A. Simmons, Sabinal, Texas.

The Reasons are self-evident—a good bee paper is taken by live and wide-awake beekeepers, and these are the kind that are always in the market for good bees and good Queens.

Rates on space are not high. Display at 15c a line, or $2.10 per inch. Classified, 15c a line. Send in your order with copy to-day and get rid of your surplus Queens.

AMERICAN BEE JOURNAL, - Hamilton, Ill.

The United Fruit Growers.

That The United Fruit Companies of Nova Scotia, Ltd., are steadily increasing in strength and influence was shown at the Third Annual Convention of The Company held about the first of July. In spite of the war conditions that prevailed last fall and winter, the company had a successful year, and proved the salvation of the fruit industry in the Annapolis Valley.

The report of the board of managers was presented by Secretary A. E. Adams. It went into the affairs of the company exhaustively. A considerable extract from it is printed on Page 196 of this issue. President Donaldson gave an excellent address, reviewing the work of the company, its prospects and trade conditions. A noticeable feature of the Convention was the increased familiarity of the delegates present from the locals with the general business of the company, and their confidence in its future, and the co-operative principle upon which it is being conducted. The growth of the movement is educating our growers in the principles involved, and developing new leaders, in whose hands the future success of the enterprise seems assured.

Officers Elected.

The following officers were elected: President, John Donaldson; Vice-President, F. W. Bishop; Secretary, A. E. Adams; Board of Management, A. E. MacMahon, F. W. Bishop, T. L. Harvey, F. H. Johnson. The only new member of the board is Mr. Harvey. Directors were also elected for each of the local Companies. There was only one nominee for each of the offices of president, vice-president and secretary, all three being elected by acclamation.

Apples for England

We solicit your Consignments

Write For Particulars Early

Highest References Given

W. S. BUCKOLL

Fruit Importer and Merchant

NOTTINGHAM, ENGLAND

Telegraphic Address. Buckoll, Nottingham

For the Land's Sake

Use the best Manure and get

GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Supplied by

S. W. Marchment

133 Victoria St., TORONTO

Telephones: Main 2841; Residence, Park 951

Say you saw this ad. in The Canadian Horticulturist

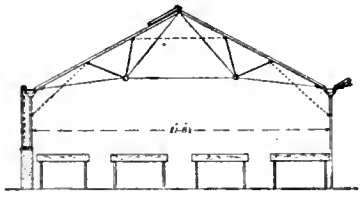
Marketing Immature Fruit

P. J. Carey, Dom. Fruit Branch, Toronto, Ont.

There is one great evil in connection with the marketing of our fruit that perhaps has not been given as much attention as it deserves. There seems to be a wild desire on the part of some of our growers to reach the market with their fruit ahead of all the other growers. As a consequence, all through the season, beginning with the strawberry and ending with the grape, we find immature fruit rushed on the market at a stage of ripeness when it is absolutely useless for food. Plums and apples reached the Toronto market this year as early as July 15th, and, needless to say, were given little attention, unless in the way of criticism.

A great mistake has been made by some of our apple growers in shipping to the West cars of boxed apples of well-known "red varieties" at a stage when fully fifty per cent. of the fruit showed little or no color for the variety. The dealers in the West may be to blame for demanding that the fruit must be there at a certain date, but the growers are the ones to suffer when such fruit is put in competition with the attractive, well finished article from the West. It is better for us to remain off the market until our fruit is at least reasonably mature, for the reason that those who purchase and use an inferior article in any variety of fruit are not too ready to buy the same variety when it is at its best, or at least will have a lasting prejudice against it.

In the shipment of grapes, the practice is perhaps most prevalent, and no doubt close attention will be given shipments this season. Our best growers cannot be accused of this practice, but suffer to some extent from it. In these days of close competition, our only chance is in the superiority of our fruit. It is difficult to establish a name for any of our many varieties by placing immature fruit on the market.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

You can get Lantic Sugar in 10, 20 and 100 lb. full weight Bags

If you always buy Sugar for Preserving and for the regular home uses, in bags, your dealer has—or can easily get—LANTIC SUGAR in 10, 20 and 100 pound bags. Either coarse or fine granulated can be had in the 100 pound bags.

Lantic Sugar is the new cane sugar with the fine even granulation and brilliant sparkle. Try it for all your preserving. You are sure to be delighted with the results.

FRUIT JAR LABELS FREE

Send your address and small Red Ball Trademark from bag or top end of carton and we will mail you book of 50 assorted Fruit Jar Labels—printed and gummed, ready to put on the jars.

Also put up in 2 and 5 pound sealed cartons.

Atlantic Sugar Refineries Limited

Montreal St. John

REMEMBER—Our Annual Exhibition and Fall Packing Number will be published September 1st. Reserve space now for good position. Forms close August 15th to 25th.

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

WE ARE PROTECTED BY THE PRODUCE REPORTER Co.'s SYSTEM — CREDIT BOOK — CHICAGO — ALL CONTRACTS GOVERNED BY TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

H. PETERS

88 Front St. East, Toronto

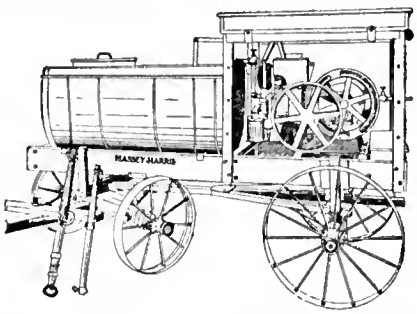
INTERNATIONAL APPLE SHIPPERS ASSOCIATION

MASSEY-HARRIS CO.
LIMITED

Fall Bulletin - - August 1, 1915

Spray Outfits

GREAT care should be exercised in the selection of a sprayer. Proper design and construction, combined with simplicity, makes the Massey-Harris sprayer a leader in efficieney.



The Pump is double cylinder, with two bronze plungers, direct-connected to the back gear-plate of the engine without chains, bolts or gears.

The Tank is specially built of 1¼-inch selected Cypress.

The Agitator is positive in its action, and is operated from the top—no holes through the side to cause leakage.

Connection—There is a simple direct connection between engine and pump—no sprocket chains to get caught in branches.

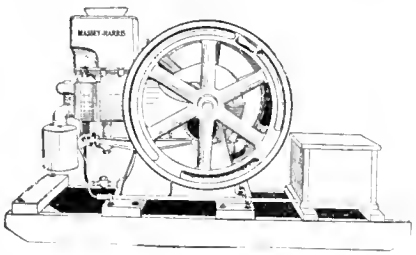
The Cab—Protects all working parts and forms a good platform.

Pressure Gage—The Massey-Harris gage is absolutely accurate and reliable, and will register up to 250 pounds.

The Engine is Described Below.

Gasoline Engines

THE Massey-Harris engines are ideal for spraying and general farm work, as they can be depended upon in all kinds of weather



and in any position, such as when working on steep hillsides. Their high efficieney, coupled with their economy of operation and durability, combine to make them the most reliable and satisfactory on the market to-day.

Hopper cooled with exceptionally large water space.

No gaskets or packing about the cylinder to blow out or leak.

Valves are in removable cages—either can be taken out by removing two screws.

Carburetor has no moving parts—is simple, effective and "easy on the gasoline."

1½ to 20 horse power—stationary, portable, semi-portable.

MASSEY-HARRIS CO., Limited

Head Office—TORONTO, CANADA

—BRANCHES AT—

MONTREAL, MONCTON, WINNIPEG, REGINA, SASKATOON, YORKTON, SWIFT CURRENT, CALGARY, EDMONTON.

—AGENCIES EVERYWHERE—

The Lord & Burnham Co.

About two years ago, the LORD & BURNHAM COMPANY of New York decided to open an office in Canada. There were several reasons for this:

Canada was expanding rapidly in all directions and as a natural result of her prosperity, as in the United States, the prosperous business man and florists began to want the best Greenhouse that could be built. This led Canadians to place their orders with the LORD & BURNHAM COMPANY, who for over fifty years have been the foremost Greenhouse Builders in the world.

The LORD & BURNHAM COMPANY have found that better and quicker service could be given to their customers by the establishment of a number of Sales Offices, situated at convenient points. Following out this policy, an office was opened in Toronto. The success attending the opening of this office, led the Company to organize a Company under the laws of Canada, and they immediately began to look for a site for building a factory.

The Company were anxious to manufacture in Canada for the following reasons:

FIRST: Because they could sell their goods at a lower price.

SECONDLY: They could give quicker and better service by so doing.

THIRDLY: They wanted to be identified with Canada and be a Canadian Company as far as possible.

To this end, they put their Canadian business in the hands of a Canadian, Mr. David Warwick, who was born and brought up in Toronto. Mr. Warwick has had over fifteen years experience in the Greenhouse business, and most of that time has been connected with the Lord & Burnham Companies of New York and Illinois.

When the Company erected a factory near Chicago, Mr. Warwick was put in charge, and has seen the business grow so that the factory had to be doubled in size.

After visiting and investigating over twenty cities and towns, St. Catharines was finally selected as the place to build a factory. St. Catharines offered better facilities as to sewers, water power, homes for workmen, railroad facilities, etc., than many other places. Also it had the advantage of being in the Buffalo freight rate zone—a very important, economical consideration. Then too, the various other manufacturing concerns already located there, gave the city a strong, all around recommendation.

After the site of some sixteen acres was purchased, steps were immediately taken to start work on a factory. About one year ago, building operations were commenced and to-day the machines are running swiftly, turning out the material for over fifteen greenhouses already contracted for.

The factory is pronounced the best built factory in Canada. It is strictly fireproof; all on one level, one story high. The framework of the building is steel, with brick walls. The walls are simply to keep the weather out, as in no case do the walls support the framework. The buildings are what is known as saw-tooth style. The north slips are of all glass, which makes every foot of floor space as light as possible. A machine can be placed at any point and work carried on at one point as well as at another.

A branch of the Grand Trunk Railway enters the property, and on the property two tracks are laid; one on the north side for incoming freight and one on the south side for outgoing shipments. The Welland Canal almost touches one end of their property, and taking it all in all the site is an ideal one for manufacturing purposes.

The parent Company in the United States has been established for over fifty years and

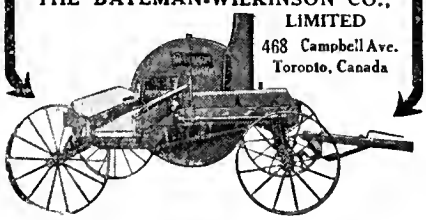
TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

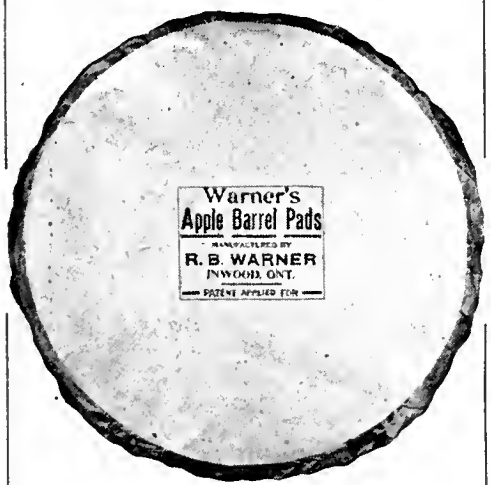
Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada



Protect Your Fruit



BY USING
WARNER'S
APPLE BARREL PADS

A pad placed in each end of the barrel holds the apples firm and absolutely prevents them from being bruised when heading the barrel and shipping.

It costs very little and pays well.

R. B. Warner, Inwood, Ont.

We have a large stock of all size
FLOWER POTS
FERN OR BULB PANS
¾ AZALEA POTS
and Rimless Pans
Orders Filled Promptly. Send for Prices.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

THE
COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited.

NICHOLSON & DEMPSTER
88 Colborne St., Toronto, Ont.
Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS
88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
See advertisement on page 201.

H. J. ASH
44-46 Church St.
TORONTO - ONTARIO
Consignments of fruit and vegetables solicited. We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

WANTED — Consignments of tomatoes, peaches, cherries, grapes, and all kinds of fruit and basket apples, also carlot apples. Centrally located; convenient to all car tracks.
LAING BROS.
Wholesale Fruit Merchants
307-309 Elgin Ave. : Winnipeg, Man.

SIMONS FRUIT CO.
David L. Dick, Manager
27 CHURCH ST. : TORONTO, ONT.
Representing
Simons, Shuttleworth & Co.
Liverpool and Manchester.
Simons, Jacobs & Co. Garcia, Jacobs & Co.
Glasgow, Scotland London, England.
Receivers of Apples and Pears.

The Oldest Commission House in Toronto
McWILLIAMS & EVERIST
Send your Consignments.

Bankers: London County and Westminster Bank, Southwark Branch.
Established 1880.
JOHN ROBINSON
Fruit Importer and Salesman,
3 Rochester St. Borough Market,
London, Eng.
Telegraphic address: "Redsoil, London."
Telephone: No. 32 Hop. A.B.C. Codes.
I shall be pleased to have your consignments of Apples. Regular market reports sent on request. Correspondence is invited.

FRED BARKER
25 Church St., Toronto, Ont.
Representing J. H. Goodwin, Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. E. Cooper, Liverpool,
APPLE RECEIVERS.
Consignments Solicited.

HYSLOP & SONS
132 Princess Street : Winnipeg, Man.
Fruit Growers and Shippers
We have opened up a commission house in Winnipeg, and solicit consignments of fruit. Commission, 10 per cent.
References—Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

NEW AND RARE SEEDS
Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.
Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

GILSON Johnny-on-the-Spot
A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P.
1 1-2 H. P. Gasoline Engine, Skid or truck. Sizes up to 15 H.P.
$47.50
Gilson Mfg. Company,
5 York St
Guelph, Canada.

WESTERN FAIR
London's Popular Exhibition
September 10th --18th
Fruit and Flowers a Prominent Part of this Great Exhibition

$30,000.00 in prizes and attractions. Special programme twice daily. Fireworks every night. New Steel Grand Stand. Single fare over all railways west of Toronto. Prize lists, entry forms, and all information from the Secretary.

EVERYBODY COME

W. J. REID, PRESIDENT. A. M. HUNT, SECRETARY.

DUTCH BULBS

For Fall, 1915. Direct import from Holland. Bulbs of first quality, guaranteed true to name and color. Low prices. Send for our Catalogue.

DORVAL NURSERIES, Dorval Station, P.

Canadian Ginseng

Pure Canadian Ginseng stock for sale. Order early for October planting. Booklet free.

HURONIA GINSENG GARDEN
BOX 341 BLYTH, ONT

GINSENG FOR SALE

Two and three-year-old roots. Live, vigorous stock for fall planting.

WM. GILGOUR
785 George Street, Peterboro, Ontario

GINSENG ROOTS and SEEDS FOR SALE

Good, strong Canadian-grown roots, one and two years old, $10.00 and $15.00 per thousand. Tested seed for fall planting, $1.50 per 1,000. No order for less than 1,000. Cash with order.

Dr. MACKENDRICK, Galt, Ont.

Ginseng Seed and Roots For Sale

One and two-year-old roots. Year-old or germinated seed. This seed is taken from matured six and seven-year-old stock. Roots and seed delivered in October. Write for prices.

Orr & Nichols, Mono Mills, Ont.

GINSENG

Plants and stratified seeds for sale. Canadian stock. Choice quality. Send for price list to

N. J. MACINNES, M.D.
Vittoria, Norfolk Co., Ont.

Ginseng For Sale

3,000 two years old, $18.00 per 1,000. Unlimited quantity one year old, $9.00 per 1,000. Instructions for planting if required. 20 per cent. with order, balance before shipping.

John Zuefle's Ginseng Gardens,
Hensall, Ontario.

during that time has devoted itself exclusively to the manufacture of Greenhouse Material and Equipment. This Company is in a position to furnish all material and erect Greenhouses, Conservatories, Hot Beds, Cold Frames, Hot Water Heating Apparatus, Steam Heating Apparatus. Everything that is used in the construction of a greenhouse is manufactured by the Company, also fittings, valves and boilers for the heating apparatus. In fact, it is the Company's policy to manufacture everything possible under its own roof, as by so doing uniformity and excellency are obtained.

The Sales Department is under the management of a sturdy Scotchman, Mr. C. C. McDermott, who has had the advantage of a good schooling with the Lord & Burnham Company in the United States.

This Company has already erected the largest Rose Houses in Canada, as well as numerous houses for the growing of vegetables, carnations, etc., for florists and vegetable growers. It has erected Greenhouses, Rose Houses, Palm Houses, Carnation Houses, etc., on some of the finest private estates in Canada.

The Company looks forward to a long and prosperous career in Canada and it will be their aim in the future, as it has been in the past, to build the best greenhouse that it is possible to build.

DIGGERS

for potatoes. All growers know that it pays to use diggers even on five acres—they save valuable time, save all the crop in good condition, at less expense.

IRON AGE DIGGERS

Wheels 32 or 28 ins. Elevator, 29 or 20 ins. wide. Thorough separation without injury to the crop. Best two wheel fore truck. Right adjustment of plow, shifts in gear from the seat. Can be backed, turns short into next row. We guarantee our diggers to do the work claimed for them. Ask your dealer about them and write for booklet.

No. 155. For Heaviest Conditions

The Bateman-Wilkinson Company, Limited
460 Symington Ave., Tor., Can

MERRYWEATHER'S

ROSES

are noted throughout the world

They are Cheap; they are True to Name; the Trees are Strong and Sturdy. They defy Competition.

ALL THE

NEWEST VARIETIES

Dwarfs, Standards, Climbers, also Fruit Trees, Shrubs, Ornamental Trees

Send for Catalogue, Post Free

Henry Merryweather & Sons
Limited
SOUTHWELL, NOTTS., ENG.

The Single Tax

Editor of The Canadian Horticulturist: I would like to congratulate you on having a special fruit edition. This feature should prove very satisfactory to fruit men. The matter of public markets will, I think, bear some airing. This brings to mind that I have several times noted your remarks on the excessive charges of retailers and the fix they are in from high rents or land values. You seem to offer only single tax as a solution. I do not pretend to be a judge on the correctness of this. I'm no authority on single tax. I have this to say though, that considering the slow rate of progress of the single tax idea, if the fruit grower has to wait till the public is educated to elect single tax members to enact single tax laws, to give single tax a trial whether it will better his lot—why he has a long wait ahead. Other productions seem to be handled through present channels of trade, and sold through retail stores and living, but not excessive, prices obtained. I know that fruit is a particularly perishable line of goods and there must necessarily be more margin between the price the producer gets and what the consumer pays than in some more easily handled lines, and probably the buyer of fruit has a duty to perform in patronizing co-operative effort, public markets, etc., in order to do away as much as possible with a superfluity of middlemen.

Just think it over and see whether, if you were a fruit grower, or a buyer merely, you would see much to cheer you in having to wait till the single tax idea gained ascendancy, when your position might be benefited. I say might because everyone is not evidently of the opinion that shifting a large portion of taxes on to land values is a sure

WHITE & CO., Ltd.

Church & Front Streets
TORONTO, ONT.

AUGUST 1915

AS one of the largest and oldest commission houses on Front Street, we have a claim on your confidence and favor possessed by few others. The two things—perhaps there are three—that matter to you are: (1) the reliability of the house you deal with; (2) the ability to sell consignment quickly; and the third matter of importance is the ability of your commission agent to get top prices. We are 100% efficient in regard to these three items. We can and

Correspond with us first, if you wish. Ship without waiting to write, if your matter is urgent. Shipping Stamps and Market Reports supplied on request.

WILL SELL
YOUR FRUIT AND VEGETABLES.

Landscape Gardening

A course for Gardeners, Florists and Home-makers, taught by Prof. Beal, of Cornell University.

Progressive Florists recognize the growing importance of a knowledge of Landscape art.

We also offer a practical course in Floriculture, including Greenhouse Construction and Management.

Send for Catalogue. Address

THE HOME CORRESPONDENCE SCHOOL

DEPT. C.F. - SPRINGFIELD, MASS.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary snd labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

FREE LAND

For the SETTLER in

NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. Macdonell

Director of Colonization

Parliament Buildings, TORONTO

HON. JAS. S. DUFF,

Minister of Agriculture

Parliament Bldgs., Toronto

OUR

ANNUAL EXHIBITION

and

FALL PACKING NUMBER

Will be Published

SEPTEMBER 1st.

This is the most important and largest of our fall issues, and is published right at the time when fruit growers are preparing for their fall and winter work — thus buying fall supplies.

Can you think of a better opportunity of showing your products to thousands of these progressive fruit growers?

Plan to have your message in it. Forms close August 15th to the 25th.

The Canadian Horticulturist

Peterboro, Ontario.

Things to Plant in September

Hyacinths, all colors, per doz. 40c., 55c., 65c., and $1.00. If required by mail add 20c. per doz.

Single and Double Tulips, all colors, per doz. 15c., 20c., 25c., and 40c. If required by mail add 15c. per doz.

Narcissus and Daffodils, all shades, per doz. 25c., 40c., and 60c. If required by mail add 15c. to 20c. per doz.

Our Autumn Bulb Catalogue contains a list of bulbs suitable for all purposes, and will be mailed on request.

Wm. Rennie Co., Limited, Head Office and Warehouse: Adelaide and Jarvis Sts., Toronto

BRANCHES:

190 McGill St., Montreal, Que. 394 Portage Ave., Winnipeg, Man. 1138 Homer St., Vancouver, B. C.

SANDER & SONS

ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest Stock in the World

Catalogue on Application

THE RAIN MACHINE

SKINNER SYSTEM OF IRRIGATION

Write for six books on indoor and outdoor irrigation.

The Skinner Irrigation Co., 233 Water St., Troy, O.

Kelway & Son

SEED GROWERS and NURSERYMEN

LANGPORT, ENGLAND

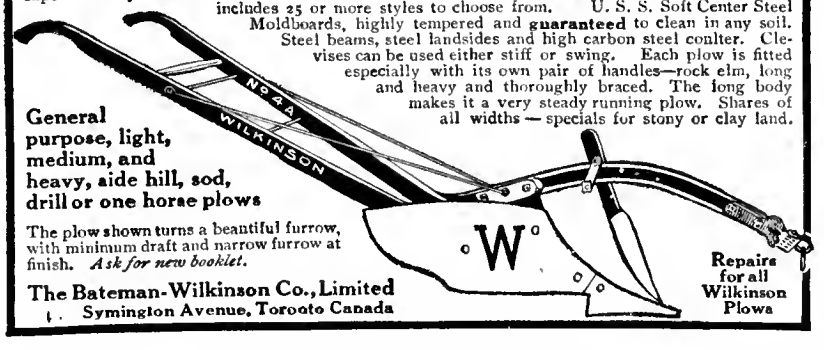
Announce that their Mr. H. A. NALDRETT will be in Canada during the month of September and invite correspondence for appointments. Please write him "Care of

Messrs. T. Meadows & Co.

8-10 Bridge Street, Battery Park, New York City, U.S.A.

Wilkinson Plows

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the standard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.



General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

The Bateman-Wilkinson Co., Limited

Symington Avenue, Toronto Canada

Repairs for all Wilkinson Plows

Canadian National Exhibition

" PATRIOTIC YEAR "

March of the Allies — Aug. 28 to Sept. 13 — Review of the Navy

Mammoth Fireworks Display, War Trophies, captured from the Germans, Bigger, Better, Grand Stand Performance, New Midway Attractions, Model Farm under Cultivation, Canada at a Glance.

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

BEES AND QUEENS

ITALIAN BEES AND QUEENS as advertised on page 198. Catalogue free. Deroy Taylor Co., Newark, N.Y.

FOR SALE—Three banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75c.; 6, $4.25; 12, $8.00. Tested queens, $1.25; 6, $7.00; 12, $13.00. Selected queens, add 25 cts. each to above prices. Breeding queens $3.00 to $6.00 each. For queens in larger quantities, write for prices and circulars. Robert B. Spicer, Wharton, N. J.

ITALIAN QUEENS—For sale at 60c each, $7.00 per dozen. Safe arrival guaranteed. T. J. Talley, R.R. No. 3, Greenville, Ala.

QUEENS BY RETURN MAIL—Three-band Italians only, which have been bred to a high standard of excellence, to which leading beekeepers in Canada can testify. Tested queens, $1.00 each; untested, 75c; $7.00 per dozen. No disease, and satisfaction guaranteed. J. W. K. Shaw & Co., Loreauville, La., U.S.A.

BEST THREE BANDED ITALIAN QUEENS—June to October, mothers selected from more than 100 colonies and reared in hives running over with bees, according to the latest scientific methods. Every queen a dandy. Satisfaction guaranteed. Each 75c, per dozen $7.20, per hundred $50.00. Also bees and honey. J. H. Haughey, Berrien Springs, Mich.

MOORE'S STRAIN AND GOLDEN ITALIAN QUEENS, untested, $1.00; 6, $4.50; 12, $8.00; 50, $32; 100, $60. Carniolan Caucasian, untested, $1.25; 6, $5.00; 12, $9.00. Tested, any kind, $1.25; 6, $7.00; 12, $12.00. Choice breeding queens of any kind, $6.00 each. Circular free. W. H. Ralls, Orange, California.

GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, $1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, $1.50. Nuclei, per frame, $1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, $1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

ITALIAN BEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. Stover Apiaries, Mayhew, Miss.

FOR SALE—80 colonies Italian bees; a choice outfit; free from disease. J. Alpaugh, 46 Cherry St., Stratford, Ont.

QUEENS OF QUALITY.—Three-band Italians. First-class untested queens, remainder of season, 60c each, $7.00 per dozen. Satisfaction guaranteed. J. I. Banks, Dowelltown, Tenn.

SEEDS AND PLANTS

WOULD LIKE TO EXCHANGE mushroom spawn for bedding stock or cuttings, plants or bulbs. Canadian Mushroom Growers, Limited, Lindsay, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

PACKER'S "SAFETY"
FRUIT WRAPPER
PAPER

Recommended by Government Inspectors. Used with perfect results by largest growers.

This paper is specially made to wrap fruit.

The rough side in against the fruit protects it. The smooth side out excludes moisture.

It is strong enough to handle without breaking, yet its soft texture permits folding the paper close to the fruit better than with harsher papers.

In stock—

8x 9—10c.	per ream	500 sheets.
10x10—11c.	"	"
12x12—15c.	"	"
18x24—45c.	"	"
20x30—60c.	"	"
24x36—80c.	"	"
30x40—$1.10	"	"

Also in stock—
Lace box tops, 11x20, per 1,000, $10.00.
Lace barrel tops per 1,000, $10.00.
Lace paper, white and colored, 12 pieces, 10 yards each to box, 40c.
Corrugated box tops, 11x20, per 1,000, $8.50.
Corrugated barrel tops, per 1,000, $12.
White pulp board, barrel tops, per 1,000, $7.00.
White pulp board layer boards, 11x20, per 1,000, $4.00.
Box Lining, cut to any size, from white or colored paper. Also wrapping papers, twines, manilla tissues.

Buntin, Gillies & Co.
LIMITED
HAMILTON, - CANADA

cure for "the thousand natural shocks that flesh is heir to."

Armstrong, B.C. CHARLES WEBSTER.

A Western Fruit Conference

An important conference of representatives of the fruit growing interests of British Columbia and of the consumers of the prairie provinces, more particularly the province of Alberta, was held in Calgary July 7th-9th. The Conference was held on the invitation of the Calgary Board of Trade. Invitations to attend were sent to British Columbia fruit growers and shippers, representatives of freight and express companies, prairie retailers, wholesalers and consumers. The British Columbia Department of Agriculture gave its assistance. The object of the conference was to find methods of so improving the handling of fruit that better results might be obtained, not only by the producers, but by the consumers as well.

The British Columbia fruit growers made a strong claim for greater protection against fruit shipped in from the United States. They claimed that there has been over-production in the Pacific Coast States, and that the surplus is being dumped on the Canadian market, the anti-dumping clause not applying to fruit, with the result that the fruit growing industry in British Columbia has become more or less demoralized. It was stated that some of the fruit growers of British Columbia did not have enough money to buy a ticket to the conference, or they would have been present.

The plea for greater protection was opposed by representatives of the consumers, including Mr. Musselman, of the Saskatchewan Grain Growers' Association, Mrs. T. D. Newhall, who spoke for the Consumers' League, and by representatives of the commission firms. It was claimed that an increase in the duty would antagonise 90% of the consumers in the prairie provinces. The matter was finally disposed of by the adoption of a resolution asking the Dominion Government to appoint a special commission of enquiry into the state of the fruit trade. It was anticipateed that such a commission would enquire into the necessity of a revision of the tariff.

A resolution offered by W. G. Hunt, that representations be made to express companies to reduce their minimum rate on cars for small fruits from 20,000 to 15,000 lbs., or else provide cars capable of carrying 20,000 lbs. with safety, was adopted, after considerable discussion. The fruit growers seemed to think that express rates, with some minor exceptions, were fairly reasonable.

The following resolutions were adopted:

"Resolved, that this conference petition the Dominion Express Company requesting them to obtain joint rates with the Canadian Northern Express Company and the Canadian Express Company on the basis of the present tariff, applicable to fruit shipments from all points in B. C. to all prairie points.

"It is further resolved that this conference do make application for a reduction in carload lots of fruit shipped from British Columbia to all jobbing points in Alberta to $1.75 per 100 pounds."

Other resolutions adopted favored each British Columbia fruit district having a special representative at each marketing centre to see that the market is maintained in a normal condition, and to govern the distribution of fruit; favoring the packing of only one grade of the best variety of apple, all others to be put up orchard run, culls cut out, in slatted boxes, and one asking the government to establish a minimum number of standard packages for small fruit.

The Canadian Horticulturist

Floral Edition

Vol. XXXVIII PETERBORO, SEPTEMBER, 1915 No. 9

Pointers for Exhibitors of Fruit

Prof. J. W. Crow, O.A.C., Guelph, Ont.

IT is much to be desired that judges and exhibitors should agree concerning the requirements of exhibition fruit. The responsibility of passing judgment lies with the judge, and his ideas are supposed to be correct. If he knows his business as he should, exhibitors would do well to study his decisions, and in case of doubt to go to him personally for an explanation. Judges make mistakes, but no honest judge would refuse an explanation or a discussion of the point in question. It is with the idea of bringing out helpful discussion that I have been encouraged to deal in a brief way with the requirements of exhibition fruit, referring more particularly to plate exhibits.

The points usually embodied in a score card for plates of apples, pears, plums, and peaches are about as follows:

1.	Form	10
2.	Size	10
3.	Color	20
4.	Uniformity	20
5.	Quality	20
6	Soundness	20
		100

The score card is seldom used in actual judging, except in cases such as large collections or displays, where the points involved are too big or too complex to be mentally compared. I find the score card very useful, however, in explaining the qualities looked for and in teaching the relative value of each.

The first point for an exhibitor to bear in mind is that the judge's decision is based on the exhibits as they stand at the moment of judging. In the case of an "export" class, the judge does require, of course, to forecast the probable "arriving condition" of the fruit, but in ordinary open competition the judge takes them as they stand. This is one reason why southern-grown exhibits so frequently win at our early fall shows, or even at the November show in Toronto. Northern-grown winter apples, for instance, are not at their best until perhaps February, and in competition at a September or October show are handicapped by lack of maturity. They get a fairer chance when the prize list offers a class for "export," and would show up still better if classes could be put on covering "apples for winter storage."

As most of our prize lists stand, the greatest difficulty the judge has is to give proper weight to all the various uses or purposes which may be represented in a given class.

A class of Northern Spy apples may contain some plates which would rank as "fancy dessert"; other plates might rank as "export dessert"; others might more properly class as excellent for "cold storage dessert," and still others might, on account of large size or over maturity, take rank as any one of several grades of "cooking" apples. It is obviously difficult for a judge to take into account all the range of purposes for which the various exhibits in the class might be used, but in the ordinary variety list this is what he is required to do. The moral for the exhibitor is that where "varieties" are shown, with no special provisions attached, the judge looks for variety type. Other things being equal, the plate wins which best represents the variety.

If the class is for "dessert" purposes, quality counts, and size is much less important. The degree of maturity, which is obviously very closely connected with quality, also becomes of much importance, and is considered under the heading "Quality."

In "cooking" classes, large size is frequently very important. For a hotel or restaurant trade, where the cost of peeling becomes an item, good size is most desirable because of the time saved in peeling.

The points covered in the score card may be explained somewhat as follows:

First.—Form is a varietal character and is frequently one of the important means of variety identification.

Second.—Size is also a varietal character, but, as has been pointed out, size requirements may vary according as the class of fruit called for may be

Harvesting the crop in the orchard of W. W. Pineo, Waterville, N.S. There are 9,000 trees in this orchard, the average yield of which for some years has been 5,000 barrels a year.

A portion of an exhibit of fruit and vegetables arranged by the Central Experimental Farm, Ottawa.

"dessert," "cooking," "export," or "home market."

Third.—Color is of greatest importance as a means of appealing to the eye of the consumer. It is of great importance in commercial packages, and in plate competitions color wins, other things being equal. In green or yellow varieties of fruit, such as Reine Claude plum or Bartlett pear, the color expresses the quality, but in red varieties such is by no means the case. The poorest McIntosh apple I ever tasted was beautifully colored.

Color is more important in dessert varieties than in cooking sorts, and is perhaps even more important in some of the near-dessert commercial varieties, such as Baldwin apple and Elberta peach. These varieties are extensively grown, and color helps more to sell them than does their quality.

Uniformity.

Fourth.—Uniformity is of the greatest importance in commercial packages, and is scarcely less so in the case of those varieties which most commonly go into commercial packages. Especially is it important with those varieties commonly packed in boxes. Dessert Spies, for instance, should be wrapped and packed in boxes, and should be uniform in form, in size, and in color. Large sizes of Northern Spy, on the other hand, are less desirable as dessert apples and are less likely to go into boxes. In a general way, there is not the same necessity for uniformity in barrel stock as in boxes. (In order to avoid being misunderstood on this point, I should like to point out incidentally that most of our barrelled apples have too much variation in size and color.)

Uniformity covers form, size and color, and any experienced judge can vouch for the rarity of plate exhibits which show good uniformity in all three characteristics. This is the stumbling block of most exhibitors. I should be inclined to put more emphasis on uniformity than on any other one point in the score card.

Fifth.—Quality is detected partly by color, partly by aroma, partly by texture, and partly by the degree of maturity. The degree of maturity and the texture can be detected by the "feel," and also by the eye. It is not necessary to shove one's thumb into an apple or peach to know if it is ripe. A gentle pressure between the fingers and the palm of the hand will determine the matter very accurately, after a little practice.

Quality also bears an important relation to size. A large Ben Davis is likely to be of better quality than a small one, because the texture is likely to be more open. Conversely, a large Spy is likely to lack firmness and crispness because of the coarse texture.

Texture may vary exceedingly within the variety. I have handled Duchess pears which were as fine-grained and smooth to the touch as a Bartlett. The best example I can give of the extent to which texture and quality can be determined by touch is in the Sheldon pear. A good Sheldon feels literally "as fine as silk."

Sixth.—Soundness is usually defined as "freedom from blemishes." According to the Inspection and Sales Act, a blemish is an imperfection serious enough "to cause material waste." In the fruit show, a blemish is any imperfection which would lessen the sale value of the fruit. A limb-rub or an insect injury may heal over so perfectly as not to lessen in any way the keeping quality of the fruit, and the only detriment is to the appearance of the specimen. A scab spot is not necessarily injurious, especially to fruit intended for early use. I fail, however, to see any other way of evaluating injuries such as these than to call them blemishes.

A worse type of blemish is a skin puncture, and it is perhaps even more common. Judges should cut heavily for any evidences of rough or careless handling. Breaks in the skin and bruises are caused by lack of care, and lessen the value of the fruit for almost any purpose.

Under this heading reference should also be made to the practice of polishing, which unfortunately is becoming so common in plate apples. I know of no judges who favor polishing—in fact all the best judges discriminate against it—and perhaps the only remedy is for exhibition authorities to adopt a definite prohibitory rule. In plate fruit, all specimens should appear in their natural condition, and with the bloom on. In most cases there is quite a wide margin between simply removing dust or spray and actual polishing.

Polishing may be allowed in "cones" and "pyramids," because these are purely display exhibits, such as a grocer would make use of for advertising purposes.

Worm injuries are considered serious blemishes, so much so that at the better shows exhibits are frequently disqualified on account of them. No apple showing worm injury should be allowed to win a place at the Canadian National or at the November show in Toronto. The highest class apple show in Ontario is at Norfolk County Fall Fair, and a wormy apple there is a rarity.

Another frequent blemish is caused by the loss of the stem in picking or handling. If the stem is simply broken off, no real harm may be done, although in apples and pears the stem should always be present, as it is sometimes an important work of identification. If, however, the loss of the stem results in breaking the skin, the fruit is blemished, because of the liability of decay. Such injuries are frequently as bad as worm holes, and should be penalized accordingly.

In conclusion, I should like to emphasize the importance of care in picking and handling exhibition specimens. One cannot be too careful.

As to uniformity, select specimens as nearly alike as possible in form, size, and color. It is better that all the specimens on one plate should be a little off type than that the type should vary.

Packing Fruit for Long-Distance Shipment

R. M. Winslow, Provincial Horticulturist, Victoria, B.C.

IN the general development of the fruit-growing industry of the Pacific Coast, one of the main, if not the main characteristic, has been the evolution of successful long-distance shipping. There is on the Pacific Coast itself a comparatively large demand for fruit. Nevertheless, Pacific Coast fruit-growing is based on the markets of the middle west, those of the United States, and on the markets in the large Eastern centres for the highest grade fruit. In evolving this long-distance trade, a number of essential principles seem to be firmly established.

First of all, the fruit itself must be well selected. In the soft fruits especially, a prime requirement is size. A second requirement, often placed as the most important, is high color. Given even a moderate attainment in size and color, the fruit must certainly be firm and in such condition as to hold up under refrigeration. To meet these requirements, the fruit must practically be perfect in respect to blemishes, form, color and size. Long-distance shipping requires also most timely picking. Much has been done to put in writing just when fruit should be picked; the proper state of maturity is, however, a matter much more of experience than of precept. It is a curious fact that in the judging of condition and the ability of fruit to hold up, the average wholesaler is a much keener and more accurate judge than the average fruit-grower. Every jobber in, say, a Prairie city, becomes expert in estimating the commercial "life" of the fruit he receives to an extent not at all appreciated by the growers. In the west, however, the growers are steadily learning much about the "life" of fruit. It is not necessarily the ripest fruit that decays most rapidly; it is not the best-colored fruit that keeps best or looks best on the market.

The handling of fruit for long-distance should be most careful; in addition, there should be a minimum amount of handling, because even most careful handling means slight bruises or abrasions. On the other hand, grading requires a second handling; the picker cannot pick, grade, and pack. In British Columbia there has been a tendency, however, to too much handling. The custom of packing apples from tables is gradually giving way to packing direct from the orchard boxes, as is the practice with soft fruits, the mechanical graders now being largely adopted in Washington furnishing an exception to this rule.

The mechanical grader has come to stay, the improvements brought in in 1914 and 1915 having assured its success. The most up-to-date graders will handle peaches as well as apples, and do it without any discoverable bruising. It is a common demonstration with the new graders to use eggs. The mechanical grader has, however, a number of disadvantages. After all, it grades only to size or weight, and the grading for color, blemishes and grade must still be done by hand; the cost is high, and either gasoline or electric power is required. The graders, further, are not practical with less than 300, and preferably 600, boxes of apples a day. Also, there is a great loss of time in co-operative warehouses in handling small lots, even of the same variety.

On the other hand, the new mechanical graders have definite advantages. They are very accurate as to sizes; the presence of the machine enables speeding up of all the operations, given one good man at the head of the machine. With a good machine and three or four experienced graders, it is possible to pack 600 boxes of apples a day with six or seven inexperienced packers, and still put out a very high grade. The mechanical grader, to a very large extent in Washington, has freed the fruit sections from the domination of the expert packer, and has made available a large supply of packers who, under old grading methods, would not put up a uniform high grade pack. Under favorable conditions, the grader saves two cents to three cents a box over the old methods of operation.

The newness of the apple industry in British Columbia naturally results in small lots of the variety from each orchard: this has been the principal obstacle to the adoption of the grader so far in this province. A further reason is that the Canadian Prairies do not demand the greatest uniformity in pack.

Rigid Packages Used.

Packages for long-distance shipping are characteristic. The west has evolved the square, rigid package, contrasting with the packages of the east, most of which lack rigidity or show curves or taper. There are practically no tapering packages used in the west, and practically no flexible packages, such as the "Climax" basket or the peach basket of New York State. These rigid, square packages are the result of two causes: First, the abundance of suitable sawn lumber in the west; but, more important, the necessities of long-distance shipping.

The great objection to any package of a tapering shape is that in the packing and the later settling of the fruit

All Hands at Work in the Orchard of Mr. D. C. Galbraith, Huron County, Ont.
In this ten-acre orchard the principal varieties of fruit grown are Northern Spy, Golden Russett and Twenty Ounce Pippin, as well as a few earlier varieties, such as Duchess, Alexander and Cayuga Red Streak. The orchard has been in sod for four years, the grass being cut and left as a mulch, previous to which it was cultivated and a cover crop of rape used, which was turned under in June. Better colored fruit has been obtained since the sod method has been followed.

A Beurre D'Amanlis pear tree, in the orchard of Mr. Palmer, Victoria, B.C., laden with fruit. The weight of the crop injured the tree.

the tendency to wedge the lower layers causes undue pressure and injury. Further, the tapering packages allow of motion. In the square, rigid package. the individual fruits can be so packed that none of them alter position in any respect; this package makes firm packing possible. In long-distance shipping it is one essential that the fruit should not move from its original position in relation to the other fruits in the package.

The only package used in the west to any extent which contains the tapering side is the tin-top basket used in the four-basket plum crate. Even in this package there is practically no settling or movement of the fruit because of the firm packing employed. It will be noted further that the sides of this veneered tin-top are protected by the outer package, as is not the case with the "Climax" basket.

A further essential of packing for long-distance shipping is, of course, the wrapping. The use of paper for apples, peaches, pears, plums, and apricots in the west is so well known as to need no further comment. Aside from the improvement in appearance, the paper improves greatly the shipping quality.

The shipping of soft fruits for long-distance involves prompt cooling and quick refrigerator service. The general adoption of pre-cooling in the west, and the provision of the modern refrigerator car system and rapid moving on schedule, have all gone hand in hand together with the recent great interest in the volume of shipments moving. The Government pre-cooling plant at Summerland, B.C., for instance, is handling up to two carloads a day of soft fruits, which takes care of the great bulk of the freight shipments from the Lower Okanagan Valley. A similar pre-cooling plant at Okanagan Landing, on a larger scale, is under consideration for next year.

Quick transportation has much the same effect as lessening the distance. The Okanagan Valley shipped a considerable number of straight carloads of cherries by freight under ice this year, travelling as far as Winnipeg.

A Wealthy apple tree in full fruit, and its owner, F. N. Borden, a prosperous Victoria, B.C. fruit grower.

The quality of the shipments, as a whole, was much superior on arrival to that of L.C.L. express shipments; the service was nearly as quick as express. Every day a special freight train, known as the "Fruit Special," leaves Okanagan Landing for the Prairies, making the run through the mountains in twenty-eight hours. This quick movement enables the grower to get all the benefit to which he is entitled for his extreme care in the selection, picking, grading, packing, and handling of the fruit.

One of the best ways to control insects on strawberries is by rotation of crops and clean cultivation.

A Strawberry Root Disease

Dr. J. B. Dandeno, O.A.C., Guelph, Ont.

A plant disease of a serious nature in parts of New Brunswick is what is called "black root" of strawberry. It is so serious in some parts of the province that it has put out of business several strawberry growers. The disease affects the roots, causing a blackening and decay. The plant becomes sickly and dries up soon after the trouble begins. Plants may be attacked even when in fruit. When this happens the fruit becomes soft and dark-colored and utterly unfit for use. It is caused by a fungus or bacteria, the life history of which has not yet been worked out. The disease appeared also in Bowmanville, Ont., this year.

The remedy is to secure plants from a clean source and plant on land which has previously been thoroughly cultivated and on which strawberries have not recently been grown. Barnyard manure seems to be favorable to the disease; therefore, if fertilizer be necessary, it would seem wise to use commercial fertilizer. It might be a wise precaution to dip the roots of plants, previous to planting, in dilute formalin solution for a few minutes—formalin about one per cent., and for about five minutes.

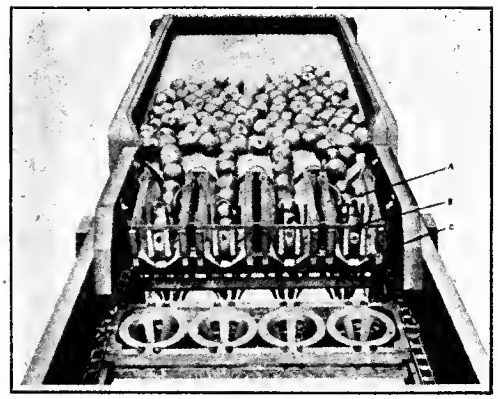
Chinamen are a chief source of labor in British Columbia orchards. One is here shown picking Belle 'd Boskoop apples in Mr. Palmer's orchard at Victoria, B.C.

Grading and Packing Apples

Father Leopold, Oka Agric. Inst., La Trappe, Que.

ALL other things being equal, the article placed on the market in the most attractive manner and package will find the readiest sale and command the highest price. This fact has led the manufacturers of staple articles of commerce to put their best grades in attractive packages.

The advisability of marketing farm produce in as convenient a form as possible for handling is universally admitted, and the advent of the apple



One view of the apple-grading machine as used successfully at the Oka Agricultural Institute.

box, even in our Quebec Province, for such apples as Fameuse, McIntosh, and Wealthy, has marked the entering wedge in the better organization of the orchard. The reason the apple box is so well liked is because only well-graded and uniform apples can be thus sold in the same box, as the different packs adopted will not come out true if the grading and sizing has not been well done.

There is no reason not to grade and size uniformly even apples of first quality that enter into a barrel. The barrel, it is true, has for so many years been the cloak which covered, not so much inferior grades of apples, as ungraded and unsized apples. The barrel has seemed to encourage carelessness in grading, for how many times have not inspectors seen the top and bottom artistically faced, and in the space between have found the general run of the pick?

The law on apple grading for No. 1 apples is not so very exacting, as we may put in the barrel apples of well-grown specimens of one variety, sound, of not less than medium size, etc. Of course a medium-sized apple differs from a large and a very large apple, so there is considerable latitude left, and in one barrel one can find medium, large and very large apples. Could we not put up a barrel pack by which we could put in one barrel the medium, in another the large, and in a third barrel the very large specimens of the same variety, but at the same time have still a No. 1 pack? In a word, could we not get a uniform pack of apples of quality No. 1 in the barrel as well as in the box?

Much can be said in favor of this practice. It gives the buyer a more favorable impression when all the fruit within a given package is of uniform grade and size. As certain dealers require large apples for their trade, and others demand a rather medium size, the practice has an economic importance that we can readily understand.

The objection is sometimes heard that large apples packed by themselves do not carry as well as a mixture of medium and large sized apples. This has not been the case with us in our shipments of barrels packed in a uniform grade.

The real objection comes from those growers who say that the grading of No. 1 apples in uniform sizes is quite a job. I admit this, and yet no packer can put up a uniform pack that has not been accurately graded. Here is where the grading machine comes in to help the fruit grower.

We have been using a grading machine at Oka for the last two seasons, both for barrel and box packing. Now we would not do without it. As most of our apples are packed by the students at the College, who thus have a great chance to acquire some practical experience in packing apples, one readily understands the usefulness of such a machine. The boys handle only fruit graded very accurately and of uniform size.

Here is a brief description of the Model C Schellenger machine we have operated with such success that two other co-operative societies in the Province of Quebec, at Rougemont and Abbotsford, have purchased the same machine and are satisfied also in saying that for a large fruit farm or a co-operative society such a machine is

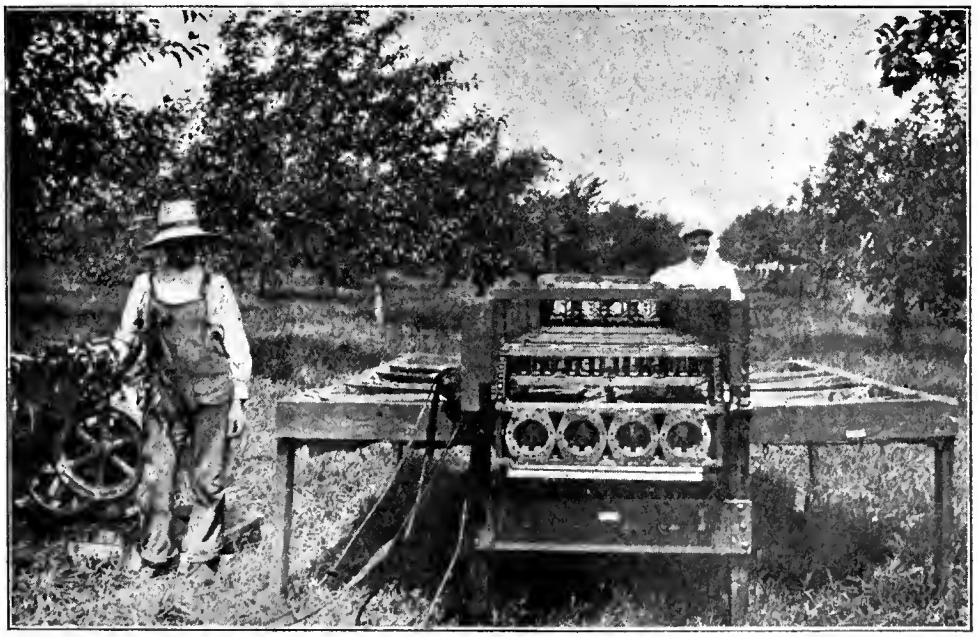
(Concluded on page 223.)

Marketing the Nova Scotia Apple Crop

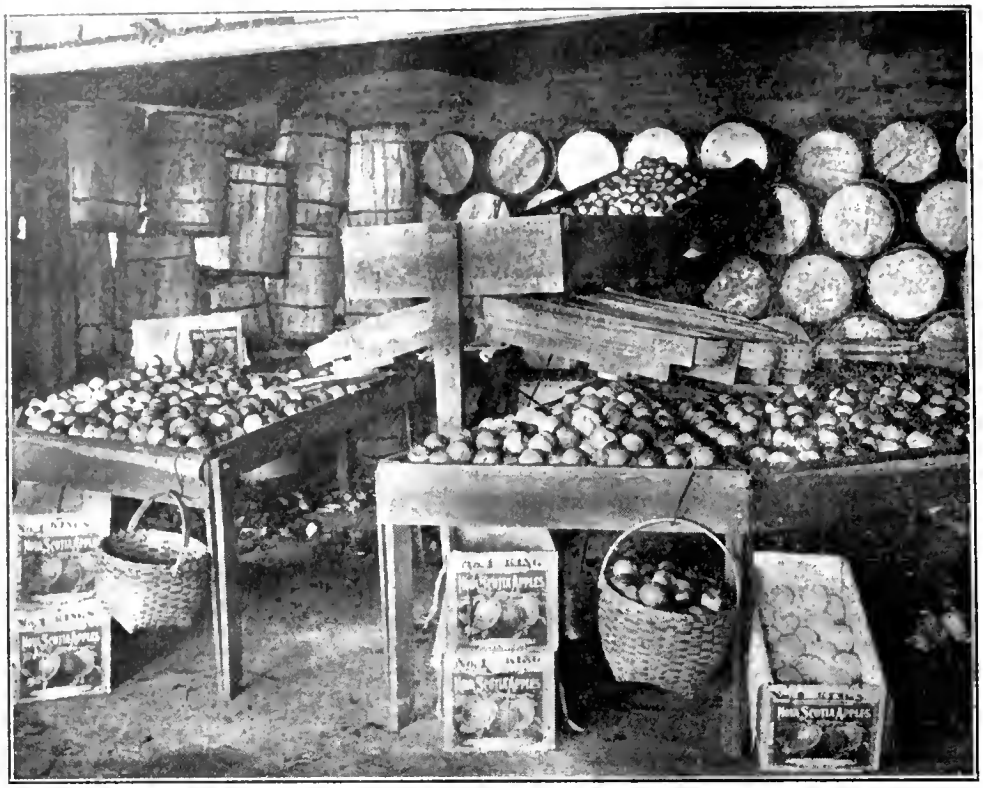
By A. E. Adams, Secretary of the United Fruit Companies of N. S., Limited.

SEVEN years ago such a matter as co-operation was unknown in the Valley. To-day seventy per cent. of the fruit growers are artive co-operators, owning fifty-five warehouses, marketing all their fruit co-operatively, and buying all their supplies in a similar manner. A parallel to this cannot be found as far as rapidity of development is concerned.

Ten years ago there was an entire lack of system in the method of marketing the apple crop. Each grower fought for himself. He made the best bargains he could with buyers who knew considerably more about the market than he did, or he took the big risk of shipping his product to London, knowing nothing whatever as to the condition of that market, and paying big tolls to commissionmen agents. Certain favored individuals took



The apple-grading machine, with side receiving tables, as used at the Oka Agricultural Institute. Note the gasoline engine at the left, which provides the power. This is the same engine engine that is used on the spraying machine.



A simple apple-grading machine, as used in the fruit warehouse at Waterville, N.S.

steamship rebates off every barrel sent across. After all these parasites had been satisfied he received whatever balance there was. Often there was no balance, and he had to send money after his fruit, so that the parasites referred to might be satisfied.

Sometimes the market would be so good that even after all the middlemen mentioned had had their fill there would be a substantial margin, but it was curious that, generally speaking, it was the larger growers that received returns more frequently than their smaller brothers.

To-day a different order of things exists. I will endeavor to explain as briefly as possible the methods now employed.

There are now operating in the Annapolis Valley some forty-eight cooperative fruit companies. These companies are all incorporated under a special Act of the Local House, passed in the year 1908. The Act is a simple document, consisting of only seventeen paragraphs, and is worded in simple language that can be understood by any person of ordinary intelligence.

Forms of memoranda of association are supplied by the Provincial Government, specially printed to comply with the requirements of the Act, and these are sent to any body of farmers requiring them. Any five farmers can form a company by filling in one of these forms and mailing it to the Registrar of Joint Stock Companies, who will thereupon register their company and register a certificate of incorporation.

The forty-eight companies now operating have memberships varying from ten to one hundred and twenty. A board of directors, elected from the shareholders and consisting of "not less than three, nor more than seven," are responsible for the proper conduct of the company's business. These directors usually employ a manager to conduct the business in detail. This manager keeps the books of the company, engages the help required, and superintends the packing of the apples and distributing of supplies to members.

Forty of the local companies have taken stock in a central association, incorporated under a special Act of the Local House passed in the year 1912, and known as The United Fruit Companies of Nova Scotia, Ltd. These companies market the whole of their fruit through their central, and purchase all their supplies through the same source.

The system of central packing as practised in Nova Scotia, works in the following manner:

Before apple picking commences the managers of all local companies obtain from their members approximate estimates as to the number of barrels of all varieties they are likely to have. These particulars are tabulated, and the total of each variety is forwarded to the central office for the purpose of information. On these estimates the local manager bases his calculations as to what help will be required and what storage room will be necessary. On receiving instructions from the local managers the members pick and haul certain varieties.

The careful manager keeps closely in touch with all of his members. He is careful to have only such apples hauled during the warm fall months as he can expeditiously handle. He also makes himself familiar with the keeping qualities of various members' apples. For instance, Tom Brown's Ribstons, grown on heavy soil under the Mountain, will hold up longer than John Smith's, grown on the sandy soil of the Valley, therefore the manager instructs John Smith to haul his in early and instructs Tom Brown to put his Ribstons down the cellar and wait further instructions.

Each member stencils his name on the side of all barrels sent in, and as the apples are hauled into the warehouse the teamster is given a receipt, of which a duplicate is retained by the warehouse foreman. This receipt gives the number of barrels and the varieties. All apples are hauled in tree-run and are picked in the warehouse.

Entries are made from these duplicate receipt books into a large tabulated book, called "Barrels inwards and outwards." In this book there are certain pages set apart for each shareholder, and this book is so arranged that on opening them one has at view entries of all apples as brought in on the left hand page, while on the right hand page are entries showing exactly how these apples packed out.

For instance, on the left hand page one sees that on various dates given Tom Brown hauled in fifty-seven barrels of Gravensteins. On the right hand page one sees under the heading Gravensteins that those apples packed out thirty-five ones, thirteen twos, seven threes, there being two barrels shrinkage and culls.

A daily record of the pack is kept by the packing room foreman, he having specially ruled sheets for that purpose. As a certain quantity of fruit is rolled into the packing room this man carefully records on these sheets the name on the side of the barrel and the variety. When that parcel is packed he records the number of barrels procured in each grade.

The men employed in grading, facing and heading are experts, and receive instructions from and are under the supervision of inspectors employed by the central association. The aim of the central association is to have an absolutely uniform pack, and when

(Continued on page 226.)

Planting the Bulbs

John Gall, Inglewood, Ont.

OF all window gardening perhaps the most fascinating branch is that which concerns the forcing of spring bulbs — hyacinths, daffodils, tulips, and crocuses. To insure success we must consider well not only the time and the method, but also the material.

The best bulbs are imported from Holland, arriving in this country early in the fall. It is well to have your order placed early with some responsible florist, together with instructions for him to fill it and forward the goods as soon as possible after they reach him. The earlier the bulbs are in the ground the better the results attained from their culture. Crocuses, in particular, should be planted before November, since their vitality is badly impaired by longer waiting. As to varieties, each must be his own judge, as tastes vary. It is only necessary to make selections of double and single varieties and of the color range which seems desirable.

Having made sure of good material and an early planting, the next point to be considered is the method to be used in forcing the bulbs if you wish to use them for your window garden. Here, as in the selection of varieties to be purchased, we find upon looking into the matter that we have a large number of excellent methods from which to choose.

If you elect to put the bulbs in soil use the five-inch earthen pots, which will hold only one hyacinth or tulip, but will contain five crocuses or three daffodils. Be sure that the drainage is perfect, and let the earth be light loam or leaf mould, with a strong admixture of sand. Hyacinths and tulips must be placed near the bottom of the pot, but the smaller bulbs go in about half-way up. There should be a layer of coarse charcoal placed at the bottom of each pot to encourage drainage, a filling above it of sharp sand mixed with the loam, and a layer of sand to draw the heat of the sun and keep both flowers and foliage perfectly clean.

When the planting is done and the soil packed down firmly the bulbs must be set away to make roots in the dark cellar, shed, storeroom, or closet, and the soil must be moistened occasionally. It is best to leave them in the dark until about November, when they should be brought to the light gradually. When the bunches of buds are in plain sight an application of any liquid fertilizer will hasten the growth and increase the size of the blooms. Hyacinths and narcissus are especially well adapted for culture in water. Care should be taken not to let the water touch the base of the bulb, by which is meant the part where the roots start, as the bulb would rot if given so much moisture. When the roots start they will soon reach the water if kept in a warm, dark place. Keep a little charcoal in the water to absorb impurities, and if this does not preserve perfect freshness, change the water every few days.

Crocuses can be grown in water. A little fern dish not more than three inches deep will answer the purpose. A more novel method is growing them in sponges. Select a well-shaped sponge containing rather large holes, which can be cut larger if necessary. Arrange some reliable method of hanging it by means of fine copper wire, which will neither rust nor rot. String can be used for this purpose, but it is likely to fail in time of need.

Having made sure that the sponge will hang securely, put the crocuses into it while it is dry. Use as many as you can crowd in, being careful that each is in a proper position, with the crown showing through the mouth of the hole. Then soak the sponge in a bowl of water until it is thoroughly saturated, and remove it at once. You will find that the swelling of the fibre has contracted those holes so perceptibly as to hold the crocuses firmly in position.

Hang the wet sponge from a shelf in a dark closet which is well warmed for at least two months, keeping it well saturated all the time, but never leaving it in the bowl for a longer time than absolutely necessary. The roots soon become firmly established, and then the top growth begins.

A few days before bringing the sponge to the light sow it full of lawn grass, clover, or flaxseed, which will germinate and form a covering for the sponge. Hang in a shady place at first, and afterwards bring it out in front of the window, although not into direct sunlight.

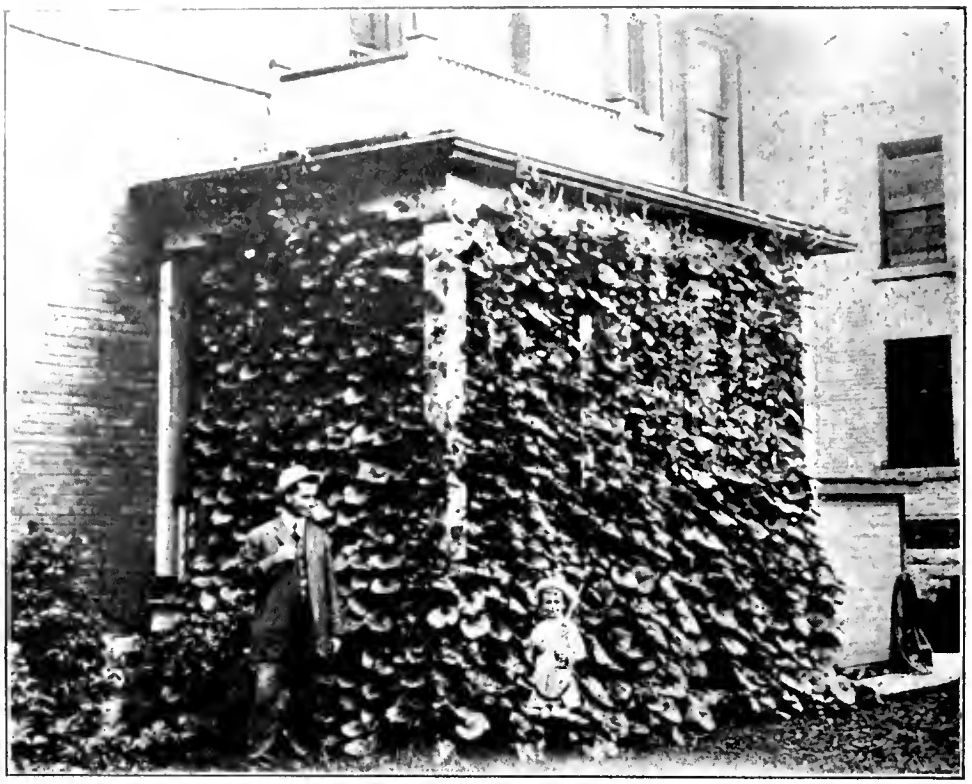
A Canadian Garden Worked by Irish Boys

Rev. Geo. W. Tebbs, Orangeville, Ont.

IN the little town of Hespeler, in the county of Waterloo, there is the Canadian Branch of the Smyly Orphan Homes of Dublin, Ireland. Nearly twelve acres of land surround the beautiful home, and the major portion of it is under garden cultivation. It is one of the rules of the institution, of which I was the superintendent for some years, that the boys as they arrive are to be trained in garden work before being placed out on the farms of western Ontario. Thus the little fellows become familiarized with Canadian conditions of life before they are sent out from the care of the Home authorities.

The accompanying illustration gives some idea of the beautiful surroundings and work of the lads. In the early spring the boys are given a training in plant raising in the green house, until such time as the land is ready for cultivation. A few old trees of a valueless variety are reserved for experiments in grafting and pruning, and this work follows. In the cultivation of the land only hand labor is employed, and the lads working together find real healthy outdoor exercise in the

Irish boys making garden walks in a garden at Hespeler, Ont.



A Legenaria vulgaris, or dipper gourd vine, as grown on the verandah of Dr. W. T. Gemmell, Stratford, Ont. In the late afternoon it becomes covered with beautiful white blossoms,

handling of the spade and fork. About five acres have been planted with small fruits, and one hundred plum trees planted some years ago are now bearing. All the produce over and above the needs of the Home itself can readily be disposed of locally, and thereby the institution is becoming partially self supporting.

While connected with this institution I found that the English greenhouse varieties of tomatoes give excellent satisfaction out of doors here in Canada. The fruit is of delicious quality. About two hundred and forty dozen tomato plants were sold in the town of these varieties in one spring. Three acres are under cultivation of Cuthbert raspberries, of which I believe there are none better. The boys each have a plot of ground of their own which they work in their spare time. Prizes are awarded to them for the best kept gardens. In addition to the garden the lads have the care of seven lawns around the Home, on which are growing beautiful full grown Norway Spruce trees. They also have colonies of bees, and some two hundred head of pure bred poultry to care for. It is hoped that the two hundred boys who have already had this training will all their days be lovers of gardens and gardening, and make our beautiful country still more beautiful when they have homes of their own.

We should work for "A beauty that supplies a daily need and not a Sunday pride."

The Vegetable Garden

Henry Gibson

Continue to blanch your celery by earthing up. Keep a sharp lookout for rust; take off and burn affected parts, and spray the plants with bordeaux.

Dig the potatoes as they are ready. If you have a cool place to store them they are better out of the ground now. Protect tender crops from the first frosts. Lettuce should have the protection of a cold frame. Turnips, radishes, and any quick maturing crops can still be sown in cold frames.

Smudge fires of wet, salt hay, marsh grass, or anything that will smoke rather than burn, made ready during the day and lighted at night when frost threatens, will save a good many of the more tender vegetables. Careful note should be made of the location of the wind when setting the fires, so that the smoke will hang over as large an area as possible.

As each batch of vegetables matures, clean off the ground. It may pay to sow rye broadcast. Just sufficient loose soil to cover it and allow it to germinate is all that it asks. This will not only keep the weeds in check but will furnish considerable "humus" in the soil when ploughed or spaded under.

For blanching celery the new method of blanching is recommended. This consists of using some pliable material very similar to heavy roofing felt. The paper or felt is of a tar composition, but has no odor and is cut to the desired height. The system simply consists of enclosing a whole row of the plants to be blanched with this material, holding it in position by bent or shaped wires which are inserted over the two sides and into the ground. The advantage of this material is its cheapness, ease of handling, and longevity of life. In addition the celery rows may be much closer together than when blanched with dirt.

Garden Reminders

High bush cranberries make excellent jelly.

Black raspberries may still be layered with good results.

Paeonies and iris may be transplanted to advantage in September.

Cut out all old canes of blackberries and raspberries and burn them.

See that the celery gets plenty of moisture and good cultivation.

Common drain tile, set over celery, blanches it nicely. Cylinders of heavy paper are also used to advantage.

Order bulbs for fall planting. Tulips are easily grown outside. Daffodils may be planted outside in some locations.

Take in geraniums and other plants that are to be kept in the house this winter, before they are injured by the frost.

If weather conditions are cool and moist, grass seed may be sown early in September to good advantage. It is well to add a little rye to help hold the snow.

Potassium sulphide, one ounce to two gallons of water, is recommended for mildew on lilacs or roses. This disease may be recognized by the white spots appearing on the plant.

All runners should be kept off the strawberry plants, and the ground kept thoroughly cultivated during September. Young plantations may still be made. Runners potted up a month ago are the most satisfactory for setting out now.

All fruits that are ready should be picked during dry weather and stored in a dry, cool cellar or fruit room. Peach trees should be examined for borers.

Single and double flowering geraniums, primulas, cyclamen, calla, Christmas cactus, hyacinths, narcissi, are among the best winter flowering plants there are. Most of these can be had in a great variety of colors.—Wm. Hunt, Guelph, Ont.

A horticultural society must be an ever ardent supporter of the improvement of public grounds and parks, and encourage its members and the general public to become interested.—W. Dilger, Detroit, Mich.

The Month's Work in the Garden

By Henry Gibson

HANGING baskets, window boxes, tubs, and other devices used for decorative purposes, are now so full of roots that the soil is almost exhausted of all plant food. To keep up a display of bloom and maintain a bright appearance for the few remaining weeks of summer, frequent applications of liquid manure are indispensable, and if chemical manure is available it may be applied every second week.

Flower beds and borders are at their best, and every effort should be made to maintain a neat, tidy appearance. Decaying leaves, weeds, and other litter should be picked up once a week. Grass edges should be clipped and the lawn mowed as occasion requires. Strong winds are more or less prevalent, and it is important that all tall plants should be securely staked and tied.

Not infrequently an early frost kills many of the more tender occupants of the bed and borders, leaving the garden in a chaotic condition during the ensuing months of fine weather, when probably there will be no signs of another freeze. How many times at this season of the year have you awakened in the morning to find your window boxes and hanging baskets, in addition to the beds of tender annuals, a frozen mass, which had to be thrown out with many weeks of fine growing weather still to come. The disastrous effects of these early frosts can be overcome to a great extent by moving the hanging baskets and tubs on to the porch overnight. The window boxes can be brought through quite a cold spell by throwing an awning over them or covering with fine boughs or bracken ferns.

Flower beds may be protected by driving in stakes at each end and running a stout piece of string from one end to the other, and throwing over these lines cheeseeloth, burlap, or similar material. This may seem lots of trouble, but the wealth of pleasure you get from an extended flowering season amply repays you for any trouble and expense incurred.

Propagating Bedding Plants.

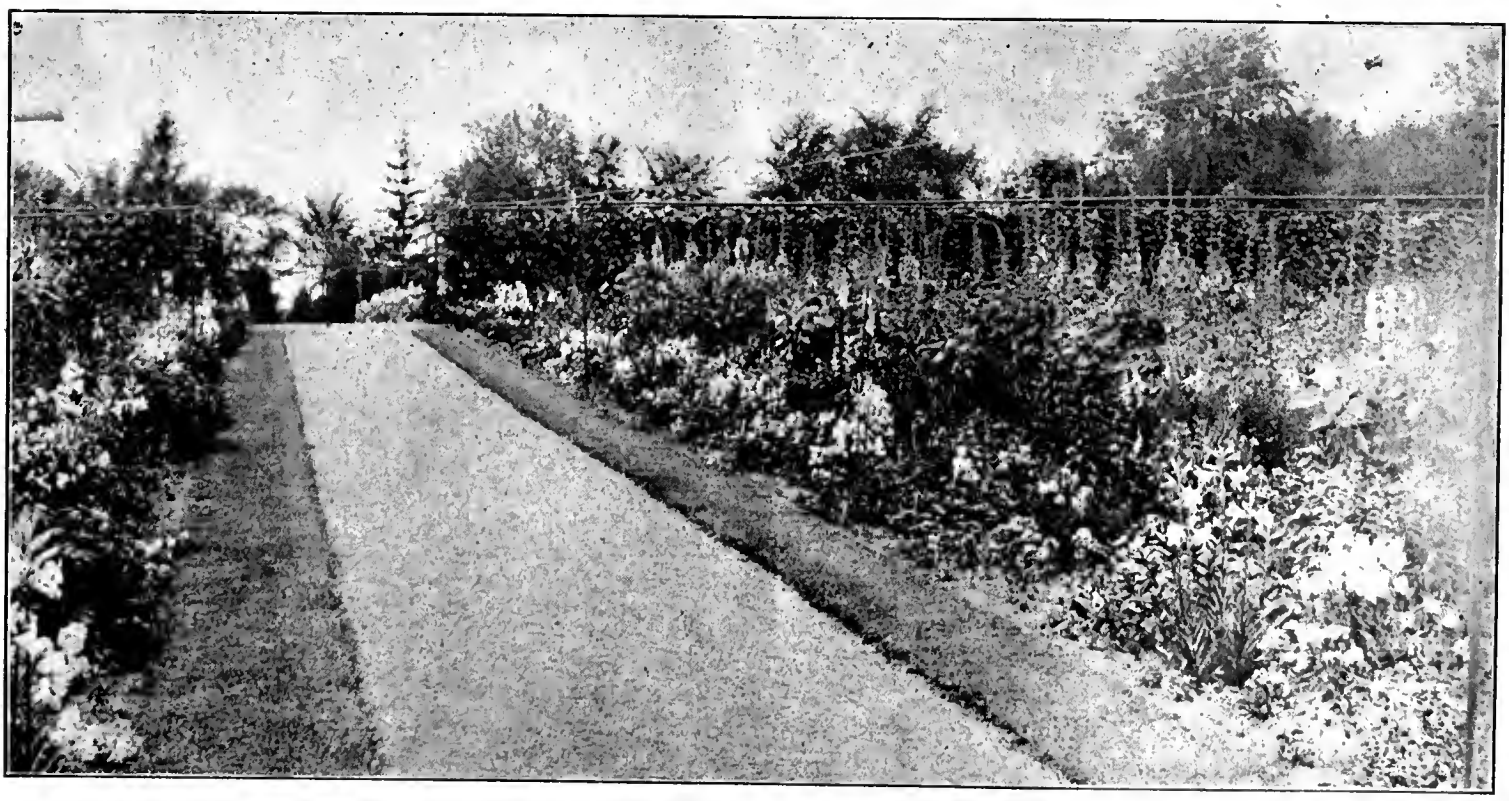
Cuttings of pansies, violas, pentstemons, pinks, geraniums, coleus, ageratum, salvias and other bedding plants should be made as early as possible during the month. The three last-named should be attended to first, as they are more tender than the others, and the first cold night is liable to kill them.

If you have a small greenhouse, such as was described in the August issue of the Canadian Horticulturist, all you need to do is place some clean sand about three inches deep in one end of the bench and use it for propagating purposes. Flats such as are used by the florist are very useful and convenient for rooting cuttings in. Haddock boxes, purchased from the grocer, make ideal flats. In the bottom place about an inch of some coarse material, as spaghum moss, coarse pieces of turf, or other material, to provide drainage, and prevent the soil running through the cracks. The boxes should then be filled to the top with a mixture of old potting soil and fresh loam, two parts each and one part each of leaf mold and sand. This compost should be passed through an half-inch sieve. Press the soil firmly into the boxes and level off.

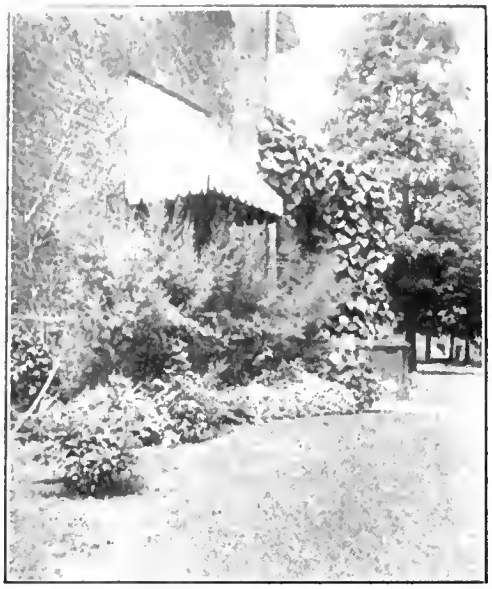
Cuttings should be taken from shoots that are fairly firm and short jointed. Trim off the lower leaves and cut across immediately below a joint, leaving the cutting about three inches long. Dibble them in the bench or boxes, two inches apart each way. Firm the soil well about the base of each cutting, and give a thorough watering. Set the boxes in a cold frame or cool greenhouse and shade from bright sun. Cuttings of perennial plants that winter kill in any locality may be rooted in this manner.

The Hardy Garden.

Now is the time to overhaul the hardy garden or establish a new one. Perennials raised from seeds sown early and transplanted to nursery beds are now large enough to plant into per-



The Hardy Perennial Border in the Garden of Mr. R. B. Angus, Ste. Annes, Que.



A Border in the Garden of Mr. J. H. Bennett, Barrie, Ont.

manent quarters. Young plants of hollyhocks, foxgloves, gaillardias, sweet williams and clove pinks, if not transplanted by the middle of September, are better left undisturbed until spring. Anemone, japanica, fuchsias, and late tritomas, are better moved in April.

Old lawns may be reseeded this month, and if you propose making a new one, remember that the walks, roadways, paths, beds and borders should be edged with turf to protect the young grass when it comes up.

Gravel and other garden paths set out this month will have a chance to become well-trodden before frost comes to heave them up.

Evergreens may still be planted about the home grounds. Their success depends on favorable soil conditions. As long as the ground is damp and free from frost transplanting is safe. Deciduous trees may also be transplanted. The general rule for these trees is to plant as soon as the leaves begin to color.

Do not forget that this is the time of nature's seed age. Therefore see to it that all weeds are pulled up before their seed pods burst and scatter the noxious seeds, which will germinate and produce intruders into your garden and throughout your lawn another year.

The Greenhouse.

Primulas and cinerarias should be repotted as required, and be kept free from thrips and green fly by regular fumigating or spraying with tobacco extracts.

Cyclamen should be put into their flowering pots. Those grown in cold frames will need the protection of the greenhouse this month.

Bulbs for Christmas flowering should be potted at once. Roman hyacinths, paper-white narcissus and Due Van Thol tulips are very suitable for this purpose, and forcing them is a very simple matter if approached in a businesslike way. They should be placed outside or in a cold frame when potted, given a good soaking of water, and a few hours later a covering of four or five inches of coal ashes put over them. If coal ashes are not available ordinary garden soil may be substituted. The quality of the bulbs has a good deal to do with the ultimate results. No amount of good cultivation will cause poor bulbs to give good results. Another important point in bulb culture is to guard against the soil becoming dry after growth has commenced. Many failures can be traced to this, and an attempt to force the bulbs before sufficient roots have formed to warrant warm treatment.

Aspidistras may now receive a top dressing of rich soil. There are few plants that will stand as much rough treatment as this one, but if really healthy-looking plants are wanted it pays to give them rather more attention than is usually bestowed upon them. A pinch of chemical manure will often work wonders. Never allow the leaves to remain dirty; sponge them at least once a month, and oftener if necessary.

Palms, rubber plants and other evergreen used for decorative purposes inside the home should have their leaves sponged from time to time. No matter how careful you may be with them, mealy bug and scale will establish themselves. A top dressing of rich soil or a pinch of chemical manure, as suggested for aspidistras, will tone them up.

Fall Preparation for Winter Flowers

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

THE question of housing garden plants will now concern the grower. It is a greater problem to know how to house the plants than to know what to house. The care in the preparation of garden subjects for winter storage or treatment is a factor which must not be overlooked, as upon the method employed depends success in most cases.

For the purpose of this article we will define two classes of plants, namely: (a) those which require actual winter storage and are entirely dormant at this time; (b) those which may be grown on for room decoration, or which do not become actually dormant. To class (a) belong such plants as cannas, tuberous begonias, dahlias, and gladiolus. All these should be lifted carefully from the ground after the first heavy frost, or when bad fall weather mars their beauty. The stems may be removed from the cannas and dahlias by being cut away six inches or so above the tubers. The tubers should then be stored in a dry place (cellar), with a minimum winter temperature of 50 F. The stems and foliage should not be removed from tuberous begonias until they fall naturally. It is best, therefore, to place the entire plants in shallow boxes and stand them upon dry shelves until the stems disjoint themselves from the tuber, after which the tubers may be stored away.

Cannas, dahlias, and tuberous begonias may be stored in boxes of dry sand, and if the atmosphere of the room or cellar in which they are stored is dry, they will require very little attention during winter. An occasional examination should, however, be made, and any tubers which show signs of decay removed. Remember that excessively high or low temperatures act deleteriously in that the former may excite unnatural growth and the latter disentegration of the cells, with a subsequent rotting of the tissues. Gladioli corms may be stored in shallow boxes containing dry sand, or upon dry shelves.

In class (b) we find many plants suitable for room and generally for house decoration. The following are equally desirable: Geraniums, many fibrous begonias (including the many varieties of semperflorens, B Gracilis and B Gracilis alba), coleus in many varieties, petunias of many kinds, single and double. Plants for the foregoing purpose must not be torn ruthlessly from the soil; they must be lifted carefully and in such a manner that a mass of earth will adhere to their roots. They should be potted in a mixture of loam, leaf soil and sand. Garden soil is, generally speaking, of little value for potting purposes. The use of this is responsible for many failures, especially with amateurs, who sometimes do not realize that a soil must possess fibrous vegetable matter to render it porous and to ensure fertility. There is no more intensive form of culture than that of growing plants in small pots. As the sides of the pots restrict the feeding area of the roots, the plant foods are quickly utilized. A barren soil is, therefore, useless. It is better to buy a bushel of good potting soil from the florist than to risk failure.

When potting garden plants during fall, all established house plants should be examined, and any which are root

bound may be potted with the rest. Do not under any circumstances delay this operation until the dead of winter. With proper care, good root systems will be made ere winter retards growth, especially if the plants are placed in a light window. As under the influence of light plants grow in its direction, the growth will elongate. It is thus well to stake neatly at time of potting so as to ensure good shape.

It should not be expected that plants when lifted from the garden will not suffer loss of leaves and for a time appear dilapidated. Much may, however, be done to preclude this. The tops of such plants as geraniums should be reduced at least one-third, this being done in such a manner that only the stronger stems are shortened. The removal of this growth will largely compensate for the loss of roots. Plants so treated should be shaded from sunlight for a few days and be occasionally sprayed overhead. Under this care they will recover quickly.

Through lack of proper housing facilities, many green plants are stored in the cellar. These require a somewhat different treatment to those used for room decoration. All plants which are green and whose foliage persists through winter, however, must have light, and while they may not be used for any purpose during this time, the conditions should be such that their functions can be performed. The idea that green plants like geraniums may be strung up by the roots in a dry cellar with impunity is erroneous. Light and moisture are essential to life, and it is infinitely better practice to plant this subject in boxes of sand, after cutting back the stems at least halfway, and to place the boxes in a fairly well lit position. Even hydrangea hortensis, which is deciduous, when stored away, should likewise be placed in a light position, for while growth may be suspended during winter, the buds should have light, even if subdued.

To the geranium, hydrangea, and even to such subjects as the century plant, occasional waterings must be given. A temperature of at least 50 F. should be maintained in the case of most green plants, as the functions of these must go on even during winter. Half-hardy deciduous or dormant plants may withstand a lower temperature, thus in this respect the grower should discriminate, and, if possible, store the green plants in the lighter and warmer part, and the dormant stock in the less favored part of the cellar.

Autumn Treatment of Flower Borders

John Gall, Inglewood, Ont.

DURING the fall months there is much work of a seasonable character among perennial border plants that is better done at that time than at any other period of the year. This is true in spite of the fact that quite a large number of perennial plants are of a long-suffering nature, and submit to division and replanting at almost any time with impunity. In the fall, however, when flowering has ceased, there is a general desire for tidying up, and at such times much useful work may be done.

The cutting down of all plants may be proceeded with at once. Take care, in so doing, that labels are not disturbed, or even lost altogether. We grow these and other garden flowers chiefly for ornament or for their usefulness in a cut state.

With the cutting down of the plants completed, it must be decided whether forking, digging, or manuring is necessary. Needless to say, the first and last of these will benefit both the border and the plants it contains. The addition of manure by its bulk alone lifts, lightens, and aerates the soil, and in so doing performs important work quite apart from its enriching effects. The best manure to employ is that of a short, well-decayed nature. At such times, too, a free addition of lime may with decided gain be given to all soils of a heavy or water-holding nature.

Not a few of the best border plants are of so robust a nature that they quickly form mats of growth, which, if left undisturbed, will prove their undoing in the near future. The digging up, dividing and replanting of such as these is, therefore, of importance at this time. The white perennial marguerites, michaelmas daisies, rudbeckias, heleniums, helianthus and achillea are some of those that benefit by being divided and replanted each year. The varieties of the first-named quickly exhaust the soil, and manure should be added freely in such cases.

One of the greatest aids to success in the case of soil-robbing, or soil-exhausting subjects is to give a complete change of station or position. The one need be but a yard or two yards removed from the old position, there to find all the advantages which a change of soil brings in its train. The idea is simple in the extreme and its importance infinite, despite which it is rarely done. A much more frequent way is to lift a plant, and, having dug and manured the ground, replant it in the old position. In this way only a partial change of soil is secured, while in the one suggested it is complete.

In the case of the more robust-growing, mat-forming subjects, a considerable amount of plant material will have to be discarded. With not a few amateurs or beginners this goes very much against the grain, yet it has to be done if good results are to be obtained. The replanting of big clumps of things—pyrethrum, flag iris, or michaelmas daisy—is a fallacy; the youthful plant is capable of much better work, and is commended to all. When replanting such as the white marguerites or michaelmas daisies, only the strongest, outermost portions of the clumps—those that have developed with light and air all round—should be retained. The superiority of these, compared with the innermost shoots of a plant, will be obvious at a glance. Single growths, if well-rooted, are the best, and, of these, six or a dozen arranged a few inches apart will not only form a goodly group, but provide a display of the finest flowers in due season.

Prize Winning Asters, Grown by Geo. W. Karges, Waterloo, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 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 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Ontario's Turn to Move.

Ontario was the first province to introduce co-operative methods on any considerable scale in the marketing of its fruit. In the St. Catharines Cold Storage and Forwarding Co. it also possesses the largest local shipping unit in the Dominion. In addition, the province has a large number of successful local fruit growers' associations. This speaks well for old Ontario. The time has come, however, when the fruit growers of the province should make a further forward step.

While there is a central association in Ontario, which represents a number of the local apple growers' associations, it is in no sense representative of the apple growing interests of the province. Each year, for several years, the need for a better understanding among the local co-operative associations has become more apparent. Of late years it has not been uncommon for several salesmen, representing Ontario associations, to meet and compete with one another among the buyers on the western markets, with unsatisfactory results to the associations they represent. Last year this condition was so prevalent as to cause general comment.

There are natural difficulties in the way of the formation of a strong central association in Ontario which cannot be easily overcome. The apple growing sections follow closely the shore lines of the Great Lakes in the older portion of the province, and therefore are so scattered as to impose a considerable handicap on united work. Nevertheless, these difficulties can be overcome. A meeting of representatives of the different shipping associations should be called at as early a date as possible with the object of bringing about more effective co-operation. Some idea of the advantages that might result from such a move may be obtained from the article in this issue of The Canadian Horticulturist describing how the apple growers of Nova Scotia now market their crops.

The Vacant Lot Nuisance.

There is not a city or town of any considerable size in the Dominion that is not bothered with the vacant lot nuisance. Again and again efforts at civic beautification have been thwarted by the presence of considerable areas of unused land which have persisted in producing luxuriant crops of weeds, tin cans and other debris in the midst of the areas intended for improvement. In the city of Toronto alone there are over two thousand acres of vacant land. So serious has this problem become it is beginning to receive the attention of the Commission of Conservation at Ottawa. In a recent bulletin the commission has urged municipalities to deal with this matter, and where by-laws exist requiring the cutting of weeds to see that such by-laws are rigidly enforced. Some municipalities have made progress this year by utilizing portions of this land for vegetable growing purposes. Little more than the surface of the question, however, has been touched in this way.

In most cases this land lies idle because the owners of it expect to reap benefit from increasing land values. In western Canada laws have been passed making it possible, where land is held out of use in this way, to increase the taxes on such unused land. Laws of this kind should be encouraged. Men now owning this land, who do not intend to use it themselves, but who hold it at prices that are just beyond the reach of many others who would like to put it to profitable use, would find it necessary then to either put it to use or to place it on the market at a price within the reach of would-be users. These are times when we need to use all our resources, and not the least of these in every municipality is the unused land that too often is a civic disfigurement.

A Middleman Reaction.

At every conference of fruit growers and consumers the middleman comes in for considerable attention. He generally receives most of the blame for the high prices asked for fruit in urban centres, and rightly or wrongly receives a large share of the kicks that are going around in reference to the high cost of living. While there is reason for considerable of this criticism, it is possible to overdo it, and that thereby the interests of the fruit growers will suffer.

In some centres the antagonism against the middleman, in the form of the retailer, has assumed such proportions that any price that looks high is immediately resented whether it is legitimate or not. The average consumer does not take the trouble to acquaint himself with crop and other market conditions. This being the case, he is not in a position to decide intelligently whether the price asked is fair, and is prone to jump to conclusions that may be unfair. This condition has been intensified by war conditions and the curtailed incomes of some families. Dealers have reported this year that their sales have been considerably curtailed by the prevalence of this feeling among consumers. The loss inevitably works back to the producers. This side of the question should not be overlooked when discussions of this subject are conducted in public in future.

At the recent annual meeting of the Canadian Horticultural Association, held in London, Ont., it was decided to make application to the Dominion Government to have an expert in the Entomological Division assigned to the special duty of investigating insect pests that affect greenhouse stock and devising remedies for their control. While a vast amount of valuable work has been done in fighting insects that affect fruit and farm crops grown in the open, very little work has been undertaken to protect the immensely valuable crops that are grown annually under glass. In view of the rapidly increasing importance of the vegetable and commercial floricultural interests of Canada the Dominion Government should grant the request of the association at the earliest possible date.

A promise has been received by the Canadian Society for the Protection of Birds from the Dominion Government that an authoritative book on the birds of Canada will be prepared, with colored illustrations. This is a welcome announcement. We have not done what we should in Canada to protect our native birds. One of the best forward steps we can make is to extend the knowledge of the habits of our birds. This cannot be accomplished in any better way than by the circulation of such a book as is proposed. The great benefits which have attended the publication of the book, "The Weeds of Canada," is an indication of the beneficial results which may be anticipated in connection with the new volume proposed.

PUBLISHER'S DESK

Our front cover illustration shows a harvest scene in a Norfolk County Ontario orchard. Of late years, largely through the work of the Norfolk County Fruit Growers' Association, Norfolk County has come to the front as an apple producing section. It is now one of the best apple producing districts in Canada.

* * *

This is our Fifth Annual Exhibition and Fall Packing Number. Its contents speak for themselves. It contains more information for the fruit and flower grower than any of its predecessors. As the name indicates, The Canadian Horticulturist is national in character. In this connection we would call attention to the fact that the contributors in this issue include leading fruit growers and horticultural authorities from the Atlantic to the Pacific. The subjects they discuss are timely and interesting. We trust that our readers will feel, when they have set this issue down, that it is a credit to the industry it represents.

* * *

Much is heard these days of depression in business consequent upon the war. Much of this is imagined. In the case of The Canadian Horticulturist the advertising carried in our July and August issues, as well as in this issue, has exceeded in value that carried in the corresponding issues last year. As the firms who advertise in The Canadian Horticulturist are representative in character and are located in all sections of Canada, as well as in the United States and Great Britain, this condition speaks for itself.

* * *

A number of most interesting articles are to appear in the October issue of The Canadian Horticulturist. Mr. P. J. Carey, of the Dominion Fruit Division, will contribute a most interesting article on "Fruit Packages and Packing." This article will not only deal with the various packages now in use, from berry baskets to boxes and barrels, but will point out the defects and strong points of each and improvements that might be made in their dimensions and construction. Wonderful progress has been made of late by the fruit growers of Nova Scotia. The article in this issue by Mr. Adams explains part of it. At the Dominion Fruit Conference held a year ago in Grimsby, Ont., the delegates from Nova Scotia who spoke to an editor of The Canadian Horticulturist seemed pretty well agreed that the man in Nova Scotia who had done more to promote the fruit industry in that province than any other was Mr. S. B. Chute. Mr. Chute has not only done much to promote the interests of the United Fruit Growers of Nova Scotia, Ltd., but is a successful fruit grower himself. A description of his rise in the fruit industry from humble beginnings, until now he is one of the largest fruit growers in the province, will be given in our October Number.

* * *

In the floral section of the October issue of The Canadian Horticulturist Mr. Henry Gibson will again contribute a page of timely notes such as appears in this number. In fact, articles of this character by Mr. Gibson are to be a feature of the next several issues of The Canadian Horticulturist. In Western Canada Dr. H. M. Speechley, of Pilot Mound, Man., is a recognized leading authority on matters pertaining to the cultivation of flowers. An article from his pen, entitled "Simple Facts About the Growing of Bulbs," will prove of interest to all our readers. Mr. John Gall will contribute another of his practical and timely articles, in which he will deal with plans for next year's perennial border. The few articles here mentioned will, we trust, give some indication of how interesting the October Number will be.

* * *

On page 228 of this issue appears the winning poem in the competition conducted recently by The Canadian Horticulturist, with the object of advertising the apple as Canada's National Dish. In the opinion of the judge, Prof. T. G. Bunting, of Macdonald College, Que., Mr. Robinson's contribution was the most deserving of the prize. We purpose having extra copies of this printed and will be pleased to assist Fruit Growers' Associations and other organizations in the distribution of this poem for advertising and other similar purposes upon request. Here is an opportunity to help advertise the apple as Canada's National Dish.

SOCIETY NOTES

WHAT THREE PEOPLE DID.

W. S. Dinnick, Toronto, Ont.

In Baltimore, four years ago, three people who had been turning their attention to making gardens out of backyards, resolved to systematize their efforts and extend them over the whole city. They made themselves into a committee, obtained the services of a social worker and the very valuable assistance of the Baltimore Evening Sun. The Sun advertised a window box and garden competition, photographed the successful gardens, and opened its columns to a daily discussion on how to beautify Baltimore.

A vacant lot garden was started, where many poor families grew vegetables for their own use. As a means of transforming the rows of backyards, wires only were used to mark divisions. Thus the general effect was that of one long garden at which all could gaze and enjoy. This idea of back gardens has spread through Baltimore.

VACANT LOT GARDENS.

As an outcome of the Patriotism and Production campaign, the gardening of vacant lots has become well established in Ottawa. Although the work was not commenced until late in the season, a large number of plots were put into potatoes and other vegetables. The land being used is what is known as the Glebe property, owned by the St. Andrew's Church of the city. At the instance of Mr. W. T. Macoun, Dominion Horticulturist, the trustees of this property threw it open for the use of poor families and those in moderate circumstances. The land, which is in one block, has been divided into one hundred and twenty-eight plots, most of which are one hundred by fifty feet. For these one hundred and twenty-eight plots, one hundred and seventy-three applications were received. Many others would be made if the land were available.

The trustees of the property have provided sufficient funds to have the work carried out properly. Besides laying out the land with roads and paths, the trustees had it ploughed and harrowed, and have even gone so far as to remove clumps of small trees in order to satisfy, as far as possible, the demand for plots. Provision was made that every gardener who wanted to raise potatoes must grow them at the back of his plot, so that the potato plots could all be easily reached by the sprayer which the trustees have provided. The Grand Trunk Railway Company gave the use of two old box cars, in which the implements used in the cultivation and working of the plots are kept. The city is providing water and sanitary closets. Night and day watchmen are being provided by the trustees. The committee in charge of this work is composed of Mr. W. T. Macoun, Dr. Jas. W. Robertson, and Gilbert Allan, secretary.

ST. THOMAS.

The St. Thomas Horticultural Society have ordered, through a New York firm of Japanese importers, a collection of 27 varieties of Japanese herbaceous single paeonies. This collection will be presented to Pinafore Park, and together with tree paeonies and doubles will make 143 varieties to be planted in this park by this society in 1915. An educational exhibition of gladioli, asters, dahlias, etc., was held by the society in the windows of the Baldwin Robinson Company on Saturday, August 14th. It was a great success. On account of the planting of about 30,000 gladiolus in the city by the society members this flower in magnificent blooms were shown in abundance. Blue Jays, Baron Hulots, Americos, Mr. Francis Kings, Peace and War, Lily Lehman Hohengollern and Princeps, etc. Some excellent exhibits of paeonies, cacti and decorative and show dahlias were made. The quality of the asters were A1 but the quantity limited, owing to the majority of the plants being killed by fungus. Mr. Thos. Allan, superintendent of the waterworks, had the star attraction of the show, a vase of water lilies, Egyptian Lotus, and Lieutenant-Col. Caughell a bouquet of Perennials Physostegia. Many other varieties of seasonable flowers were shown. The society furnished about 700 gladioli from their own garden. These and other flowers were sold by the ladies of the Humane Society for the benefit of the Blue Cross, about $25.00 being realized.

Mr. John Falland, Superintendent of Pinafore Park, kindly donated to the society the use of a plot of ground. This was planted to gladioli and over 5,000 blooms have been cut. During the season these have been cut and sent to the sick and on Sundays large bouquets are sent to each church and after the evening service they are sent to the sick and aged of the respective congregations.

The public beds of the society which are planted on the boulevards never looked better than they have this year. Mr. Foster Andrews, the society gardener, makes a complete round of the 150 beds in 10 days. His equipment consists of wheelbarrow, lawn mower, rake, spade and small digger to weed between the plants. After a rain and the ground is too wet to work Mr. Andrews secures a horse and wagon and draws manure which, when rotted, is used to fertilize the beds. As has been stated before, the society finds the public beds are the most appreciated work that is done.

WEST LORNE.

West Lorne citizens were addressed during the summer by Dr. Benuett, Secretary Spencer and Director Hardy of the St. Thomas Society, and it was decided to form a society this fall. A great many West Lorne citizens are identified with the St. Thomas Society and during the summer these members have done considerable work along the lines of beautification in their village. With Aylmer on the east, West Lorne on the west, and St. Thomas the hub, it is the hope of Elgin residents it will become the floral county of Ontario.

Standardizing the Apple

Prof. T. G. Bunting, Macdonald College, Que.

PROBLEMS connected with the marketing of fruit are occupying the minds of fruit growers and the Departments of Agriculture as never before. The production end of the business has been given most attention in the past, but growers are now realizing that it is necessary to develop the sales end of the business if they are to continue successful.

Co-operation is doing much and will do more in the future, but there is a phase of the fruit business that has not been given the study that it should be given if co-operation is to be finally successful on a large scale in the fruit sections of Canada. This phase is a question of varieties; too many varieties have been planted in the past, many of such inferior value that they have affected the market adversely time and again, and too many varieties are still being planted. Any leading nurseryman will list in his catalogue from fifty to one hundred and fifty varieties of apples. He does this because he believes there is a demand for them and, of course, he endeavors to fill the demand. Nurserymen cannot dictate to the growers how many varieties they should plant, consequently we cannot look to them for any special guidance in this matter.

Co-operation in fruit growing will not be highly successful without standardization of its product, and standardization of the apple cannot be brought about without the commercial elimination of many of the varieties now grown. By this one must clearly understand what is meant. Different varieties are necessary to cover the different seasons, for dessert and cooking purposes, for shipping and for adaptation to climatic and soil conditions in the different fruit growing sections. It does not mean that "one-hundred-and-one" varieties should be grown, but rather a few of the best that have stood the test of years and that cover the demands for cooking and eating for the various seasons.

Lack of definite knowledge has led fruit growers to plant too many varieties in the past, but the time has come for the fruit growers to change this. They can do it through the authoritative bodies of fruit growers, such as the provincial associations, in co-operation with the local associations and co-operative societies. These associations have recommended from time to time lists of varieties for planting, but these lists are even yet much too lengthy and could with advantage be cut down to a minimum.

Co-operative selling associations could exert a great influence towards the standardization of the apple by refusing to accept for marketing varieties that are not on the approved list, and in a short while growers would either top-graft the undesirable varieties or entirely replace them by new orchards of the approved ones. Such standardization of the apple would lead to greater efficiency in the apple advertising campaigns of the future and with fewer standard varieties much more information could be given about their merits. Few housewives (the housewives are really the purchasers of the apple), know many of the large number of varieties, their season, their value for cooking or dessert and their keeping qualities. Is it to be expected that they should be familiar with any large percentage of them? Unless they do not, how can they buy them intelligently?

Co-operation and standardization properly organized on a comprehensive scale in the chief apple sections of Canada would largely eliminate the sale of fruit out of its season and that of poor quality apples for eating purposes. With an efficient standardization on a commercial basis the question of apple advertising to increase consumption would be largely solved, for the public could then be more intelligently informed of the merits of the varieties as they come in season, all of which is of vital importance to the customer.

Part of the success met with by the Pacific Coast apple growers in marketing their fruit is due to the fact that their apples are standardized, which practically means few varieties, a minimum number of packs, and careful grading, so that every apple in one box is of the same grade. If this is the case with a box, why should it not be with a barrel.

Statistics show us that there has been a large falling off in the production of apples in the United States and Canada in the last two decades without a corresponding increase in prices. Other fruits have largely taken the place of apples in the market, and if the apple is still to remain the "King of Fruits," the apple growers must see that this position is not usurped by some other fruit.

An authoritative planting list of varieties of apples would not necessarily lessen or prevent the introduction and trial of new varieties, but would largely prevent their extensive planting for commercial purposes until they have been thoroughly tested and proved their desirability. We have an abundance of good varieties to select from and such an authoritative list put into effect by the fruit growers' associations and co-operative societies should have a marked effect on the future prospects of the apple in Canada.

Essentials of Marketing Fruit

F. H. Grindley, Fruit Division, Ottawa

THERE has been much criticism made of the methods in vogue for marketing the fruit crop of Canada. Such criticism has been largely merited. In order to effect improvements there must be organized effort. Lack of this has been one of the greatest obstacles to progress. While every fruit grower is willing to admit the faults of our marketing systems, and while many know just where improvements are most needed, there are many who are unwilling to carry their complaints or their knowledge beyond their neighbors or beyond verbal utterance. Consequently the big efforts towards rectifying faults that have become more urgent and troublesome, have devolved upon a few individuals, and to them the growers' thanks are due for most of the advantages we now possess.

That many improvements must yet be made we all admit, but during the duration of the war, probably, many of them will not be effected, therefore we must make the most of the privileges we have. We must find ways and means under existing conditions of disposing of our crop at fair prices. In order to do that we must create a demand, a larger demand than ever before because conditions at the consuming end are not ordinary.

There are a number of points that growers should bear in mind before and during the marketing season. In the first place we should organize the distribution. There are plenty of small towns and villages in Ontario and other provinces that are inadequately supplied with fruit, and many that are overstocked. That means faulty distribution. This condition offers opportunities for the wideawake grower or co-operative association.

Do not deal with firms or individuals unless you know their reputation. Avoid indiscriminate consignment as much as possible. If you have no established trade connections, make careful enquiries from some reliable shipper and get in touch with a consignee whose honesty in business dealings has been established. Communicate with the provincial and federal departments of agriculture, whose duty it is to keep in touch with markets. They will be glad to assist.

Try to create an early demand for your product. This is a matter for organized bodies to take up, just as the Niagara Peninsula growers have already done. Get to the public through the press, or by any other means. The individual grower can probably do little, but small bodies can make some impression and large organizations a proportionately greater one. This year it is essential that "Canadian Fruit" be constantly before the public eye. The palates of the people must be tickled. Do not be narrow minded and think that by advertising you are helping the other fellow. Why not? Try to make 1915 a year of co-operation, of working in harmony for a common object—increased home consumption.

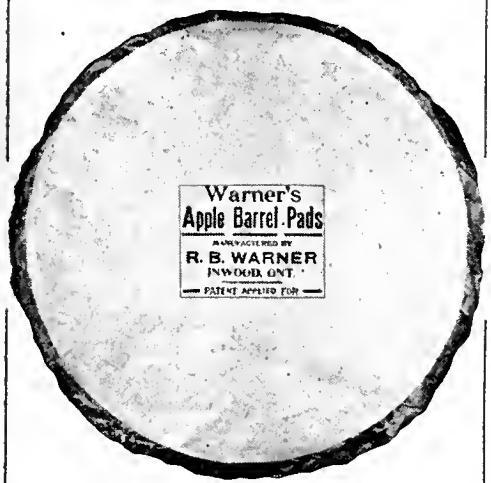
Plan for the future. Be careful that everything you market is fit for consumption. There is no promise of a regular steamship service to Great Britain, and while satisfactory arrangements may yet be made, we are not assured that the usual amount of fruit will be exported. With markets as they are it is of the greatest importance that only the best grades be packed. An Ontario shipper had apples on the Toronto market on July 17, which were little larger than cherries, and utterly unfit for food. Such practices cannot be tolerated. Every possible effort is being made to stop them. There are strong reasons for believing that for the higher grades of fruit there will be a good demand in the Old Country and in our own markets. Whether transportation facilities will be satisfactory remains to be seen. The Fruit Branch at Ottawa will keep in close touch with the steamship companies and be prepared to advise shippers as to dates of sailings, and rates.

The three features mentioned are the most important—distribution, advertising and proper packing. With them in mind, the growers ought to succeed in selling their fruit at good prices. The market for early fruits has been satisfactory. There is no reason why such a condition should not extend over the season for later fruits. Be optimistic. If each of us will do our share towards bringing about a common result, the success of our united efforts is assured.

Prospects for Marketing Fruit

Already Canadian fruit growers are becoming anxious as to the likelihood of disposing of their crops this year at satisfactory prices. There will be a fair crop of practically all varieties of fruit, and the growers are apparently keeping in mind the panic which followed the outbreak of war last summer, when shipping facilities to the Old Country markets were temporarily demoralized, and when a considerable quantity of Canadian

Protect Your Fruit



BY USING

WARNER'S
APPLE BARREL PADS

A pad placed in each end of the barrel holds the apples firm snd absolutely prevents them from being bruised when heading the barrel and shipping.

It costs very little and pays well.

R. B. Warner, Inwood, Ont.

When Writing Advertisers Tell Them You Saw Their Advertisements in The Canadian Horticulturist.

fruit was allowed to go to waste. This was largely due to the fact that many itinerant apple buyers were not operating. Consequently, growers who in previous years had been dependent upon these men to handle their fruit found themselves left with a crop of apples on their trees, with no knowledge of marketing and with no established trade connections. At all events the season was not a satisfactory one.

To predict now what is likely to be the market situation this autumn is impossible. There is reason to hope that a much more satisfactory state of affairs will prevail than in 1914. In the first place the panic is over; all classes have had time to reflect upon the general situation and upon their own positions. Reflection has resulted in, or been followed by, optimism, and the Canadian public, outwardly at all events, is less perturbed now than it was last fall.

In the second place, our large consuming markets in the west promise to be as large and important a factor as ever in disposing of the fruit crop. Conditions there depend largely upon the grain crop, which is reported good in all districts. Money should circulate freely and consumers should buy readily.

Thirdly, the laboring classes in Great Britain have secured employment at better wages than they ever received, and the buying power which was reduced last year through unemployment and panic, has now been improved by the demand for labor.

To these facts we must add one more: the added publicity which is being given to Canadian fruit. In British Columbia, in the Niagara Peninsula, and in Nova Scotia, great efforts are being put forth to increase consumption by direct advertising, and good results are assured.—Dominion Fruit Division.

Douglas Gardens

OAKVILLE, ONT.

HERBACEOUS PERENNIALS.

Achillea—The Pearl, each	15c
Anthemis—Tinctoria Kelwayi	15c
Aquilegia—(Columbine), very fine	15c
Arabis Alpina (Rock Cress)	15c
Boltonia Asteroides	15c
Campanula (Bellflower)	20c
Chrysanthemum Uliginosum (Giant Daisy)	15c
Coreopsis Grandiflora	15c
Delphinium, Gold Medal Hybrids	20c
Dianthus Barbatus (Sweet William)	15c
Dianthus Plumarins, "Mrs. Sinkins"	15c
Dicentra Spectabilis (Bleeding Heart)	20c
Gaillardia (Blanket Flower)	15c
Gypsophila (Baby's Breath), single and double	15c-20c
Helenium, 5 vars.	15c-20c
Hemerocallis, 5 vars.	15c-20c
Heuchera (Alum Root) (Coral Belts), 4 vars.	20c
Iris, 30 vars. and species	10c-75c
Lychnis, Chalcedonica	15c
Paeonies, single and double, 66 vars.	35c-$5.00
Pentstemon, 2 species	20c
Phlox, Miss Lingard	20c
Physostegia, 2 vars.	15c
Spiraea and Astilbe, 6 vars.	15c-35c
Valeriana Officinalis (Hardy Garden Heliotrope)	15c

Plants at 15c each are 10 for $1.25.
Plants at 20c each are 10 for $1.50.

Postage, as per published schedule, is to be added to remittance.

JOHN CAVERS

"DAISY" Aids for Apple Packers

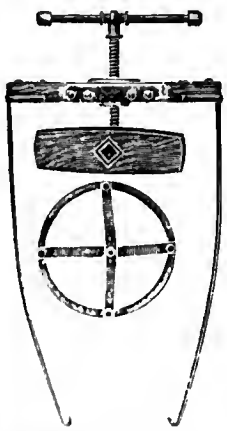
The illustrations on this page will tell you instantly just how useful and time-saving are these "Daisy" aids. You can get better results in less time by the use of these "Daisy" helps than is possible in the usual way. Read carefully the descriptions of each device:

"Daisy" Folding Apple-Sorting Table

This is another of the famous "Daisy" Apple Packer's Outfits. It is light yet strongly built to meet rough usage. It folds compactly and can be readily carried from place to place in the orchard. It is thoroughly tested for strength and efficiency.

The table frame is of oak and all metal parts are of first-class, malleable, thus being interchangeable in case of breakage. The cover is of No. 10 canvas.

An article every packer should have this season.
QUICK AND EASY.



"Daisy" Apple Press

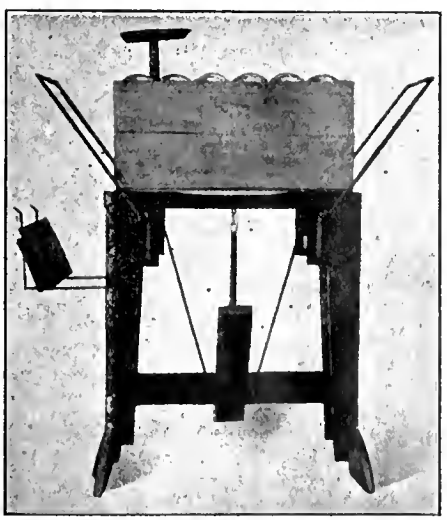
Used by all leading apple packers in Canada, United States and England.

All fruit growers' supplies carried. Ladders, baskets, felt pads, rackers, etc. Write for prices and complete information. Special quotations to associations.

"Daisy" Apple Box Press

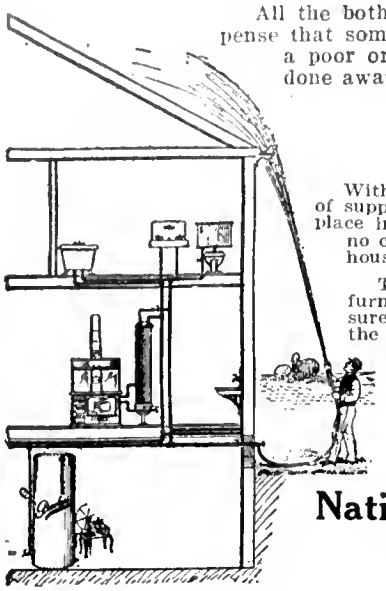
That is the way the "Daisy" Apple Box Press works. A simple pressure of the foot brings the arms up over the ends of the box, automatically draws them down and holds them in place while being nailed. The fastest and only automatic press on the market.

If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money.



J. J. Roblin & Son BRIGHTON, ONTARIO.

An Adequate, Convenient and Economical Water System for Horticulturists



All the bother and loss in time and production, and the expense that some Horticulturists put up with in trying to make a poor or imperfect water system answer their needs is done away with by the installation of a

Peerless Water System

With a Peerless System water is pumped from the source of supply into an air tight tank located in some convenient place in the cellar, outbuildings, or underground. Then at no cost is forced by air pressure to whatever part of the houses and buildings desired.

The supply is as abundant as the main source can furnish (think of the advantage in case of fire), the pressure sufficient to throw a stream from 30 to 80 feet into the air, the cost of operation next to nothing, and, the investment required for equipment is usually surprizingly small.

Write us and we will send you full and interesting information.

No unsanitary tanks, no leaky or frozen pipes—absolute comfort assured.

National Equipment Co., Limited
9 Wabash Ave., Toronto
(Sole Manufacturers of Peerless Water Systems)

Thirty-Six Highest Awards
To International Harvester Machines

THE International Jury of Awards, at San Francisco Exposition, gave to the International Harvester exhibit thirty-six highest awards covering not only the full line of harvesting, haying and corn machines and binder twine, including **Deering** and **McCormick**, but also the newer lines—the oil engines and tractors, manure spreaders, tillage implements, farm wagons, corn planters, corn cultivators, feed grinders, and seeding machines.

This is a world's record. Never before were so many highest awards given to any one exhibition of farm machines at any World's Fair.

In 1851 the first reaper was exhibited at the World's Fair in London, and there received the Council Medal. Since 1851 it has been the Company's policy to exhibit and demonstrate its machines wherever the opportunity was offered.

The exhibit at San Francisco in 1915 occupies 26,721 square feet of space, by far the most complete exhibit of its kind ever made. The thirty-six highest awards given to this exhibit constitute a splendid mark of approval for the good judgment of the hundreds of thousands of farmers who believe International Harvester machines to be the best the world affords.

International Harvester Company of Canada, Ltd.
BRANCH HOUSES
At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

Bees Saved the Strawberry Crop

Editor, The Canadian Horticulturist: Some time ago, while travelling, I chanced to mention to some parties whom I met that we had received one thousand dollars for the crop of strawberries we had grown on an acre of our farm at Central Norton. From there the story found its way into the local paper. Since then we have received many enquiries about it, and as the subject seemed to be of interest to so many, I thought I would like to state one of the reasons why we succeeded in harvesting this crop in a year when berries were generally a failure.

We got a fairly good stand of plants on this patch the season before. They wintered fairly well, but the spring was backward and cold. They began to bloom about June 1st. On the night of June 4th we had a heavy frost, which killed all the blossoms down to the smallest buds. We thought our crop was doomed, because we remembered a season about seven years before when a lighter frost had ruined our crop. This was before we began keeping bees.

The evening after the frost it rained, a good soaking rain, which caused the plants to set more fruit buds out of the crowns. Where one or two fruit stems had been before, there sprang many more—and in about ten days the patch was white with blossoms again.

Near to this patch we had fourteen colonies of bees. At this time of year the hives were brimming full, and every fine day, while the plants were in bloom, you could hear their busy hum quite a distance from the patch. The spring being so cold, there were very few wild bees or other wild insects, so we had to depend solely on our own bees for the fertilization of these blossoms, and they made a good job of it. How do we know? Because, as the season drew near its close, every blossom that had not been frozen grew a berry. There were none of the small hard knots often seen towards the last of the harvest.

How much do you think those bees were worth to us on that crop of berries? We place it at hundreds of dollars, but this is only an estimate. One thing we are sure of, and that is that it pays well to have a good crop of berries in a year when they are scarce and high in price; and we know the bees were largely responsible for the excellent pollenization of the blossoms. We had more than half these berries picked before it began to dawn on us that we were going to have a crop, we were so sure the frost had fixed them.

The sooner that fruit growers find out the benefit that bees are to them, the sooner they will catch the dollars that are slipping through their fingers because of imperfect pollenization. The profits in beekeeping are not all to be counted in the number of pounds of honey harvested.

L. T. FLOYD, Central Norton, N.B.

Ten fruit growers in the vicinity of Thorold, Ontario, have brought suit against the Coniagas Production Co., of Thorold, asking for damages of various amounts, on the ground that deadly vaporous gas from the company's smelter at Thorold, killed the bees for a radius of many miles about the works. They also contend that the poisonous vapors have killed vegetation, making it almost impossible to conduct farming or fruit growing in the vicinity.

The damages asked for range from $400, in the case of Wm. Selby, of Homer, to $10,000, in the cases of Manford Miles, of Thorold, and John Newhouse, of Homer. The claimants contend that their bees were killed by sucking poison out of the flowers.

GILSON Johnny-on-the-Spot

A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P. Gilson Mfg. Company. 5 York St Guelph, Canada.

1 1-2 H. P. Gasoline Engine, Skid or truck. Sizes up to 15 H.P.

$47.50

YOUR LAST CHANCE TO BUY

Fine Italian Queens

at the following:

One, 50c; 12, $5.00; 20 or more, 40c each.

Be sure your colonies have good queens, for next spring you may not be able to get them. If you do, they will cost you much more.

The Stover Apiaries

Mayhew, Miss., U.S.A.

When good queens are wanted I have the goods. Pure Italians from imported mothers. Also pure Carniolans and Caucasians from imported mothers. 75c each, $8.00 per dozen. No disease.

GRANT ANDERSON

Riv Handa - - - Texas

QUEENS.

Give us a trial for Queens. We have established a Queen repository where Queens are placed when imported, so as to be ready for shipment when orders come in. We also breed from the best worker stock in our own Queen yard. We can furnish Leather colored, Goldens, Caucasians or Carniolans. Prices right. Satisfaction guaranteed.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., - - - Toronto, Ont.

Honey Pails & 60lb. Cans.
Glassware & Shipping Cases.
Bees. Queens. Honey. Wax.

CHAS. E. HOPPER & CO.

126 Simcoe St., TORONTO, ONT.

PRICE LIST

of

Three Banded Red Clover Italian Queens

Bred from Tested Stock.
Untested Queens, $1 each, $5 for six.
Selected untested, $1.25 each, $7 for six.
Tested Selected Guaranteed Queens, $2 each.
Cash With Order.

W. R. STIRLING

Box 214 Ridgetown, Ont.

MILLER'S STRAIN ITALIAN QUEENS

By return mail or money refunded; bred from best red clover strains in United States, in full colonies, from my superior breeders; northern bred for business, long tongued, three-banded, gentle, winter well, hustlers. Not inclined to swarm; roll honey in. One untested, 75c; 1 select untested, $1.00; 6 untested, $4.00; 6 select untested, $5.00; 12 untested, $7.50; 12 select untested, $9.00. A specialist of 18 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, Brockville, Pa. U.S.A.

The Root Canadian House

185 Wright Ave. TORONTO, ONT.

Quality counts. Try our Queens; three banded, golden Carniolans or Caucasian, from best U.S.A. breeders; also from our own yards. Everything in Bee Supplies, Root's Goods; also "Made in Canada" Bee Journals and Books. Catalogue Free.

Northern Bred Italian Queens

Reported that they winter fine in Canada. Untested, 75c. Leaflet, "How to Introduce Queens," 15c. "How to Increase," 15c. Both, 25c.

E. E. MOTT, GLENWOOD, MICH.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail.

J. P. MOORE

Queen-breeder. Route 1, MORGAN, KY.

QUALITY HILL QUEENS

"The Queens You'll Eventually Buy."

Quality Hill Queens are of a famous strain, greatly improved. All cells are built in 10-frame colonies, brimful of bees and during a continuous honeyflow. For hardiness gentleness, and honey-gathering qualities they are better than most. Four-frame nuclei used for mating. Many report them very resistant to European Foul Brood. No disease. Italian.

Our Guarantee.—All queens will reach you alive, in good condition, purely mated, and will give satisfaction. Queens which prove to be injured in the mails will be replaced if returned. Reference: Plainfield, Ill., State Bank.

Queens	1	6	12		1	6	12
Untested	.80	$4.00	$7.50	Tested	$1.50	$8.00	$15.00
Select Untested	$1.00	$5.00	$9.00	Sel. Tested	$2.50	$10.00	$18.00

Breeders $4.00 and up.

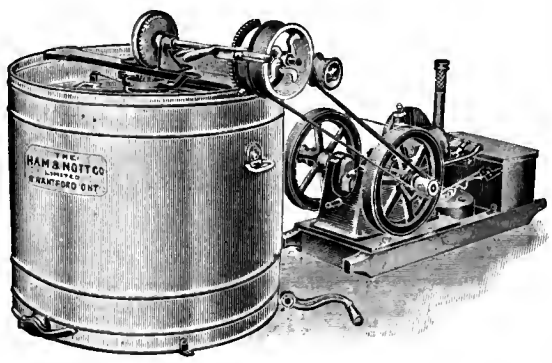
KENNITH E. HAWKINS

Plainfield, Box 366. Illinois.

The Beekeepers' Review

The Beekeepers' Review is now just beginning to publish those valuable papers read at the National Beekeepers' Convention at Denver last February. If you were to begin your subscription with the May number none would be missed. We will be pleased to receive your subscription for the last eight months of the year for an even 50c, post-paid to Canadian subscribers. In remitting, say begin with the May number, so as to miss none of those valuable papers. Those papers are only a part of the valuable material we have on hand that will appear during this year, so we are very sure you will receive your money's worth by subscribing for the Review at this time. The Review is Owned and Published by the Honey Producers Themselves, consequently is published wholly to our interest. Kindly remit by postal note, not stamps, as we cannot use Canadian stamps. Address, with remittance, The Beekeepers' Review, Northstar, Mich.

The Beekeepers' Review, Northstar, Michigan



Power Honey Extractors

Friction drive or with special cut gears, smooth and easy running. Speed control is perfect and simple. If you are thinking of purchasing a power outfit, write us at once.

The Ham & Nott Co., Ltd.
BRANTFORD, ONT.

NOTICE TO QUEEN BREEDERS

If you want to sell Queens and Bees advertise in the AMERICAN BEE JOURNAL. Read what some of our advertisers have to say about the pulling power of our advertising pages.

We have advertised in the American Bee Journal for thirty years. Have always found it a good advertising medium.—J. W. K. Shaw Co., Loreauville, La.

My advertisement brought all the orders I wished for. In fact, more than I was able to supply—quite a number of orders had to be returned.—J. A. Simmons, Sabinal, Texas.

The Reasons are self-evident—a good bee paper is taken by live and wide-awake beekeepers, and these are the kind that are always in the market for good bees and good Queens.

Rates on space are not high. Display at 15c a line, or $2.10 per inch. Classified, 15c a line. Send in your order with copy to-day and get rid of your surplus Queens.

AMERICAN BEE JOURNAL, - Hamilton, Ill.

Buy Your Preserving Sugar in Full Weight Bags

Every bag of Lantic Sugar is guaranteed to contain the very finest Cane Sugar—fine even granulation and brilliant sparkle.

Make sure that your Preserves will turn out right by using only an absolutely pure cane Sugar like Lantic Sugar—and buy it in the handy full weight bags containing 10 or 20 pounds of "Extra Granulated" or 100 pounds of coarse or fine Granulated.

FRUIT JAR LABELS FREE

Send your address and small Red Ball Trademark from bag or top end of carton and we will mail you book of 50 assorted Fruit Jar Labels—printed and gummed, ready to put on the jars.

Also put up in 2 and 5 pound cartons.

Atlantic Sugar Refineries Limited

Montreal St. John

HAMMOND'S SLUG-SHOT
1880 1915
AN INSECTICIDE FOR GARDEN USE
USED SINCE 1880
TRADE MARK

Cabbage Worms Destroyed by Dusting with Hammond's Slug Shot

So used for 30 years. SOLD BY ALL SEED DEALERS.

For pamphlets worth having, write

B. HAMMOND, Fishkill-on-Hudson, New York.

WANTED — APPLES

30,000 Barrels

GEO. VIPOND & CO.

Montreal, Que.

The Middleman Issue

At the recent conference held in Calgary, Alberta, between representative British Columbia fruit growers, commission dealers and consumers, considerable attention was given to the part the middleman plays in the distribution of fruit. Mr. R. M. Winslow, Provincial Horticulturist for British Columbia, claimed that the fruit growers were doing everything possible to reduce the cost of production, but in spite of the fact that labor prices in British Columbia had been slowly decreasing, nevertheless, practically all of the profit went to the laborer, shippers and handlers of the fruit, rather than to the grower. Although the duty on supplies has increased the cost of producing and marketing fruit by increasing the cost of the supplies needed in its production and handling, he contended that the cost of production in British Columbia was very little higher than in the Coast States. Mr. Winslow thought that the present demoralization of the fruit trade in the Pacific Coast States would last for four or five years, and urged the prairie consumers to stand by the growers while conditions were adjusting themselves.

Interesting figures supplementing some that had been given by Mr. Winslow, were presented by Mr. Sherwood of the Regina Board of Trade, showed that a box of fruit for which the producer received 17 cents net was sold to the retailer in Vancouver for $1.15 per box and retailed to the consumer at $1.35. He declared that in the northwestern states, the producer received from 10 to 15 per cent. more, while the consumer actually paid less. Altogether, it cost $1 to ship 17 cents' worth of fruit from Okanagan to the jobber in Regina.

Mr. Winslow went into detail on the subject of the California citrus growers, especially in regard to transportation expenses, and declared that British Columbia fruit growers' organizations had secured just as good rates and minimums and an equal service from the Canadian railways. He would not say that lower rates might not be secured, but at present the rates were as fair as those on the American side.

BULLETINS AND REPORTS.

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: The Bi-Monthly Zoological Bulletin of the Division of Zoology of the Pennsylvania Department of Agriculture, by H. A. Surface, D. Sci., Economic Zoologist, and "The Control of Potato Diseases," by H. T. Gussow, Dominion Botanist, being circular No. 9 of the Dominion Experimental Farm, Ottawa. The Department of Agriculture has also published Pamphlet No. 2, entitled "The Potato." This pamphlet gives the methods and results of the growing of potatoes in the different Provinces of the Dominion. It is instructive and should be applied for by those interested.

The New Jersey Agricultural Experiment Stations, New Brunswick, N. J., is distributing Circular No. 42, entitled "Spraying and Dusting White Potatoes," by Thos. J. Headlee, Ph. D., Entomologist, Circular No. 44, entitled "Common Diseases of Apples, Pears and Quinces," and Circular No. 45, entitled "Common Diseases of the Peach, Plum and Cherry," both by Mel. T. Cook, Ph. D., Plant Pathologist. These circulars are well illustrated and will be found of interest and value. The British Columbia Fruit Growers' Association has recently issued their Twenty-Fifth Annual Report for 1914.

Grading and Packing Apples

(Continued from Page 209)

necessary if the pack is going to be uniform.

The Schellenger machine, by an ingenious and gentle method of handling apples, can run about a carload of apples a day, if a grower has enough hands to keep up with the machine. The machine occupies a space of 19 ft. 10 ins. by 8 ft. 3½ ins. It may be operated by an electric current or by a gasoline engine. We are using the same engine that operates our gasoline spraying outfit. It is very light running, requiring less than one-half horse power to operate it. As our motor is three and a half horse power, we have to run the machine very slowly, as the grader operates better if only four apples are passed to the gauges at a time at the rate of 50 per minute. This is for medium-sized apples. Larger varieties take a longer time, and smaller ones can pass quickly through the feed-end.

One man empties orchard boxes of apples, or, better, the very baskets in which the apples are picked from the trees, thus avoiding useless transfers. We have our grading machine right in the orchard, under a large tent, and we use another tent to pack in. As the grader cannot possibly sort wormy apples, we suppose that the modern orchardist, having sprayed and thinned his fruit in due time, the number of blemished and wormy fruit will be easily seen by the men sorting for color.

The machine is so designed and operated that the feeding into the four rubber chutes is done automatically, thus permitting the sorters to have an eye open to the sorting alone. This sorting is done easily by two men, one on each side of the feeder. With an average orchard crop, two chutes are reserved for the colored apples and the other two for the less colored ones. No culls are let through the machine; they are picked up by the sorters and thrown into the cull barrel or box. In sorting, it is not necessary to pick up an apple in the hand; a glance is sufficient if one just rolls over the apple on the canvas part of the feeder.

Fifty times a minute four pockets or rubber-lined gauges come into position a few inches directly under the chutes. An automatic trip drops one apple from the end of each chute into the respective pocket, in which it is carried along on an endless chain (fig. 1).

These pockets are formed by a circle of hanging fingers which are squeezed together at the bottom at the moment the pockets are under the chutes. As the pockets move forward, the rings which hold the fingers together slowly slip down and allow the ends of the fingers to gradually separate. The apple settles down, without any bruise whatsoever, as the bottom opens, until it slips through into a canvas and rolls down upon cloth-lined bins or tables on either side of the machine, two chutes handling apples on one side, and two others those on the other side, thus having the colored apples all on the one side. In this province we do not have to bother about color in a well pruned orchard, as McIntosh, Fameuse, Wealthy and Duchess are all well colored varieties, Golden Russet not having to be sorted at any time for color.

As the carrier moves forward, the apples are successively sorted in six different sizes. The farther down the carrier moves, the wider the fingers open. This allows larger-sized apples to be deposited in the right compartments. We have numbered orchard boxes to correspond with each of the six divisions on the table. The apples taken from the fourth division are put into the same barrel or box, and the apples from the fifth into another barrel or box, and so on. Once a box is full and not to be immediately emptied into a barrel, they are tiered up—all the number fours together, and the number fives together, and so on. Then there is no chance for mistakes.

The machine, I find after two years' experience, does not bruise the fruit. If there are any apples that are bruised, it is either in picking them in the trees and not taking enough care during their transport to the grader, or there is bruising caused in emptying boxes or baskets upon the canvas feeding table at the upper part of the machine. We have avoided this bruising by using special baskets which we have made here in osier, and which open by the bottom.

If there ever was a machine that would pay for itself by its work and in saving of labor, this is one of them. Where enough fruit is packed to warrant the investment, I strongly advise its use. It is easily operated and very simple, and is easily put up when it arrives in pieces, as the pieces are tagged and numbered.

It is reported that the Canadian Canners, Ltd., has been formed with the object of bringing order out of chaos in the canning situation in Ontario. It is understood that the new company will act in a holding capacity for the purpose of uniting the interests of about fifty of the large and small independents with those of the Dominion Canners. The present arrangement is to last for three years at least. The object is to carry over stock now on hand, and to greatly curtail the output of 1915. Price cutting is to be eliminated.

FRUIT BOXES

IN

Made-up and Knocked Down Form

Highest prices are paid for Apples, Pears and other Fruits packed in boxes.

Our modern equipped plants ensure service, quality and satisfaction.

Prices on request. State quantity. No charge for printing.

FIRSTBROOK BROS.
LIMITED

Toronto Ontario

BOXES

Get the highest prices.

Pack your Apples, Pears, Peaches, etc., in boxes.

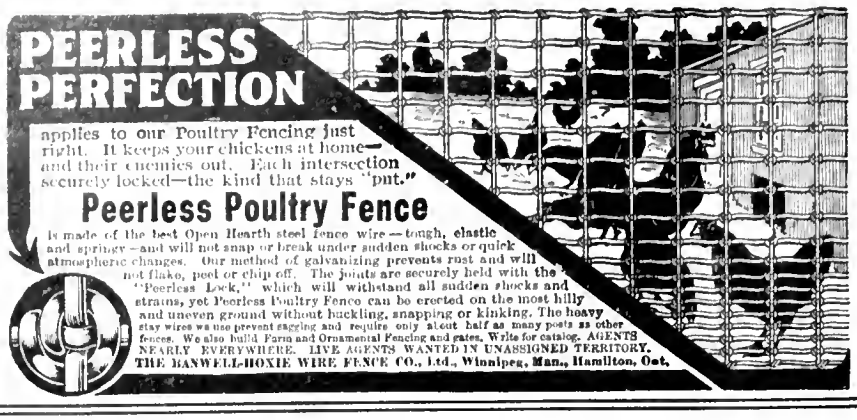
Let us quote you, knocked down or made up.

No charge for printing.

Barchard & Co. Limited

Pioneer Box Factory

135-151 Duke St. Toronto, Ont.



Kelway & Son *SEED GROWERS and NURSERYMEN*
LANGPORT, ENGLAND

Announce that their Mr. H. A. NALDRETT will be in Canada during the month of September and invite correspondence for appointments. Please write him "Care of

Messrs. T. Meadows & Co.
8-10 Bridge Street, Battery Park, New York City, U.S.A.

THE
COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited.

NICHOLSON & DEMPSTER
88 Colborne St., Toronto, Ont.
Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS
88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
See advertisement on page 225.

H. J. ASH
44-46 Church St.
TORONTO - ONTARIO
Consignments of fruit and vegetables solicited. We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

WANTED — Consignments of tomatoes, peaches, cherries, grapes, and all kinds of fruit and basket apples, also carlot apples. Centrally located; convenient to all car tracks.
LAING BROS.
Wholesale Fruit Merchants
307-309 Elgin Ave. : Winnipeg, Man.

SIMONS FRUIT CO.
David L. Dick, Manager
27 CHURCH ST. : TORONTO, ONT.
Representing
Simons, Shuttleworth & Co.
Liverpool and Manchester.
Simons, Jacobs & Co. Glasgow, Scotland
Garcia, Jacobs & Co. London, England.
Receivers of Apples and Pears.

The Oldest Commission House in Toronto
McWILLIAMS & EVERIST
Send your Consignments.

Bankers: London County and Westminster Bank, Southwark Branch.
Established 1880.

JOHN ROBINSON
Fruit Importer and Salesman,
3 Rochester St. Borough Market,
London, Eng.
Telegraphic address: "Redsoil, London."
Telephone: No. 32 Hop. A.B.C. Codes.
I shall be pleased to have your consignments of Apples. Regular market reports sent on request. Correspondence is invited.

FRED BARKER
25 Church St., Toronto, Ont.
Representing J. H. Goodwin, Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. E. Cooper, Liverpool,
APPLE RECEIVERS.
Consignments Solicited.

HYSLOP & SONS
132 Princess Street : Winnipeg, Man.
Fruit Growers and Shippers
We have opened up a commission house in Winnipeg, and solicit consignments of fruit. Commission, 10 per cent.
References—Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

Transportation Conditions

G. E. McIntosh, Forest, Ont., Traffic Agent, Ontario Fruit Growers' Association

Last season the commodity rates on all rail shipments of apples to the western market applied only for carloads. This season the tariff will provide for less carloads, and the rates be reduced accordingly. For instance, the Winnipeg class rate per 100 lbs. for less carload is $1.08, the new commodity rate is $1.02 in bags or boxes, and 81c in barrels. To other principal points the L. C. L. rate will be as follows:—

	In Bags and Boxes cents per 100 lbs.	In Barrels cents per 100 lbs.
Calgary	201	159
Edmonton	239	132
Moosejaw	167	189
Portage la Prairie	123	97
Regina	162	128

An allowance of $3.00 per refrigerator car, in which the shipper placed a slatted floor to protect the shipment, was made last season by the Railways, under an order of the Board of Railway Commissioners. It has been stated by several shippers, that the Railway Companies charged freight on the weight of these floors. If your records show this has been done, kindly send me particulars, as an application will shortly be made for an allowance of 1,000 lbs. off the carload weight for these floors, if it can be shown the charge is being made.

Under present tariffs if a shipper loads vegetables in a car with fruit for points east of Port Arthur, he must either pay the less carload rate on the vegetables and the carload rate on the fruit, or pay third class rate, minimum 20,000 lbs., on the fruit and vegetables. Although there has never been a tariff permitting the mixing of these commodities for Ontario points, at the fruit rate, the privilege was allowed till last season. Vegetables are classified first class for L. C. L. and eighth class for C. L. No other commodity bears so great a raise on the L. C. L. shipments. An application is therefore being prepared to be submitted to the Railway Commission, asking for an order to meet the wish of the fruit shippers. In support of this application we will want evidence to show that it is really required. Can you furnish such?

In the matter of express claims, sub. sec. (k) of sec. 5 of the terms and conditions of merchandise receipt form reads: "The company shall not be liable for any damage or partial loss, or shortage, unless written notice thereof is given at any office of the Company within thirty days from delivery." It is important that claims be filed promptly. According to a recent court decision a shipper suing a carrier for loss or damage to a shipment has the burden of proving that he presented his claim to the carrier within the time fixed by the bill of lading, but it has also been decided that a common carrier may not, by special contract, exempt itself from or evade its common law liability for the consequences of its own negligence or that of its agents. The safest way, is to make claims promptly, and decide later if you want to press them.

I would not like to be without The Canadian Horticulturist.—Mrs. H. Pickering, R.R. No. 1, Streetsville, Ont.

Potato Growing in New Brunswick

By J. B. Daggett, Secretary for Agriculture

THE potato industry in New Brunswick has assumed large proportions in the last ten years, until the crop in 1914 amounted to approximately ten millions of bushels. Very much has been learned during these years as to the place in the rotation, preparation and cultivation of the soil, fertilizers and potato diseases.

Previous to ten years ago, commercial fertilizers were practically unknown in the province, but in recent years they have come into very general use, until at present seventy-five per cent of the potatoes raised are grown with commercial fertilizers with an increase in the crop of twenty-five to thirty-five per cent. reported. The potatoes so raised are not so susceptible to scab as when raised upon ordinary barnyard manures or fish manures, such as are used in some sections of the province. It has been found that commercial fertilizers cannot be continuously used successfully without a proper rotation and by some means adding vegetable matter to the soil. Farmers who have attempted this have found that their land would soon require two thousand pounds instead of fifteen hundred pounds to the acre.

The following rotation is being adopted throughout the province: First year, potatoes with commercial fertilizer; second year, seed down with a grain crop, with a much larger proportion of clover than was formerly used; third year, hay; very many are now taking off but one crop of hay and then breaking up and ploughing under the second growth of clover; the next year a crop of corn or turnips is raised, the field having been well fertilized with barn-yard manures. This we consider a very satisfactory rotation. The same system is followed by all our farmers, except that some take off two or even three crops of hay before breaking up. From three to five years, however, is the average length of rotation among our best farmers.

While there are a number of varieties of potatoes being raised in New Brunswick, the two favorites are Irish Cobbler for the early crop and Green Mountain for the late.

We have the usual potato diseases common to all countries, but we are learning that the vast majority of these may be successfully combatted by the proper treatment of seed, by careful selection of all seed stock and the faithful use of the Bordeaux mixture. I would like to emphasize the word "faithful" as, in my observations, very many of our farmers are not faithful in the use of this excellent article. When the farmer persistently uses this mixture from the time the plant is a few inches above the ground until well toward the harvest, our experience has been that we have very little blight and the tubers are invariably much better keepers in storage.

The New Brunswick product is in very much better condition than it was several years ago. There is a general agreement that there has been a steady improvement and that we are turning out a much better quality of potatoes than in the past. From a recent visit to the potato growing areas, I am satisfied that the majority of our farmers are giving close attention to the things that are necessary for the production of the very best crop. Large quantities are shipped to the market directly from the field at the time of harvesting, probably twenty-five per cent., the balance being stored either in cellars or in specially built frost-proof potato houses, used exclusively for the storing of potatoes. These buildings are light and well ventilated and are so arranged that teams can drive into them and the potatoes can be sorted and loaded in the building. They are fitted with heating apparatus that will heat the building during excessive cold. These buildings are giving splendid satisfaction.

The Dominion Government has appropriated $4,000, which will be used in an advertising campaign in favor of peaches and plums. The money will be used in twenty-five daily newspapers and three hundred weekly newspapers. There is a possibility that the campaign may be extended.

The Dominion Government has appointed Mr. J. Forsyth Smith as a fruit market commissioner in England. Mr. Smith has been acting as provincial market commissioner for British Columbia for some three years.

SMALL FRUIT PLANTS

Gooseberries — Josselyn! Josselyn! Red Jacket, Downing, Pearl. Houghton. Currants—Perfection! Perfection! Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. Raspberries—Herbert! Herbert!! Herbert!!! Plum Farmer, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. Garden Roots, Strawberry Plants, Rhubarb. Write for Catalogue.

WM. FLEMING, Nurseryman, 496-4th Avenue W., OWEN SOUND, ONT.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

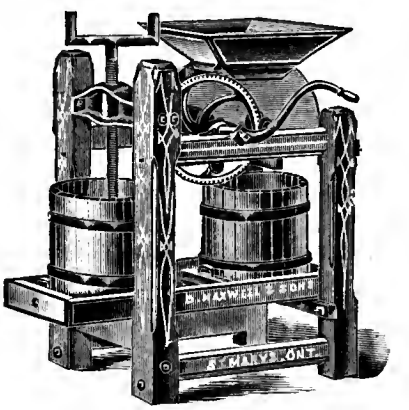
Our complete POWER SYSTEMS for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue.

SAVE THOSE APPLES

by using a

MAXWELL Cider Press!



HOW many go to waste that might be turned into Cider or Cider Vinegar with a small investment! MAXWELL PRESSES are well made, of the best material, heavy, substantial frame, and cross section of extra weight and strength; furnished with two crates, galvanized hoops, and tinned rivets. Made for either hand or power,

MAXWELLS LIMITED

ST. MARY'S, ONT.

When Writing Advertisers Tell Them You Saw Their Advertisement in The Canadian Horticulturist.

Good Prices Always

For Your Fruit and Vegetables

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.

We Are Protected By The Produce Reporter Co's System. Credit Book. Chicago. All Contracts Governed By Their Trading Rules and Grades.

We Solicit Your Consignments

Send for Shipping Stamp

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

H. PETERS

88 Front St. East, Toronto

International Apple Shippers Association

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

10 Days Free Trial

Charges Prepaid
Send No Money

NEW COAL OIL LIGHT

Beats Electric or Gasoline

TWICE THE LIGHT — HALF THE OIL

We don't ask you to pay us ***a cent*** until you have used this wonderful modern light in your own home ten days—we even prepay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests at 33 leading Universities and Government Bureau of Standards show it

Burns 70 Hours on One Gallon

common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise, simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed,

Awarded GOLD MEDAL at World's Exposition San Francisco

$1000 Will Be Given

to the person who shows us an oil lamp equal to the new ***Aladdin*** (details of offer given in our circular.) Would we dare make such a challenge if there were the slightest doubt as to merit of the ***Aladdin?*** We want ***one user in each locality*** to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp ***free*** for showing it to a few neighbors and sending in their orders. Write quick for ***10-Day Absolutely Free Trial.*** Just say, "Show me how I can get a strong white light from coal oil, ***without risking a cent.***" Address our nearest office.

Men Make $50 to $300.00 Per Month With Rigs or Autos

delivering the ALADDIN on our easy trial plan. No previous experience necessary

Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 37 lamps out of 31 calls." Thousands who are coining money endorse the Aladdin just as strongly.

NO MONEY Required

We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. **Sample sent for 10 days FREE TRIAL.**

MANTLE LAMP COMPANY, 206 Aladdin Building

Largest Coal Oil Mantle Lamp House in the World

MONTREAL WINNIPEG

Consider Your Greenhouses Carefully

Are they in good shape for next winter? It doesn't do to leave the question of greenhouse overhauling until too late. Frosty nights come upon us all too suddenly, and heating and ventilating systems should be in shape in ample time.

A little overhauling, some improved ventilators, or rearrangement of heating plant may make a great deal of difference in operating expenses; may spell the difference between profit and loss on next year's business.

It is worth while to have one of our experts look over your range and advise you, anyway, and it doesn't cost you anything.

Write us for booklet B, or ask our advice on any greenhouse question.

GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.,

201 Church St., Toronto P.O. Box 1042 Montreal

Marketing the Apple Crop

(Continued from page 210)

you learn that all the co-operative apples are pooled, and that every grower receives exactly the same for apples of the same variety and grade, you will understand the necessity of this uniformity of pack and the necessity of inspection. The inspectors mail to the head office of the central a daily report of their work; and, should they find any company packing below the standard set by the central, the company in question has to repack the fruit.

The managers of all local companies report to the central association each day as to the condition of the fruit and quantity packed, and receive instructions from the central office as to when, how, where and what quantity to ship.

Owing to the fact that such a large percentage of the entire crop of Nova Scotia is handled by the central association it is able, to a certain extent, to regulate the quantity of fruit going to the various markets to prevent any one market being overcrowded and others left bare. Information is collected through its various connections concerning the space booked on steamers from the various apple-shipping ports, and in this way calculations determine just about what quantity of apples will be arriving on the various European markets at certain dates. The London office cables daily conditions on all markets, and the central association places its fruit just where it is most needed — that is, where the least fruit is offering. When necessary special boats are brought in to carry the co-operative apples, for it is not always that the regular boats fit in right.

Returns to Locals.

Whenever shipments of apples are made from a local company the manager sends in a return on a tabulated sheet in triplicate, two copies being mailed to the head office and one being retained. Should the apples covered by this return be consigned to one of the central's own offices one of these slips is forwarded; but, in any case, entries are made at the central office into what is known as an "average price book," and in another tabulated book the company shipping is credited with so many barrels of each grade in certain varieties. At the end of the month each company receives a statement showing the number of barrels received during the month, and accompanying the statement is a cheque, being an advance of so much per barrel for every barrel shipped during the month.

As soon as all returns are in for any variety the average price obtained for each grade of that variety is ascertained, and, after deducting a sum sufficient to cover central's expenses, all companies receive the balance due to them on that variety. For instance, say the amount advanced when the apples were shipped was $1.50 per barrel, and subsequently the average price works out at $2.50 for No. 1, $2.15 for No. 2, $1.25 for No. 3, whatever is due the subsidiary companies over and above the $1.50 is immediately paid.

It will be seen by this system that each member's apples lose their identity as soon as they enter the packing-room, but each member receives pay according to the quality of his fruit, because the better the fruit the more No. 1's are procured; and, as all members are paid according to the grade into which their fruit packs, justice is done to all.

In the same way with the central association. As soon as the apples of any company enter the average price book at the head office its identity is, to a certain extent, immaterial; and should a carload of apples from one company be placed on a market making 50c per barrel more than a car of apples equally good from another company, all receive the same return—namely, the average for the season. The justice of this system will be readily understood, but to emphasize it I will cite a circumstance that frequently arises:

The central association receives a cable from, say, the Buenos Ayres office for 1,000 barrels of apples which have been sold at a fancy price, possibly a dollar above anything that can be obtained on any other market. Only five carloads are required to fill that order, so at the most only five companies can supply these apples. Yet on the same day possibly 10,000 barrels are shipped from various companies. Which companies are to have the plum?

The central association does not have to decide any such issue. It takes any five cars and fills that order, and the companies whose apples are used receive the same average price for that variety as all other companies.

Has Proved a Great Benefit.

This system of co-operative marketing has made many reforms possible, and has placed thousands of dollars in the pockets of the growers that, under the old regime, went into the pockets of numerous and unnecessary middlemen. Six years ago the valley, during the winter months, was crowded with representatives of the various commission houses in England, high-salaried men, who lived on the best that Nova Scotia could give. While these men were

paid by the English houses whom they represented, it is obvious that it was the produce of the orchards that supplied the funds from which their salaries and expenses were drawn. With the advent of a central association, with their own offices on the various markets, these men became unnecessary, and during the past three seasons they have been conspicuous by their absence.

It might be argued that the expense has only been transferred to others, and that the European office costs almost as much as these men's salaries and expenses. Yes, the European office costs something, but in 1913 the total expense of that office, including salaries and absolutely everything, was less than $2,000, and I guarantee that the salary alone of any one of those representatives was more than that amount, and their expenses per head would have amounted to another $2,000. At the very lowest there were twenty of these representatives here, so some idea can readily be gained as to the saving effected in that direction. That saving is at once apparent by an examination of accounts of sale to-day and similar documents of a few years back.

Many other unjust taxes on the fruit industry of Nova Scotia have been eliminated. The Liverpool ring of associations is no longer an effective machine to levy toll as far as 70 per cent. of the fruit of the valley is concerned. The iniquitous system of steamship rebates is also a thing of the past. The selfish interests of the individual have been eliminated, and to-day the best interests of the whole community of fruitgrowers has taken its place.

Packs for Apples

The following is a table of packs of apples prepared by Mr. D. Johnson, Dominion Fruit Commissioner:

Diagonal 2-1 Pack

	Apples to the box	
2-1, 4-4	36	Pack on side.
2-1, 4-5	41	" " "
2-1, 5-5	45	" " "

Straight 3 Pack

3 wide 5 long	45	Pack on side
3 " 6 "	54	" " "

Diagonal 2-2 Pack

	Apples to the box	
2-2, 3-4	56	Pack on end.
2-2, 4-4	64	" " "
2-2, 4-5	72	" " "
2-2, 5-5	80	" " "
2-2, 5-6	88	" " "
2-2, 6-6	96	*Pack on side.
2-2, 6-7	104	" " "
2-2, 7-7	112	" " "
2-2, 7-8	120	" " "

Diagonal 2-3 Pack

2-3, 4-5	113	Pack on end.
2-3, 5-5	125	" " "
2-3, 5-6	138	" " "
2-3, 6-6	150	" " "
2-3, 6-7	163	" " "
2-3, 7-7	175	*Pack on side.
2-3, 7-8	188	" " "
2-3, 8-8	200	" " "
2-3, 8-9	213	" " "
2-3, 9-9	225	" " "

The monthly crop report issued by the United States Department of Agriculture, under date of August 17, estimates the total apple crop as 205,000,000 bushels, as against a yield last year of 253.000,000. The yield of peaches is placed at 59,000,000 bushels, compared with 54,000,000 last year; of pears at 11,000,000 bushels, against 12,000,000 last year; and of grapes a yield of 85 per cent., as against a ten years' average yield of 84 per cent.

The annual meeting of the Ontario Ginseng Growers' Association will be held at 1087 Queen street west, Toronto, on September 7, opening at 1.30 in the afternoon.

Things to Plant in September

Hyacinths, all colors, per doz. 40c., 55c., 65c., and $1.00. If required by mail add 20c. per doz.

Single and Double Tulips, all colors, per doz. 15c., 20c., 25c., and 40c. If required by mail add 15c. per doz.

Narcissus and Daffodils, all shades, per doz. 25c., 40c., and 60c. If required by mail add 15c. to 20c. per doz.

Our Autumn Bulb Catalogue contains a list of bulbs suitable for all purposes, and will be mailed on request.

Wm. Rennie Co., Limited, Head Office and Warehouse: Adelaide and Jarvis Sts., Toronto

BRANCHES:

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THE PERFECT BREAD

Bread made from poor flour dries out quickly; is less nourishing; and has a thick, hard, brittle crust. Bread to be perfect should be moist and remain fresh for days; should have its air cells vertical rather than horizontal, and should have a beautiful creamy "bloom" when cut. Perfect bread is made from REINDEER FLOUR, which you can obtain from your grocer.

Be sure to ask for REINDEER brand. It is worth insisting on having.

PETERBOROUGH CEREAL CO., Simcoe St., Peterborough, Ont.

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The Quality of our Stock is the Best

Darwin Tulips, Single Early Tulips, Hyacinths, Chinese Lilies, Narcissus, Daffodils, Paper Whites, Snowdrops, Crocus, Spanish Iris.

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GEO. KEITH & SONS

Seed Merchants since 1866

124 King St. East TORONTO

Wilkinson Plows

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the steodard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

The Bateman-Wilkinson Co., Limited
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Repairs for all Wilkinson Plows

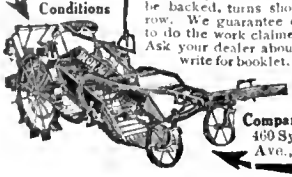
DIGGERS

for potatoes. All growers know that it pays to use diggers even on five acres—they save valuable time, save all the crop in good condition, at less expense.

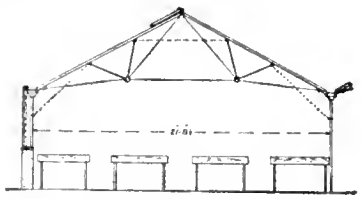
IRON AGE DIGGERS

Wheels 32 or 28 ins. Elevator, 22 or 20 ins. wide. Thorough separation without injury to the crop. Best two wheel fore truck. Right adjustment of plow, shifts in gear from the seat. Can be backed, turns short into next row. We guarantee our diggers to do the work claimed for them. Ask your dealer about them and write for booklet.

No. 155. For Heaviest Conditions



The Bateman-Wilkinson Company, Limited 460 Symington Ave., Tor., Can



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Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO., 40 Dovercourt Road - Toronto.

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

¾ AZALEA POTS and Rimless Pans

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Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
Minister of Agriculture
Parliament Bldgs., Toronto

Canada's National Dish

Winning poem in the contest recently conducted by The Canadian Horticulturist with the object of advertising The Apple as Canada's National Dish.

You may talk of the fruits grown in Europe,
That come to us packed with great care;
You may sing of the fruits from the southland,
In fact, fruits that grow everywhere,
But from where breaks the stormy Atlantic,
To the west where the tide ebbs and flows;
Why the National Dish of our country,
Is the Apple that Canada grows.

Now after a day in the harvest,
When you're feeling as dry as you can,
What fruit will compare with the flavor
Of a Duchess or Red Astrachan?
And when by the fireside you're sitting,
What fruit tastes as good as the Snows?
And these are but few out of many
Of the Apples that Canada grows.

And then on a Saturday morning,
When Mother commences to bake,
It doesn't seem to interest me greatly,
If I see that she's making a cake;
But surely it makes me feel happy,
And, oh, how my heart fairly glows,
When I see that she's filling the pie-crust,
With the Apples that Canada grows.

And when at the glad Christmas season,
You're puzzled at just what to send,
To those who yet dwell in the homeland,
To show that you still are a friend;
It matters not what is their emblem,
Be it shamrock, or thistle, or rose,
Just send them a box or a barrel,
Of the Apples that Canada grows.

Toronto T. G. ROBINSON

Investigations which have been made into the trade done in dried and evaporated apples in the vicinity of Leeds, England, indicate that the public demand continues to be on a limited scale. The little demand which exists for apples prepared in this way is supplied mainly from California and at the time of writing "apple rings" are quoted at 12 cents a pound retail and "cored apples" at 16 cents a pound retail. The only direction, it would appear, in which the use of dried apples shows signs of increasing, is that of mixing it with other fruit for the making of salads.

I appreciate The Canadian Horticulturist and desire to receive it right along.—R. H. Cowan, Berlin, Ont.

Annapolis Valley Notes

Manning Ells, Port Williams, N.S.

More or less burning from all sprays used caused quite an injury this year, probably because so much spraying was done in dark and cloudy weather. Users of soluble sulphur report more injury than those using the commercial lime-sulphur. The foliage as a whole is not as healthy as one would wish at this season of the year. In varieties, Gravensteins, Ribstons, Kings, Golden Russets and Nonpareils will give eighty per cent. of a full crop. Blenheims, Baldwins, Fallawaters, Ben Davis and Spys, fifty per cent. of a crop, with the total from thirty to fifty per cent. greater than last year.

Not for a decade have we had such a large strawberry crop as that just harvested. The price consequently has been much below the level of former years. An average return to the growers, however, of eight cents a box, shows some profit on the right side of the ledger, while many people in our towns, to whom berries have been a luxury, were this year able to buy and enjoy without feeling it an extravagance. The United Fruit Company handled the berries grown by their members, and through their branch in Halifax distributed direct to all parts of the province. This service benefitted both grower and consumer, placing a fresher and consequently better article in the hands of the latter, and on account of their low handling charges, giving to the grower the full value of the market.

Plums and pears are only half a crop, but so few of these are grown that the difference between a full crop and half a crop is not of great importance. Other farm crops are all that could be desired, the hay crop especially being one of the largest in the history of the Valley.

Control of Vegetable Insects

Arthur Gibson, Chief Assistant Entomologist, Ottawa.

Growers of vegetables are troubled with insect pests which every year levy a heavy toll. In addition to the regularly occurring kinds, there are almost every season outbreaks more or less widespread in occurrence, of little known species or of certain ones which occur intermittently, such as, for instance, the army-worm, which in 1914 cost the province of Ontario alone a quarter of a million dollars. It has been estimated that at least twenty per cent. of vegetables grown every year are destroyed or rendered useless by injurious insects. The wide-awake grower is every year learning more and more about the common forms of insects which, almost every season, attack in varying degree the different vegetables which he grows. It is surprising, however, that in many parts of Canada, growers of vegetable crops have not given sufficient attention to those kinds of insect pests which occur almost annually, and which, of course, destroy, more or less, cabbages, cauliflowers, tomatoes and other cultivated plants. Such losses could often be prevented or a large percentage of the crops saved if the grower had properly investigated the injury and applied the correct remedy. It is not, of course, necessary that the vegetable grower should make a special study of the insects themselves. He has not the time nor the inclination to do this. What every grower should, however, notice when an insect is attacking a crop is how it feeds—whether it bites its food or sucks it up through its beak which it inserts into the plant tissue. If the insect is a biting one a stomach poison, such as Paris green or arsenate of lead, is usually recommended, but if the species is a sucking one, such a stomach poison would be useless, because the insect would insert its beak through the poison and reach a safe feeding ground beneath. A contact insecticide is, therefore, necessary, for controlling sucking insects, and those usually recommended are kerosene emulsion, whale oil soap and tobacco preparations.

The Entomological Branch of the Dominion Department of Agriculture has devoted considerable attention to the study of vegetable insects and their control, and circulars and bulletins have been published on some of the more important pests. Investigations are now in progress on the life-history, habits and control of cutworms, locusts, root maggots, etc.

The present season has witnessed serious outbreaks of such well-known pests as the Red-backed Cutworm, the Army Cutworm, the Lesser Migratory Locust, the Onion Maggot, the Cabbage Maggot, the Seed Corn Maggot, the Colorado Potato Beetle, etc. Since the publication in April of a new poisoned bran remedy for cutworms, we have conducted further experiments in the control of these caterpillars and in certain dry areas, such as in Southern Alberta, we have found that where shorts was substituted for bran better results were secured. The protection of cabbages and cauliflowers by placing tarred felt paper discs around the stems at the time of planting out has again given satisfaction. For radishes and onions fresh pyrethrum insect powder, two ounces in one gallon of water, or white hellebore in the same strength, has some years given good results, the mixture being applied once a week for three weeks from the time the plants appear above ground. Owing to the cost of the material, however, the use of either of these insecticides at the above strength is only practicable on a small scale.

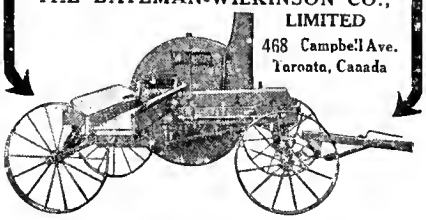
TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada



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ROSES
are noted throughout the world

They are Cheap; they are True to Name; the Trees are Strong and Sturdy. They defy Competition.

ALL THE
NEWEST VARIETIES
Dwarfs, Standards, Climbers, also Fruit Trees, Shrubs, Ornamental Trees

Send for Catalogue, Post Free

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SOUTHWELL, NOTTS., ENG.

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September
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WE are prepared right now to handle all the fruit you can send us, to the very best advantage to you. Many hundreds of fruit and vegetable growers and farmers are shipping all they have to dispose of regularly to us. Our immense outlet enables us to get you the top prices on all consignments—besides we have a reputation to keep up. We can and

Your banker will know us, so you can ship at once without waiting to write. Shipping stamps will be supplied for the asking.

WILL SELL
YOUR FRUIT AND VEGETABLES.

GINSENG

Canadian Ginseng

Pure Canadian Ginseng stock for sale. Order early for October planting. Booklet free.

HURONIA GINSENG GARDEN
BOX 341 BLYTH, ONT.

Ginseng For Sale

3,000 two years old, $18.00 per 1,000. Unlimited quantity one year old, $9.00 per 1,000. Instructions for planting if required. 20 per cent. with order, balance before shipping.

John Zuefle's Ginseng Gardens,
Hensall, Ontario.

GINSENG ROOTS and SEEDS FOR SALE

Good, strong Canadian-grown roots, one and two years old, $10.00 and $15.00 per thousand. Tested seed for fall planting, $1.50 per 1,000. No order for less than 1,000. Cash with order.

Dr. MACKENDRICK, Galt, Ont.

GINSENG

Plants and stratified seeds for sale. Canadian stock. Choice quality. Send for price list to

N. J. MacINNES, M. D.
Vittoria, Norfolk Co., Ont.

Ginseng Seed and Roots For Sale

One and two-year-old roots. Year-old or germinated seed. This seed is taken from matured six and seven-year-old stock. Roots and seed delivered in October. Write for prices.

Orr & Nichols, Mono Mills, Ont.

GINSENG FOR SALE

10,000 Roots one to six years old. 40,000 Stratified seed and 200,000 new seed, grown on natural soil and shade. All free from blight and disease. Price and instructions for fall planting on application.

DR. H. S. WATSON, Newmarket, Ont.

GINSENG FOR SALE

First class roots and Stratified Seed at lowest prices. Write for quotations, which we guarantee will please you.

Thos. Watt & Son Box 144, Lanark, Ont.

LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others.

The time to prepare the ground is now; the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Don't fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address C. M. FORBES
Secretary Lanark Ginseng Garden Co.,
LANARK, ONT.

British Columbia

Dominion Fruit Commissioner D. Johnson has recently visited a number of the important fruit districts of the province. In the Nelson District, Mr. Johnson made a trip along the lake, and visited a number of the leading ranches. Mr. Johnson was well pleased with the appearance of the orchards. He expressed the view that good prices are likely to prevail for apples in Canada this year. A number of the representatives of the Kootenay Boundary Fruit Growers waited on Mr. Johnson, and urged the necessity for a legal limit being established for the cups used in packing berries. The bulk of the berries shipped from the district are packed in 4-5 cups. Shippers in the United States send their fruit into the prairie country in 3-5 cups. Buyers find it difficult to distinguish between the two cups, and this condition is taken advantage of by the retailer, to the disadvantage of the grower. It was suggested that the standard for cups should be either pints or quarts, and that it should apply to fruit shipped into Canada.

One of the leading officers of the Dominion Canners, Mr. Marshall, of Aylmer, Ontario, spent a few days recently in the Okanagan with a view to locating a large factory there next year. Mr. Marshall stated that conditions this year do not warrant any expenditure of this character.

The Provincial Department of Agriculture has sent out a circular to the secretaries of fall fairs advising them that the department will provide prize money for displays of packed fruit put up by pupils of the packing schools this year. These prizes will be offered in connection with the fairs held at Salmon Arm, Summerland, Creston, Nelson, Kelowna, Nakusp, Chilliwack, Mission, Kaslo, Armstrong, Grand Forks, Ganges, and Trail. At each of these points prizes of $5, $10 and $15 will be offered. Twenty points will be allowed for grading and 80 points for packing. In the packing, 20 points are given for alignment, 20 for bulge, 20 for the height of the ends, and 20 for firmness.

FOR PROFIT
Plant our Top Notch Fruit, Shade and Ornamental Trees this fall. Evergreens, Shrubs, Roses, Vines, Bushes. Ask for Price List (no agents) at Central Nurseries.
A. G. HULL & SONS,
St. Catharines - Ontario.

Highest Cash Prices Paid for

GINSENG

We are the largest buyers of Ginseng in America and have the greatest demand for it. We can therefore pay you the highest cash prices. If you have any wild or cultivated Ginseng, write for our latest price list, or ship what you have and we will submit you our highest offer.

David Blustein & Bro.
172 W. 27th Street, New York, U. S. A.

PAEONIES

In a number of the best varieties. Phlox, Iris and other perennials. List on application.

Campbell Bros.
SIMCOE, ONT.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

SKINNER SYSTEM OF IRRIGATION **THE RAIN MACHINE**
Write for six books on indoor and outdoor irrigation.
The Skinner Irrigation Co., 233 Water St., Troy, O.

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for All Kinds of Perishable Goods.

The Canada Cold Storage Co. Limited
53 William St., MONTREAL, QUE.

FRUIT BASKETS

Eleven-quart, 9-quart, 6-quart, 4-quart and Pony sizes, with or without leno covers. For favorable prices and a good article address

Gull River Lumber Co. Ltd.
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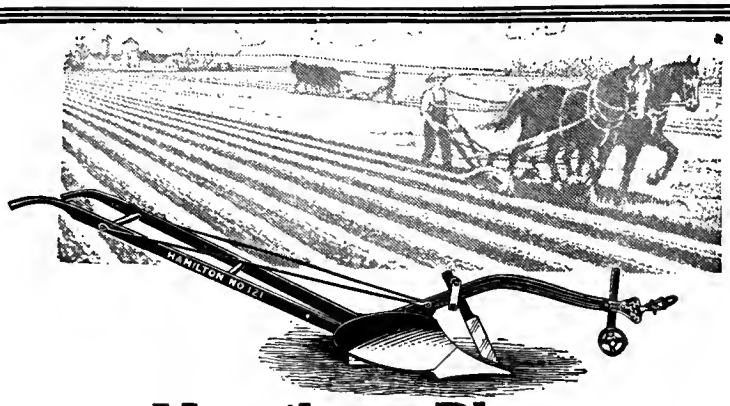

Hamilton Plows

The Line for Eastern Canada

THE **Deering** local agent can sell you a **Hamilton** plow. So when you need a plow for turning sod, or clay, or loam, or rocky soil, go to the **Deering** agent. He handles a full line.

Note the long, well braced handles of the **Hamilton** walking plows, and the strong beam construction. Note also how straight the beams are, giving a direct pull from the clevis to the bottom. Look particularly at the **Hamilton** clevis, which gives an adjustment of practically half a hole. Under conditions Where very careful plowing must be done, this feature is of great value.

The two **Hamilton** walking gang plows, Nos. 46 and 47, recommend themselves to all Eastern farmers whose conditions demand such a plow. They have such a wide range of adjustments for depth and width of cut; can be used with so many different sizes and styles of bottom, and have a clevis of such remarkable utility, that they almost deserve the title of "Universal plow."

Let no consideration tempt you to buy a plow until you have seen the **Hamilton** line at the **Deering** local agent's place of business. You'll never regret the time you spend studying **Hamilton** plow features. A post card to the branch house will bring you full information.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

"Sprayed Nine Years Without a Mishap"

so writes E. C. Bowers, State Horticultural Inspector, Harrisburg, Pa., regarding his Goulds Sprayer used for heavy demonstration work. The thousands of Goulds Sprayers in use are giving the best of results—and there's one for every purpose. The Goulds "Monarch" outfit shown below is specially adapted for high pressure work not needing a power outfit. Operates 4 leads of hose—8 nozzles; outside packed plungers—no leather; only one of the 25 styles of

GOULDS RELIABLE SPRAYERS

—hand, barrel and power, $3 to $300. Durable, non-corroding, easily cleaned. Guaranteed. Backed by 65 years' pump-making experience. Send today for free book "How to Spray" and ask for expert advice on your requirements. Both *free*.

The Goulds Mfg. Co.

Main Office and Works

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Branches: Chicago, Houston, Boston, New York, Atlanta

British Columbia

Orders have been received through Mr. H. G. White, British Columbia's trade commissioner to Jamaica and South America, for some hundreds of cases of different varieties of British Columbia apples and pears. These are to be sent to Buenos Ayres. It is understood that shipments may also be sent to Rio de Janeiro.

Shipments of potatoes, it is expected, will be forwarded in October to various points in South America. Considerable shipments have already been made to Australia and the Fiji Islands. Government officials are inspecting these potatoes and are certifying them to be free from disease.

Crop estimates, prepared about the first of August, made the following estimates for fruit this year:

	1914.	1915.
	Boxes.	Boxes.
Apples	684,840	613,000
Pears	28,800	35,000
	Crates.	Crates.
Plums and prunes	200,300	200,000
Peaches	113,300	115,000
Apricots	41,000	50,000
Cherries	33,400	35,000

As a result of the efforts of Government officials the C.P.R. this year has instructed its station agents to sidetrack any cars of British Columbia fruit that are noticed to be in an unclean or unsanitary condition. The company will use the new improved slatted box cars to a considerable extent in the handling of the fruit crop.

The provincial government, under the provisions of the new Agricultural Act, which will come into force shortly, may declare a quarantine against Washington and Californian fruit, as shipments of apples and pears from these states have been found to be affected by codling moth and San Jose scale. So much fruit has been condemned from these provinces it is believed that these diseases must be spreading in these states.

Canadian Horticultural Association

The eighteenth annual convention of the Canadian Horticultural Association was held in London, Ont., August 3 to 5. The association is representative of the professional florists and gardeners of Canada. The reports presented showed that, in spite of the war, trade conditions had been satisfactory. The association has a larger membership than ever before and a substantial cash balance.

Addresses were given as follows: "Fertilizers," by Prof. R. Harcourt, Guelph; "The Cost of Producing Florist Stock," A. O. C. O'Brien, Toronto; "The Florist as a Business Man," E. J. Hayward, Montreal; "Irrigation Principles and Methods," Prof. T. G. Bunting, Macdonald College, Quebec; "Insects That Affect Greenhouse Stock," W. A. Ross, Dominion Entomological Laboratory, Vineland, Ont.; "Perrenials," W. J. Potter, Toronto; "Orchids," W. J. Jones, Brampton, Ont.

Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, reported that the commissioners of the park were willing to assist the association, in co-operation with other similar organizations, in the establishment of a national plant register, and would allow a portion of the park grounds to be used for testing purposes. The offer was accepted, a committee appointed to take further action, and funds voted to promote the work. Mr. F. E. Buck, of the Central Experimental Farm, Ottawa, presented an interesting re-

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

BEES AND QUEENS

FOR SALE—Three banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75c.; 6, $4.25; 12, $8.00. Tested queens, $1.25; 6, $7.00; 12, $13.00. Selected queens, add 25 cts. each to above prices. Breeding queens $3.00 to $5.00 each. For queens in larger quantities, write for prices and circulars. Robert B. Spicer, Wharton, N. J.

GOLDEN AND 3-BAND ITALIAN, also Carniolan queens. Tested, each, $1.00; 3 to 6, 95c; 6 or more, 85c. Untested, 75c; 3 to 6, 70c; 6 or more, 65c. Bees, per pound, $1.50. Nuclei, per frame, $1.50. C. B. Bankston, Buffalo, Leon Co., Texas.

BEST THREE BANDED ITALIAN QUEENS—June to October, mothers selected from more than 100 colonies and reared in hives running over with bees, according to the latest scientific methods. Every queen a dandy. Satisfaction guaranteed. Each 75c, per dozen $7.20, per hundred $50.00. Also bees and honey. J. H. Haughey, Berrien Springs, Mich.

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, $1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

ITALIAN BEES AND QUEENS, reared for Canadians. Hardy, winter well. Send for circular. Standard bee hives shipped direct from factory in Iowa at $1.20 each. Stover Apiaries, Mayhew, Miss.

HOLLOPETER'S honey-gathering strain of three-band Italian queens can now be had for 60c each until end of season. Pound bees with queen, $2.00. Safe arrival and satisfaction guaranteed. Lots of them in Canada. J. B. Hollopeter, Queenbreeder, Pentz, Pa.

FOR SALE—A 1¾ H.P. Gilson Gasoline Engine (practically new), on truck, with 60 speed countershaft and five interchangeable pulleys. Chas. T. Ross, 88 Quebec St., Sherbrooke, Que.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

port on behalf of the Names and Varieties Committee. The retiring president—H. B. Cowan, of Peterboro—was presented with a cabinet of silver.

Election of Officers.

The election of officers resulted as follows: President, F. W. Adams, Toronto; first vice-president, James Fraser, Prescott; second vice-president, F. Dicks, London, Ont.; secretary-treasurer, Julius Luck, 1018 Queen Mary Road, Montreal.

Executive Committee—For two years: E. B. Hamilton, London, Ont. For three years: E. J. Hayward, Montreal; E. F. Collins, Toronto; F. Wise, Peterboro. Other members of the executive are: For two years: Luke Williams, Ottawa; George Douglas, Toronto. For one year: R. L. Dunn, St. Catharines; H. J. Eddy, Montreal; S. Jordan, Peterboro.

Improvement of the Potato Industry

H. T. Gussow, Dominion Botanist, Ottawa, Ont.

The Hon. Minister of Agriculture has appointed Mr. G. C. Cunningham, B. S. A., and Mr. Paul A. Murphy, B. A., to assist the farmers of the Maritime Provinces in combating the diseases which attack their crops, particularly the potato crop.

The primary object is to help the farmers to produce larger crops of A. No. 1 seed potatoes, and to ensure for that seed the place in the market which its high quality deserves. Produce which is marketed under a guarantee of freedom from disease and purity is bound to obtain a higher price than could be otherwise secured. Such a course, if followed regularly for a few years, will give seed potatoes from these provinces an enviable position of superiority among buyers, and thus increase the returns of the growers.

It is proposed to make an examination of the potato fields, first during the growing season and then at the time of harvest, to detect the presence of all diseases which depreciate the value of the crop by lowering the yield and reducing the price.

Those who wish to have the services of these men for any special purpose during the current season are asked to send a request to G. C. Cunningham, care of Experimental Station, Fredericton, N. B., for the provinces of New Brunswick, Nova Scotia and Quebec, and to Paul A. Murphy, Experimental Station, Charlottetown, for Prince Edward Island. These pathologists will be entirely at the service of the farmers of their respective provinces in assisting them to improve all their crops, as well as the potato, in yield and quality, and all inquiries concerning diseases will be gladly answered.

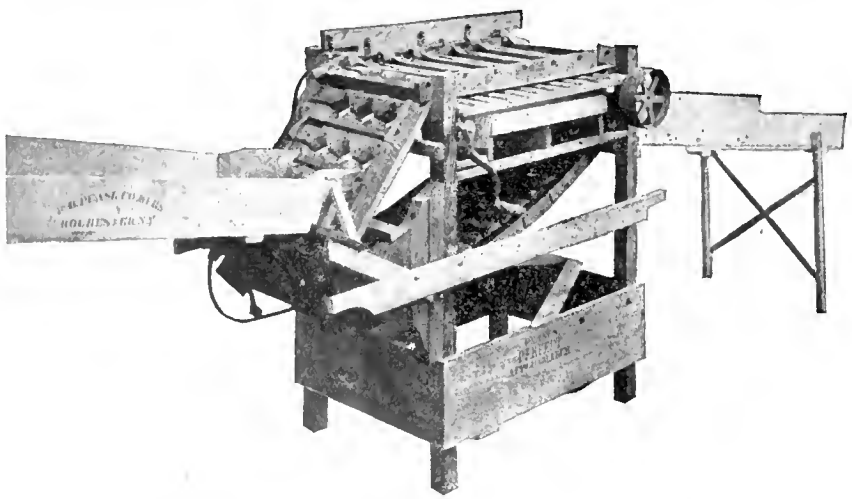
Items of Interest

The Ontario Department of Agriculture is conducting experiments on Pelee Island in Lake Erie in the growing of early tomatoes. It is expected that it will be found that tomatoes can be matured on this island at least a week earlier than in any other section of the province. Only about a quarter of an acre is under test but if the experiment proves successful it may result in large plantings in the future, owing to the high prices generally paid for early tomatoes.

The Canadian Forestry Association has issued a little booklet entitled "Twenty Canadian Trees," by Jas. Lawler, B.A., a former secretary of the association. The booklet contains illustrations of twenty of our best known Canadian trees with descriptions of them which will enable us to pick them out and distinguish them. Any one unacquainted with our Canadian trees will find this booklet helpful and interesting. Copies may be obtained from The Canadian Forestry Association, Journal Building, Ottawa.

We always find much of interest in The Canadian Horticulturist and wish it the continued success such a good journal deserves. —Mrs. Laura Rose Stephen, Huntingdon,

Pease's Automatic-Feed Fruit Grader



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The Canadian Horticulturist

Floral Edition

Vol. XXXVIII PETERBORO, OCTOBER, 1915 No. 10

Cherry Precooling

Edwin Smith, in charge of fruit cold storage investigations, Dominion Fruit Division, Grimsby, Ont.

CHERRY prices in 1914 indicated that something had gone radically wrong with the industry. Some authorities attributed the low prices to the financial stringency in Canada and the consequent poor buying capacity of the people; others placed the cause with the poor marketing systems in vogue; and not a small amount of the cause was assigned to over-production.

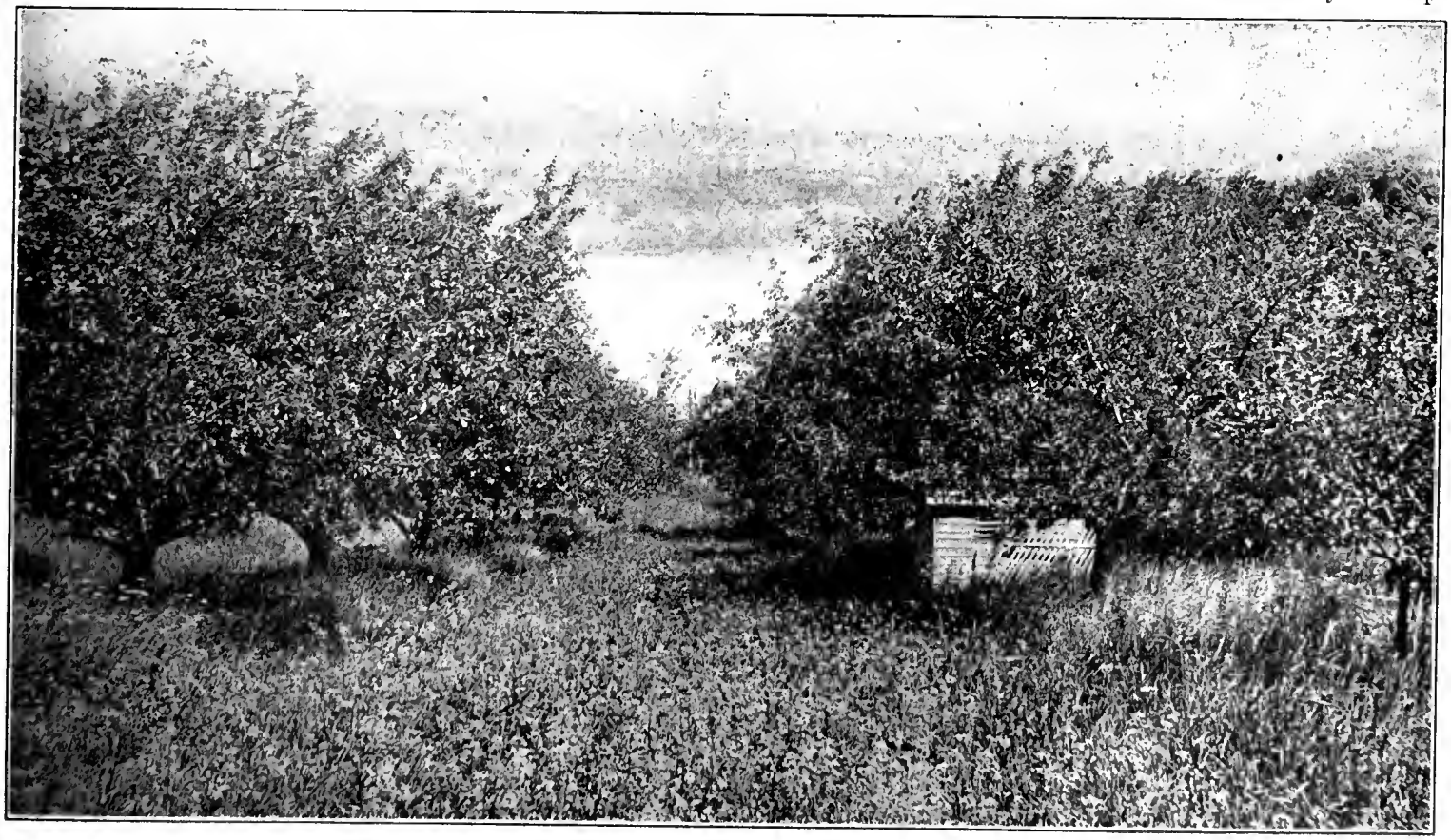
With a lighter crop in 1915 prices were expected to go back to old figures. These hopes were not realized as prices for sour cherries were as low or lower in 1915 than they were in 1914. This indicates that the supply of sour cherries has been catching up with the demand of local markets, and that the increase of 21.9 per cent. in the plantings of this fruit between 1901 and 1911 is now having its certain and drastic effect.

To meet these conditions cherry growers must work along two lines,—viz, increase consumption and extend markets. Advertising well done will greatly increase the consumption of all fruits. By properly packing and precooling cherries their markets may be greatly extended.

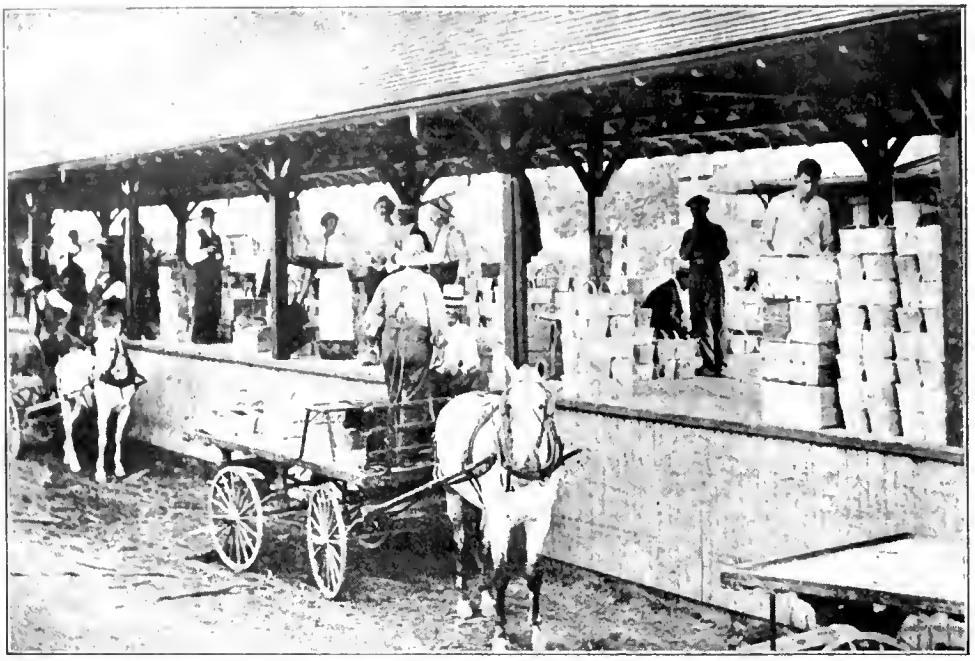
By making a demonstration shipment of 18,284 pounds of cherries in 1914 the Department of Agriculture so induced Ontario shippers to ship to western markets that in 1915 cherry shipments from Grimsby to the west have totalled 168,057 pounds, or ten carloads of cherries, currants, gooseberries and similar fruit. Thus the western marketing of Grimsby sour cherries has been increased over 900 per cent. in one year. This increase could not go on at the same rate from year to year, but it is certain that western markets could stand a great many more sour cherries if placed there at moderate prices.

During the past year the writer has investigated the source of supply of sour cherries for the prairie markets and has found that as yet but a very small amount of that fruit has been imported from the United States,—British Columbia and Ontario being practically the sole source of supply.

Practically none of the sour cherries thus far shipped from Ontario by freight have gone west of Winnipeg. Yet actual tests during 1915 with the Early Richmond, which is not considered so good a shipper as other varieties of sours, showed that this variety when properly precooled stood a ten days freight shipment, and after re-shipping one hundred and thirty-three miles by local express the cherries landed in splendid market condition. Ontario cherries may be ship-



An orchard in bearing on the farm of W. B. Gilman, Fredericton, N.B.



A fruit shipping platform at a railway station in the Niagara district. Note the light style of dray in the foreground.

ped by freight and re-shipped by express to small points in Alberta, or a similar distribution of British Columbia cherries may be given in Manitoba, although it would be foolish for the two districts to over-lap distributing territories. But as far as the physical condition of the cherries is concerned there is not a reason why all prairie points cannot be supplied with freight-hauled and moderate priced cherries if they are properly handled and shipped.

A Great Demand.

To illustrate the wonderfully large demand for moderate-priced cherries attention should be called to a large retail store in Winnipeg that bought an entire car of exceptionally good precooled Montmorency cherries and had a sale of the entire lot at 50c. per 6-pt. basket (eight pounds). So eager were the Winnipeg people to buy the fruit that the whole shipment of 2,333 baskets was sold in thirty minutes.

The sour cherry is a fruit that will stand a low temperature without injury. In general practice we do not use a temperature below thirty degrees to precool carload lots. However, our investigations show that no injury comes from subjecting the fruit to seventeen degrees for cooling, providing cooling is stopped before the temperature of the fruit reaches thirty-two degrees. By precooling to forty degrees and maintaining that temperature during transit the cherry may be shipped in splendid condition for ten or twelve days. If a temperature of thirty-two degrees could be maintained in our refrigerator cars cherries would stand freight shipment for two weeks. At the end of this time all cherries having stems out or that have been bruised in any way in packing will be discolored and upon close inspection counted as waste. This emphasizes the great care that must be used in harvesting cherries for long-distance shipments, since as little handling as possible must be used, and for this reason we advocate the picking of the cherries directly in the shipping baskets.

When precooling cherries care must be used in selecting the refrigerator cars that the fruit is to be shipped in. Our experience would not warrant the shipping of precooled cherries in the "Brine tank" type of refrigerator car without the use of salt, and our work has not proceeded far enough as yet to advocate the use of salt with fruit shipments. Even though the fruit has been cooled to thirty-eight degrees before shipping much diffienlty has been experienced in keeping the temperature of the Brine Tank refrigerator cars below fifty degrees during transit.

What has been said about sour cherries applies to a certain measure to sweet varieties, although these varieties will not stand the same length of shipment that sour varieties do. There is also a greater difference between the carrying characteristics of the sweet sorts than there is between the sours. Our investigations during the past year have proved that sweet varieties such as the Black Tartarian, Windsor, Bing or similar kinds may be precooled and shipped by freight for 1,300 miles.

The question that is asked more frequently than any other relating to the subject under discussion is "How will precooled cherries behave on the market?" It will be easy for the reader to realize that a cherry that has been picked for ten days, even though it has been under refrigeration, will not be in the firm, resistant condition that a fruit that has just been picked from the tree. Ripening processes have been taking place slowly but surely. However, the fruit will not perish immediately upon being removed from the refrigerator car into the warm air. At first there is a rapid condensation of moisture on the surface of the fruit, (not so heavy on the prairies as in the east on account of the low relative humidity of the air in the west). This gradually disappears, but the moisture has helped to germinate mold spores. During the day that it is being unloaded and distributed the cherries remain in good condition without much sign of change. After twenty-four hours from the car or on the following morning the fruit will appear in as good a condition, but upon careful examination will show discolored spots, especially where it has been bruised. After thirty-six hours the discolored spots commence to indicate decay, which begins to be serious after two days. This gives the fruit time for distribution, but means that no time can be wasted in the sale of fruit that has been picked so long.

Frost Thermometers

M. B. Davis, B.S.A., Experimental Farm, Ottawa

Many nights, in the spring and fall, frosts threaten, which do not actually arrive; or, if they do, only come in local areas. It is very difficult for any person to foretell whether a frost will actually come or not; so that the only way to be on the safe side would be to supplement by the addition of a frost alarm. The frost alarm thermometers are accurate and reliable, and are simple in construction. Where a thermometer is used it should be placed in a cold part of the farm where frosts generally strike, and it should not be more than 900 feet from the battery box. The two wires are then led from the battery to the thermometer.

The alarm thermometer is a specially made instrument, with a fine platinum wire fused into the bore of the tube connecting with the mercury column at 32 degrees F., or any other one permanent point desired. A second wire, touching the mercury at a point below the other, completes a circuit, which is broken the instant the mercury drops below the designated danger point — the permanent point referred to above. A non-sparking special relay battery attachment causes a bell to ring at practically any distance from the thermometer itself the moment the circuit is broken. Until the alarm rings the danger is not imminent, and all unnecessary expense of lighting fire pots in the orchard may be spared.

The Apple King of Eastern Canada

L. D. Robinson, Berwick, N. S.

THE story of the struggle of S. B Chute, of South Berwick, N.S., or "Sam" Chute, as his warmest friends and admirers delight to call him, to gain his present proud position among the fruit growers of Canada is as interesting as it is instructive. He is well deserving of the title, "Apple-King." No man of his generation in the Maritime Provinces has had an equal influence for good upon the growing and marketing of fruit. His success in building up the greatest orchard industry in Eastern Canada should be an inspiration to every fruit grower.

"Sam" Chute.

Mr. Chute's work as manager for the United Fruit Co's., Ltd., Nova Scotia, is too well known to need any lengthy notice. Suffice it to say that, despite the opposition of speculators and pessimists, he has carried forward the work of this organization to a successful conclusion. To-day it stands unrivalled by any similar organization in America, and it is a matter of great regret to all wellwishers of the United Fruit Companies of Nova Scotia that he has resigned his position as manager.

Loyally he stayed by his father during his ups and downs, and at the age of seventeen years we find him located in South Berwick, his present home, on a wornout farm, where the only thing that seemed to thrive was the mortgage. The story of how, through indomitable pluck and tireless industry, he has transformed this wornout farm into a veritable Eden of beauty and fruitfulness, is an inspiration to anyone unacquainted with the facts. Rescuing a few wretched plants from an old strawberry patch, he began his life as a fruit grower, and soon became known as the "Strawberry King" of the Annapolis Valley. And no king on his throne was prouder than he as, in overalls and battered straw hat, he drove to the station on top of wagon loads of luscious strawberries.

His ambition grew with success, and he began to see visions of a great apple orchard. Soon he began the planting of apple trees in his strawberry fields. They responded in a wonderful manner to the care and fertilizer necessary for the growth of large crops of berries. This work of orchard extension has gone steadily on till at the time of writing Mr. Chute's orchards cover 277 acres. Of these, 112 acres are in bearing, producing in favorable years some 10,000 bbls. of apples.

Mr. Chute's optimism is not dampened by war depression or the dangers of over-production. He feels that we in Nova Scotia have such an advantage over all competitors in the cheapness of our excellent fruit lands, and our nearness to the world's great markets, that we can defy competition. This year, 28 acres of new orchard were set, besides 40,000 root grafts.

Mr. Chute is something of a landlord in relation to his hired help. Most of his helpers live in cottages, ten in number, built on the premises for their accommodation. Many of them work with him year after year, one of his employees, a boy of fifteen years old, being born in one of these cottages, where his father still lives, and takes his place among the other workers on the farm. All these employees, fifteen in number, receive a cheque for their services every Saturday night. The pay-roll during the summer season averages about $100 weekly. Of course the number of helpers, and consequently the pay-roll, are greatly increased during the strawberry and apple picking. It is no uncommon sight at such times to see one hundred workers on this great farm.

Pruning.

In the early days of his experience in apple growing, Mr. Chute gave little attention to pruning, resting satisfied with abundant crops of fruit and healthy growth. But the demands of the market for highly-colored fruit, together with the ravages of apple scab and insect pests, have caused him to give the matter of pruning serious attention. He has learned by experience the impossibility of producing spot-free, highly-colored fruit in the shade. S. B. Chute makes mistakes, but unlike most people he does not make the same mistake twice. He now prunes systematically and thoroughly. The work of pruning begins early in March, and continues well on into April. His general instructions to pruners are: First, to remove all dead, diseased, and crossing branches; and second, to further thin the tree till air and sunlight can freely reach every part: this thinning to be effected rather by the removal of small branches than large ones.

The low-headed tree with open top has the preference, as this type of tree facilitates all orchard operations except cultivation. Canker has made its appearance in a block of Wagener trees, and is being vigorously treated. All the diseased limbs that can be spared are removed. In other cases, the sores are cut back with a sharp knife (a drawing knife may often be used to advantage) till healthy bark has been reached. Under this treatment, these sores as a rule will disappear, especially when covered with white lead paint. Mr. Chute has no use for the pruner whose progress through the orchard can be seen by the long stubs he leaves behind him. The limb removed must be cut parallel to the one from which it is taken, and as close to it as possible.

(Continued on Page 244)

A McMahon white apple tree, well loaded, at the Central Experimental Farm, Ottawa.

A prize winning collection of vegetables shown by T. S. Purvis at the Calgary Horticultural Exhibition, 1914.

The Beneficial Effects of Fall Cultivation

John Gall, Inglewood, Ont.

IT is generally recognized that fall cultivation of soils has a beneficial effect upon fertility. Let us consider the subject from the point of view of the requirements of crops. It will make the central facts clearer, perhaps, if we first of all consider the chief properties of a fertile soil. It is required of a good soil that not only will it afford a safe anchorage for the roots of plants, but that it must give, during the growing season, a constant supply of water to the transpiring foliage. Furthermore, it must be able to yield up to the feeding rootlets all those different mineral constituents, such as phosphates and salts of potash, as well as those simple compounds of nitrogen that are absolutely required by all garden crops.

The capacity of the soil to hold air is one of the most essential aids to fertility. Ventilation is just as important for soils as it is for ordinary dwellings, as, in the absence of pure air, the active, living roots of our ordinary cultivated plants would sicken and perish. Moreover, as the oxygen of the air is used up in the process of respiration, not only by the roots, but also by the vast population of germs that inhabit the soil, certain waste products of a poisonous nature are produced, and these must be removed or rendered harmless if the soil is to be kept fit and sustained at its highest point of efficiency. Lastly, a fertile soil must be able to take up the sun's heat and retain it. Warmth is of supreme importance, and especially so in spring. If at times the land is too wet, the heat is absorbed by the useless water, and the soil remains cold and uncongenial to early growth.

Cultivation promotes these conditions of soil fertility. The one great mechanical effect of digging is that it makes the soil finer in grain, and the finer the grain the greater is its fertility. To appreciate fully the importance of this fact let me refer for a moment to the way the roots of a plant feed. It is well known that all food taken up from the soil must be absorbed in solution in water. No solid particle, however minute, can pass through the membrane that acts as a covering to the young roots and root-hairs. But it is a peculiarity of all tillage plants that their roots are slow to take up what we may term "loose" water — that is, water that is free to drain away from the soil. The water they really take in is the water that clings to the surface of each little damp particle of soil, as such water is more highly charged with food slowly dissolved out of the little solid mass to which both the film of water and root-hair are so closely attached. Ordinary digging tends to break up the soil into a finer mechanical condition, and so tends to increase its water-holding power.

Fall cultivation carries the crumbling process much further, especially in the case of heavy or stiff soils. By throwing up the soil in rough ridges, the frosts of winter, by freezing (and therefore expanding) the water within the pores of the soil, causes the coarse lumps of soil to swell, and, because of this pushing apart of its particles, cohesion is weakened and their former closeness of texture is destroyed. The ridges quickly dry out in the March winds, and are easily pulverized when spring operations begin in the garden. This expansive force of freezing water is by far the most powerful agent at the gardener's disposal for the breaking down of lumpy soil and so far converting it into a mellow and kindly workable condition. Neglect of this relatively cheap and easy method of increasing fertility is a refusal to take advantage of one of Nature's most generous offers to aid the gardener in his efforts to secure the best services of the soil in the bountiful production of crops.

Cultivation and Fertility.

A grower should always think in terms of area of soil particles available for exploitation by roots, rather than in terms of superficial area of his garden. A well-tilled plot of a rood area may be quite as productive as a badly-tilled plot of an acre, as it all depends upon the fineness of the soil. A little hard cube of soil has six sides or surfaces. If it is broken in two, the six sides become twelve, and if these two are again divided, there will be twenty-four sides, over each of which a water film can cling, and so the work of dissolving out plant food substances from the soil can be extended over four times a greater area in the last-mentioned case than in the first. In fact, a cubic foot of soil, such as is used for potting purposes, represents in reality about an acre of absorbing area for roots.

Almost all soils contain practically an inexhaustible supply of plant food, if only it could be made available. The only natural way in which it can be so made ready for the roots is through the dissolving action of tightly-clinging water films. It follows that working the soil is equal in effect to manuring it. Furthermore, such thorough cultivation, by increasing not only the water-holding power of the soil, but also its air-holding capacity, encourages the growth and general activity of useful bacteria in the soil, and especially such forms as are engaged in the work of nitrification.

Strawberry plants should be mulched late in the fall to prevent any injury from alternate freezing and thawing during the winter.

Cut out all dead canes from the raspberry and blackberry plantations, leaving only wood which grew this year.

Grapes should be pruned and covered before the ground freezes.

Delay pruning fruit trees until March or April.

Plan Now for Next Year's Perennial Border

John Gall, Inglewood, Ont.

THE man of moderate means who desires to see his small garden plot a mass of bloom during the summer months, and indeed well on into the fall, is often at a loss to know how best to achieve his purpose, and at the same time keep his expenditure within reasonable bounds. His quest for information leads him from time to time to the classic treatises on gardening, and he is told to raise this in heat, to prick that off and harden in a cold frame, to pot on the other, and to pinch out a fourth species of plant, until he recoils in despair from the effort to master the technicalities of the science of horticulture, and either calls in the jobbing gardener to "clean up" the borders or abandons the attempt to achieve order out of chaos.

He is not, perhaps, the owner of a greenhouse and a frame, and even if he were he has not the leisure to devote the many hours that are necessary to the successful raising of seedlings or the propagation of cuttings. All these operations are fascinating in the extreme to the amateur who boasts proudly, and not without reason, to his neighbors of his batch of plants from seed, or that bed of plants from cuttings. It is the aim of most amateurs to be able to say, "I did that. It is my own work from beginning to end."

This is all very good; but as I have said, it is not everybody who has the means, the time, or the inclination to attempt such horticultural flights. What, then, is the alternative? It lies in the cultivation of that class of plants known as hardy perennials. No finer sight can be imagined than a well-stocked herbaceous border when the flowers are at their best in July, August and September. The formal beds of scarlet geraniums and blue lobelia, beloved of the jobbing gardener, pale into significance beside the stately grandeur of well-grown perennials. The initial cost of such plants hardly exceeds that of more formal bedding subjects, and once overcome the owner of a group of hardy perennials has the satisfaction of knowing that his purchases possess the merit of permanence.

The great attraction which the perennial border has for the average amateur gardener is that when once it has been well and truly planted—that is to say, when a suitable soil medium has been provided, and due attention has been paid to the requirements of the plants in regard to disposition and situation—it demands comparatively little attention, save for an occasional loosening of the surface soil with hoe or fork, and an annual top-dressing of manure. The plants take care of themselves. They put forth their fresh green spikes through the soil with the advent of sunny days in April, they attain the zenith of their splendor in summer and early fall, and then die down to be stirred into activity again and again as season follows season.

Preparing the Bed.

First of all, in planting a perennial border—and, indeed, in every other branch of gardening—comes the preparation of the soil. In the well-ordered garden this will be done in late summer or early fall. The chief point to remember in preparing the soil for perennials is that the border is to be the home of your plants for a number of years. The less you disturb them the better they will grow. Therefore dig deep and dig thoroughly. If you find that the good soil is two feet deep you may rest assured that you have it at sufficient depth.

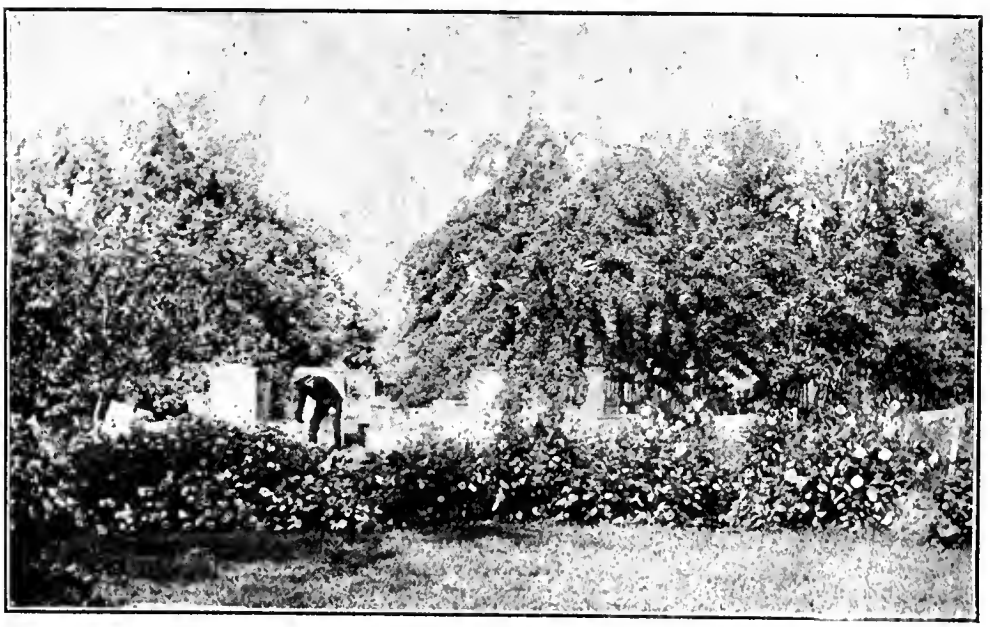
It is possible, however, that you will have to contend with heavy clay or a light sandy soil, and that the drainage of the subsoil may be imperfect. The great object to be aimed at is to give your perennial plants a sufficiently deep root run. Where the top layers of soil are defective they should be treated so that, if they are too light, moisture-retaining substances are incorporated, and if too heavy, the lighter qualities of sand and road grit may be introduced, so as to bring about a better condition of porosity.

The building up of a border with entirely new material will be found to be a somewhat expensive undertaking, but where it is possible the results will be nothing but satisfactory if the following method be adopted: The old soil should be taken out to a depth of two or three feet, the subsoil loosened for purposes of drainage, and the vacant space filled in with layers of well-rotted manure towards the bottom, old pieces of turf, road grit, and loamy soil. The surface should be raised and rounded to allow for the inevitable shrinkage which will follow as the soil settles down.

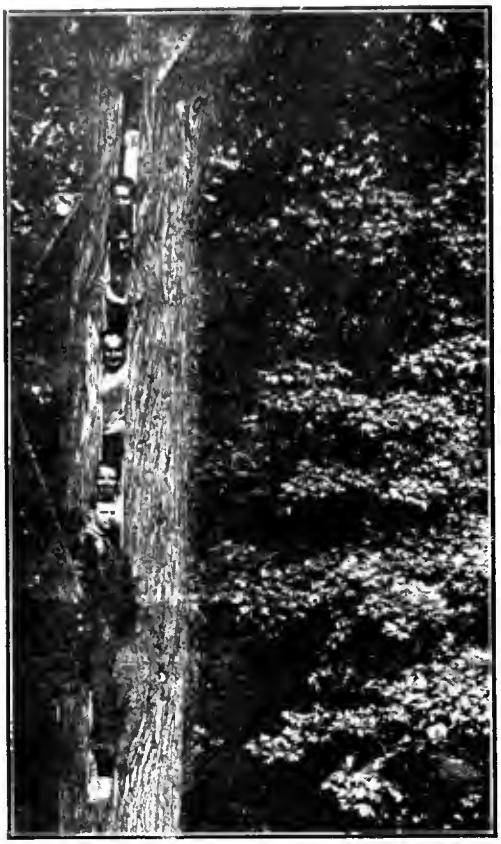
And here let me emphasize the desirability of generosity in regard to the width of the border. If the plants are not to be cramped for room; if they are to be allowed to flourish, and to attain the breadth and height that are natural to them, then be assured that they will only reach the standard of perfection of which they are capable if they be accorded spacious treatment. By this I mean a border not less than four feet wide, and if possible six. Its length will, of course, depend upon the dimensions of the garden—the larger it is the better chance will it give of effective grouping and the adoption of suitable color schemes.

What to Plant.

It is an education in gardening to study the catalogues of some of the leading growers of perennials, such as advertised in The Canadian Horticulturist, and who furnish them free on application. The classes are all carefully tabulated, and contain notes of the utmost value to the amateur.



Beekeeping and the growing of fruit and flowers make a splendid combination. This illustration shows the combined apiary, orchard and garden of Wm. Gibbs, Appin, Ont.



Tree doctors at work. The rotted centre hollowed out of a tree in a garden in Montreal, preparatory to being filled with cement.

A selection of the plants that are intended to furnish the border having been made, the next essentials are firm planting, and discrimination in the choice of positions, so that the effective groupings and color schemes can be arranged. Even the beginner in gardening will be familiar with the good old rule that tall growing subjects should be placed at the back of the border and low growing plants in the front. But he will be wise not to observe it too closely. Its adoption will inevitably result in a dreary and monotonous uniformity, which it should be his object, in this as in all other gardening operations, to avoid. By all means let him place his hollyhocks and rudbeckias towards the back, but do not let him hide his early flowering irises, his coreopsis or his choicest Michaelmas daisies in such a manner that their full beauty is obscured. Let him break up his border by judicious planting. A well-arranged border is like a shifting kaleidoscope, but to realize this constant variety the color, height, and habit of each individual plant need to be studied.

The propagation of paeonies from seed is a slow matter, for it takes four or five years for a paeony to grow from the seed to the blooming period, and even then it will hardly repay the trouble, for the chances are all against producing anything worth while.—J. H. Bennett, Barrie, Ont.

Ginseng: Some Practical Pointers on its Cultivation

H. S. Watson, M.D., Newmarket, Ont.

I HAVE been interested in ginseng growing for the past ten years, and have found it exceedingly interesting and also profitable.

Notwithstanding the fact that I have many reverses due to inexperience, I have still continued, with a good degree of success. I hope that this article may be of use to some who are starting out in the business, and may save them much expense, loss and worry.

Cultivation.

Select a sand loam soil, cultivated to a depth of from ten to fifteen inches. To enrich the soil, use well-rotted manure, preferably from the cow stable, also fine, rotted wood, chip-dirt and leaf-mold from the woods if procurable, and mix thoroughly with the soil.

Make your beds four feet six inches wide, and any length you may wish. They will hold nine rows, six inches apart lengthwise, and set plants six inches apart each way. Some prefer them eight inches apart lengthwise in the rows.

Make the aisles at least eighteen inches wide and raise the beds as much as six inches higher than the bottom of the path between them, in order to procure free drainage. Select your ground where the water will not stand in the spring or at any other season of the year.

I lost about five thousand four-year-old plants one spring in that way. Don't do the same thing; it is too expensive.

Shading.

Lath shading is the best to use in open cultivation. Put your lath up in sections, made by nailing four-foot lath on 2½-in. by 1-in. strips. Set it on edge with the same material nailed on the ends, which you will find the easiest to handle if made about twelve feet long. Nail the lath not more than one-quarter of an inch apart.

Wire these sections to 2 x 4 in. scantling nailed to the tops of posts at least six feet high above the surface of the beds. The higher the posts the better to prevent Altenaria Blight (which I have never had on account of my high shading), which comes from dampness and lack of free circulation of air.

Seed Propagation.

Gather your seeds as soon as ripe or when they begin to fall to the ground. This is from the first week until the end of September, owing to the season in this section of Ontario. The season is later in other parts of America, I suppose.

Place your berries in a box or barrel between layers of dry sand, well sifted through a very fine screen. I use the ordinary mosquito wire on a wooden frame. After four or five weeks I put them through the same screen, using water to carry through the sand and pulp, and the seeds remain in the screen.

I then make a box large enough to hold my seeds and about four times the quantity of soil. A hole is dug deep enough to hold the box, with about six inches of earth above the top. Nail wire netting on the open bottom and place the box in the hole. Sift the sand and dirt, one-third of the former to two-thirds of the latter, into the box about one inch deep.

Put in a layer of seed and alternate the seed and dirt till completed. Then cover with netting and then with earth. The netting above allows of free drainage below and moisture from above, and keeps out mice. Allow the seed to remain from the fall they are gathered until the following fall, when you sift again and sow in nursery beds.

Nursery Beds.

Make your nursery the same as the other beds, only have the dirt as finely pulverized as possible. Sow the seed so they will not be too thick, say three or four to the inch, and cover about two inches with finely-pulverized rich soil. Cover with very fine leaf mold, and when one or two years old transplant to the permanent beds.

Covering.

To cover your plants for winter, use wood-leaves three or four inches deep, and allow them to remain till the following summer. If they matted down during the winter, stir them up as early in the spring as possible, to prevent smothering the plants.

I have found ginseng a profitable crop, requiring but little labor and only a small amount of land. One acre will contain about 120,000 plants.

I have used for the past five years the natural woods and shade, but I believe it is overbalanced by the rapid growth under artificial shade. The roots of the trees take up too much moisture and substance from the soil to promote the rapid growth of the ginseng roots.

The growing of ginseng will be found a most healthful and pleasing as well as profitable occupation for any person in delicate health, as they will, when they become interested, spend a great amount of time in the garden, watching the growth and development of their enterprise.

Garden Suggestions for October

Henry Gibson

IF the perennial border and flower beds have not been cleaned up after the frost has blackened the plants that bit of work ought to be attended to at once. Cut off all the dead flower stalks and burn them. Clear the space between the plants of all weed growth, and then when the surface is nicely frozen over a mulch of good quality manure can be applied. Perennial grasses, when dry, are very inflammable, and any that are growing near buildings should be cut off and burned. Safety first is a world-wide slogan, and the only reason for removing these grasses is fire precaution. Remote from buildings they may be left alone, as they produce a good winter effect. It is also advisable to remove leaves away from buildings. The Rhododendron beds may be filled with leaves, which afford the plants the finest of protection, and in time decay into a soil that is ideal for them. Surplus leaves can be stored in an out of the way corner to rot.

Just as soon as the frost has cut down the tops of the dahlias, dig up the roots and store them in a dry, cool cellar. Sand, placed about the roots, will prevent them shrivelling up in a very dry cellar. When only a few roots are to be stored, it is a good plan to wrap them separately in sheets of newspapers and place them in a barrel, in the cellar. Frost must never reach them during the winter. When digging the roots let them lie on their sides for several hours in the sun to dry them previous to storing.

Cannas are handled in the same manner as dahlias, save that they may be stored without covering. Beneath the bench of a cool greenhouse is an ideal place for them, but they may also be kept in the house cellar.

Pansies set out last month for early spring flowering must be covered with leaves before heavy freezing weather sets in. The mulch can be applied as soon as the plants have been slightly frosted and hardened. Follow this in a few days with a light covering of hay.

Bay trees and hydrangeas should be placed where they can be taken inside on frosty nights. It is not advisable, however, to take them in too early as they are apt to get soft and not winter well. A cold, yet frost-proof, cellar, where the air is quite stationary, makes an ideal place for hydrangeas. Keep them on the dry side when resting, which means, don't give enough water to make the tree wet. Bay trees winter best in a cool greenhouse, where a temperature of from 40 to 45 degrees is maintained. Water only sparingly. Too warm a temperature and too much water, which promotes a soft, sappy growth is the cause of many bay trees not being long lived.

Keep the lawn mowed right up till frost comes. Many amateurs are very attentive to their lawns until it gets to this time of the year, when they neglect them. The late fall growth should be mowed off, as it dies back during the winter, and not only looks unsightly, but is troublesome when the grass is to be cut again in the spring.

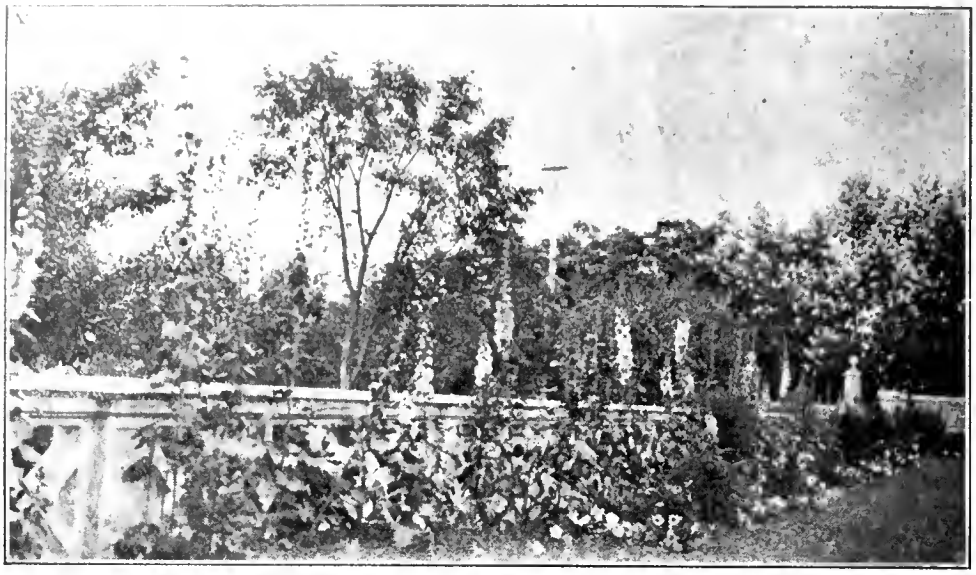
The Vegetable Garden.

All root crops, such as beets, carrots, chickory, salsify, turnip, rutabaya, and sea kale should now be lifted and stored for the winter. Many people store them in the cellar, but outside trenches are quite satisfactory. Bury some old packing cases in which the roots can be placed. The top is covered with boards and then some salt hay, with a covering of earth, is placed on top of this. When real hard freezing sets in an additional covering of leaves and litter can be used to keep out the frost. Vents should be made through the earth so that they may be opened up in mild weather. High ground should be chosen for storing, and trenches should be dug about six feet from the boxes on each side and the soil thrown towards the cases to keep the water away.

Watch Your Celery.

Celery will need to be put into winter quarters. Where only small quantities are grown, hilling it up well, and covering it with leaves, or other

Ferns in the wild garden of A. W. Child, Hamilton, Ont. They grow in all their natural beauty.



Hollyhocks bordering a balustrade at Bagnell Hall, Cobourg, Ont.

litter to keep out the frost is as good a plan as any. Another method is to store in cellars. This has one disadvantage, as the celery becomes stringy. The ideal method of storing celery in quantity is to dig a trench deep enough so that the tops are about level with the surface. Cover it with boards, and then earth to mound up, using leaves or salt hay in courses between the earth. Cabbage is stored in a similar manner. The whole plant is lifted entire, and the heads placed upside down in the trench. The soil is mounded up and the same protection given as for celery.

Vegetables Under Glass.

The first crop of vegetables, such as cauliflower, lettuce, etc., should now be ready for planting in the greenhouse. Beans may also be sown, also beets and carrots for winter use. Radishes may be sown between the cauliflower in the benches. No rule can be laid down as to the quantity of vegetables one must grow. Each person must work out his or her own schedule of quantities, according to demand and space available.

Have plenty of seeds on hand and sow often, so as to have continuous crops with a minimum of waste.

Plants and Flowers Under Glass.

Chrysanthemums will be showing color early this month. Fumigate the house thoroughly, just before the buds burst, to insure the flowers not being infested with black fly. Stop giving liquid manure and other stimulants when the buds show color, except for an application or two of soot water to improve the color, using a seven or eight-inch potful of soot to a barrel of water. Be sure and have the house dry at night, or moisture will condense on the petals of the flowers and cause them to damp off.

Go over your stock of bedding plants, such as coleus, geraniums, alternanthera, and see that they are not being neglected. Your next season's supply depends upon these plants, and if they are neglected now one cannot expect them to come through the winter satisfactorily and later furnish material for propagating.

Mignonette and antirrhinum that have been recently benched should be kept growing by keeping the soil well worked around the plants. Keep insects in check by timely fumigating, and maintain an adequate temperature. Forty-five to forty-eight degrees at night is what these plants require, with a rise of from ten to fifteen degrees, with sun heat during the day.

All pot plants, such as calceolarias, cinerarias, cyclamen, and primulas, should be placed on the benches where they are to be flowered. They must have good care in regard to watering; in fact, all plants indoors need care exercised in this respect now that the dark days are advancing. Keep a sharp lookout for insect pests and be prompt in applying a remedy should you find any. No feeding should be done at this time if good rich soil was used when potting.

Poinsettias require an even temperature of sixty degrees at night or they will lose their bottom leaves.

Jerusalem cherries that were potted up from the garden early last month will now have established themselves in their pots. Give them a sunny position, so that the berries will ripen up.

Continue to pot up bulbs to provide for a succession of bloom. Place the pots in a cold frame and cover with four or five inches of coal ashes until the bulbs are well rooted.

Currants and gooseberries are best pruned in October or November. Remove some of the oldest fruiting canes each year or the bush will soon become too dense.

A Western Garden

Mrs. H. Lys, Dauphin, Man.

I wanted to find how many varieties of flowers could be grown in my garden from year to year, that would give a succession of bloom for the whole season and there is no bed in the garden that is of more interest or more beautiful, though I have a few treasured plants in particular nooks that are proving that we don't know yet what we can grow. In the spring I had auriculas and polyanthus full of bloom that had been out all the winter and in one corner I had a little patch of Canadian maiden-hair fern, imported from Mount Royal (Montreal), and it grew as if it belonged here. I also had some thriving foxglove plants, but they did not bloom, though the foliage was strong.

In August my hardy border was a sight; the front strip where the bulbs and earliest spring flowers had been was a soft mass of annual gypsophila and mignonette.

The irregularity of my border was pleasing and the flowers were kept blooming all the season by carefully cutting the old ones off. By this method, of course, no seed was saved, but until freeze up the delphiniums especially were a sight, the Oriental and Iceland poppies were blooming again, the Canterbury bells and dianthus were still in bloom, in fact, the only ones (such as iris and columbines) that were not blooming were doing their share to keep up the pageant of beauty with their foliage. Even in the first week of September I picked a few stray pyrethrums and in the far corner our old friend, the sunflower, turned its stately head.

I often think that if the association of flowers with the history and myths of the past were better known, they would be still more interesting than they are.

A border of this kind, with so many plants fairly close together, needs careful preparing before it is planted. The earth must be rich—plenty of old, well-rotted stable manure was used for this one and nearly all the plants were put in in the fall.

Potatoes should be dug in dry weather, so that they will be dry when they are taken into the cellar. If they are diseased, the disease will not spread so rapidly among dry potatoes. If the potatoes are known to be diseased in the field, it is best to leave them in the ground as long as possible, so that diseased potatoes may more readily be seen and separated from sound ones before they are taken into the cellar. Potatoes should be stored for best results in a dry, cool, well ventilated cellar.

Autumn Treatment of Flower Borders

B. C. Tillett, Hamilton, Ont.

DURING the early autumn months there is much work of a seasonable character to be done among herbaceous border plants. A number of herbaceous plants are of a long-suffering nature, and submit to division and replanting at almost any time with impunity. In the autumn, however, when flowering has ceased, there is a general desire for tidying up, and at such times much useful work may be done.

The cutting down of all plants may be proceeded with at once, taking care that in so doing labels are not disturbed or even lost altogether. We grow these and other garden flowers chiefly for ornament, or for their usefulness in a cut state.

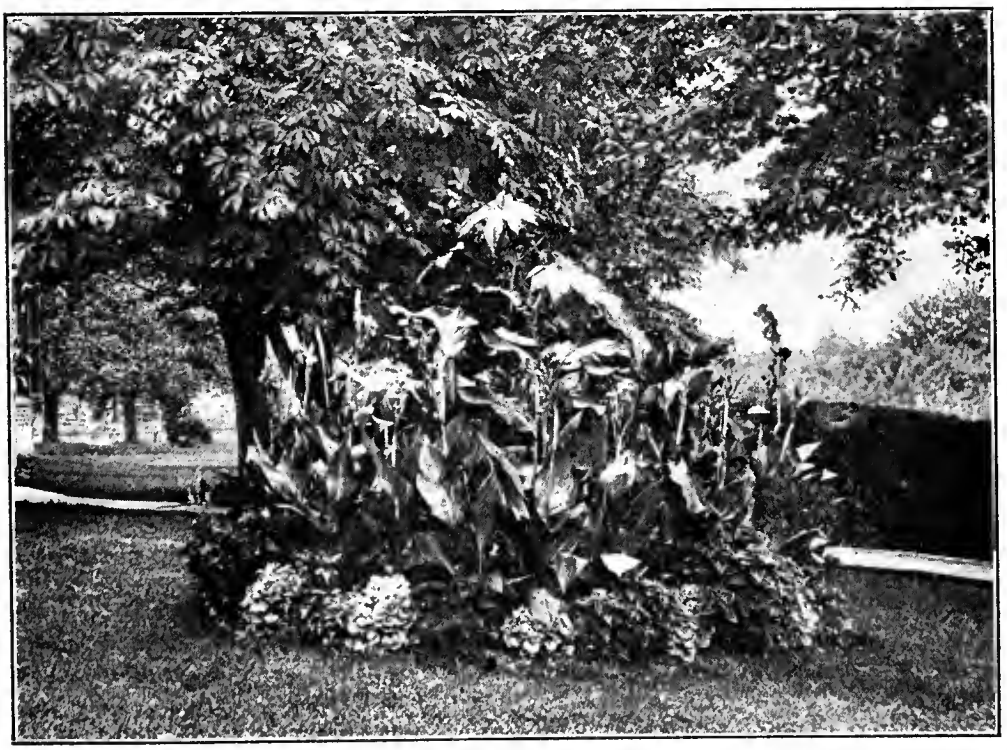
With the cutting down of the plants completed, it must be decided whether forking, digging, or manuring is necessary. Needless to say, the first and last of these will benefit both the border and the plants it contains. The addition of manure by its bulk alone lifts, lightens and airs the soil, and in so doing performs important work quite apart from its enriching effects. The best manure to employ is that of a short, well-decayed nature. At such times, too, a free addition of lime may, with decided gain, be given to all soils of a heavy or water-holding nature.

Not a few of the best border plants are of so robust a nature that they quickly form mats of growth, which if left undisturbed will prove their own undoing in the near future. The digging up, dividing and replanting of these is, therefore, of importance at this time. The white perennial marguerites (chrysanthemum maximum and its varieties), the michaelmas daisy, rudbeckias, the sunflowers (helianthus), and the achilleas will usually benefit by being divided and replanted every year. The varieties of the two groups first named quickly exhaust the soil, and manure should be added freely.

One of the greatest aids to success in the case of soil-robbing subjects is to give a complete change of position. The one need be but a yard or two removed from the old position, there to find all the advantages which a change of soil brings in its train. The idea is simple in the extreme, and yet its importance infinite, despite which it is rarely done. A much more frequent way is to lift a plant, and having dug and manured the ground, replant it in its old position. By these means a partial change of soil only is secured, while in that suggested above it is complete and entire.

In the case of the more robust growing, mat-forming subjects a considerable amount of plant material will have to be discarded. With not a few amateurs this goes very much against the grain, yet it has got to be done if good results are to be obtained. The replanting of big clumps of things—pyrethrums and michaelmas daisy, for example, is a fallacy; the youthful plant is capable of much better work, and is commended to all. When replanting such as the white Marguerites, or Michaelmas daisies, only the strongest, outermost portions of the clumps—those that have developed with light and air all around—should be retained. The superiority of these compared with the innermost shoots of a plant will be obvious at a glance. Single growths, if well rooted, are the best, and of these, six or a dozen arranged a few inches apart will not only form a goodly group, but provide a display of the finest flowers in due season.

Plants slow to establish themselves, such as paeonies, Japanese anemonies, day lilies, and others, dislike too frequent disturbance of their roots. Such as these should have the soil carefully forked about them and a dressing of manure given. Larkspur (delphinium) may be left for three years without disturbance, and so may the herbaceous phloxes.



This bed of cannas, nine feet in diameter, was grown on the lawn of Oscar Boden, Meaford, Ont. A description of the arrangement of the bed is given on this page.

A Striking Bed of Cannas

Oscar Boden, Meaford, Ont.

As the centre of my bed of cannas, which is nine feet in diameter, I use a castor oil plant. Next to it are planted two circles of red and dark cannas. Outside these are two circles of cannas of yellow and light shades. For a border I use green and white leaved geraniums and a coleus. This arrangement has given me the most attractive beds.

I have had the cannas for years. In the fall, after the frost I cut off the stems and dig up the roots with as much earth as will stay with them. They are placed in the cellar in a large packing case and the spaces in between are filled with earth. A little water is sprinkled on them during the winter to keep them moist. About the first of April I take them up, break them apart and plant the good single roots in wooden boxes. These boxes are kept under a bench in my little conservatory. By the end of May, when they are ready to plant out, they are from one to two feet high.

The Blight of Phlox

What can be done for blight on the perennial phlox? The leaves begin to turn yellow and dry up near the ground. This gradually extends up the stem.—Miss H., Peterboro, Ont.

The cause of the trouble is probably lack of nourishment at the roots, as Perennial phlox are gross feeders and require a lot of moisture to help them during the growing season. In the fall or early spring take out soil to a depth of eighteen inches and replace it with good rotten sod-soil. A good mulching of rotten manure is also of great benefit to all kinds of herbaceous plants in the spring, as it helps to conserve the moisture and keep the roots cool.—O. C.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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.

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CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Fruit at the National Exhibition.

Officials, judges and fruit growers interested in the Canadian National Exhibition contend that provision must be made for renewing the exhibit of soft fruits during the period of the exhibition. A week is too long to keep plums, peaches and early pears. Some days before the exhibition closed they were in a condition that was far from making a good impression on the public. This year the awards were scarcely made before the soft fruits began to decay and in spite of careful picking over every morning many of the exhibits were positively disgusting the last two or three days.

An object lesson in the display of tender fruits was furnished by the departmental exhibits in the Government Building. There they were carefully replaced every second day, with the result that to the last the displays were wholesome and attractive, and therefore tended to create a favorable impression on exhibition visitors.

How to provide for replacing the decaying fruit without eliminating the competitive features of the fruit exhibit is a problem that should be faced by those responsible for the fruit exhibits. It might be accomplished to some extent by placing districts or horticultural associations in competition with each other and doing away in part at least with individual competition. The same care would then be taken to keep the exhibits up to standard throughout the two weeks of the fair as is now taken by those in charge of the departmental fruit exhibits in the government building. The period during which competitive fruit should be on display might also be restricted.

Pre-Cooling Possibilities.

The two articles in this issue by Mr. Edwin Smith, of the Dominion Cold Storage Division, reveal once more the value of the work that is being accomplished in the interests of the fruit growers through the medium of the pre-cooling and experimental fruit warehouse at Grimsby, Ont. For years the fruit industry, not only in Canada, but throughout the United States as well, and particularly in the far west, has been boomed as a gentleman capitalist proposition in which it was easy to earn large and sure returns with a minimum expenditure of labor, and that during only a few months of the year. Land speculators, more anxious to make big profits through rapid sales of land, irrespective of the ultimate effect on the fruit industry and those engaged in it, forced up the price of land and encouraged overproduction to a point where serious consequences have become apparent. Unfortunately any rapid recovery to normal conditions is impossible, owing to the thousands upon thousands of acres of young orchards that will come into production during the next few years.

What then is to be done? Unquestionably existing markets for fruit must be developed and extended. This is the problem which the Cold Storage Division is doing much to solve. The experimental shipments of precooled cherries from the Niagara District to the west this year have demonstrated the possibilities of further shipments of this character.

Canada has been somewhat slow to recognize the advantage and benefits of the precooling of fruit. For years it has been one of the main secrets of the success that has attended the efforts of the Pacific coast fruit growers of the United States, to market their fruit in the markets of the Eastern States, and even abroad. Now that we are profiting from the results of their pioneer efforts, we may expect to see a steady, possibly rapid extension of this system in the fruit districts of Canada. It is fortunate that the Dominion Cold Storage Division is so admirably equipped, in men as well as in other essentials, for the guidance of this movement along safe and well-tried lines.

Protect the Trees.

A subscriber of The Canadian Horticulturist in Hamilton, wants to know if something cannot be done to arouse civic authorities to a realization of the necessity for protecting trees from fire blight and other diseases, and pests to which they are heir. This is a difficult situation with which to deal.

The average alderman is well intentioned, but he is more concerned about keeping down the tax rate and avoiding the wrath of irate tax payers than he is about protecting shade trees, and otherwise enhancing civic beauty along horticultural lines. The only way to reach him effectively is by creating a public sentiment which will demand the necessary reform.

A second difficulty exists in the fact that most of those who are interested in the protection of trees and boulevards have not the time to devote to the matter that would be required to effect the needed improvement. While these difficulties are real and serious, they are not necessarily insurmountable. It is surprising often what one man can accomplish by well timed letters to the local press or by enlisting the assistance of a few others in a quiet canvass of members of the council or of the parks commission or committee. The problem is essentially local in character.

There is one direction in which the Dominion or Provincial forestry divisions might be of assistance. Often trees die from causes with which the local authorities are unfamiliar. A word of advice or assistance from experts might be all that would be necessary to start the necessary remedial measures. Members of the staffs of these divisions should be encouraged to extend this assistance and the fear of arousing local criticism should not deter them too much from so doing.

Drastic Treatment Required.

One reason more fruit is not purchased in small quantities for eating out-of-hand by the public, as it passes along the chief thoroughfares of our large cities, is the difficulty the public experiences in obtaining the worth of its money. The little fruit stands that dot many busy corners, near railroad stations, and other busy centres, are in the hands of men, mostly foreigners, many of whom are flagrant offenders in the matter of palming off worthless, or practically worthless fruit on the public. In spite of the fact that a person may have been victimized by them repeatedly, it is a most difficult matter to detect them. You may point out to them the particular pears, peaches, or apples that you want. They say or nod yes to your desires, but manage to turn their back on you and slip in some inferior fruit in spite of all

your precautions. It may be that you find, after completing your purchase, that while the fruit you pointed out appeared alright on the stand, its good side had been turned up, thereby concealing the defects that would have been only too apparent could the other side of the fruit have been seen. The only way to insure fair treatment in some cases is to stop and examine your purchases before you leave the stand, and if necessary be prepared to call for the services of a police constable. Even then it may be impossible to prevent an unpleasant scene.

Many people have received such miserable treatment from this class of dealers that they must have given up the purchase of fruit in this way. The fruit grower, anxious to find an outlet for his fruit, is the ultimate chief loser. The provisions of the Fruit Marks Act might be made to cover such cases and they should be vigorously enforced. Prosecutions of well-known offenders, if followed up systematically for a while, would soon bring about an improvement, and benefit both the consumers and the growers.

Our modern methods of national economy sometimes produce surprising conditions. We conduct campaigns to encourage production and then we maintain import taxes on fertilizers and other essentials to increased production. Lifting some of the burdens from producers, as Germany has done since the outbreak of the war, would promote the increased production so much desired.

PUBLISHER'S DESK

Our front cover illustration this month shows a scene in the garden of Mr. Oscar Boden, Meaford, Ont. One of the flower beds in this garden is illustrated on Page 237.

* * *

There are some unusually helpful and instructive articles in this issue of The Canadian Horticulturist. Fruit growers will enjoy the contributions from the pens of Mr. Carey and Mr. Smith, as well as the description of Mr. Chute's rise in the fruit industry. Amateur flower growers appreciate the articles by Mr. Gibson, with their monthly reminders and Mr. Gall's simple, helpful directions for the production of more and better flowers. Mr. Gibson's articles are to be a feature of The Canadian Horticulturist during the next few months.

* * *

The Canadian Horticulturist guarantees the reliability of its advertisers. Nevertheless we almost never receive a complaint against any of the several hundred firms and individuals who patronize our advertising columns throughout the year. This proves their reliability as nothing else could. Two complaints were received some time ago about the methods of one firm. As correspondence on our part failed to effect a settlement, a member of the staff took the train during September and visited the head office of the firm in question. A satisfactory settlement has now been assured. This incident is mentioned merely in order that our readers may see that we are determined to stand behind the advertising guarantee that we publish on the editorial page of each issue and which is intended for their full protection.

* * *

Our readers are once more invited to send us photographs of fruit and floral scenes. Subscription representatives in certain of the leading fruit districts are also desired.

VACANT LOT GARDENS.

Reports from various cities and towns in Canada as to the cultivation of vacant lots that have reached the Canadian Commission on Conservation indicate that the campaign inaugurated last spring for greater production and more extensive use of vacant land has been a success. Several cities have handled the vacant lot problem in a systematic manner, and have secured results commensurate to the amount of energy expended. Some, by allowing interest to lag, have been only partially successful. In others, also, circumstances militated against success, in that unemployed men took up the cultivation of vacant lots, and, upon securing employment, neglected them. On the whole, however, the movement has proved a distinct success.

There is one danger from the vacant lot garden, namely, the growth of noxious weeds in the newly cultivated land. Too often, on the removal of the crop, the ground is given over to the weeds. Organizations handling the vacant lot work should give the matter of weed destruction early attention; otherwise, the lots will not only prove a menace to the land in the vicinity by the spread of weed seeds, but create antagonism to the movement on the part of the occupiers of the neighboring land.

SOCIETY NOTES

HAMILTON.

The spring premiums distributed by the Hamilton Horticultural Society this year consisted of three classes of perennials, of four varieties each, and one parcel of gladioli, as a choice; while the autumn one will be tulips and paconies. The lecture season was prolonged, and all the meetings were well attended, better than in previous seasons. The May meeting, which was to have been a Garden meeting at the "Holmstead," the lovely home of Mrs. Hendrie, was marred by the news of the Lusitania disaster, especially as well-known members were known to be passengers, and Jupiter Pluvius was not kind that day.

The four Wednesdays in June found the well-remembered garden of Mr. Alexander (whose name was so long associated with horticulture, not only locally, but throughout the Province), opened to the members and friends, through the kindness of Miss and the Messrs. Alexander. The pleasure and profit resulting from this courtesy cannot be estimated.

The proposed Spring Show, owing to war conditions, had to be postponed until Fall, only then to find that other ways would have to be adopted, to meet the existing conditions, as it was decided to divide the city into sections, and have a committee visit the garden of every member—the directors only being barred.

A scale was decided upon which would meet all the garden-workers, and the results of the visitor's decision, are reported to the committee responsible for the section; after which the committee will visit and pass final judgment on those recommended. In this way none are omitted, as might be the case if the entry was made a voluntary thing on the part of the garden owner, whose modesty would prevent his making an entry, and possibly winning an award, which might be well deserved.

The society have been supplying judges for several Community Garden Clubs, as well as otherwise helping these to develop into organizations capable of administering their own affairs. In the little exhibitions staged by these infant societies certificates of merit have been awarded by the Hamilton Horticultural Society. Among these will be included the Civic Vacant Lot Gardens, where from one plot 42 bushels of splendid potatoes have been taken.

The awards for the winners of the Society's "Members' Garden Competition" will be given out at the annual meeting, November 4th, when we hope to welcome the 1st Vice-President, Rev. G. W. Tebbs, now a resident of Hamilton fortunately, who has already aided the work being done here by acting as a judge both in the garden work, as well as in the community shows.

One of the members, Mr. Jarman, of West Hamilton, who has for some time specialized in gladioli culture, gave, for the children's work, 1,000 corms, and the results were staged August 30th at the Red Cross headquarters, with Mr. Tebbs as judge. The flowers were sold for the funds of the Red Cross, the children being delighted to have this opportunity to do their bit.

The story of the rise, growth, and rapid progress of the Community Garden Work is of interest to all who desire to see men and women get the best from their little home grounds; and after witnessing the obstacles which had first to be faced and overcome, and then, in an incredibly short time, see the splendid showing of flowers and vegetables which were produced under many difficult conditions, it is safe to say that those who had worked so hard to succeed in making community gardens popular, will never again despair of success.

A perennial border started in Dundurn Park last year is to be increased this Autumn. What has been done there already has resulted profitably.

While the results of our work here cannot be tabulated, yet good work has been done, and the time has been well spent, as the quality of the work to-day proves. I hope that this sketch may prove of interest to some one who has felt that the abnormal conditions unfortunately existing to-day have spoiled their well-laid plans, as it has, I know, many of the earnest workers in many places.—ADA L. POTTS, Secretary.

ST. CATHARINES.

The autumn flower show of the St. Catharines Horticultural Society was held September 14th and 15th, in the Armories, which was converted into a fairy garden. There were shown magnificent specimens of many of the best known varieties of flowers from the simple marigold to the glorious cream-white hydrangea and intermingled with these were great banks of ferns and palms. Never before has such a display been seen under the auspices of this society, which has held many successful exhibitions. Gladioli and asters were the most popular and were exhibited in abundance, although the dahlia, sweet-pea, tiger-lily, stock and numerous other flowers all had a part in making the Armories a bower of beauty.

The flowers were so neatly arranged as to show to wonderful effect the luxuriance of their growth and fine variety of tone and color. The display of the school children is worthy of special mention, as their efforts have never been greater and their display never larger. Mr. W. H. Nicholson's exhibit for the Gold Medal was a splendid contribution, with about 70 gladioli on display. The door receipts were for the benefit of the Patriotic Fund. It was decided by the directors to sell all cut bloom at the close of the exhibition, the proceeds also to be given to the Patriotic Fund.

I am much pleased with The Canadian Horticulturist, and find it very instructive. —C. N. Holdsworth, Barrie, Ont.

Packages for Canadian Cherries

Edwin Smith, of the Dominion Fruit Division, Grimsby, Ont.

WITH the progress being made towards fruit package standardization, we see various districts holding up their favorite package as standard for every kind of fruit. After a few seasons the same districts may be inclined to use an entirely different package, and at the same time that they are tearing down their old standards they will be clamoring to have their new standards recognized. It is well to change standards if occasion thoroughly warrants it, for the best possible package for each kind of fruit needs to be used in order that the growers may receive the greatest returns and the consumer value for his expenditure. But before establishing standards, we should thoroughly test packages in order to determine the one best adapted to the local and market needs.

During the past season, tests of this nature were started with cherry packages under the Precooling and Transportation Branch of the Dairy and Cold Storage Commissioner, Mr. J. A. Ruddick. As to which is the best package for sweet and sour cherry shipments, it has been a very unsettled question in the various cherry districts of Canada for a number of years. British Columbia has been using the 4-basket plum crate largely for both sweet and sour cherries, with some question as to whether it was the best package they could use. Ontario has been using the 11-qt. basket for local shipments, and both the 11-qt. and the 6-qt. Climax baskets for distant shipments of sweet and sour cherries.

The introduction of the strawberry crate into western districts for sweet cherry shipments, and the unpopularity of the 4-basket crate in the prairie markets, made the cherry package problem very unsettled, especially from a British Columbia standpoint. The object of the past season's tests was to secure information that would lead to a more standard package for Canadian sweet and sour cherries.

Shipments were made in the following ways:

1. Sour cherries, warehouse pack, 6-qt. Climax basket.
2. Sour cherries, warehouse pack, 4-basket plum crate.
3. Sour cherries, orchard pack, 6-qt. Climax basket.
4. Sweet cherries, warehouse pack, 4-basket plum crate.
5. Sweet cherries, warehouse pack, 24 4-5-qt. Hallock strawberry crate.
6. Sweet cherries, warehouse pack, 24 full-pint Hallock Strawberry crate.
7. Sweet cherries, orchard pack, Woolverton crate—3 6-qt. basket carrier.

The cherries having the warehouse pack were brought to the precooling plant and packed, facing the tops of the baskets with stems underneath, as is the customary way of packing cherries in British Columbia. The orchard-packed cherries were put directly in the shipping baskets by the pickers as the fruit came from the trees, this being the customary way of packing cherries in the east.

The tests with sour cherries were made in Winnipeg and Brandon markets. The cherries used were Early Richmonds, picked and packed July 2nd and 3rd, precooled over Sunday, and shipped the following Monday by refrigerator freight.

The average percentage of all waste in the 4-basket crates was 12.5%, market condition good. Average percentage of waste in the 6-qt. baskets, warehouse pack, was 12.9%, with market condition good, while in the 6-qt. baskets, orchard pack, the percentage of waste was but 4.8%, with market condition very good. The term "waste" included all discolored or injured cherries, and although the percentages seem high, the fruit was really in splendid market condition.

Injures the Fruit.

This shows that repacking sour cherries is very injurious to the fruit, and that those put directly in the baskets from the trees carried in much better shape than those packed in the warehouse. There was not much difference between the carrying qualities of the two baskets when packed the same.

The cost of the 4-basket crate and the packing amounted to 21.3c per package, or 1.06c per pound of packed fruit (20 pounds of fruit per crate). The cost of package and packing of the 6-qt. basket was 6.5c per package, or .81c per pound of fruit (8 pounds per basket). The cost of the 6-qt. basket, orchard pack, was 4c, or 0.5c per pound of fruit.

The average sale prices of the packed and unpacked 6-qt. baskets were the same, this being further argument in favor of picking sour cherries directly into the shipping baskets. The sales of the 4-basket crate, warehouse-packed 6-qt. basket and orchard-packed 6-qt. basket were $1.46, 59.4c, and 59.4c; the average net returns to grower were 85.1c, 35.7c, and 38.2c per package, and 4.24c, 4.46c, and 4.78c per pound.

In addition to the good carrying features and the net returns secured from the 6-qt. basket, it may be stated that Winnipeg and Brandon markets, as well as other prairie markets, find the 6-qt. the best seller for sour cherries. As to repacking and facing sour cherries, it is evident that this fruit is such that it does not pay.

Sweet cherries, such as the Black Tartarian, Windsor, Smith's Bigarreau, will carry well for six or seven days refrigerated freight, as was shown in this shipment, which included Black Tartarians packed in 24 full pint strawberry crates, 24 4-5 qt. strawberry crates, and in the 4-basket crate. Returns on the Woolverton crate were secured from express shipments to Winnipeg and Brandon. It is evident that this package will carry satisfactorily on long shipments.

The net weights of sweet cherries in the full-pint strawberry crate, 4-5 qt. strawberry crate, 4-basket crate, and Woolverton crate (three 6-qt. baskets), are as follows, in order of mention: 17 lbs., 24 lbs., 20 lbs., and 24 lbs. The cost of package and packing in order of mention: 32c, or 1.8c per pound; 35c, or 1.4c per pound; 21.3c, or 1.6c per pound; and 24c, or 1c per pound. The average sale price, in order of mention, was $3.50, $4.00, $2.00 (estimated), and $3.50.

The average net returns that would have been made to the grower in Grimsby, Ont., after deducting all expenses, would have been as follows: full pint strawberry crate, $2.43, or 14.3c per pound; 4-5 qt. strawberry crate, $2.75, or 11.5c per pound; 4-basket crate, $1.31, or 6.5c per pound (estimated from British Columbia Market Commissioner's report for week of July 10th, 1915); Woolverton crate, $2.48, or 10.3c per pound.

The full-pint strawberry crate seems to be the best package for sweet cherries in prairie markets. It carries the fruit well in the shallow boxes, is the most popular seller, and netted the Ontario grower 7.8c more per pound than the 4-basket crate, and 4c more per pound than the Woolverton crate (6-qt. basket). A trial of this package in the Montreal market showed that it would sell readily at $2.40 per crate, which is very satisfactory, considering that it was its first appearance on that market.

In conclusion it may be definitely stated that the British Columbia grower is losing money by picking his sour cherries in orchard boxes and repacking them in 4-basket crates. By using careful pickers the fruit will carry far better and make greater returns if picked directly in the 6-qt. shipping basket.

There has been some discussion about baskets not loading well in cars with resultant loss from breakage. Our experience has been that baskets may be shipped in cars as well as boxes if they are properly loaded and braced, leaving a space in the centre of the car for that purpose and bracing the load firmly and rigidly in the same manner that boxes are loaded in cars for safe carriage. In doing this our results have shown 100% free from breakage on hauls of 1,500 miles and upwards.

With sweet cherries we find that all packages are giving away before the full-pint hallock strawberry crate in prairie markets and that it has a promising future in eastern markets for fruit stand trade. As this package is used only with fancy cherries, such as Lambert, Bing, Windsor or Royal Ann, it must be remembered that to top the market only first grade fruit should be used and the boxes must be well packed, facing all of the tops attractively with stems underneath. If the strawberry crate is not to be used, the next best package at present for prairie markets is the 6 qt. basket.

The Fruit Exhibit at the Canadian National

THE display of fruit at the Canadian National Exhibition this year was, with few exceptions, well up to the standard of other years. The apple classes were well filled with no indication of the fact that the commercial crop is badly infected with scab—a tribute to the skill of the exhibitors. The effect of the late season was more to be seen with grapes than any other fruit, these being at least two weeks behind other years in maturity. The soft fruits were decidedly watery and did not keep well. The warm, humid weather at exhibition time also hastened decay, with the result that many of the exhibits had to be removed some days before the close of the fair.

One of the most extensive exhibitors was W. J. Farminger, of St. Catharines, who had a large number of entries in apples, plums, pears and grapes. A. W. Austin, Port Dalhousie, had entries in a large number of classes, especially in apples, plums and and peaches. Prominent among the apple exhibitors was W. E. Weise, Carrying Place, Ont.; J. H. Horning and Bethanbreck Orchards, Ltd., of Waterdown. W. H. Bunting, of St. Catharines, an enthusiastic supporter of the idea that fruit that is good enough to box is good enough to wrap, broke the ice by wrapping all the boxed fruit which he exhibited.

The apples on plates were judged by Prof. J. W. Crow, of the O. A. C., and the fruit in packages by Mr. P. J. Carey, of Toronto. Mr. F. Clement, of the Vineland Horticultural Station, placed the grapes and stone fruits and E. F. Palmer, of Toronto, handled the collections.

The judges, while stating that the quality of the fruit exhibited reflected great credit

both on the fruit industry of the province and the Exhibition, very freely criticized the manner in which it was displayed and recommended to the Exhibition Board that radical changes be made in this particular for next year. Their recommendations are substantially as follows:

First: That plate fruits be exhibited five on a plate instead of nine as at present. The change would conform to the best pomological law and usage and has been recommended for the last two years. It is hoped, however, that the change will be made this year.

Second: That the varieties be better spaced on the tables and that the tables be decorated to show the fruit off to better advantage. At present no attempt whatever is made to make the exhibits attractive to the public.

Third: That the classes for apples in packages be thoroughly revised and that the class "any other variety" be discarded. For instance, there is now a class for the Astrachan, which is not a box apple at all, while such splendid varieties as the McIntosh Red and the Snow are thrown into the "any other variety" class. Mr. Carey is strongly of the opinion that these should each be given a class and the Astrachan should not be exhibited as a box apple.

Fourth: That wrapped and unwrapped stuff should not come into competition. It is impossible for a judge to give satisfaction when good fruit poorly packed and bad fruit well packed appear in the same classes. Many prominent fruit growers now incline to the opinion that since the trade strongly prefers wrapped fruit fair boards should encourage wrapping by eliminating unwrapped fruit from the box classes, and allowing, say, 25 points for workmanship in wrapping and packing.

Fifth: That export classes of apples be eliminated. This year fully nine-tenths of the apple crop will be purchased for domestic consumption and the export class could very well be done away with. Classes for fall and winter varieties would cover all the necessary entries.

Government Exhibits.

The Ontario Fruit Branch had a large and attractive exhibit of fresh and preserved fruits. Duchess, Woolf River and Wealthy varieties of apples were on display and formed the bulk of the exhibit. Pears and peaches also occupied a prominent place and attracted much attention. Chemically preserved whole fruit of various kinds also set off the display to good advantage, the whole creating a favorable impression of the fruit growing possibilities of the province.

The outstanding feature of the Vineland Horticultural Experimental Station exhibit was the large number of varieties of grapes shown. Many varieties of peaches were also displayed, together with a considerable quantity of pears and a small quantity of plums and apples.

Lambton was the only county having a fruit exhibit. It was in charge of Mr. Bramhill, the County Representative, and consisted principally of apples, peaches and plums, with some grapes and a few pears.

The greatest lesson taught by these departmental exhibits was the way they demonstrated that a fruit exhibit may be kept wholesome and attractive during two weeks of warm, humid weather by carefully replacing spoiled fruit. The attractive way in which the fruit was displayed was freely commented upon, and in this also they could be well copied in the regular fruit exhibit.

Horticultural Exhibition

P. W. Hodgetts, Toronto

Owing to the abnormal conditions still existing in Ontario, the directors of the Ontario Horticultural Exhibition at a largely attended meeting held in September, decided to again defer the usual November Show for another year. All the buildings on the Exhibition grounds will be occupied by the soldiers in training and no other building suitable can be located in Toronto.

It was decided that the association could help the Red Cross Society better by giving a grant from the funds in the hands of the Treasurer rather than risk putting a great deal of expense and energy in holding a show, the gate receipts from which might not in the end amount to as much as could be given the other way.

Pointers for Packers

For the Minnesota apple-grower, R. S. Mackintosh, horticultural specialist of the Agricultural Extension Division, Minnesota College of Agriculture, has prepared these profitable rules to govern picking and packing:

Pick by hand.
Cool before packing.
Grade carefully.
Put only one variety, grade, and size in a package.
Pack tight.
Mark on outside the variety, grade, size, and grower's or packer's name.

SPRAY
THIS
FALL

If you want clean trees next season. Progressive growers are counteracting the recent wet season, with its consequent ravages of fungus diseases, by a thorough application of

Grasselli
Lime Sulphur Solution

the tried and proven fungicide.

Prevention is Better Than Cure

GUARANTEED MATERIAL — PROMPT SHIPMENT

The Grasselli Chemical Co., Limited

HAMILTON TORONTO MONTREAL

Douglas Gardens
OAKVILLE, ONT.

At the date of writing (14th Sept.), many of the Fall blooming plants are in their glory.

ARTEMISIA LACTIFLORA (new), with its creamy, white spirea-like flowers on a 4-foot stem is a great acquisition. It requires protection in the colder districts.

CHRYSANTHEMUM ULIGINOSUM (Giant Daisy), when massed, with its chaste bloom, has a refining effect on the Hardy border.

HARDY ASTERS (Michaelmas Daisies) are just coming into their glory. "Beauty of Colwell" and "Miss Willmott" are both semi-double and are of shades of lavender. "Lil Fardell" is a tall grower and gives pink flowers. "W. Bowman" is of rich, rosy purple, and "Wm. Marshall" is a soft, clear blue, while "Perfectus" is a gem. "Madonna" and "Queen," of the dwarf whites, are both good white sorts and of different habits of growth.

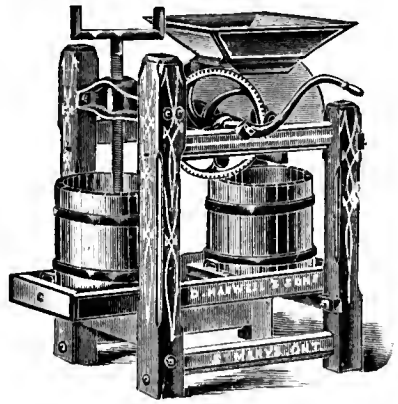
HELIANTHUS MAXIMUS, single and double, with their clear yellow blooms, are both good subjects.

HELENIUMS, these are perhaps the grandest subjects for September bloom. "Autumnale Superbum" is a self yellow. "Aut. Striatum" is yellow and red. "Riverton Beauty" is a very chaste flower, light yellow with brown centre; and Riverton Gem has a gorgeous wall-flower bloom.

If one-quarter of the readers of this advertisement could see these plants in bloom we would not have nearly enough to supply the demand. We now have on file orders for delivery next spring and we shall be glad to add to this list. All these plants do well set out in the spring.

JOHN CAVERS

SAVE
THOSE APPLES
by using a
MAXWELL
Cider Press!



HOW many go to waste that might be turned into Cider or Cider Vinegar with a small investment! MAXWELL PRESSES are well made, of the best material, heavy, substantial frame, and cross section of extra weight and strength; furnished with two crates, galvanized hoops, and tinned rivets. Made for either hand or power.

MAXWELLS LIMITED
ST. MARY'S, ONT.

SMALL FRUIT PLANTS

Gooseberries — Josselyn! Josselyn! Red Jacket, Downing, Pearl, Houghton. Currants—Perfection! Perfection! Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. Raspberries—Herbert! Herbert!! Herbert!!! Plum Farmer, Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. Garden Roots, Strawberry Plants, Rhubarb. Write for Catalogue.

WM. FLEMING, Nurseryman, 496-4th Avenue W., OWEN SOUND, ONT.

BRUCE'S FLOWERING BULBS

For Winter Flowering in the House and Spring Flowering in the Garden

Exquisite colors and fragrance—EASILY GROWN—Must be planted this Fall.

COLLECTIONS

No. 1, indoors	25 bulbs, postpaid	$0.70		No. 3, indoors	100 bulbs, postpaid	$2.60	
No. 5, outdoors	25 " "	.70		No. 7, outdoors	100 " "	2.60	
No. 2, indoors	50 " "	1.30		No. 4, indoors	200 " "	5.00	
No. 6, outdoors	50 " "	1.30		No. 8, outdoors	200 " "	5.00	

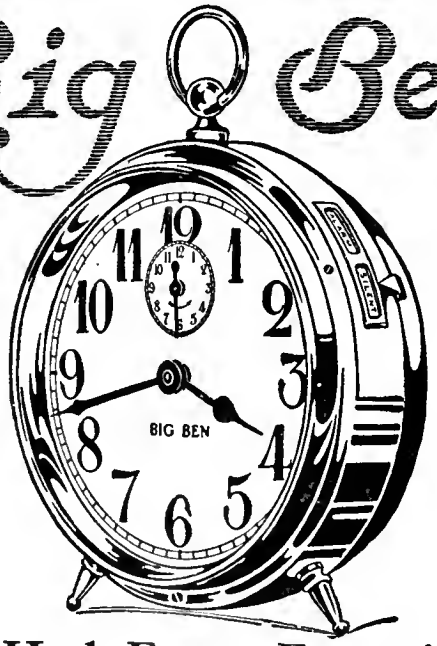
Each of these collections contains HYACINTHS, TULIPS, CROCUS, LILIES, NARCISSUS and other bulbs.

FREE—Send for our 32 page illustrated catalogue of Bulbs, Plants, Seeds, and Poultry Supplies, etc. NOW READY.

JOHN A. BRUCE & COMPANY, LIMITED

HAMILTON - Established 1850 - ONTARIO

Big Ben



He's Had Farm Experience

On thousands of farms, Big Ben has been the clock of all work—ringing up the people who must get out early, and telling the right time of day to those who stay 'round the house.

Big Ben works 24 hours at a stretch—puts in overtime without extra pay, and never botches up a job.

He's husky, deep-voiced and strong. His call is clear—his bold numerals show plainly in the dim light.

If your dealer hasn't him, a money order addressed to his makers, *Westclox*, La Salle, Illinois, will bring him postpaid. $2.50 in the States—in Canada, $3.00.

Commission's Powers Limited

G. E. McIntosh, Forest, Ont., Traffic Expert for the Ontario Fruit Growers' Association

The Dominion Railway Commission is a governmental agency of real authority, a tribunal of far-reaching influence, and "friend at court" of the public. They provide a tribunal for the determination of transportation questions without costs to the appealing or defending parties, and they give a fair deal so far as lies within their power, but their jurisdiction is limited, when it comes down to a matter of remedying many of the little details that make fruit marketing a success, especially for those producing a perishable commodity.

They have no power to award damages for delays in transit.

They cannot issue an order in reference to rough handling or pilfering.

No jurisdiction over the settlement of claims.

Cannot issue an order in reference to delays, jolting, or rough coupling.

They have no jurisdiction over navigation companies, other than those controlled by a railway company.

Railway companies may grant special privileges to certain shippers, and unless unjust discrimination is proved, the Board cannot order the extension of such privilege to other shippers.

Some of these matters must be dealt with by the shipper or receiver under civil law in an action for damages, while there is no possible means of redress for others.

This is the condition in respect to jurisdiction of our Railway Commission, and there is urgent need of reasonable legislation that will extend the powers of the commission and require good service. The people want the railways to do well. They are interested in them, but they are opposed to those who monopolize the corporation, absorb their earnings, increase the watered stock, or otherwise burden them with a debt which they try to pay for out of the traffic furnished by the public, and leave it in the power of these companies to fix the rule of conduct. In other words, let the law furnish the rule of conduct in supplying equipment and transportation, and let the railroad pay the penalty if it fails. The purpose of such legislation, briefly defined, would be as follows:

To enable shippers to secure cars in reasonable time.

To enable farmers, stockmen, fruit growers to promptly market perishable freight.

To empower the Commission, when necessary, to provide minimum speed limit.

To enable contracts to be made and carried out on basis of reasonable service.

To make railroads responsible for failure of such duties.

To fix reasonable penalties to ensure reasonable service.

To assure proper handling of shipments.

To enable the Railway Commission to make rules and regulations with respect thereto.

To provide for establishing reasonable reciprocal demurrage charges.

To secure under proper rules the unloading and release of cars by shippers.

To exempt railways from penalties where compliance with the law is prevented by causes not reasonably anticipated or from accident.

A bill to regulate commerce, embodying the above, was recently before the United States Senate. Railroads which give reasonable service need not fear such a law; those which do not give such service should.

CIDER APPLES WANTED

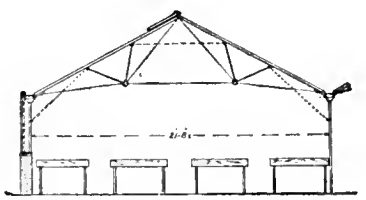
We are prepared to pay the highest cash prices for cider apples in car lots. Farmers who have not sufficient to make up a whole car themselves can arrange with their neighbors for joint shipment. Write us if you have any to offer.

BELLEVILLE CIDER AND VINEGAR CO.,
Hamilton, - - - Ontario.

Horse-Radish Wanted

Highest price paid for good, firm roots free from dirt and small stringers.

Wm. Davies Company,
TORONTO, CANADA



STYLE C

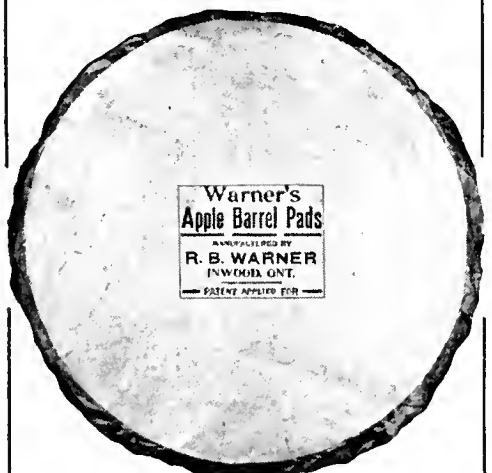
This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

Bruised Fruit is a distinct loss



WARNER'S APPLE BARREL PADS

placed in each end of the barrel holds the apples firm and absolutely prevents them from being bruised when heading the barrel and shipping. It costs very little and pays well.

Sample Sent Free on Request.

R. B. Warner, Inwood, Ont.

Northern Bred Queens

This cold weather makes one think, "Where are you going to get your hardy queens for winter?"

I thank my Canadian friends for their hearty trade this season.

E. E. MOTT, Glenwood, Mich., U.S.A.

When good queens are wanted I have the goods. Pure Italians from imported mothers. Also pure Carniolans and Caucasians from imported mothers. 75c each, $8.00 per dozen. No disease.

GRANT ANDERSON
Riv Handa - - - Texas

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free. I am now filling orders by return mail.

J. P. MOORE
Queen-breeder. Route 1, MORGAN, KY.

QUEENS.

Give us a trial for Queens. We have established a Queen repository where Queens are placed when imported, so as to be ready for shipment when orders come in. We also breed from the best worker stock in our own Queen yard. We can furnish Leather colored, Goldens, Caucasians or Carniolans. Prices right. Satisfaction guaranteed.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., - - Toronto, Ont.

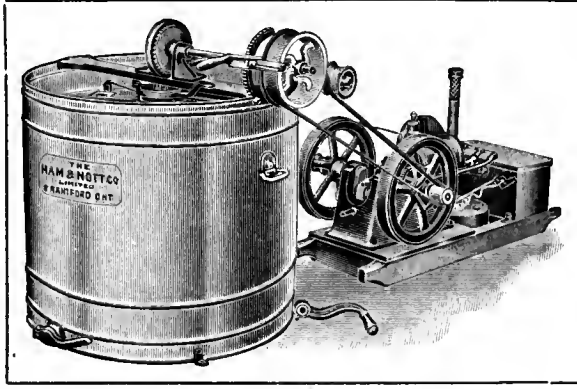
Honey Pails & 60lb. Cans.
Glassware & Shipping Cases.
Bees. Queens. Honey. Wax.

CHAS. E. HOPPER & CO.
126 Simcoe St., TORONTO, ONT.

The Root Canadian House

185 Wright Ave. TORONTO, ONT.

Quality counts. Try our Queens; three banded, golden Carniolans or Caucasian, from best U.S.A. breeders; also from our own yards. Everything in Bee Supplies, Root's Goods; also "Made in Canada" Bee Journals and Books. Catalogue Free.



Power Honey Extractors

Friction drive or with special cut gears, smooth and easy running. Speed control is perfect and simple. If you are thinking of purchasing a power outfit, write us at once.

The Ham & Nott Co., Ltd.
BRANTFORD, ONT.

The Beekeepers' Review

THE BEEKEEPERS' REVIEW, 15 months for a dollar to Canadian subscribers, postage free. Beginning with the October, 1915, number and ending with the December, 1916, number. A rare bargain. If you want Gleanings in Bee Culture a year clubbed with the Review, send along 80c. additional. Both postpaid. Review 15 months and American Bee Journal one year, both $1.60, postpaid. All three for $2.40, postpaid. To get this liberal clubbing rate, address all orders to THE BEEKEEPERS' REVIEW, Northstar, Michigan, U.S.A. Kindly remit by postal note and oblige.

The Beekeepers' Review, Northstar, Michigan

NOTICE TO QUEEN BREEDERS

If you want to sell Queens and Bees advertise in the AMERICAN BEE JOURNAL. Read what some of our advertisers have to say about the pulling power of our advertising pages.

We have advertised in the American Bee Journal for thirty years. Have always found it a good advertising medium.—J. W. K. Shaw Co., Loreauville, La.

My advertisement brought all the orders I wished for. In fact, more than I was able to supply—quite a number of orders had to be returned.—J. A. Simmons, Sabinal, Texas.

The Reasons are self-evident—a good bee paper is taken by live and wide-awake beekeepers, and these are the kind that are always in the market for good bees and good Queens.

Rates on space are not high. Display at 15c a line, or $2.10 per inch. Classified, 15c a line. Send in your order with copy to-day and get rid of your surplus Queens.

AMERICAN BEE JOURNAL, - Hamilton, Ill.

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for All Kinds of Perishable Goods.

The Canada Cold Storage Co.
Limited

53 William St., MONTREAL, QUE.

FREE LAND
For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
Minister of Agriculture
Parliament Bldgs., Toronto

The Apple King of Eastern Canada

(Continued from page 231.)

Where apple-growing, as in this case, is carried on extensively along with general farming, the harvesting of the fruit presents a difficult problem. Mr. Chute has obviated this difficulty to some extent by planting and grafting varieties that ripen their fruit in succession. He expects to gather this present year one thousand barrels Crimson Beauty, a very early variety. Then follows Astrachan, Duchess, Bow Sweet, Early William, Gravenstein, Blenheim, King, etc. Then, too, the pressure of work is somewhat relieved by making two or more pickings of the earlier varieties. The barrels, holding a minimum of ninety-six quarts, are made in a cooperage on the farm and hauled to the fields as wanted. In the case of most of the early varieties, the heads of the barrels are removed before being taken to the orchard, and the filled barrels are covered with bags held in place by the top hoops. This not only lessens labor, but also serves to keep the fruit free from bruises. With later varieties care is taken not to fill the barrels so full that bruising will result from too tight heading. The fruit is hauled to a large frost-proof warehouse owned by Mr. Chute.

Packing.

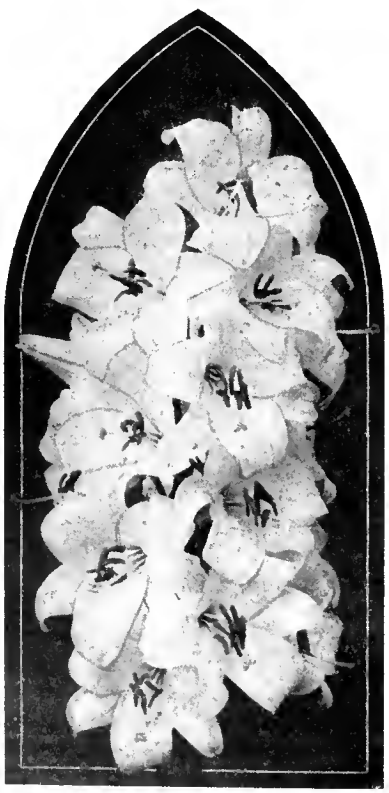
Apples are packed both in boxes and barrels, for the most part in the latter. Box packing is yearly taking a more important place in Mr. Chute's packing operations. At first it consisted of a mere jumble pack, the apples being placed in the boxes without any regard to system. Now, thanks to instruction given by experts sent out by the Dominion Government, the diagonal pack with approved bilge has taken the place of the barrel pack in the packing of fancy grades of Gravenstein, Blenheim, McIntosh, King, Wagener and Spy. All apples packed in boxes are wrapped in paper, thus facilitating packing, and also ensuring the apples against early decay.

The principal varieties are divided into three groups, according to size. Thus Blenheim, King and Fallawater belong to group I.; Gravenstein, Duchess, Astrachan, Baldwin, Greening, Stark, Spy and B. Davis to group II.; Ribston, G. Russet and Wealthy to group III. In the following table, the minimum size, inches in diameter, of each of the grades, is given. It will be noticed that the sizes differ uniformly by exactly a quarter of an inch, and that in all only five sizes are given—2¾ in., 2½ in., 2¼ in., 2 in., 1¾ in.

Variety.	Min. in. Diam. No. 1.	Min. in. Diam. No. 2.	Min. in. Diam. No. 3.
Blenheim, etc.....	2¾	2½	2¼
Gravenstein, etc..	2½	2¼	2
Ribston, etc.	2¼	2	1¾

Each packing table is provided with a gauge with holes accurately cut out of zinc or stiff card-board, showing the sizes—2¾ in., 2½ in., 2¼ in., 2 in., 1¾ in. These gauges are of great use to beginners, especially. It is a very good plan when packing any variety, Gravenstein, for example, to place near at hand three apples representing the smallest that can be packed as 1's, 2's, and 3's, respectively. This, of course, is ascertained by use of the gauge.

The bilge hoops of the barrels in which apples are to be packed must be firmly driven down, and securely nailed with three or four nails in each hoop. These nails should be stout and short. A pulp-head is now laid on what is to be the face end of the barrel. Great care is taken to make this face as attractive as possible. The apples chosen for the face should be of medium size for the grade and variety, free from blemishes, and well colored. The stems are clipped and the apples placed so as to cover the entire bottom of the barrel. It requires skill to do this quickly. Now the apples may be poured carefully into the barrel and shaken down as fast as they come from the packing table. When the barrel is nearly filled the last two baskets



St. Joseph or Madonna Lily (Lilium Candidum)

On stem 3-4 feet tall, the deliciously fragrant flowers are borne 10-20 to each stalk. Keep in bloom June-August.

The one pure white Hardy Garden Lily. Must be planted early. (Bulbs ready now.)

	Each.	12.	100.
Extra Size	$0.15	$1.20	$ 7.00
Mammoth	0.20	2.00	12.00

We furnish the best northern grown bulbs.

We wish to interest you in the growing of Narcissi and Daffodils to grace your home in winter, your grounds in early Spring.

Tulips flaunting gay banners.

Hyacinths to perfume your rooms and garden.

Crocus and Snowdrops to gaily ring in Spring's advent.

Lilies gathered in deep forests or mossy glens of Europe, Asia.

Rennie's Popular Collections

There are many lovers of flowers who would like to try a few bulbs, but hardly know which varieties to choose. Knowing this, we have made up collections of the different varieties which yield most satisfactory results in combination.

We are offering these collections at extremely low prices to influence a wider interest in bulbous plants, and customers who take advantage of any of the following offers will be very well pleased with the outcome of their small investment.

No change can be allowed in these collections.

COLLECTION A. For Outdoor Culture. (Postpaid.) 300 BULBS, PRICE $3.75.
½ Coll. $2.25. ¼ Coll. $1.35.

12 Hyacinths, single, assorted.	28 Spanish Iris.	28 Tulips, single, assorted.
12 Hyacinths, double, assorted.	12 Scilla Siberica.	28 Tulips, double, assorted.
8 Trumpet Narcissus.	12 Ranunculus, mixed.	28 Parrot Tulips, mixed.
8 Double Narcissus.	8 Anemones.	100 Crocus, all colors.
12 Poeticus Narcissus.	4 Lilium Candidum, white.	

COLLECTION B. For House Culture. (Postpaid.) 120 BULBS, PRICE $2.75.
½ Coll. $1.75. ¼ Coll. $1.00.

12 Hyacinths, splendid, named.	8 Narcissus, double, mixed.	8 Oxalis, Buttercup.
12 Hyacinths, Roman, red, white, blue.	4 Narcissus, single, mixed.	2 Easter Lilies.
24 Tulips, single, mixed sorts.	12 Alliums, Neapolitanum.	2 White Calla Lilies.
12 Tulips, double, mixed varieties.	12 Freesia Refracta Alba.	12 Spanish Iris, mixed.

Our Pamphlet, "How to Grow Bulbs," free with every order.

Seeds to grow choicest Winter bloom. Seeds to sow in Summer and Fall for Hardy Perennials. Every bulb, every packet of seed, is specially selected for you—and delivered post or express prepaid by us.

Send for our Fall Bulb Book—it is free. Send to-day. Early orders secure the best.

WM. RENNIE CO., LIMITED
Head Offices and Warehouses:
Adelaide & Jarvis Sts., TORONTO.
Branches: 190 McGILL ST., MONTREAL, QUE. 394 PORTAGE AVE., WINNIPEG, MAN.
1138 HOMER ST., VANCOUVER, B.C.

are often shaken down together, so as to get a smoother surface, either for the purpose of tailing or heading. As a rule, when the barrel has been finally settled by vigorous racking on a stout plank with a felt-lined head placed on top, the apples should present a level surface only slightly higher than the chimes. Many a finely packed barrel of apples has been ruined by too little racking, and too much pressing. Care is also taken to see that the heads are securely nailed. The name of the variety, the grade and the shipper's brand are neatly stenciled on the face head of each barrel.

The successful marketing of farm products is quite as important as production. Mr. Chute's great success as a fruit-grower is due largely to his splendid business capacity. It was this same remarkable power to grasp a business proposition and turn it to advantage, that has made him such a tower of strength to the United Fruit Companies, Limited, of Nova Scotia. Some people attribute Mr. Chute's success to "luck," but the better informed see that brains, pluck, and tireless industry, "not luck," have made him what he is often called, "The Apple King of Eastern Canada."

The Canadian Horticulturist is a useful and interesting paper from which much knowledge can be gained. I am a large fruit grower and have followed with success some of the methods of spraying described in The Canadian Horticulturist.—Edward F. Newling, Beckenham, Eng.

GINSENG

GINSENG FOR SALE

10,000 Roots one to six years old. 40,000 Stratified seed and 200,000 new seed, grown on natural soil and shade. All free from blight and disease. Price and instructions for fall planting on application.

DR. H. S. WATSON, Newmarket, Ont.

GINSENG ROOTS and SEEDS FOR SALE

Good, strong Canadian-grown roots, one and two years old, $10.00 and $15.00 per thousand. Tested seed for fall planting, $1.50 per 1,000. No order for less than 1,000. Cash with order.

Dr. MACKENDRICK, Galt, Ont.

GINSENG

Plants and stratified seeds for sale. Canadian stock. Choice quality. Send for price list to

N. J. MacINNES, M. D.

Vittoria, Norfolk Co., Ont.

LANARK GINSENG

Fortune awaits any man who will give time and attention to the growing of Ginseng. We have made a complete success of it and are ready to point the way to others.

The time to prepare the ground is now; the time to plant is September and October.

Lanark Ginseng Seed is noted for its strong germinating qualities.

Lanark Ginseng Roots are sure growers and great producers.

Don't fail to make investigation of this highly profitable industry. Write to the Secretary and he will tell you all about it.

Address C. M. FORBES

Secretary Lanark Ginseng Garden Co.,
LANARK, ONT.

FREE FOR THE ASKING

This handsome Fur Style Book (containing 34 pages of illustrations) of beautiful

FURS and FUR GARMENTS

for men, women and children—will be gladly mailed free for the asking—affording you an opportunity to take advantage of our policy of selling furs

From Trapper to Wearer.

We buy our Raw Furs direct from the Trapper and manufacture them ourselves, therefore, we can save you the many profits that usually go to the middleman

WE GUARANTEE
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RAW FURS. *We pay highest prices for Raw Furs. Write for price list if interested.*

GUNS. *We carry in stock a complete line of guns, traps, nets, acetylene headlights and camp lamps "Eveready" flashlights, animal bait, fishing tackle, sportsmen's supplies. Catalogue Free.*

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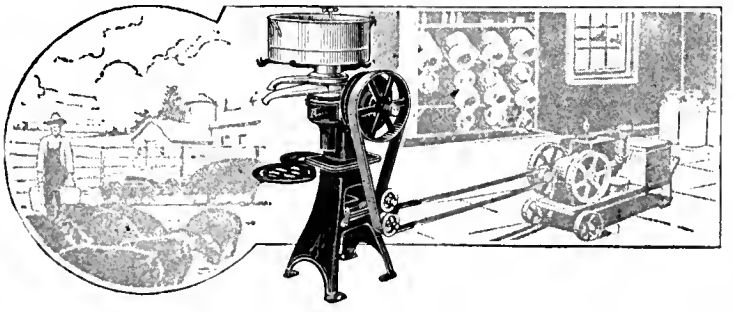


International Harvester Cream Separators

THERE is a cream separator price that is right—the price of a **Lily** or **Primrose.** But here are three more important separator features.

The first is Cleanliness: A separator that cannot be kept scrupulously clean, inside and out, is dear at any price. Buy no separator that cannot be cleaned easily as well as thoroughly. Five minutes' work cleans a **Lily** or **Primrose.**

Second—Close Skimming: The separator that does not skim closely is wasteful. A **Lily** or **Primrose** leaves only a drop of cream in a gallon of milk. Insist on this standard.

Third—Simplicity: Buy a separator that needs so few and such simple adjustments that you or your wife can make them. Be sure to get one with a single automatic oiling arrangement which takes care of every bearing and avoid trouble.

When you buy a **Lily** or **Primrose** cream separator, you get these features, and pay the right price.

"Facts and Figures on Dairying," will help you choose right. You will be less liable to make dairy mistakes after you have read it. We send it free. Write for it.

International Harvester Company of Canada, Ltd.

BRANCH HOUSES

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

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the standard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.

Wilkinson Plows

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

The Bateman-Wilkinson Co., Limited
461 Symington Avenue, Toronto Canada

Repairs for all Wilkinson Plows

FOR PROFIT
Plant our Top Notch Fruit, Shade and Ornamental Trees this fall. Evergreens, Shrubs, Roses, Vines, Bushes. Ask for Price List (no agents) at Central Nurseries.
A. G. HULL & SONS,
St. Catharines - Ontario.

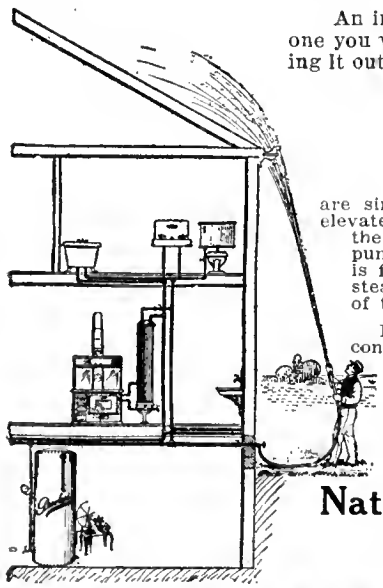
DUTCH BULBS

For Fall, 1915. Direct Import from Holland. Bulbs of first quality, guaranteed true to name and color. Low prices. Send for our Catalogue.

DORVAL NURSERIES, Dorval Station, P.Q.

The Big Money Leak

Thousands of dollars are lost each year by Horticulturists through stinted production—stinted production caused by inadequate and poor water systems.



An inferior water system is a perpetual loss, and if you have one you would save hundreds of dollars in the long run by throwing it out at once and installing a Peerless.

Peerless
Water Systems

are simple, reliable, economical and do away with an expensive elevated tank with its many disadvantages. A reservoir tank, in the cellar or outhouse, or buried underground, holds the water pumped from the source of supply. The water in the reservoir is forced through the pipes by air pressure, thus insuring a steady and consistent supply of pure water in whatever parts of the house, greenhouses, barns and gardens you wish it.

Hundreds of these systems in operation to-day bear out our contention that for a reliable and adequate water supply at low cost Peerless Water Systems have no equal. In case of fire they are a protection worth many times their cost.

Write us for full particulars and any special information your require. We assure you of a courteous and valuable reply.

National Equipment Company, Limited
9 Wabash Ave., Toronto
(Sole Manufacturers of Peerless Water Systems).

Ginseng Growers Meet

The annual meeting of the Ontario Ginseng Growers' Association was held in Toronto, September 10th. While the meeting was not largely attended those who were there benefited by it.

Mr. Forbes, of Lanark, exhibited some fine specimens of both ginseng and Golden Seal and gave a practical talk on his methods of growing these roots, as well as of his success in disposing of them at a good price to a Chinaman in his home town. He strongly advocated the standardizing of the roots, and also having a central depot established where roots could be sent and sold, and where the best price could be obtained. The matter of shipping direct to China will be left over until war conditions are more favorable. Last year's officers were all re-elected.—P. Wilson, Secretary. 283 Evelyn Ave., Toronto..

New Brunswick

J. Bebbington, Fredericton

Potatoes are splendid here and scarcely any disease. They were sold on the market here early in September at $1.50 to $1.75 per barrel. My son happened to be in Oulton, Maine, recently, where there was such a glut that they were selling at 25c a barrel. They make a specialty, it appears, in that district of raising potatoes for export. They expected there would be thousands of barrels wanted for war purposes, hut are disappointed, and thus some of the farmers are ruined, so they say. The Secretary for Agriculture, Mr. Duggett, has advised the farmers of New Brunswick for a year or so not to pin their faith to potatoes too much. They are an uncertain crop, as the State of Maine has found to its sorrow.

Cucumbers were imported here until August. When the New Brunswick crop came on they were so plentiful people did not want many. A grocer said a month ago, "I can sell cucumbers at 10c each, but when I ask 2c. no one wants them. I procured a case at 90c. per dozen in July and then they paid me well. They are not selling at 2c. each retail."

Tomatoes only ripened after August 1st, and then in small quantities. They retailed about the first week in September at 5c. to 8c. per lb. Beets and carrots sold for 5c a bunch, and turnips 75c. a barrel, which was a good price and paid well. Celery has done very well. The rather wet season suited it. A limited quantity was used this season for the table, also for pickles. Golden bush wax beans have been poor this year owing to rust caused by too much wet weather. It is a good thing here not to have too many eggs in one basket.

WHITE & CO., Ltd.

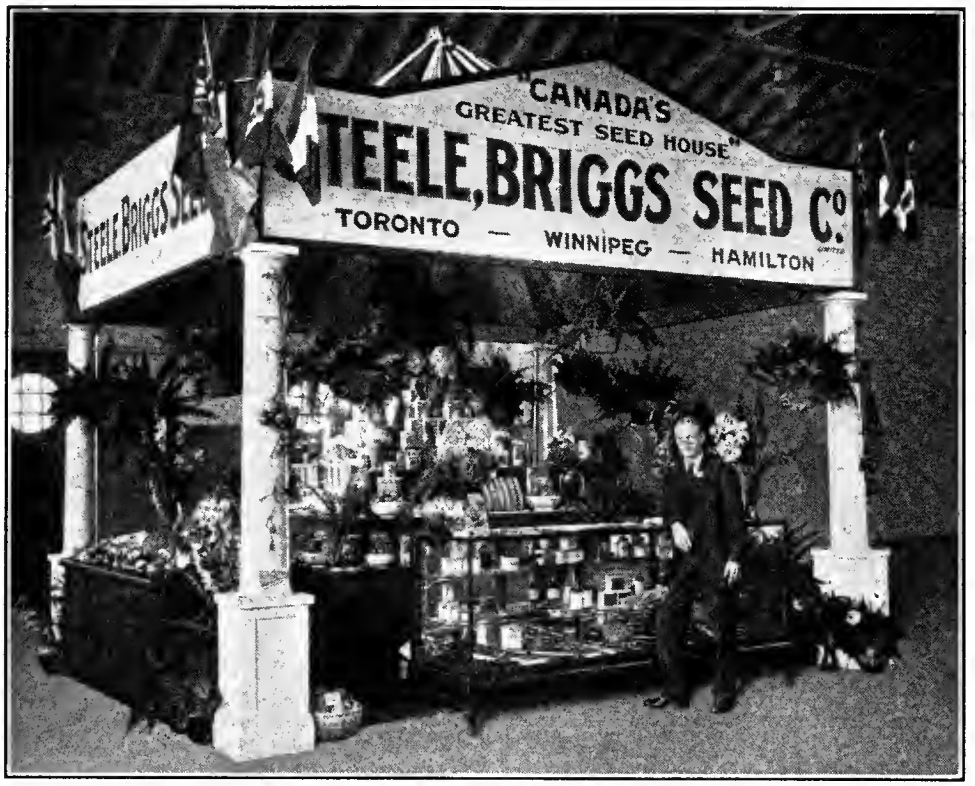
Church & Front Streets
TORONTO, ONT.

OCTOBER
1915

AS one of the largest and oldest commission houses on Front Street, we have a claim on your confidence and favor possessed by few others. The two things—perhaps there are three—that matter to you are: (1) the reliability of the house you deal with; (2) the ability to sell consignment quickly; and the third matter of importance is the ability of your commission agent to get top prices. We are 100% efficient in regard to these three items. We can and

Correspond with us first, if you wish. Ship without waiting to write, if your matter is urgent. Shipping Stamps and Market Reports supplied on request.

WILL SELL
YOUR FRUIT AND VEGETABLES.



Good seed and its products—a commendable exhibit of one of Canada's largest Seed Houses at the Canadian National Exhibition, Toronto, Ont.

The Steele, Briggs Seed Company started in the seed business 43 years ago in a small way, and have made such rapid progress and have given such good satisfaction to their thousands of customers throughout Canada, as well as many other countries, that to-day they are the largest Seedsmen in Canada and one of the largest in America.

The basis of all their dealings from the very beginning has been absolute reliability, and they have a great many customers who have been doing business with them for thirty-five years.

Recently they have established New Trial Grounds at Oakville, Ont., which comprise 28 acres, and they have spared neither money nor effort to equip the grounds in the most efficient manner. There every variety of vegetable, flower and field seeds are given a thorough test every year; thus they know their stocks and can eliminate any variety not true to type or not hardy in our Canadian climate.

Mr. Arthur W. Annandale, Secretary of the Steele, Briggs Seed Company, is resident on the farm, and all trial work is under his personal supervision. He has spent his whole lifetime in the seed business, in Scotland, England, U.S.A., and the last 22 years with the Steele Briggs Seed Company in Canada.

Ever on the alert, procuring and proving new varieties, enlisting the hardiest and best, keeping standard sorts up to the highest mark—this policy has made Steele, Briggs Seed for purity and quality unsurpassed by any in the world.

To-day there is no settlement in Canada where Steele, Briggs seeds are not known as a household word—no State in America where some of their stocks are not in demand—no country in Europe where their shipments do not go. Australia and New Zealand call for their seeds; South America gets them; South Africa and Japan. The confidence accorded them by customers, bankers and seed-growers in all parts of the world is a tribute to solid foundation principles and an earnest effort to carry them out.

The persistent growth of their trade has been something more than a mere happenso, and the fact that they have the largest establishment of its kind in Canada, and one of the largest on the continent, speaks for itself.

The variety and excellence of Steele, Briggs Seeds have gained for them the confidence of many thousands of customers, and they are not unmindful of the esteem and confidence of those many friends whose support and encouragement have made the business what it is.

Steele, Briggs assume the name of "Seedsmen." This means more than "Seed Dealer." The latter is usually great on newspaper advertising. Glowing description of "Best ever Seeds" is the magnet he depends upon. He adopts new varieties as the Seedsman proves and introduces them.

The Steele, Briggs Seed Company maintain that the business of the true Seedsman should include the Testing, Proving and Introducing of new Varieties. The field for this work in Canada is vast indeed. An important place for the Seedsman here is hand-in-hand with the pioneer who blazes the trail past the frontier and puts his plow into unknown soil—hardships and disappointment are his, but with patience and experience come knowledge and success.

Steele, Briggs' "Lion" Brand in Clover and Timothy Seed has become a household word throughout Canada, and as it has always stood for the very highest standard in Clover and Timothy, growers know that when they purchase "Lion" brand it is the best obtainable.

The firm have branches in Hamilton, Ont., and Winnipeg, Man.—Advt.

Wherein does the fruit inspector resemble the schoolboy preparing to go fishing? Both are looking for worms.

I enjoy The Canadian Horticulturist very much. All success to you.—J. E. Turner, Toronto, Ont.

Wonderful New Coal Oil Light

Burns Vapor Saves Oil — Beats Electric or Gasoline

Awarded GOLD MEDAL at World's Exposition San Francisco

Scientists say its White Light is nearest to daylight in color

10-Days FREE TRIAL

Send No Money, We Prepay Charges

We don't ask you to pay us ***a cent*** until you have used this wonderful modern light in your own home ten days—we even prepay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests at 33 leading Universities and Government Bureau of Standards show that it

Burns 70 Hours on 1 Gallon

common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise, simple, clean, no pressure, won't explode. Children run it. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed.

$1000.00 Will Be Given

to the person who shows us an oil lamp equal to the new ***Aladdin*** (details of offer given in our circular.) Would we dare make such a challenge if there were the slightest doubt as to the merits of the ***Aladdin?***

Men Make $50 to $300.00 per Month With Rigs or Autos Delivering

the ALADDIN on our easy plan. No previous experience necessary. Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 34 lamps out of 31 calls." Thousands who are coining money endorse the ALADDIN just as strongly.

No Money Required

We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. **Sample Lamp sent for 10 days FREE Trial.**

We want ***one user in each locality*** to whom we can refer customers. Be the first and get our special introductory offer, under which you get your own lamp ***free*** for showing it to a few neighbors and sending in their orders. Write quick for our ***10-Day Absolutely Free Trial.*** Just say, "Show me how I can get a strong white light from coal oil, ***without risking a cent.***" Address nearest office.

MANTLE LAMP CO., 205 Aladdin Building

Largest Coal Oil Mantle Lamp House in the World

Montreal Winnipeg

Help The Canadian Horticulturist by telling advertisers when you write them that you saw their advertisement in its columns.

BULBS The Quality of our Stock is the Best

Single Mixed Tulips, $1.00 per 100 post-paid.
Double Mixed Tulips, $1.25 per 100, post-paid.
Darwin Tulips, Mixed Colors, $1.50 per 100 postpaid.
Hyacinths for Pots, or Outside Bedding, 45c. doz., $3.00 per 100, postpaid.
Daffodils Princeps, 20c. doz., $1.25 per 100, postpaid.
Paper White Narcissus, 25c. doz., $1.40 per 100, postpaid.

Write for our Price List

GEO. KEITH & SONS
Seed Merchants since 1866
124 King St. E. Toronto, Ont.

Fruit Conditions in the West

The Dominion Fruit Commissioner, D. Johnson, during the summer visited the various markets of the prairie provinces for the purpose of making himself more familiar with the conditions under which fruit is distributed there. In Winnipeg, the Commissioner had an opportunity of investigating the arrival and sale of raspberries and strawberries. The wholesale houses had arranged to pool their cars of fruit, the greater part of which was received from the northwestern states. The demand for berries was better than had been anticipated earlier in the season, as it was thought that, owing to the war conditions and the high price of sugar, the amount of fruit consumed would be curtailed. The demand for tender fruit, however, not only in Winnipeg, but in other markets in the west, was much larger than last year, and on the whole he had reason to believe that the wholesalers made prices fully fifty per cent. higher than were obtained last season.

The same conditions existed in Saskatoon, Lethbridge, Edmonton and Calgary, although the province of Alberta was somewhat more seriously affected by the money stringency which exists in the west at present. They have a prospect, however, of an enormous grain crop, and if this crop is harvested without injury, the demand for fruit will be greatly increased.

A Marketing Conference.

In Calgary the commissioner attended the meeting which was called by the Calgary board of trade for the purpose of discussing the price of fruit. It was brought out at this meeting that last year the fruit grower in British Columbia received an average of 15c. (net) for his apples on the tree, while the consumer paid from $1.50 to $2.00 per box for the same fruit, the difference going to the transportation companies and the middlemen. It was the unanimous desire of the convention that the federal government should appoint a commission to thoroughly investigate the marketing of fruit and to devise some different methods than now exist of distributing same.

British Columbia.

In company with Chief Fruit Inspector Clarke, the commissioner visited the producing centres of British Columbia, and made an effort to meet the growers as much as possible on their own ranches. In the Kootenay district many of the growers were somewhat discouraged owing to the low prices secured last year and the unsatisfactory condition of the orchards. Scab and aphis have developed to an alarming extent and many orchards will have little or no No. 1 fruit for sale. Up to the present this district has been fairly free from such pests.

WE ARE PROTECTED BY THE PRODUCE REPORTER CO. CREDIT BOOK CHICAGO SYSTEM. ALL CONTRACTS GOVERNED BY THEIR TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

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

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

The Okanagan lakes constitute the great fruit producing district of British Columbia, and many thousands of acres of beautiful orchards are to be seen. This district will probably have a tonnage equal to last year, but in some parts the quality will seriously interfere with the marketing, the scab and aphis affecting fully 50 per cent. in the northern part, while the south or dry belt is comparatively free.

The British Columbia fruit growers have made a special effort this year in the advertising of their fruits on the prairie markets as well as in their own province, and this campaign has resulted in practically no imported fruit being consumed. In the city of Vancouver alone it was estimated that $80,000 worth of American small fruit would have been marketed had it not been for the vigorous advertising efforts carried on by the British Columbia fruit growers. They are making arrangements for an even more vigorous campaign for the marketing of larger fruits and are confident of good results.

Washington State.

The commissioner spent a day or two in the Washington fruit districts, as the fruit produced there comes in direct competition with the Canadian boxed apples. The apple crop in this district was about 60 per cent. of last year, and in Oregon and Northern California the crop was very light. This district has, perhaps, been more advertised than any other apple-producing district in the United States, with the result that 650,000 acres of orchard have been planted. These orchards are now coming into bearing, and, while last year they produced some 15,000 cars of apples, they predict that in ten years' time, at the rate of increased production, they will produce 50,000 cars. Many of the orchardists are growing discouraged, as they were led to believe that a fortune was assured them in the business, but are now beginning to fear over-production. Some are seriously considering the removal of their orchards in order to plant other crops, such as alfalfa, or wheat, which grow so wonderfully well there.

BRITISH COLUMBIA.

The inspectors this year have returned several large shipments of fruit, from United States points, owing to their being infected with the coddling moth, and similar pests. One shipment contained 400 boxes of pears and 600 boxes of peaches. It was sent back from Vancouver. Another large shipment of pears was sent back from Vancouver.

As a result of the recent fruit conference at Calgary, a party of about 50 members of the Calgary Board of Trade is expected to visit the leading fruit districts of British Columbia early in October.

The executive of the Okanagan United Growers expect a material change for the better over conditions than obtained last year. They estimate that the total apple crop of the Okanagan will bring the growers cash returns amounting to close to half a million dollars, and that the sale of other fruits will show an increase in price of from 10 to 30 per cent. over the returns received in 1914. Putting the total shipment of apples from the valley at 350,000 boxes, which was the amount marketed last season, they figure that this will bring in about $455,000, as compared with $350,000 in 1914. Returns for apples are estimated to average about $1.35 per box as compared to 80c last season.

Mr. W. H. Bunting, of St. Catharines, Ont., this year grew an Elberta peach that measured twelve inches in circumference.

NEWCASTLE-ON-TYNE, ENG.

In spite of the war there should be a great consumption of fruit this year in Great Britain. Government statistics show that there is less unemployment this year than there has been for years. Men are working day and night turning out munitions of war, working at a pressure never before dreamed possible. The world looks on amazed at the manner in which England has "found herself."

This city will be one of the large consuming centres as the working classes, many of whose homes contribute several members to war work, are earning as much as $50 a week per family. It is a veritable gold mine to them and they are able to buy luxuries as never before.

ITEMS OF INTEREST.

The Vineland, (Ont.) Experimental Station preserved and donated its whole crop of peaches for the military hospitals. The donation was expected to equal 5,000 gallon tins.

A four weeks' campaign is being conducted in St. Catharines, and vicinity, to can 10,000 jars of fruit for Canadian soldiers in hospitals in France and England. Jars and sugar are being supplied by a committee, ladies will put up the fruit, which growers will donate on the trees. Boy scouts, soldiers and civilians will do the picking.

W. D. Culp, of Beamsville, this year picked twelve plums that weighed 2 lbs. 12 ozs. or an average of 3 2-3 ozs. each. One measured 7 1-2 inches in circumference.

The Harvest Tells

what fields need Plant-food the most. Ask us to help you build up your soil. A 52-page book, "Bumper Crops," is full of valuable pointers on fertilizing.

FREE if you mention this paper.

Gunns Shur-Crop Fertilizers

We have a large stock of all size

FLOWER POTS

FERN OR BULB PANS

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Orders Filled Promptly. Send for Prices.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

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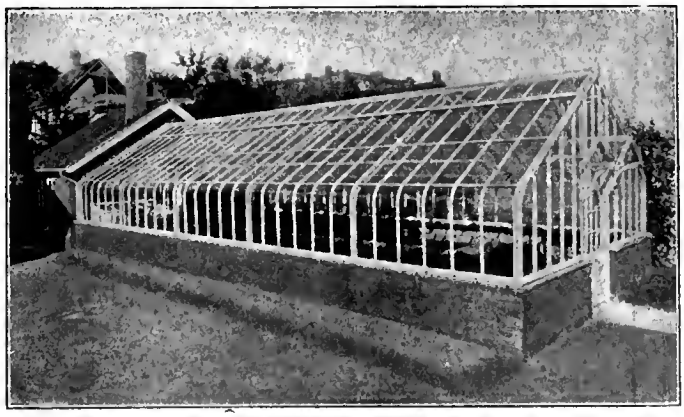
That Earn More—Cost Less to Run



What you can produce in your greenhouses depends on the efficiency of their construction. We build and equip glass houses that utilize all available sunlight, that economize on heat, and therefore cost less to operate.

You don't want to be a follower. Get in the lead with other big men by being the first in your district to put up a modern greenhouse.

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GLASS GARDEN BUILDERS, LIMITED

Makers of Greenhouses, Heating and Ventilating Apparatus, etc.,

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Classified Advertisements

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimaby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

BEES AND QUEENS

GOLDEN 3-BANDED ITALIANS, also Carniolan queens. Tested, $1.00 each, 6 or more, 85c each. Untested, 75c each, 6 or more, 65c each. Everything guaranteed to reach you in good shape. No disease. I. N. Bankston, Buffalo, Texas, Box 135.

BEST THREE BANDED ITALIAN QUEENS—June to October, mothers selected from more than 100 colonies and reared in hives running over with bees, according to the latest scientific methods. Every queen a dandy. Satisfaction guaranteed. Each 75c, per dozen $7.20, per hundred $50.00. Also bees and honey. J. H. Haughey, Berrien Springs, Mich.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

FOR SALE—A 1¾ H.P. Gilson Gasoline Engine (practically new), on truck, with 60 speed countershaft and five interchangeable pulleys. Chas. T. Ross, 88 Quebec St., Sherbrooke, Que.

WANTED—To hear from owner of good Farm for Sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

SKINNER SYSTEM OF IRRIGATION
THE RAIN MACHINE
Write for six books on indoor and outdoor irrigation.
The Skinner Irrigation Co., 233 Water St., Troy, O.

NEW AND RARE SEEDS
Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.
Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

The production of apples, peaches, and pears in the United States this year will show a considerable increase over the average production for the past ten years. The percentage yield for apples is estimated at 62 per cent., compared with an average yield of 53 per cent. The yield will be smaller, however, than last year's yield. Peaches show a twelve per cent. increase over the average and pears three per cent.

The second annual exhibition of the Lambton County Fruit and Vegetable Grower's Association will he held in the city of Sarnia on October 27, 28 and 29. Special attention is paid to large commercial exhibits of apples in boxes and barrels. The annual convention of the growers, including educational sessions, will take place in the same building as the exhibition. Manufacturers of spraying machinery and orchard appliances will have exhibits. The secretary is G. G. Bramhill, Petrolia.

"Observations and experiments on the San Jose Scale," is the title of Bulletin 180, issued by the University of Illinois, Urbana, Ill. A pamphlet on Apple Spraying Experiments has been received from the Maine Agricultural Experiment Station giving the results of work done at Highmoor Farm in 1914.

THE COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited

NICHOLSON & DEMPSTER
88 Colborne St., Toronto, Ont.
Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS
88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
See advertisement on page 248.

H. J. ASH
44-46 Church St.
TORONTO - - ONTARIO
Consignments of fruit and vegetables solicited. We give personal, consistent and rellable attention to every consignment. Shipping stamps furnished on request.

Bankers:
London County and Westminster Bank, Southwark Branch.

Established 1880.

John Robinson
FRUIT IMPORTER AND SALESMAN,
3 Rochester St., Borough Market,
LONDON, ENG.
Telegraphic address: "Redsoil, London."
A.B.C. Codes.
I shall be pleased to have your consignments of Apples. Regular market reports sent on request.
Correspondence is invited.

JACKSON FRUIT CO.
REGINA, SASK.
WHOLESALE FRUIT AND PRODUCE.
Get in touch with us, we shall be pleased to advise you as to the conditions of prairie markets and will handle consignments to your satisfaction. Good connections throughout the prairies.

Rogers Fruit Co. Limited
WINNIPEG, MAN.
Largest fruit and vegetable dealers in the West. Write or wire your offerings.

WANTED — Consignments of tomatoes, peaches, cherries, grapes, and all kinds of fruit and basket apples, also carlot apples. Centrally located; convenient to all car tracks.
LAING BROS.
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Representing
Simons, Shuttleworth & Co.
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Receivers of Apples and Pears.

The Oldest Commission House in Toronto
McWILLIAMS & EVERIST
Send your Consignments.

FRED BARKER
25 Church St., Toronto, Ont.
Representing J. H. Goodwin, Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. E. Cooper, Liverpool,
APPLE RECEIVERS.
Consignments Solicited.

HYSLOP & SONS
132 Princess Street : Winnipeg, Man.
Fruit Growers and Shippers
We have opened up a commission house in Winnipeg, and solicit consignments of fruit. Commission, 10 per cent.
References—Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

Dawson, Elliott Co.
32 West Market St.,
TORONTO.
Telephone Main 1471.
Consignments of Apples and Vegetables solicited. Highest prices obtained.

This space costs $1.40 or 5s. 9d. per insertion. If you want to do business with Ontario fruit growers this fall, order for November and December.

The Canadian Horticulturist

Floral Edition

Vol. XXXVIII PETERBORO, NOVEMBER, 1915 No. 11

The Accomplishments of a Market Gardener

E. B. Luke, Montreal, Que.

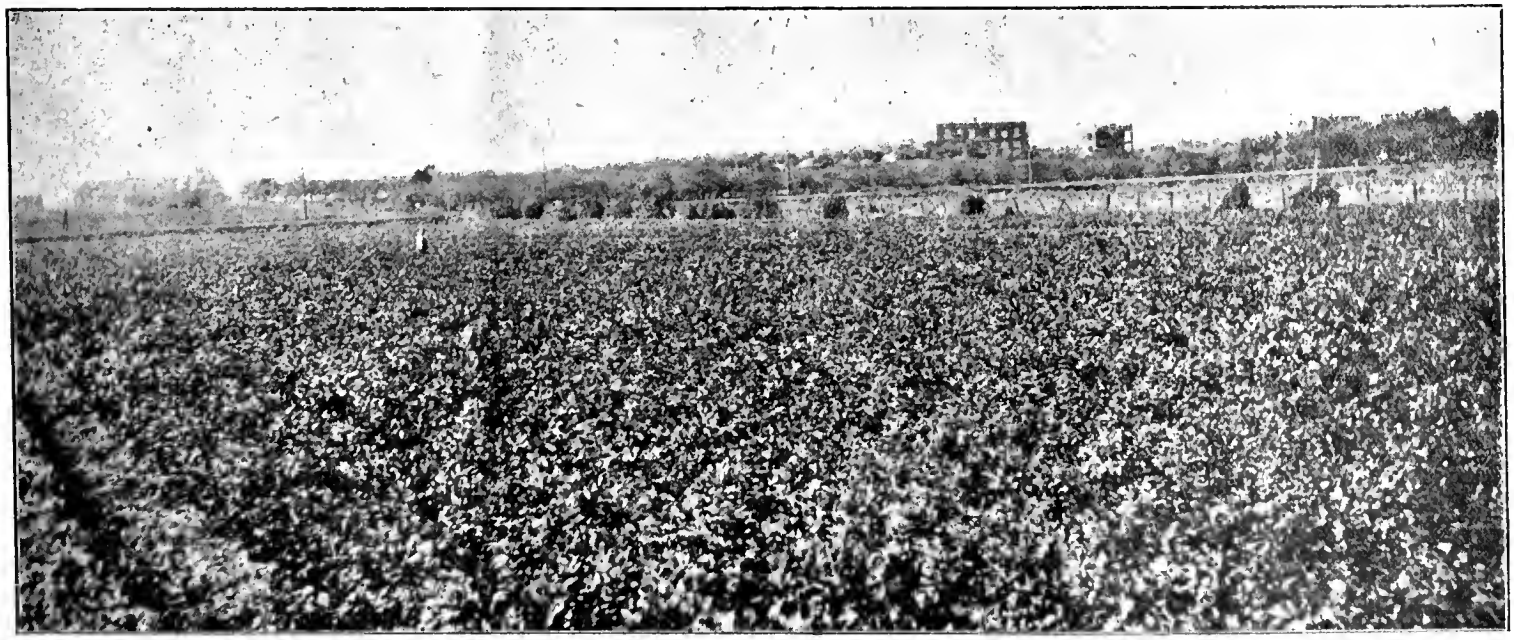
SIXTEEN years ago, there came to Montreal from Naples a young Italian to carve for himself a place in the new world. Possessing a thorough knowledge of market gardening, a deseendant, in fact, from generations of market gardeners, possessing a capital of $1,000.00, a strong physique and a clear brain, but without a knowledge of either English or French, he rented ten acres of land in Notre Dame de Grace, now a part of the City of Montreal. Three hundred dollars was paid in advance for a year's rent. Three hundred was expended in manure, seeds, implements, horses, etc., and living expenses came out of the balance, together with such credit as he could get. This, in short, is the history of the start of Pellegrino Del Sole, now the largest market gardener in the Province of Quebec, if not in the Dominion of Canada.

To-day his vegetable farms at Montreal West comprise ninety-nine acres, eighty-five of which are devoted to vegetable growing, and fourteen acres to apple orchard. In addition to these farms, he purchased two years ago one hundred and ninety acres of ideal vegetable land at St. Hubert, about eight miles from Montreal, of which sixty-five acres are planted to vegetables, thirty-five acres to hay, and forty to oats, and the balance in young orchard. On this farm he has his own private siding installed at a cost of two thousand dollars, also a private telephone line connecting his two places, and costing five hundred dollars a year.

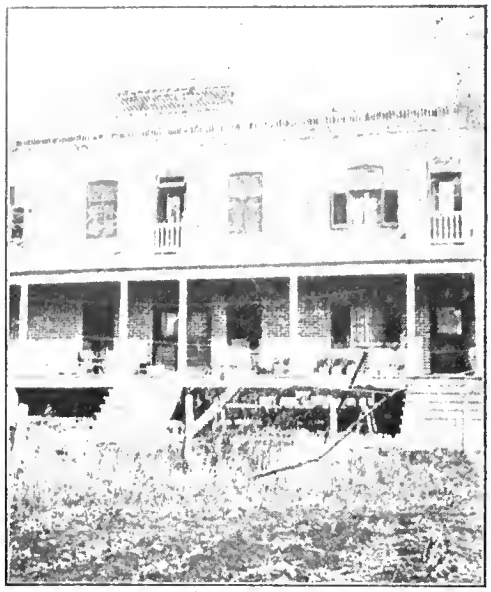
Mr. Del Sole's policy has always been to produce in the largest quantities of the highest quality and to be in a position to supply vegetables in single bunches or in car load lots on any day of the year. Taking more from an acre than the ordinary farmer does from twenty, he realizes that plant food must be returned to the land in like proportion, so he is a prodigious user of fertilizer, using seventy to seventy-five tons an acre. His manure on both his farms costs him about six thousand dollars a year. His method of cultivating a new piece of land, after thoroughly manuring it, is to plow the first year six inches deep, the second year eight inches deep, and thereafter twelve inches deep, claiming the shallower the root system until the land is thoroughly enriched, the quicker and better the growth. Even his hay field is enriched every year and broken up every four or five years. The wisdom of this is seen from the fact that last year thirty-five acres of hay netted him two thousand two hundred dollars, aside from that retained to feed his own stock.

The principal crops grown are celery, onions, cabbage, cauliflower, cucumbers, beets, carrots, parsnips, turnips, tomatoes, egg plants, pepper, spinach, lettuce, swiss chard, parsley, leeks, also three acres of melons that pay from $3,000 to $4,000 gross per acre.

Mr. Del Sole's turnover is from sixty-five to seventy-five thousand dollars a year. On an average six loads a day in the summer is disposed of on the Bonsecours market. About one-third is shipped to Quebec. Car load shipments are also made to such points as Halifax, N.S., and St. John, N.B. Large quantities are disposed of to the leading hotels and groceries in the city, who are his regular customers because he can always supply them, growing as he does more than any other twenty market gardeners in



A portion of a field of celery on Mr. Del Sole's farm at Notre Dame de Grace. Some of the varieties grown are imported from France and Italy.



A tenement built by Mr. Del Sole for his help on his farm at St. Hubert.

Montreal. His melons find a ready sale in Boston and New York. His celery is carefully graded at picking time, grades two and three being sold for immediate delivery, while number one plants are carefully crated and stored in his large frost-proof cellar for the winter market. In this cellar is also stored his winter supply of other vegetables, enabling him to supply his trade right up to the season for new vegetables.

From twenty-five to seventy-five picked and experienced men are employed, according to the season. They are paid the highest wages. Not a weed could be found on any of his farms, for, as he says, "I do not sell weeds, so I do not grow weeds."

The nature of the land on part of the farm at St. Hubert is interesting. The farm is very level. Part of it was originally swamp. The land in that portion of it is rich, the black earth going down to a depth of twelve to thirteen feet. This land is as fine as powder. A person can put their arm down in it to the elbow without difficulty.

The cellar in which Mr. Del Sole stores his vegetables is simple in construction, and looks as if it did not amount to much, but it is well arranged. It is about two hundred feet long by about forty feet wide. It is arranged into compartments, enabling him to crate his celery four deep and with separate compartments for cauliflower, also a half story, covering a whole cellar, for onions and such other produce as can be stored in bins on the floor. At one end of the cellar there is a complete work shop, sorting and packing room.

In onions, such varieties are grown as the Early Red, Red Globe, Yellow Globe, Red Weatherfield, and Silver King, in addition to some Italian varieties, the seeds for which are imported. In celery, the varieties grown include the Golden and Green, and varieties imported from France and Italy.

That intensive farming pays is attested by the fact that Mr. Del Sole's net profits are from ten thousand dollars to twelve thousand dollars a year. It is also known that, aside from his farms, he owns valuable city property, and in addition has five farms clear of all incumbrance in Italy, on which he is producing considerable quantities of nuts that he finds a ready market for and at profitable prices in Canada. A conservative estimate is that market gardening has netted him well over two hundred thousand dollars, and he is only forty-three years of age—in other words, just in his prime.

Fall Work in the Orchard

M. B. Davis, B.S.A., Ottawa

Although the fall is the slackest time of the year for the fruit grower, there are a few things that need attention yet before winter sets in. In the orchard, little can be done after the crop is harvested, for pruning should be left until next spring. In the more favored districts, however, where fall plowing is practicable, such as in the Maritime Provinces, this work should commence at once.

In young orchards, where mice are generally abundant, now is the time to protect the trees against their ravages. Before the snow comes, building paper should be tied about the trunks of the young trees and a little earth mounded up at the base and well tramped down, so that the mice cannot work underneath the paper. This paper prevents the mice from girdling the trees in winter, which they will surely do when in search of some succulent food. This paper also acts as a very good preventative against sunscald in the month of March. It is removed from the trees in the spring of the year after the trees have started into growth.

Winter Protection.

The winter protection for the strawberry field should not be delayed too long. Put on a moderately heavy coat of straw, spreading it over the whole patch. If there are any low-lying places in the plantation, run a furrow through these spots to allow a circulation of air to pass through during the early spring months when the ice is thawing out.

Unless growing grapes in the fruit belt, where winter protection is not required, it will be necessary to lay the vines down and cover them with earth.

Crating celery for storage on Mr. Del Sole's farm at St. Hubert. Mr. Del Sole says that his summer produce simply pays his expenses. He makes his profits from what he sells from fall until spring. During the winter he makes as high as $400 a week from his celery alone.

Pruning the vineyard is generally carried on at this season of the year.

If not already done, it is a good time to remove the dead canes from the raspberry patch, instead of leaving them for next spring, when work will be piling up.

The fall of the year is the best time for setting out raspberries and currants. This should be done as soon as possible now. It is also an excellent time to take currant cuttings for next year's new currant bushes. These cuttings are taken from the present season's well-ripened wood, and may be stored in moist sand in a cool cellar, or planted at once in nursery rows in the open. Scions from apple trees may also be gathered now; in fact it is better to gather them before severe winter weather, for then you obtain them before any drying-out has occurred, and the chances of their uniting with the stock are thus increased. They should be stored in a cool, damp place, and packed in moist sand or sawdust to prevent drying out.

Irrigation Tests at Macdonald College

Prof. T. G. Bunting, Macdonald College

IRRIGATION has been practised for several thousand years in parts of the old world. The Egyptians have irrigated of necessity for probably four thousand years, and in recent years large sums of money have been spent in improving their system and in extending the area under irrigation in the great desert of the valley of the Nile.

With the opening and development of the Pacific Coast region to fruit growing and vegetable gardening irrigation at once became a great factor in the wonderful success of that country. Their systems of irrigation are largely modelled after those of the old world, in which water is taken from the rivers and carried by gravity to the land and there distributed to the crops by flooding or conducting the water through narrow furrows between the rows of plants. Within comparatively recent years irrigation for certain crops has been practised extensively in the eastern United States, and during the last few years has been introduced into Eastern Canada. With the greater importance of our crops and their increasing cost of production we have been forced to use more and more water, until now many hundreds of acres of vegetables, small fruits and florists' stock are under irrigation in the eastern United States and Canada.

Droughts Cause Loss.

Not a year passes without a greater or less period of drought during the summer season. This is the time plants are or should be making their maximum growth. How often do we see reports that such and such crops have been greatly affected by a drought. These periods of drought are probably the greatest limiting factor in crop production that we have to contend with. This is because water is one of the most important factors in crop production, and one that is not fully appreciated. It is essential for the proper solution of plant foods in the soil. Without it the important soil function could not take place. Plant food must be in very weak dilution in the soil water or it cannot be taken up by the plants. It comprises the larger part by weight of all plants, and for every pound of dry matter contained in them hundreds of pounds of water are required for the transference of this dry matter from the soil to the plant.

There are many ways of conserving soil moisture to tide the plants of whatever kind over these periods of drought, such as drainage, cultivation and mulching, but only in the direct application of water can we be absolutely independent of rainfall. This condition explains the great importance of reliable irrigation systems.

Irrigation is not intended to take the place of rain, but rather to supplement it during a dry period. On account of the uncertainty of rainfall it is always desirable that irrigated land be well drained, if not naturally, then by means of tile to carry off at any time excess water.

Controlling Factors.

The practicability of irrigating land is dependent upon the greater returns that may be obtained from that land under irrigation. Many crops would not show a sufficient increase in returns to warrant the expenditure necessary to instal and operate a practical system, so that it at once becomes necessary to determine what crops may be expected to show a return under irrigation. It is partly for this reason that the various colleges and experimental farms in Canada have already installed systems. However, from our present knowledge we are reasonably sure that in many places under average conditions irrigation will pay abundantly on such crops as strawberries, celery, onions, etc., and on many lines of florists' stock. This profit may be obtained from the crop under irrigation by giving a greatly increased yield, a better quality crop in everything that makes for quality, an earlier crop, or a crop that is much freer from injuries from disease and insect pests. Also irrigation will frequently permit of a second crop after an early one, or will permit of the sowing of a cover crop after the main crop has been harvested, and by forcing this cover crop with water we can benefit

This crop of potatoes yielded 600 bushels to the acre. Note the piping for the Skinner system of irrigation which was used.

The growing of grapes on a commercial scale is being developed in Lambton County, Ont. This vineyard is owned by Robt. W. Riggs, Arkona, Ont.

the soil so that it will be in much better shape for the following year's crop.

There are many ways of applying water to the ground or growing crops, and one of the commonest to the florist is by means of a garden hose attached to a supply of water under pressure. This is slow work and expensive of labor or upkeep and is only feasible on small gardens. Small garden sprinklers of various makes and capacities are often used with the hose to reduce the cost of distribution, but they do not distribute uniformly and only partly reduce the cost. Surface irrigation, such as conducting water by gravity through ditches and distributing it between the rows of plants in shallow furrows is extravagant of water and not very well suited to our conditions of soil. Sub-irrigation, or the distribution of water through numerous underground tile is also extravagant of water and does not give even distribution or uniform results.

The system that is in general use and that is giving greatest satisfaction is a system of overhead sprinkling after the manner of rainfall, and is called the Skinner System of Irrigation. It consists of an overhead system of lateral pipes, three-quarter inches to one and one-quarter inches in diameter, depending on its length, in parallel rows, forty-five feet to sixty feet apart, connected to a main supply line, usually under ground, and delivering the water to the laterals at a pressure of twenty-five to thirty-five or more pounds. The laterals are provided at intervals of from three to four feet with small nozzles in perfect alignment that throw a stream of water from twenty to thirty feet. This stream of water, in being thrown from the nozzle, is broken up into innumerable small drops which fall to the ground in much the same manner as a gentle rain, and the ground is covered uniformly. The latest lines are provided with a turning device, so that the nozzles may be elevated or lowered, depending on the distance desired to throw the water, side to be irrigated, or direction and velocity of wind.

Approximately one inch of water may be delivered on the land for the full length of the lateral over a width of twenty-five feet in a period of ten hours, of course depending on pressure of water, size of pipe and nozzles used; or both sides of the lateral can be irrigated to a depth of one inch in two periods of ten hours each. One inch of water is equivalent to a heavy rainfall, and will give a thorough soaking to the ground for a considerable depth, depending on the dryness of the soil before the application. At Macdonald College we have been giving with good results an application of one-half to three-quarters of an inch of water at a time and the applications as frequently as every five to seven days, again depending on the rainfall and condition of the crop. One good irrigation once a week is of more value than a number of light sprinkles every day during the dry season. Light sprinkling only wets the surface soil and is soon lost by evaporation, and little of it ever gets to the roots of the plants.

Cost of Installation.

This system is an expensive one to instal, but of course much depends on the source of water supply, cost of pumping and delivering the water under the required pressure, cost of pipe and material, and labor required. As this varies a great deal no estimates can be reliably given, but if water cannot be delivered to the land to be irrigated at the required pressure at ten cents per thousand gallons the cost would probably be excessive. At ten cents per thousand gallons the cost is approximately two dollars and thirty cents an acre inch of water for delivery charge, and one would require from two to five acre inches of water per season. During the past season we used on an average two decimal fifty-five acre inches of water over nine acres of vegetables, strawberries and some florists' stock, some crops requiring more water than others.

The cost of installing the system on the land, exclusive of the cost of delivering the water, can be more easily determined. Estimates will vary according to the price of pipe and other material used, labor and method used in supporting the lateral lines. These estimates may run from one hundred dollars to as high as three hundred dollars an acre or more. Our system, which has been in practical operation for two seasons, has cost for installation slightly under one hundred dollars an acre, but as yet the laterals are supported on wooden stakes, which will eventually be replaced by permanent pipe supports set in concrete. This will cost approximately twenty-five dollars per acre, and with a few minor changes and improvements the system will cost well under one hundred and forty dollars an acre for installation.

The question of depreciation cannot be determined until the system has been under operation for a series of years, but if properly installed and given reasonable care and attention the depreciation should not exceed ten per cent. per year.

We have not as yet obtained any definite information on the actual yearly cost of irrigating, including cost of pumping and delivering water, interest on capital invested in plant, depreciation, and labor attached to irrigating and the upkeep of the system, but judging from the present information it will not be far short, if not above twenty-five dollars an acre per season, depending on the season and the kind of crop to be irrigated.

Macdonald College was the first experimental farm in this country to install the Skinner System. We have nearly nine acres of it in operation. The crops that have been irrigated with apparent success are strawberries, celery, onions, potatoes, early corn, tomatoes and melons, together with some florists' stock.

We have yet much to learn about irrigation under our conditions in regard to amount of water required, frequency of application, and crops on which it may reasonably be expected to show a profit. Also it should in future be possible to considerably lessen the cost of installation and the cost of pumping water.

There are many growers who could obtain an abundant supply of water

(Continued on page 266.)

Room Plants in Winter

John Gall, Inglewood, Ont.

MANY plants that have succeeded fairly well in the dwelling house during the summer and early fall months begin, when winter sets in, to lose their freshness. Of course, one looks for this in the case of plants of a soft-wooded nature, but when such subjects as palms, the evergreen

A beauty spot in Galt, planted by the Galt Horticultural Society.

ferns, and even Aspidistras look more or less unhappy, the cause needs seeking.

There are several reasons that may be put forward for this, but one of the most likely causes of the plants being affected is that with the increase of fires, lamps or gas for the purposes of illumination, the atmosphere is rendered much drier than it was. This condition of things is very detrimental to plant life, and consequently the plants soon show the effects thereof. The best lighting medium for the welfare of plants is electricity and the worst, gas. The exceedingly dry atmosphere against which we have to contend also causes the soil in the pots to dry as quickly as, or perhaps even in some cases quicker than in the summer, though, of course, in this respect the condition of the plants, the requirements of the different individuals and their position in the room all play an important part in the matter.

A question put perhaps more frequently than any other is, "How often should I water my plants which are in the window or elsewhere in the room?" This question is easily asked, but absolutely impossible to answer. Take, for instance, a palm growing in a comparatively small pot. Around the bottom of this, the stout roots, whence the principal nourishment is derived, are coiled. Under such conditions it is almost impossible to over-water it, whereas another one, in a larger pot, and consequently a greater mass of soil perhaps unpenetrated by roots, would be killed by receiving the same treatment.

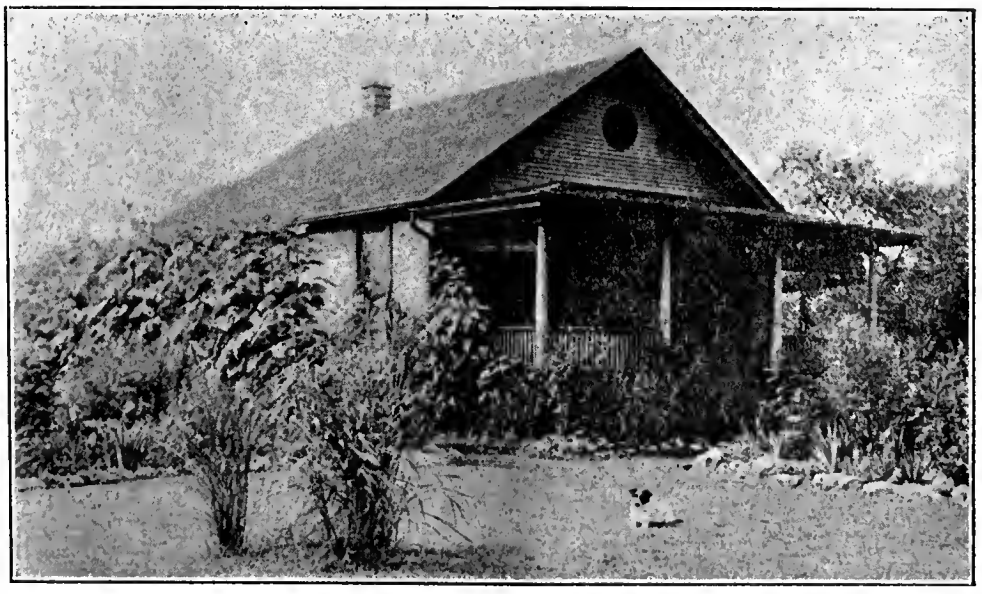
A mistake very often made is that as soon as a plant appears somewhat sickly it is looked upon as requiring a larger pot, whatever be the season of the year. Even if it would be benefited by an increased size of pot, the operation of repotting should not be carried out after September; indeed, the months of April, May, June and July are best for the purpose, as there is then ample time for the new roots to take possession of the fresh soil before the winter. Such being the case, if plants at this season appear to be underpotted, the better way will be to wait till April before disturbing them at the roots.

As it is impossible to state any definite period when room plants should be watered, a few words of advice may be given on this point. In the first place, the soil must be allowed to get dry before watering, and then enough water should be given to thoroughly moisten the ball of earth. By saying dry, it is not meant that the soil must be parched up so as to injure the plant, but rather that it is in that condition which a careful observer will at once see as likely to be benefited by a good watering. Above all things, avoid giving little drops occasionally, as this will undermine the constitution of plants. When a plant requires watering, the better plan will be to take and stand it in a pail of slightly tepid water at such a depth that the rim of the pot is covered. When the water has percolated through the entire ball of earth, which may be ascertained by the air bubbles ceasing to rise, it should be taken from the pail, allowed to drain, and then put in its usual place. On no account should stagnant water be allowed to stand in the jardinieres in which the plants are placed.

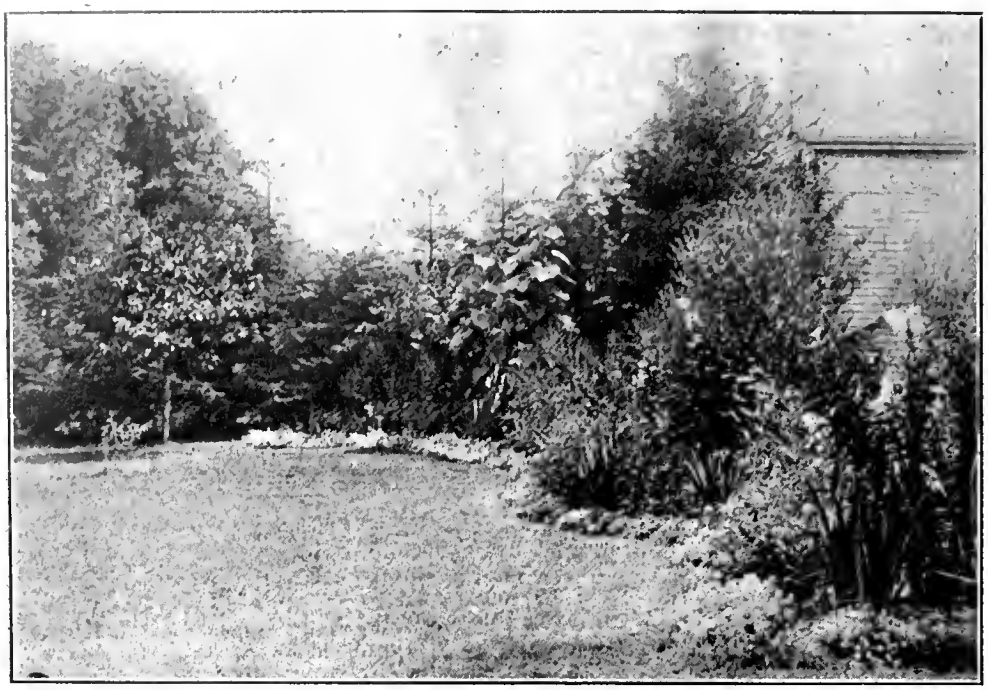
With the dry atmosphere there is always a certain amount of dust, and to keep the foliage of the plants as clean as possible is a very important matter. Such subjects as the Aspidistra and palms of different kinds, whose leaves are smooth and of a firm texture, may be readily kept clean by frequently sponging with lukewarm water. On the other hand, such subjects as ferns, whose foliage is very intricately divided, collect the dust to a greater extent than the smooth-leaved plants, and are also more difficult to clean. The better way is to take advantage of a mild day to give them a syringing. On no account, however, must this be done during frost.

Another very important matter during sharp, frosty weather is to bear in mind that the greatest cold is, as a rule, experienced during the night when the fire is apt to go down, and consequently the temperature of the room is lowered. The coldest part is, of course, near the window, where most of the plants are usually kept; and in order to make all safe, the plants should be removed from their more exposed position to the centre of the room, where, arranged in a close group and covered with a few newspapers, they will be safe. When possible, however, they should be stood near the window, so as to obtain the full measure of light which is so essential to the welfare of the plants in general.

We should work for "A beauty that supplies a daily need" and not a Sunday pride.



The bungalow and garden, in Lundy's Lane, Ont., of Mr. F. Junkinson, of Niagara Falls South. Two years before the photograph was taken the lot was a waste of weeds and rubbish. Stones from an old foundation were used for borders and landscape effects.



This shows another portion of Mr. Junkinson's garden. The garden throughout was planted with the object of creating an informal effect. Its pleasing character is well shown in the illustration.

Tender Plants in Cold Frames

B. C. Tillett, Hamilton, Ont.

MANY tender plants are wintered in cold frames, and on the other hand, many perish. The greatest enemy to contend with is damp, and therefore precautions should be taken to combat it as far as possible. In the first place, the bottom of the frame should be above the surrounding ground, and the bottom covered with ashes (not too fine), or some similar material. Then when the plants are placed in their winter quarters, they should be kept as dry as possible, consistent with safety.

Until frosty weather comes, air should be given night and day, so that the plants may be kept in as dormant and hardy a state as possible. The lights, of course, should not be left off during either rain or snow, but when air is desirable, they may be tilted during the night. This will keep the plants in as good a condition as possible to withstand severe weather. When the time comes when severe frosts may be expected, the exposed sides of the frame should be banked up with some frost-resisting material, such as litter, leaves or old straw. It should be as dry as possible when put into its place, as dry material of any kind resists frost much better when it is wet.

During severe and long-continued frost the occupants of the frame may become frozen, despite the covering of litter. In this case nothing can be done, and the least harm will accrue if the plants are allowed to remain undisturbed. When the thaw comes is a very critical time, but with a little care the risk of injury may be greatly minimized. However pronounced the thaw, the frames should be allowed to remain shut up for twenty-four hours and the plants kept in absolute darkness. At the expiration of that time, the lights must be tilted a little at the back, which is the highest part, in order to allow the moisture to escape, but not enough to admit daylight. They may be left in this way for two or three days, and after this the plant inured gradually to the light. Then, as soon as possible, the frame should be examined to ascertain the condition of its occupants, and also for the removal of any decaying leaves. In this way many tender plants may often be brought safely through the winter months.

The Vegetable and Fruit Garden*

H. L. Patmore, Brandon, Man.

IF we want to have a garden in which the soil shall be sweet and clean and free from insects and grubs, we should clean up in the fall all rubbish, dead vines, and other litter and burn it. Have the land well dug, or if possible deeply ploughed and manured, first spreading on it rotted manure and then ploughing or digging it under. It is best to leave the land if possible a little rough in the fall, so that the rain, snows and frost can penetrate, sweetening the soil and leaving it in good, moist condition in the spring.

The ground allotted for the sowing of onions, carrots, parsnips and other early seeds should be made ready in the fall, so that the seed can be put in just as early as possible in the spring. This is where so many of our gardeners in this western climate fall down. A few days' difference with these seeds in the spring will often make a difference between a good crop and a failure, especially with onions.

For early spring use, Egyptian Perennial onions can be planted in the fall, and the earlier the better. These will be ready to use the earliest of any in the spring, when they are tender.

Rhubarb is a plant that runs out very quickly in this climate. To obtain the best yield and quality, the plants should be renewed at least every three or four years. To do this, the best plan is to take a few strong crowns from the old plants each fall and start a new supply. In this way you will always have a good stock of young rhubarb roots growing and coming into their best productive value. The older plants can be dug and left to rest in the fall of the year, even on top of the ground. Dry weather or frost will not hurt them; and if left available in any place they can be picked up in the winter time and brought into the house and placed in a flower pot or tub near heat, and in two or three weeks a supply of rhubarb for use can be obtained. This is so easy that if generally known it would be very useful and of value to many a family living on the western prairies.

Asparagus plants are all the better for manuring, and a loosening of soil in the fall of the year, if possible, leaving a little of the tops out to gather the snow.

If we have fruit trees and bushes in the garden, it is well to put manure around them and dig it under in the fall; and if there is danger of rabbits and mice being destructive, a little tar paper wrapped around the fruit trees will do much to prevent injury.

Currants and gooseberries should be pruned slightly in the fall, just taking away the old, dry wood or anything which is straggly. To obtain a crop of good, large fruit of these the following season a dressing of cow manure would be of great assistance. Cow manure is largely water, and if dug into the soil around the bushes in the fall of the year, it will keep the soil cool and moist all through the following summer, enabling the bushes to produce the largest sized berries.

*Extract from an address before the Manitoba Horticultural Society.

Garden Suggestions for November

Henry Gibson

THE planting of bulbs for spring blooming should be finished as soon as possible now. Hard, freezing weather may be expected almost any time, and it is not an easy task to have to dig off a few inches of frozen earth in order to plant the bulbs.

When planting is completed the autumn cleaning should begin in earnest. Deciduous trees are now shedding their leaves, and in large gardens, where many of these trees are accommodated, it is always a relief when the last of the leaves are down. The leaves should be gathered, as free from sticks and stones as possible, and stored in an out of the way corner for future use.

Oak and beech leaves are the best for preparing leaf mould for potting purposes. Elder, Maple, Chestnut, and other leaves are usually raked into heaps and burned. This practice, however, is one we do not advocate. These leaves can be turned into valuable manure by being mixed with other garden refuse, and allowed to decompose.

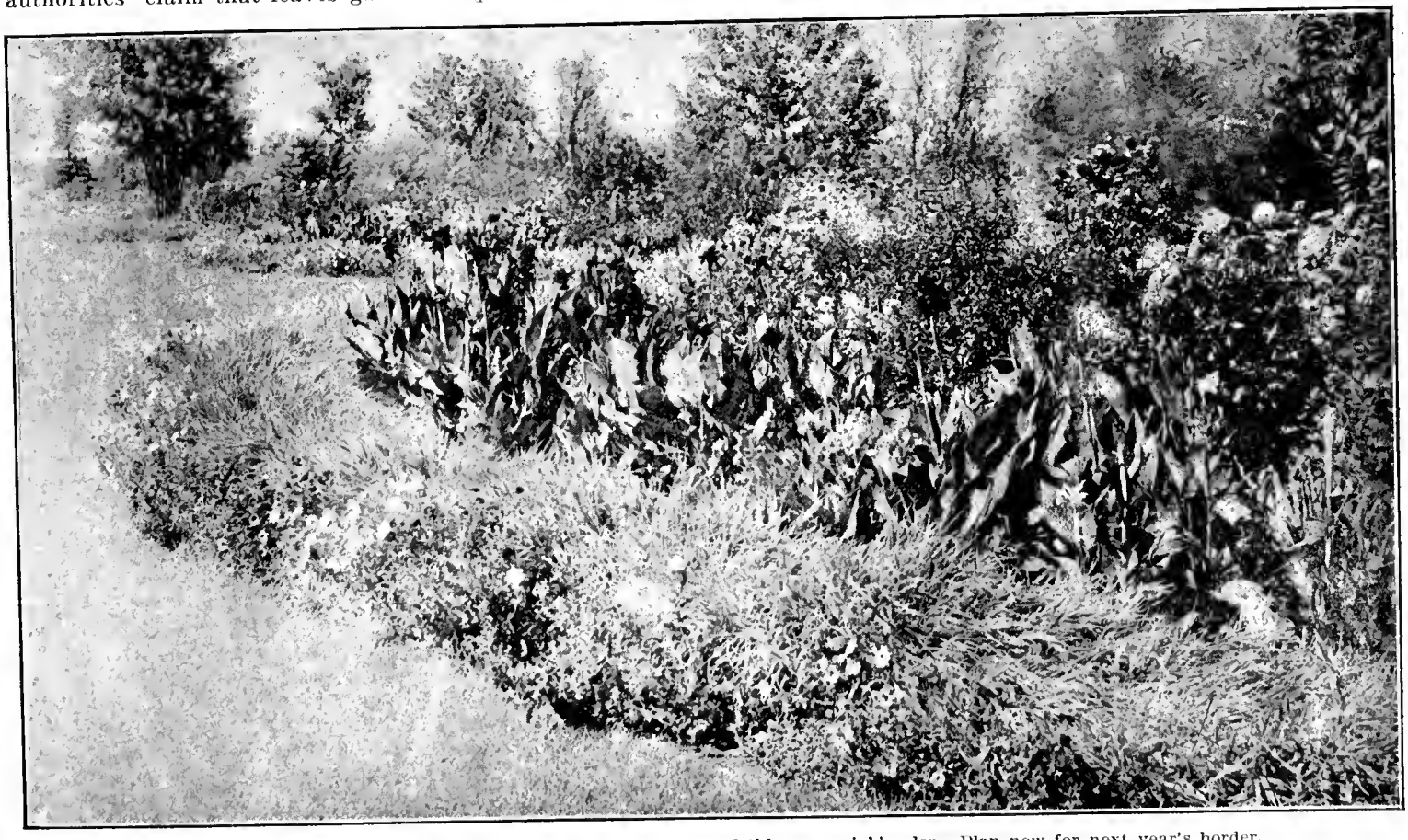
A few of the Elder, Maple and Chestnut leaves mixed among a bulk of others will not be harmful. Some authorities claim that leaves gathered in town gardens are not fit to use in preparing leaf-mould for potting purposes. This, however, is contrary to our experience, as we never have found them to have a bad effect on plant life.

The Wild Garden.

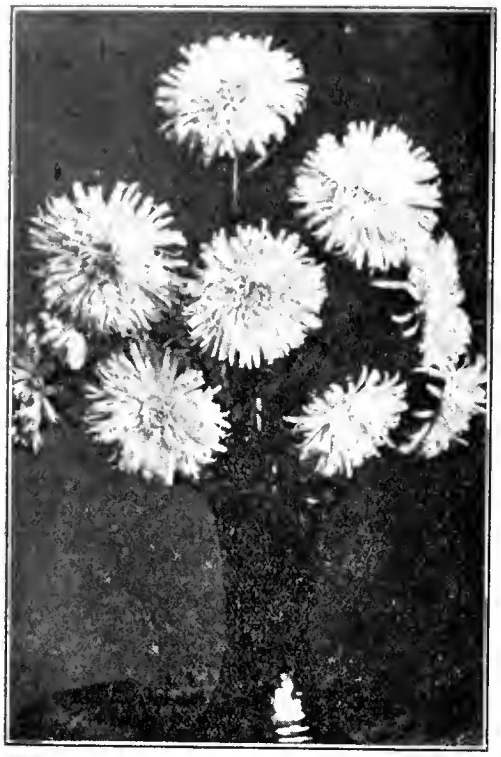
As a general rule the wild garden is left to take care of itself. The falling leaves afford fine protection for many of the smaller plants, yet they should not be allowed to congregate in bulk and bury the dwarf plants. Wild gardens are becoming very popular and, inasmuch as it may be described as a cheap form of gardening, they are likely to become more popular still. While it is rather late in the season to think of making additions in the way of trees and shrubs, yet plans could be laid for carrying out this work in the spring. In making additions, care should be taken to avoid the creation of a stiff, formal appearance. Straight lines of trees are not desirable, and foot paths should be irregular and winding. A charming path may be made of irregular shaped stones. This could be done now, so long as the ground remains open. Too much care should not be taken in making the stones fit in evenly, as the spaces between them may be filled with soil and planted with alpines.

Plans can be formulated for planting unshaded positions with rambler roses of the Dorothy Perkins type. They may be had in a variety of shades, and if allowed to roam at will they provide a glorious carpet of color when in bloom. Tree stumps or inverted tree roots can be used to support roses of the Penzance hybrid class. The strongest varieties should be selected, and although they will require but little attention when once established, it is important that they be planted in good soil.

Other parts of the wild garden may be adorned by the planting of a few dogwoods, (Cornus Flouida) both pink and white may be used. They form a pleasing contrast when in bloom in the early spring, and they are also desirable for the display the berries make in the fall. When transplanted the dogwoods are slow to start into growth, but they are very tenacious of life, as what may appear to be a dead tree, will eventually show signs of life. Narcissus may also be used to advantage for producing effect in the wild garden. These should be planted in conspicuous groups, rather than scattered over a larger area. Forget-me-nots are perhaps one of the best subjects for the decoration of the



The absence of straight lines adds greatly to the beauty of this perennial border. Plan now for next year's border.



Mikado asters grown by Mr. Arch Bidwell, a director of the Barrie Horticultural Society.

woodland walk, and Myosatis Sylvatica is, we think, the best for this purpose.

All vegetable matter from the flower and vegetable garden should be stacked for future use. The substitution of automobiles for horse traffic is likely to lead to a scarcity of animal manures, and although commercial fertilizers may largely be substituted, yet they do not provide the humus necessary for the successful cultivation of plant life. Decayed vegetable matter is a splendid fertilizer, and if its true value was more generally understood among amateur gardeners very little of it would find its way into the rubbish heap. All kinds of spent plants, fallen leaves, and even the lawn mowings may be utilized. They should be stacked deeply in an out of the way place, and turned and re-stacked several times to hasten decomposition. A light sprinkling of superphosphate of lime may be given at intervals while the work of re-stacking is in progress. After several turnings, the heap may be covered with soil, and when thorough decomposition has taken place it will be found equal to the best animal manure. In town gardens, where animal manure is specially difficult to obtain, special efforts to preserve all this kind of refuse should be made. Old potting soil, floor sweepings, and fine ashes may be used. On heavy soils ashes are particularly valuable.

The situation of a strawberry bed should be open and airy: they will not tolerate shade.—W. A. Dier, Ottawa, Ont.

Bulbs for Fall Planting

Miss A. H. Austin, Toronto, Ont.

IT was my good fortune last summer to visit the land of bulbs, Holland, Early in the sixteenth century Dutch travellers returning from eastern Europe brought back tulips. Flower-lovers enthused over the beauty of form and color of these new novelties and exhibited them at home and abroad. So rapidly did the popularity of these, then unique, flowers increase that soon people began to grow them for exporting.

It was very interesting to see the large warehouses in Holland where they are stored, but more interesting to see acres and acres of land around Haarlem (now the leading city of this trade) devoted to the cultivation of the many spring bulbs. Fancy the riot of color, every hue one could think of, as far as the eye could see, miles of color! The soil and climate of this fascinating country seem peculiarly suitable to bulb culture, with the result that Holland is classed as the largest bulb producing country in the world. I was anxious to purchase some special varieties while there, but alas, my individual order was too small.

Planting Suggestions.

For massing together I would advise the common varieties. Planted in a bed six feet or more in diameter and divided into four equal sections, crimsons and yellows make a brilliant splash of color early in the spring.

The May-flowering varieties, Darwins, (which have become popular only in the last twenty-five years) Cottage and Parrot do not look well massed together. In groups of twelve or fourteen in the herbaceous border, they have a charming effect. They can be left in the ground several seasons, but care must be taken not to cut them down too soon. I have had some beautiful specimens on stems from sixteen to eighteen inches high, in tints ranging from a deep purple to the daintiest shell-like pinks. When making a selection, choose the named varieties, as it adds interest in any line of gardening, especially tulips.

For grotesque and bizarre effects the Parrot tulip takes the lead. The edges of the petals are deeply cut and often striped. When closed the flower truly resembles a parrot's beak, hence the name. My experience has been, they are not such good cutters as the Darwins; the stems seem too slender to support the flower.

I decided on my return to Canada in the fall to try my luck with daffodils in the open. To me they are the happiest of all spring flowers. They stand up like little soldiers on tall green stems, their trumpet-like centres being protected by an outside guard of six petals. One is always tempted to smell them, but alas, their glory is only in their color and formation. This was my initial experience but I decided 'twas better to have tried and lost than never to have tried at all, so I prepared the bed. Half the joy of gardening in town is to do the work one's self, provided you have "a cast-iron back with a hinge to it," so I started.

The bed, which was ten feet by five feet, had a southern exposure. I used the single varieties, planting five inches deep and four inches apart. I tried to get them a uniform depth as I wanted the whole battalion on review at the same time. I topped off with plenty of leaves and garden truck, on top of which I placed some boards. I was taking no chances.

Imagine my delight when early in the spring I uncovered the bed and found my golden friends up and calling to be uncovered to feel Old Sol's warm rays. This bed attracted more comment than any I had ever had, so I felt well repaid.

Crocuses and Snowdrops should not be planted in any fixed order. Stand near where you wish them planted, throw them carelessly about, planting them where they fall. The result will be much more artistic. Needless to say, the best time to plant is after a heavy rain, when the turf is soft.

For early winter flowering Hyacinths, Narcissus and similar flowers plant early in November in shallow fern pans or single pots. Use good loam and see the drainage is good. Place in a cool, dark room and water only occasionally, so as not to allow the earth to dry out. After signs of life have appeared move to a warm room with plenty of sunlight. With very little expenditure in money or time one may have the house gay at Christmas time with home-grown flowers.

A National Flower

What flower would you like to see recognized as the national floral emblem of Canada? This is a subject on which opinions will differ but concerning which a public discussion may prove helpful. Readers of the Canadian Horticulturist are invited to express their views.

The late E. T. Cook, of Toronto, president of the Ontario Rose Society, true lover as he was of the rose, preferred a wild flower as his selection. Writing on this point he said: "Our national flower must be a wild one—native of

this fair land of ours. I know of nothing more exquisite in the whole realm of nature's wildings in this country than the 'Trillium'—the Trinity flower that seeks the shade of copse and woodland, and spreads, where a few things will, in the shadow and in poor soil. It is a flower treasured for its beauty in the gardens of the world—here it is at home. It is also a flower that lends itself to formal design."

From Swan River, Manitoba, we have received the following letter by Mr. H. Harley:

"I would like to say a good word for my favorite flower, the Paeony. It is the best all round flower we have. It has a great variety of color, there are medium and late varieties and it is almost free from insects, and quite a number of them have the perfume of the rose. The foliage, when not in bloom, is an ornament for any garden, and when in bloom is the admiration of every one. Best of all, it is hardy, and will grow and flourish in every province. By all means let us have the 'Queen of flowers,' the paeony, for the national flower of Canada."

Who speaks next?

Carnations in the Conservatory

A. Henderson, Montreal, Que.

CARNATIONS that were planted early in August are now producing some first-class blooms. Where size and quality of bloom is desired disbudding should be done. Remove all the side buds and leave only the largest terminal bud.

Staking should be done as the plants need it. No matter how promising and healthy the plants may be in other respects, one cannot expect to get first-class flowers if the plants are not properly supported. Adjustable carnation supports, similar to those shown in the illustration, may be purchased from any horticultural sundriesman for a few cents each. These are placed round the plants and so constructed as to only need sliding up as the plants increase in height.

From now on we enter into real winter weather, and the plants should be hardened up for the period when root growth is not so active. Watering should be done only when really necessary as we advance further into the winter. If any doubt should exist as to whether the plants really need water, leave the operation over until the next day. Proper temperature is important. Never leave the 50 degree mark at night and you'll not go wrong. Forget what some one may have told you about keeping a certain variety at 52 degrees at night. When you get to 52 degrees it's only a degree to 53 degrees, and the plants will surely do better at 50 degrees than at any other temperature.

On bright days the temperature may run up to 70 or 75 degrees with sun heat without any harmful effects if plenty of air is admitted through the ventilators. On dull, cloudy days the temperature should not go beyond 56 degrees. Ventilation should be done carefully, starting with a little in the morning and increasing as the sun warms up the house, until mid-day.

The same rule should be observed in the afternoon. As the sun loses its power, close down the ventilators by degrees. Draughts should be avoided at all times. A little air left on over night on all favorable occasions will greatly assist in hardening up the growth preparatory to the coming of winter.

Syringing to keep red spider in check should be done early in the morning of all bright days, so that the plants will be dry over night. Rust, a very common disease of the carnation, to a large extent is the result of the plants being left wet over night. Syringe well in and about the corners of the benches, and particularly where the plants are in close proximity to the heating pipes. Red spiders revel in a dry, arid atmosphere, and these are the places where they find it. Spray at intervals of a week or ten days with aphine or tobacco extracts to control green aphis.

Carnations as grown in a private conservatory. Note the freedom from light obstruction in this style of greenhouse.

The Lawn and Perennial Borders

H. L. Patmore, Brandon, Man.

The lawn will always benefit from attention in the fall after the exhaustion of the summer growth. All lawns, and especially those on light soils, require to be renovated. This can be best done by a mixture of fine manure and good soil spread over the surface of the lawn just before winter. If obtainable, sheep manure mixed with about three parts of good black earth is the best to be used, and should be spread evenly and brushed over with a broom or rake, so that it lies close to the roots of the grass. In this way the snow and rains would carry it right into the soil, and in the following spring, if rolled, nearly all of it will be absorbed, enriching the soil and making the lawn have more of that turfy, springy bottom, which is the essential of all good lawns.

The shrub and perennial border, I think, is best left with but very little cleaning. The tops of the perennials are the very best protection that you can give the plants during the winter months, and if not too unsightly, I would suggest to leave these to protect the plants themselves, and to be removed the following spring. There are many perennials of the hardy kinds which can be planted in the fall, especially if the ground is moist, and they gain in the following season's growth a strength which they cannot get when they are transplanted after growth has started in the spring.

Ants, which are often seen on paeony buds when they are developing, are there to gather a sweet, gum-like substance which the bud exudes. They do no harm to the coming flower, nor to the plant and disappear on the opening of the flowers.—J. H. Bennett, Barrie, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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.

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The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

Sworn detailed statements will be mailed upon application.

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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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

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EDITORIAL

Landscape Gardening in Canada

Different countries have distinctive characteristics in their landscape gardening. These distinctions are due primarily to differences in the material with which the people have to work—the trees, shrubs and flowers—but also to tempermental differences in the people themselves and to variations in the conditions under which they live. The seclusive, formal Britisher surrounds his home with impenetrable hedges, and decorates his lawn with primly trimmed trees and geometrically arranged flower beds. The little Jap, with his crowded conditions and his diminutive garden, has developed some wonderfully dwarfed varieties of plants, which are in strict keeping with the other features of his domestic life and environment. And so in other countries, especially the older ones; each has evolved a form of landscape gardening expressive of its natural conditions and of the character of its people.

In Canada conditions are favorable for the evolving of a form of landscape gardening that will not only be characteristic of the country but also, in its expression of the character of our people, and of the conditions under which they live and work; and in its simple beauty, will compare very favorably with the older schools of landscape adornment. In its development all that is necessary is to copy nature and to incorporate in it the simple beauty of a natural Canadian landscape.

A careful observation of a secluded glade in the woods, or of a clump of bushes in an open place, will reveal the truly artistic manner in which nature designs her beauty spots. Where the sod ends will be found scattered a few wild flowers. Then comes a row of low shrubs or bushes swelling upward into clumps of larger bushes and small trees, behind which stand the larger trees. There is scarcely a line of demarcation visible between the sod and a full grown tree. Nature avoids sudden breaks in her arrangements. One member of the arrangement blends into the other with a smoothness and gracefulness that can be copied, but never excelled, by man.

In the beautification of their home surroundings Canadians have only to copy nature as she works in their district, to secure the most beautiful effects. She has been busy for countless centuries selecting the most suitable trees and shrubs for each individual district. These can be used to advantage, and where new varieties are introduced, the arrangement should follow the natural one as closely as possible. Wide open spaces, then flowers, back of that low, then higher shrubs, and behind it all the larger trees, preferably some of our native Canadian varieties: that is the way nature would arrange our home plantings, and to secure the most suitable effect we should follow her example and make her way our way.

In a new country with people coming, in normal times, from almost every other country, and bringing their native ideas with them, there is a danger of the introduction of features into our landscape gardening that are exotic, or foreign, and that can never be made characteristically Canadian. Clipped trees and hedges and formal gardens are all right in England; a miniature forest of pine trees, dwarfed to a few inches in height, are very suitable in Japan; but in Canada our plantings should be made to harmonize with nature as it finds expression in our natural Canadian landscapes.

Greater Production

Those who produce their living from the soil, whether as fruit growers or in other lines of general agriculture, are beginning to show distinct signs of impatience when well-intentioned individuals urge them to increase the production of their land as a means of overcoming many of the ills to which modern society has become heir. When we are informed that farmers are abandoning their farms by thousands because of the relative unprofitableness of farming, it is urged that experts, and still more experts, shall be sent out to teach them how to increase the yields of their crops, so that they may be encouraged to continue to cultivate the soil. When our daily papers call attention to the increased cost of living, complaint is made that the ignorant farmer and fruit grower are neglecting to fulfil their duty to the nation by refusing to follow modern methods of agricultural and horticultural practice. Were they more responsive in the matter of taking advantage of their opportunities, so it is claimed, enough food might be produced for all at reasonable prices. When the nation, of which we are proud to form a part, became engaged in the greatest war in the world's history, producers once more were urged to increase their production and thousands of dollars were spent in advertising and in sending out speakers in order that they might be awakened to a due sense of their responsibility.

While this advice is well meant it overlooks one factor of far-reaching importance. There is no guarantee that increased production will increase the returns to the producer. Instead, it may result in disaster. So frequently has it happened that large crops have lowered prices until profits have reached the vanishing point, that many producers are as afraid of general overproduction as they are of a crop failure in their own case. Last year, for instance, potatoes were a large crop. Who will say that it was a profitable one for the producer? At present the danger of a continental overproduction of apples for some years to come has become so acute that heroic efforts are being made to deal with the situation, and even Governmental authorities are discouraging further plantings until the situation shall adjust itself. Yet who can say that fruit has become an article of common consumption?

The people who advocate increased production as a means of reducing the cost of living do so because they know that increased production will lower prices. If increased production means lower prices, how, then, will teaching farmers in general how to increase their yields enable farmers and fruit growers as a class to obtain larger returns from their crops? The one argument discounts the other.

The problem does not adjust itself to easy solution. Its roots penetrate to the centre of social and economic conditions that involve all classes of the community. The remedies required are more sweeping in character than even those best informed like to admit. Because they affect vested interests such—to mention only one among many—as the great railway corporations, their adoption will be opposed by powerful interests. Fortunately, the public is awakening to the fact that the welfare of society demands that the situation shall be faced. The situation calls for wise statesmanship and united action on the part of many interests.

When fruit growers receive fifteen cents net for their apples on the tree, as has been the case in British Columbia, and see that fruit sold later for one dollar and fifty cents to two dollars a box, it is not to be wondered at that further production has been discouraged, and that a demand has arisen for the appointment of a commission to investigate fruit marketing methods.

There are so many lines of work which can be conducted by horticultural societies, an effort should be made by many societies to extend the sphere of their activities. There is a tendency among a considerable number of societies to confine their activities largely to the distribution of premiums and the holding of an occasional meeting or exhibition. Suggestions for other lines of work, which would help to make the society more useful and popular, may be obtained from the annual report of The Ontario Horticultural Association.

The success of the local horticultural societies of Ontario and branches of the Ontario Vegetable Growers' Association are dependent in a large measure upon the activities of their provincial organizations, the Ontario Horticultural Association and the Ontario Vegetable Growers' Association. As the annual conventions of both of these organizations will be held during the second week of November, the local organizations should have delegates in attendance at them.

As thousands of ships which in former years were engaged in the transportation of the world's products from port to port, have been driven from the seas as a result of the European war, or have been sunk in connection therewith, it is not to be wondered at that there is a shortage of suitable steamers available for the carrying of the Canadian and American apple crop to the ports of Europe. This is naturally adding to the difficulty of marketing this year's crop. Even where the best of care is exercised, the danger of loss in shipping abroad this year will be much greater than usual. Special efforts, therefore, should be made to market as much of the crop as possible on the home markets.

PUBLISHER'S DESK

Our front cover illustration this month shows the beneficial effects of the use of the Skinner system of irrigation. It should add to the interest taken in the article by Prof. T. G. Bunting, of Macdonald College, published on page 251 describing this system, based upon results obtained from its use at Macdonald College.

* * *

For thirty-eight years The Canadian Horticulturist has been the only publication in Canada devoted exclusively to the horticultural interests. This record speaks for itself. From time to time efforts have been made to publish papers relating to horticulture, but these ultimately have met with disaster, or later the character of the mediums has been so altered as to considerably modify the purpose for which they were established. This has not been due to any lack of ability on the part of those who have been behind these enterprises, but to conditions over which they had no control. The fruit interests of Canada, for instance, are mainly centered in the Annapolis Valley of Nova Scotia, the counties in old Ontario bordering the Great Lakes, and in the valleys of British Columbia. The mere statement of the conditions explains the difficulty connected with the establishment of a paper that will reach all these fields. A few years ago "The Fruit Magazine" was launched in British Columbia. This magazine has undergone several changes of ownership, as well as changes in name. It is now known as "Fruit and Farm," it having been found necessary to add the farm interests to its field of operation. Nine years ago The Fruit Grower and Farmer was established at Grimbsy, Ontario. This little publication was first published weekly, and later semi-monthly. It has been doing good work in the Niagara fruit district, but has recently suspended publication until after the war. Last spring a publication known as Garden Life was launched in Montreal. It was a creditable publication, but lasted only three issues. In Nova Scotia, good work is being done by The Co-operative News, which, while horticultural in character, is largely devoted to the extension of co-operative effort among fruit growers, it being published by The United Fruit Companies of Nova Scotia, Limited. The fact that for thirty-eight years The Canadian Horticulturist has remained true to its field and has shown consistent improvement throughout all that period, is an indication of the hold The Canadian Horticulturist has among those who are identified with the horticultural interests of Canada.

* * *

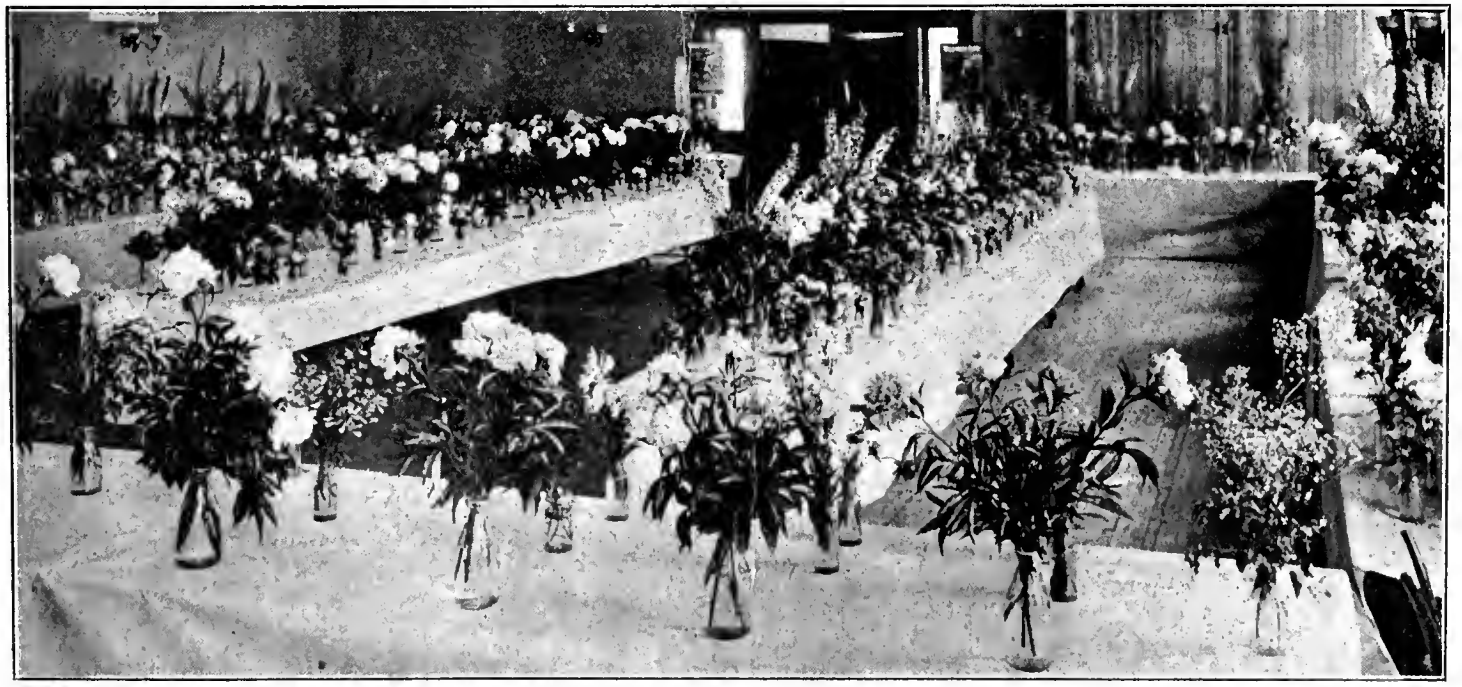
On page 256 of this issue of The Canadian Horticulturist is an article dealing with a suggestion that has been made, that some certain flower be selected as our National Floral Emblem. As it is to be expected, there is a difference of opinion as to which flower it should be. If you have any preference we invite you to express it through the columns of The Canadian Horticulturist. A full discussion should prove beneficial to all interested in the growing of flowers.

SOCIETY NOTES

Dundas

A flower Club was formed here this year among the pupils of the Dundas Public School. Over twenty dollars' worth of seeds and plants were distributed to about one hundred and fifty pupils. These consisted of asters, phlox drummondi, nasturtiums and geraniums. The teachers visited many of the gardens and in nine cases out of ten found that they were a great success and that both the children and parents were proud of them.

Prizes, consisting of bulbs, have been given to the children having the best flowers and plants raised in these gardens. The citizens' committee connected with Dundas park generously donated ten dollars worth of bulbs as prizes.



Exhibitions of flowers by horticultural societies accomplish much good. The June show of the London, Ont., Horticultural Society is here shown.

An Analysis of Apple Market Conditions

E. F. Palmer, Sales Manager, The Co-operative Fruit Growers of Ontario, Limited

THE unusual factors which are attending the marketing of this year's crop of apples, are making the situation full of interest. While there is not the panic that prevailed a year ago, there are other influences at work which require that we shall use our best judgment and all the powers within our reach, if we hope to obtain maximum returns.

Initial Shipments.

Early shipments of fall apples from Maryland and Virginia sold at such satisfactory figures on the Old Country markets that they gave reason to expect a remarkably good market there for apples this year. These shipments, however, arrived in good condition, and on that account probably realized top market prices. Growers in Ontario, judging from the returns of these United States shipments, looked for good markets in the Old Country for Ontario apples. These expectations have been justified by the prices obtained for such fruit as we have been able to land in good condition.

The difficulty has been to land a large enough percentage of the apples there in good enough shape to command returns on a par with prices in the Canadian west.

This difficulty of the fruit arriving in good condition has been due to two or three factors. First, the weather at the time fall apples were being packed in Ontario was very warm for a considerable time. Apples picked and packed during such weather are bound to be in poor shape on arrival. Second, the ocean boat service has been poor. Many of the apples so far exported have had to go by very slow boats, boats which under ordinary trade conditions would not be used for carrying perishable products such as apples, unless in cold storage.

Some Good Sales.

A few shipments of early winter apples have arrived in excellent condition. The prices realized on them have been good. Ontario Kings, No. 1's, shipped on the Pretorian for Glasgow, sold for 28s to 35s; Ribstons, 26s; Greenings, 23s 6d. In Liverpool the market has not been so good. From London the report is that the demand for Canadian apples is not so brisk, owing to there being too many English apples on the market.

Indications are that certain of the Old Country cities are good markets at present, and all of them are likely to be good later on, providing the fruit arrives in good condition. This factor is the big difficulty with Old Country shipments this year. It is difficult to get service across the ocean that will ensure the arrival of shipments in good order. Prices realized in the Old Country need to be very good to warrant the risk and expense of shipping over there, as home prices and prices in the Prairie Provinces are very satisfactory.

The Western Demand.

The demand in the Canadian west has fallen off to some extent during September, owing chiefly to the unfavorable weather experienced there during threshing time. Threshing operations have been greatly delayed in consequence. The weather has been better of late so Ontario shippers may look for an increased demand from this market shortly.

A somewhat peculiar condition exists in the west. The grain growers' organizations are contracting for apples of good quality wherever they can get them, and at good prices. The wholesalers do not seem anxious to buy except at prices which Ontario shippers are not justified in accepting. The reason for this probably is that the grain growers' organizations can supply their members with apples considerably cheaper than the wholesalers can supply them for, as the wholesalers have to make a profit on their sales.

The farmers' organizations supply their members practically at cost. As both have to pay practically the same price for the apples f.o.b. shipping points, the position is a difficult one for the wholesalers. A report has come through that the fruit merchants in the west have in some localities started a rumor that the grain growers' organizations have not been able to contract with Ontario shippers for any cars of apples. We do not vouch for the truth of this statement, though it is known that the grain growers' organizations cannot get as many apples of the varieties and grades required as they need.

Ontario Apple Crop.

Unfavorable weather conditions have induced the development of a great amount of apple scab throughout Ontario. It is likely that the grade of the crop has been reduced fully 40 per cent. from apple scab in many, if not all, sections. Shipping associations are finding it extremely difficult to fill orders taken for cars of grades one and two, standard winter varieties. In many cases these associations, on the strength of prospects six weeks ago, took orders for practically their entire pack, not expecting the late development of scab. It is extremely likely, therefore, that considerable No. 3's will have to be packed to fill these orders. No. 3's this season should be an excellent pack for this grade of fruit, as the apples are of good size, fair color and of good keeping quality, the only drawback being the scab infestation.

There would seem to be ample room in the middle west provinces to work up a considerable trade amongst the farmers, as well as in the cities, with this class of fruit, which is practically No. 1 fruit in every way except for scab. The problem is to get this fruit into the west in such a form that it can be sold to the consumer there at as good a price as he ordinarily has to pay for No. 3 apples, which No. 3 apples are usually of poorer quality than these slightly scabby No. 3's are this year.

Open Crates Being Used.

With a view to getting apples to the consumer with the least possible expense, British Columbia shippers have adopted an open crate for shipping apples "shuffle pack." This crate is cheaper than the ordinary apple box and also there is practically no expense in packing the fruit. The Co-operative Fruit Growers of Ontario, Limited, have also adopted a somewhat similar crate, holding practically the same quantity of fruit as the standard apple box. The advantages of such a crate over the barrel for shipping a grade of fruit which has every appearance of being No. 1 fruit, except for occasional scab spots, are, first—that the fruit, which can be readily seen from the outside of the package, is sold on its merits. If this class of apples were put in barrels, it would have to be stencilled No. 3 in accordance with the Fruit Marks Act, and the mere fact of the barrel having this No. 3 on it, immediately brings the selling value of the barrel down to that which ordinary No. 3's are worth.

Another advantage is that the box is a better carrier than the barrel. There is less bulk of fruit and there is better circulation of air. The barrel is a tight, close package, and if the apples are packed at all warm or if they sweat in the barrels as they are likely to do, the apple scab will develop rapidly. The free air circulation which the slatted crate allows, greatly reduces the chance of the apple scab spreading.

A third point in favor of this packing is that the same quality of No. 3's in boxes, as in barrels, can be sold probably 30c per barrel cheaper packed in boxes, as the package is cheaper and the packing practically amounts to nothing as compared with the barrel. The consumer, therefore, can get his apples that much cheaper. As he can see what he is getting; he is almost sure to get a better quality fruit than in the No. 3 barrel, and at the same time the grower is receiving back better value for his fruit than if it had been put in barrels and marked No. 3.

Okanagan Valley, North, B.C.

Chas. Webster, Armstrong, B.C.

Our early tree fruits, cherries and plums, moved at low prices, particularly plums. Peaches are not a commercial crop in this end of the valley. Apples and pears show great improvement. In the north valley, however, good apples are not plentiful; a rainy summer and sadly relaxed care of orchards resulted in a serious infestation of scab. Maw and Sons, of Armstrong, who have considerable acreage in orchard, by thorough and timely spraying grew a splendidly clean crop.

The Economy crate, made of slats with inside edges bevelled, is proving a great success. Robert Hood, president of the local Fruit Growers' Association, was an ardent advocate of this crate principle for shipping other than No. 1 apples, and kinds of only cooking quality. Prairie consumers evidently appreciate seeing what they buy. It has been demonstrated that "too much wrapping paper" is possible.

The demand for vegetables has fallen off seriously this year. North Okanagan points have been heavy producers of vegetables.

The produce firm of Daykin & Jackson has lately made an assignment.

W. E. Dabney, now manager of the local branch of the Okanagan United Growers, came from "across the line." His capability for "hustling" is up to the standard of his countrymen.

The management of the Armstrong and Spallumcheen fair, held Sept. 28th and 29th, are to be congratulated on the finest exhibition ever held here. It is claimed that there were over a thousand more entries than a year ago. Apples were nearly as numerous as ever. Varieties susceptible to scab were less shown, particularly McIntosh, Snow and Spy. Pears were shown in greater number and perfection than ever. Grapes of local growth made an interesting exhibit.

The Indians of the Okanagan reserve were persuaded to make a representative exhibit. Their exhibit would have been hard to beat anywhere. W. E. Scott, Deputy Minister of Agriculture, bought the whole exhibit and had it shipped to Victoria.

Apples for South Africa

W. J. Egan, Canadian Trade Commissioner, Cape Town, S.A.

The exporters of Canadian apples will soon be making their first shipments and preparing for the larger shipments at the end of October and first of November. It may be well to suggest that great care must be exercised in the selection of fruit for the South African market, as there are strin-

gent regulations in force and all shipments receive a strict examination by the South African Government officials.

The season of arrival here for the Canadian apple is a very favorable one, as during October, November and December the market is almost empty of apples, and good prices are usually realized. It is understood that arrangements are fairly complete for the coming season's shipments, but as there may he some new shippers consigning for the first time, it is best to state that the apple which meets with most favor on this market is a hardy, well-colored red apple, medium size, grade one and two. Attention is directed once more to the law in South Africa re imported apples. The fruit must be sound and healthy in every way, or it is not admitted into the country.

A Danish Fruit Grower

Readers of The Canadian Horticulturist may be found in many foreign countries. One of them is Mr. Hans Rasmussen, of "Progress," Denmark. In a recent letter to The Canadian Horticulturist, Mr. Rasmussen wrote us as follows:

My farm is twenty-six acres, of which ten acres is planted in fruit, mostly apples, the principal sort being Cox Orange. A couple of hundred trees are planted of a local variety, Peterstrop Keinetta. This sort has shown more resisting power against disease, canker, etc., than sorts imported from foreign countries. One and a half acres is in raspberries (red). Some of them are planted between fruit trees, as shown in the accompanying illustration. Two acres are in black and red currants (the first pickings are shipped to England), three-quarters of an acre in gooseberries, one and a quarter acre in strawberries, and one and a half acres in asparagus. The asparagus is sold to the canning factory at an average of eleven cents a pound.

Last year my income from the sale of asparagus amounted to four hundred dollars an acre. The asparagus market requires white shoots. The plants are set one and a half feet apart in the row, and the rows are six feet apart. In the spring the plants, or the rows, are covered with the adjoining mould to a depth of ten inches, in order to secure white shoots of a length of eight to nine inches. The shoots are cut twice each day, to avoid the heads getting colored by the sun and air by growing above ground.

We also grow some hazelnuts, 1,110 bushes, some of which are planted between fruit trees, and some along the walks, as can be seen to the left in the illustration. In about four acres we grow garden and flower seed, including carrot, aster, viola, clarkia, etc. A plot is used for raising roots of lily-of-the-valley. A co-operative association has been organized for the sale of the roots. They are shipped to England.

Regarding the illustration: From the left hand side is seen, first, myself; second, my wife; third, our son; fourth, our daughter; fifth, our son (now in the United States); sixth, seventh eighth and ninth, pupils; tenth, our daughter; eleventh, teacher; twelfth, pupil.

My farm is acknowledged by the Government of Agriculture as a suitable one for young folks to learn fruit growing and gardening. I receive from the Government about thirty-three dollars for each pupil, male or female, who has attended an agricultural college or any other notable school, and who stays here at least six months. To fully understand this, I may add a few words of further explanation. Without going into details, I may state that much is being done to help people to obtain a piece of land, and not only to get hold of a tract, but also to teach these people how to use and till the ground, in order to be able to make a fair living on a small tract, say six to ten acres. As fruit growing and gardening realizes more money than ordinary farming, the Government gives aid to movements working toward this goal. The price of farm land, without buildings, is frequently two hundred dollars an acre.

Tomatoes from Canada

Claude Dyer, Canadian Commercial Agent

A noticeable feature of the window displays in some of the better class grocery stores in the Leeds district, England, has been canned tomatoes of Canadian canning. Taking advantage of the interruption to supplies from Italy, canning companies in Ontario have sent forward shipments of canned tomatoes to the English market.

This development is all the more interesting in view of the information which has been furnished in former reports calling attention to the opportunity for Canadian canners, in view of the likely curtailment of the Italian supply, owing to causes arising out of the war.

The orchard of a faithful reader of The Canadian Horticulturist, Hans Rasmussen, of Progress, Denmark. The farm comprises 26 acres, of which 10 acres are in fruit. It is one of the largest fruit farms in Denmark. A description of it is published on this page.

Douglas Gardens

OAKVILLE, ONT.

At the date of writing (15th Oct.) the following named plants are showing good bloom, viz.:

BEDDING PLANTS—
- Antirrhinums—"Silver Pink."
- Pansies.
- Salvia—"Bonfire."

PERENNIALS—
- Coreopsis—(Second Crop).
- Delphiniums—(Second Crop).
- Echinacea—(Rudbeckia) purpurea.
- Gaillardia.
- Hardy Asters—Nos. 22, 23, 26, 34 and 40.
- Helenium—4 sorts.
- Holly Hocks.
- Kniphofia—"Pfitzeri."
- Phlox—"Miss Lingard" (Second crop) "Jeanne d'Arc."
- Shasta Daisies.
- Veronica Spicata.

Garden makers would do well to keep these plants in mind for late bloom.

JOHN CAVERS

Items of Interest

A letter received by The Canadian Horticulturist from the firm of A. W. Kirkebye, of Copenhagen, Denmark, states that there is a large crop of Danish pears this year, but that the apple crop is much below a medium one, and that prospects of selling Canadian apples there this season should be good.

The apple crop of the Wenatchee Valley, Washington State, has been seriously damaged by the Codling Moth. Infected apples, packed in half-barrel crates, are being sold in the middle west at seventy-five cents a crate. The sale of this fruit is being vigorously condemned by leading fruit growers of that district, who are urging the authorities to enforce the law prohibiting the sale and shipment of infected fruit.

An interesting display of tropical plants was made at the recent Picton, Ontario, exhibition by Mr. W. G. Ross, the secretary of the Picton Horticultural Society. It included a banana tree which had been grown in his office. Mr. Ross has grown orange and lemon plants, as well as figs, without the aid of a conservatory.

In connection with the campaign conducted by the Dominion Department of Agriculture to advertise peaches and plums a meeting was held by the grocers in Ottawa, who decided that it would be better to spend the money in display advertising than to use it, as had been at first proposed, in the offering of prizes for window displays. The grocers pledged themselves to dress their windows and to make as attractive displays of fruit as possible, provided the Department would conduct the additional display advertising.

Fruit Growing Developing in Quebec

Fruit growing in the Province of Quebec has made considerable strides during the past ten years. Owing to the fact that there are districts where no fruit growing has been attempted and where it is desired to establish this industry and other districts where the industry already exists but where it must be improved from a purely commercial point of view, the methods of instruction necessarily vary, in accordance with the requirements. The following have been established by the Department of Agriculture.

(1) Experimental Fields, in charge of good farmers, in districts where the climate is very severe and where several attempts to establish an orchard have already failed. These farmers are supplied with the hardiest varieties, over which a close watch is kept. There are now four of these experimental fields.

(2) Fruit Stations, the object of which is to teach the farmers the proper methods for the establishment, the cultivation and the management of an orchard. These stations are in charge of farmers who desire to grow fruit and who pledge themselves, by contract with the department, for a period of five years, at an annual rental of twenty-five dollars, to give their whole attention, free of charge, to the scientific management of the orchard established on their land, in order to collect the greatest possible amount of useful data for the fruit growers of their district. At the end of the five-year period, the department keeps ten per cent. of trees and shrubs originating from the scions that have succeeded. It also reserves the right to purchase the fruit of the said orchards in whole or in part for experimental purposes, exhibitions and packing demonstrations at the market price.

There are now thirty-eight of these stations, situated in different parts of the province, and they cover a total area of eighty-five acres. They are equipped with pruning instruments, spraying machines and spraying solutions. There were sent to these stations, this year, 550 lbs. of lead arsenate, 185 gallons of lime-sulphur wash and 15 lbs. of sulphate of nicotine (blackleaf 40), Some of the stations are drained and all are protected from trespassers by special fences.

(3) Demonstration Orchards, for teaching scientific methods of cultivation and showing the care with which the operations should be performed in order to market only first class fruit. These orchards are supposed to serve as models for the fruit growers of each locality. There are now seven of them covering a total area of 33¼ acres.

The annual expenditure made by the department must not exceed the sum of $500, including the annual rental of twenty-five dollars an acre, cost of building fences, cost of fertilizers, spraying solutions or chemicals necessary for the making of the same, leguminous seeds, 800 lbs, of chemical fertilizers, ten tons of farmyard manure per acre, and all necessary implements for the culture and the management of the orchard.

On the other hand, the owner is bound by contract to do all the work in accordance with a special program prepared by the department and which may be summarized as follows: he must, at his own expense, spread the manure, cultivate the soil, plow under leguminous crop, prune the trees, spray at least four times during the season, thin the fruit, pick the fruit by hand and pack it—the whole in accordance with the instructions of the superintendent of demonstration orchards.

The owner is entitled to the whole crop of fruit, but the department reserves the right to purchase this crop in whole or in part at the market price. Two of these demonstration orchards are now using grading machines; one of them has a cold storage warehouse and all are equipped with automatic pumps.

The results so far obtained have been so satisfactory that fruit growing has made progress in the whole province. Not only are the farmers now establishing orchards or renovating those that they have already, but everywhere they are organizing new horticultural societies or co-operative associations in order to improve, increase and market the produce.

In all the horticultural exhibitions held this year a marked improvement could be noticed by comparison with the previous years in the appearance, the grading and the packing of the fruit. In order to facilitate the destruction of insect pests, the Minister offered last year, to the agricultural societies of the province, the advantage of securing, at exceptionally favorable terms, the spraying material they might need.

THE
BEEKEEPERS' DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1916. Order early.

E. E. MOTT,
Glenwood, Mich.
Northern Bred Italian Queens.

J. P. MOORE,
Morgan, Ky.
Try Moore's Strain Next Year.

W. R. STIRLING,
Ridgetown, Ont.
Fine Italian Queens.

J. I. BANKS,
Owelltown, Tenn.
Italian "Queens of Quality."

P. TEMPLE,
438 Gladstone Ave., Toronto, Ont.
Canadian Bred Italian Stock.

THE DEROY TAYLOR CO.,
Newark, N.Y.
Northern Bred Italian Bees and Queens.

M. C. BERRY & CO.,
Successors to Brown & Berry,
Hayneville, Ala.
Best bred Italian Queens and Bees.

THE PENN COMPANY,
Penn, Miss.
Bees and Queens.

F. W. JONES,
Bedford, Que.
Bees by the pound, also best Italian Queens.

H. C. CLEMONS,
Boyd, Ky.
Three band Italians bred for business.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., Toronto, Ont.
Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

A. E. CRANDALL & SON,
Berlin, Conn.
"Quality" Italian Queens.

JOHN A. McKINNON,
St. Eugene, Ont.
Best northern bred stock.

WM. ATCHLEY,
of Mathis, Texas.
Wants to sell you your early bees by the pound. Queens in season.

STOVER APIARIES
Mayhew, Miss.
Not a single complaint.

Grade Your Potatoes

Money may often be made by the sorting of potatoes. Consumers, large and small, do not like mixed lots. They want them uniform in size and quality. Consequently potatoes should, if possible, be sorted before being put on the market. The price which is paid the potato grower is the price of sorted potatoes, less the cost of sorting. The potato-grower who ships unsorted potatoes really has to pay the charge of sorting.

The shipper of unsorted potatoes has to pay another charge also, and that is the freight on the culls which are later taken out of his shipment. The shipper of unsorted potatoes, therefore, is simply wasting money. It pays to sort because it gives one the top market prices and because it saves freight on culls, and, it might be added, because the culls, in many cases, could be kept on the farm and made use of in rations for live stock.

Nova Scotia

Only six cases of the dreaded San Jose Scale in Nova Scotia orchards have been located this year by the provincial inspectors, according to Prof. W. H. Brittain, of the College of Agriculture and Provincial Entomologist. It is a noticeable fact that the six cases were found on stock imported previous to the inauguration of the government inspection over nursery importations in 1912. Not a single case of the San Jose Scale has been found on stock imported subsequent to that date. The comparative figures are very striking. In 1912, there were discovered 750 cases; in 1913, 64 cases; in 1914, only four cases, and in 1915, so far, only six cases, and all on stock imported prior to 1912.

Potato Inspection.

Inspection of the Truro and Cornwallis districts Garnet Chili potato fields was made recently by Mr. E. J. Wortley, Director of Agriculture for Bermuda, Prof. W. H. Brittain, representing the Provincial Government, and Messrs. S. J. Moore, Dominion Seed Inspector, and Paul A. Murphy, Dominion Plant Pathologist, representing the Federal Government. According to Mr. Wortley, the inspection revealed the fact that the Nova Scotia potato growers have learned a lesson from past experiences, and that by the use of rigidly selected seed and regular spraying they can save their potato crops from being condemned.

Niagara District Notes

F. G. H. Pattison, Winona

FOR the past week the Niagara District has been enjoying a spell of delightful weather, warm and sunny in the day and not too cool at night. This has come as a great boon to the grape-growers, who were beginning to fear that a large proportion of their grapes would not ripen. The former long continued cool weather, together with the very heavy growth of foliage seriously retarded the ripening of grapes, which had the bad effect of causing an unusual quantity of unripe, or only partially ripened grapes to be shipped, especially to distant markets.

Were the Niagara District thoroughly organized, as it should be, with a central selling organization controlling 65 to 75 per cent. of the grape crop, it would be possible to prevent the sale of unripe grapes entirely. It would also be feasible to standardize grape prices, at all events for Niagaras and Concords, the two great commercial varieties. A standard price, not varying more than one or two cents a pound throughout the season, would do away with the inducement to ship unripe grapes, and would thus abolish the present absurd anomaly of dealers and others being ready to pay a much higher price for grapes unfit for consumption than they are for grapes when sweet and wholesome.

The slow ripening of grapes had the effect of raising the price and for some time whites and blues were selling out at from 16c to 18c a pound in car lots, and in some markets were netting those who shipped on commission from 22c to 25c. Reds sold out at 22c to 25c, and still higher on commission. The Hamilton and St. Catharines open market price was 20c to 25c per small basket.

Now buyers are paying 12c to 13c for blues and whites, and 16c to 18c for reds. The latter are only fair in quality, having suffered much from mildew, thousands of baskets not being fit to pick due to this cause.

Grape juice men have been offering as high as 38 to $40 per ton for Concord grapes nicely picked, and wine men $34.

In the Erie and Chautauqua belt in New York state, the grape crop this season is away below the average, being estimated at only 50 per cent. of that of 1914.

Work at the Welch Grape Juice factory in St. Catharines is at its height now, and will remain so for about four weeks. This company is very particular as to the quality of its grapes, they must be "sweet and ripe," nothing else will pass. In order to induce growers to bring their best, the company pay more than the ordinary market price, they have been paying from $38 to $40 a ton and they expect to use 600 tons. Manager Childs believes they turn out a better quality of grape juice here than they do in the states. Recently he bought 100 tons of grapes in the Beamsville and Grimsby neighborhood, as to which he says: "I consider the grapes there are of a finer quality than we get in the great grape growing district of Chautauqua County, N.Y."

The Process.

After the grapes have been inspected they are put through large modern pasteurizers. By the means of an electric conveyor they are thoroughly washed in transit and put into large kettles, where they are cleaned and stemmed. Then they are formed into large cheeses and these are placed in hydraulic presses from which the juice runs into the process kettle which cooks it.

After being strained several times the juice is run into glass carboys and stocked away. After the grapes are received at the landing platform they never again touch the hands of an attendant. Everything is done by machinery, which is thoroughly sterilized before and after it is used. This company has an extremely modern washing, sterilizing, and drying apparatus.

About fifty men are at present employed by the company, but they expect to greatly extend their plant in a few years, and will both employ more men and purchase far more grapes. It is hardly necessary to point out what a benefit this company is likely to prove to the grape-growers of the district. Already they have had an appreciable effect on the steadying of grape prices.

The frosts that occurred during the nights of October 23rd and 24th, did a considerable amount of harm to vineyards that had previously been defoliated, but the great bulk of the vineyards below the mountain suffered little or no damage. Grapes have been freely rushed to market of late, and a large proportion of the crop is beyond the reach of frost.

West of St. Catharines the apple crop of the district and surrounding country is pretty fair, but east of St. Catharines it is very light. Greenings, snows and russets are the best. Baldwins and spys are light in most orchards and there is a good deal of scab and some ink-spot. The latter is prevalent on pears this season.

Practically all the pears are gone now, except Keifers, which are a fair crop and are selling well. Canning factories are paying three-quarters of a cent per pound for them, but the shipping market has been giving better net returns than that.

The spread of rust in black currants is likely to be a serious matter for the fruit-growers. It appears that this rust dies out in the black currant during the winter, but is carried over in the white pine which acts as a host for the disease. In the spring the currants get re-infected and the disease

Notice to Beekeepers.

Customers will please note that our special Winter discounts and terms on all lines of Beekeepers' Supplies commence November first. Beekeepers would do well to take advantage of these offers, not only on account of the saving, but the satisfaction of having their appliances ready for the bee season when it opens. Now is also the best time to order goods that have to be made especially. We are anticipating a busy season and desire to give our beekeeping friends the best possible service.

THE HAM & NOTT CO., Ltd.
Mfgs. Beekeepers' Supplies
Brantford, Ontario.

CHAS. E. HOPPER & CO.
BEEWARE
126 Simcoe St., Toronto, Ont.

The Beekeepers' Review

THE BEEKEEPERS' REVIEW, 15 months for a dollar to Canadian subscribers, postage free. Beginning with the October, 1915, number and ending with the December, 1916, number. A rare bargain. If you want Gleanings in Bee Culture a year clubbed with the Review, send along 80c. additional. Both postpaid. Review 15 months and American Bee Journal one year, both $1.60, postpaid. All three for $2.40, postpaid. To get this liberal clubbing rate, address all orders to THE BEEKEEPERS' REVIEW, Northstar, Michigan, U.S.A. Kindly remit by postal note and oblige.

The Beekeepers' Review, Northstar, Michigan

When good queens are wanted I have the goods. Pure Italians from imported mothers. Also pure Carniolans and Caucasians from imported mothers. 75c each, $8.00 per dozen. No disease.

GRANT ANDERSON
Rlv Handa - - - Texas

The Root Canadian House

185 Wright Ave. TORONTO, ONT.

Quality counts. Try our Queens; three banded, golden Carniolans or Caucasian, from best U.S.A. breeders; also from our own yards. Everything in Bee Supplies, Root's Goods; also "Made in Canada" Bee Journals and Books. Catalogue Free.

A New Bee Book Entitled BEEKEEPING

By Dr. E. F. Phillips, of the United States Department of Agriculture. 435 pages of interesting reading, with numerous illustrations, by an established authority.

Regular price $2.00 (postage extra)
(Mailing weight 2 lbs.)

By special arrangement we can offer this book, postpaid, with a year's subscription to American Bee Journal, both for $2.50.
(Canadian postage 15c. extra.)

AMERICAN BEE JOURNAL, Hamilton, Illinois

spreads with lightning-like rapidity. It also attacks red currants and gooseberries, but the results are not so serious on them. Spraying with bordeaux helps to some degree, but is by no means a specific. The extermination of the white pine adjacent to the fruit belt appears to be the only sure remedy.

P. Falconbridge, who died in Leamington on October 10th, was engaged in the fruit business in Grimsby for fifteen years before he went to Leamington about three years ago as manager of the Erie Co-operative Fruit Company, which position he filled for two years. Last December he organized the Essex Fruit Growers' Fruit Co., of which he was manager until his death.

The branch of the Dominion Canning Co., at Niagara-on-the-Lake, closed down last week after the shortest season it has ever had.

According to Provincial Inspector Biggar, the number of peach trees affected with yellow or little peach is again greatly reduced in number this year. They are not expected to exceed 1,500 or 2,000 at the most.

The first car load of fruit raised by the Canadian Club Fruit campaign at St. Catharines was shipped recently from the local headquarters to Montreal for shipment to Great Britain. This car load consisted of 450 cases, each containing a dozen 12-quart sealers of fruit. The weight of each case was 60 pounds, which brought the total weight to the large amount of 27,000 lbs. Each case is securely packed.

The Vineland Canning Company is being wound up. The buildings and plant are represented as having a fixed value of $168,960.74, but the real value is estimated at about half of that. Its stock of canned goods was hypothecated to the Imperial Bank.

When the 35th battalion left Niagara for the front, it was prescnted with 150 baskets of delicious grapes by local fruit growers. These were shipped on the Toronto steamer and were to be distributed to the men on the train en route to Montreal.

Inspector Elliott has notified the St. Catharines Park Committee that about 250 shade trees throughout the city are infected with San Jose Scale and that it is necessary for the council to have the trees sprayed this year at an estimated cost of $200.

Beamsville fruit dealers have sent a letter of protest to G. E. McIntosh, of Forest, transportation agent of the Ontario Fruit Growers' Association, in reference to the lack of accommodation at the Hamilton, Grimsby, and Beamsville Electric road's shipping platforms. The dealers claim that while the Dominion Express Company wants their business, the railway makes no effort to provide the necessary space or decent shipping facilities. In the busy season the present quarters are not half adequate to do business properly. They are also asking for a freight yard, instead of loading cars along the main street. Although the fruit shed at the G. T. R. is a long one, yet the shipments at different times this season overcrowded it, and in the same petition the G. T. R. has been asked to increase its platform space at this shipping point.

Up to Saturday, October 16th, the number of loaded express and refrigerator cars of fruit leaving the new station of Vineland this season was about 267. This is the station the G. T. R. refused for a long time to build on the ground that there would not be enough business to warrant its erection.

The grape crop in the Erie and Chautauqua belt, in New York state, extending over a territory of more than sixty miles, is estimated on good authority at only fifty per cent. of an average crop.

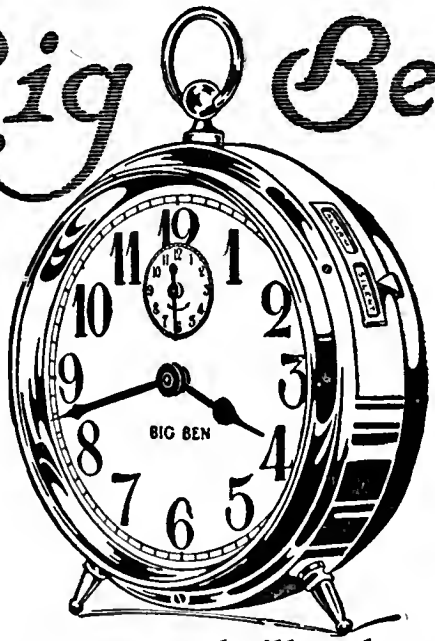
The annual convention of the Ontario Fruit Growers' Association, which for several years past has been held in November, will be held this year early in January. There will be an unusually complete program and an exhibit of fruits from the Experimental Stations. This change was decided upon at the last meeting of the directors of the Association, the idea being to secure a larger attendance at a time when the growers were not so busy as in November.

SMALL FRUIT PLANTS

Gooseberries — Josselyn! Josselyn! Red Jacket, Downing, Pearl, Houghton. Currants—Perfection! Perfection! Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. Raspberries—Herbert! Herbert!! Herbert!!! Plum Farmer, Cuthbert, Mariboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. Garden Roots, Strawberry Plants, Rhubarb. Write for Catalogue.

WM. FLEMING, Nurseryman, 496-4th Avenue W., OWEN SOUND, ONT.

Big Ben



You set the hour--he'll wake you up

If it's *two-thirty* to get the milk to town, he calls you right on the dot. If it's *five o'clock* when work is light, Big Ben lets you get the extra sleep.

Dodge him around—*two* today—*five* tomorrow—give him a thorough try-out. Any hour *you* say suits Big Ben. Just arrange it with him at bed time.

It's his business to get you up on time and he does it loyally—punctually—cheerfully. He stands seven inches tall; has great, strong keys that make him easy to wind; a big, deep-toned gong that makes him pleasing to hear—a round, jolly face that makes him easy to read.

If your dealer hasn't him, a money order addressed to his makers, Westclox, La Salle, Illinois, will bring him to you postpaid. $2.50 in the States—in Canada, $3.00

Ontario Horticultural Convention

The annual convention of the Ontario Horticultural Association will be held in the Railway Committee Rooms, Parliament Buildings, Toronto, on Wednesday and Thursday, November 10th and 11th. The programme is as follows:—

First Session.

10.30 a.m.—President s Address. J. H. Bennett, Barrie.

10.50 a.m.—Treasurer's Report. C. A. Hesson, St. Catharines.

11.00 a.m.—Report of Superintendent. J. Lockie Wilson.

11.30 a.m.—General discussion on reports and on matters pertaining to work of Horticultural societies. Opened by R. B. Whyte, Ottawa.

12.00 noon.—"Informal Planting of the Home Grounds." Miss Yates, Port Credit.

12.30 p.m.—Round table luncheon.

1.15 p.m.—3-minute addresses.

Afternoon Session.

2.15 p.m.—"Beautification of Country Homes and Rural Improvement." R. A. Penhale, St. Thomas.

2.30 p.m.—Addresses by Fraternal Delegates. American Civic and Kindred Associations.

3.00 p.m.—"Rose Growing from an Amateur's Standpoint." W. G. MacKendrick. Toronto.

3.45 p.m.—"Gardeners' Troubles." Maurice Fauld, New York.

4.15 p.m.—Discussion.

4.30 p.m.—"Horticulture in the Northland." Mrs. Lorne McDougall, Haileybury.

5.00 p.m.—"Notes on New Plants, and Plants not Well Known." Wm. Hunt, O. A. C., Guelph.

8.00 p.m.—"Wild Gardens." (Illustrated). W. H. Child, Hamilton.

8.30 p.m.—"Town Planning from a Horticultural Standpoint." Thos. Adams, Conservation Commission, Ottawa.

Morning Session, Thursday, Nov. 11th.

9.00 a.m.—Reports of Committees and Notices of Motion.

9.30 a.m.—Nomination of Officers and Directors.

10.00 a.m.—"The History, Development and Propagation of the Lilac." John Dunbar, Assistant Superintendent of Parks, Rochester, N.Y.

10.30 a.m.—Discussion.

11.00 a.m.—Report of Committee on Names and Varieties.

11.30 a.m.—Report of Delegates to American Civic Association's Convention. Rev. A. H. Scott, and W. B. Burgoyne.

12.30 p.m.—Round Table Luncheon.

1.15 p.m.—3-minute Addresses.

Afternoon Session.

2.00 p.m.—Election of Officers and Directors.

2.20 p.m.—"Vacant Lot Gardening." Geo. Baldwin, Toronto.

2.50 p.m.—Discussion.

3.00 p.m.—"California in Summer from a Horticultural Standpoint." Prof. Macoun, Ottawa.

Patriotic Fruit Growers

Throughout Canada fruit growers are showing their patriotism by sending forward large quantities of fruit to the soldiers at the front. The Quebec branch of the Navy League is sending a supply of Canadian fruits to the sailors on board the war ships in the North Sea. Many fruit growers are furnishing fruit for this purpose.

The Ontario Department of Agriculture has undertaken to send from the Horticultural Experiment Station at Vineland, some 20,000 gallon tins of preserved peaches. This will go largely to the men in the Hospitals. Already several hundred boxes of apples have been forwarded by the Department, the intention being to send possibly 5,000 boxes or more during the winter months.

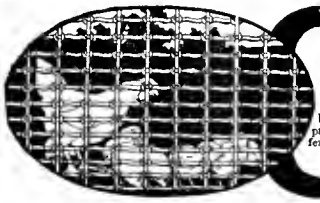
Leading fruit districts in British Columbia, such as Summerland, Naramata, Peachland, Kelowna, and Penticton are forwarding large quantities of fruit under the auspices of the Okanagan Woman's Patriotic Society, assisted by the United Growers. Some points are sending as much as a car of 600 boxes. That these donations will be appreciated by those who receive them goes without saying.

A Distribution of Seed Potatoes

By instructions of the Dominion Minister of Agriculture a free distribution of superior sorts of potatoes in three pound samples will be made during the coming winter and spring. The samples will be sent out from several of the Experimental Farms, the Central Farm at Ottawa supplying only the provinces of Ontario and Quebec.

Each application must be separate and must be signed by the applicant. Only one sample of potatoes can be sent to each farm. Applications on any kind of printed form cannot be accepted. Requests forwarded after the end of December will probably be too late. Samples will not be sent in response to applications (no matter when received) which fail to state clearly the needs of the applicant, his experiences in crop-raising, and the character of the soil on which he intends to sow the seed.

All applications for potatoes should be addressed to the Dominion Cerealist, Central Experimental Farm, Ottawa. Such applications require no postage. If otherwise addressed, delay and disappointment may occur. Applications for potatoes from farmers in any other province should be addressed (postage prepaid) to the Superintendent of the nearest branch Experimental Farm in that province.



PEERLESS POULTRY FENCE

A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Company, Ltd.,
Winnipeg, Man., Hamilton, Ont.

Wholesale Retail

Northern Grown Fruit Trees for Northern Planters

Look for a view of a section of our Nurseries in this issue.

Specialties—Crimson Beauty, North Star, Wealthy and Stark Apples; Black Champion Currant.

ALBERT NURSERIES. **Albert, New Brunswick**

BULBS **For Planting Now.**

We can still offer good stock of the following varieties:

Single Mixed Tulips, $1.00 per 100 postpaid.
Double Mixed Tulips, $1.25 per 100, postpaid.
Darwin Tulips, Mixed Colors, $1.50 per 100 postpaid.
Hyacinths for Pots, or Outside Bedding, 45c. doz., $3.00 per 100, postpaid.
Daffodils Princeps, 20c. doz., $1.25 per 100, postpaid.
Daffodils Emperor, 40c. doz., $2.30 per 100.

Write for our Price List

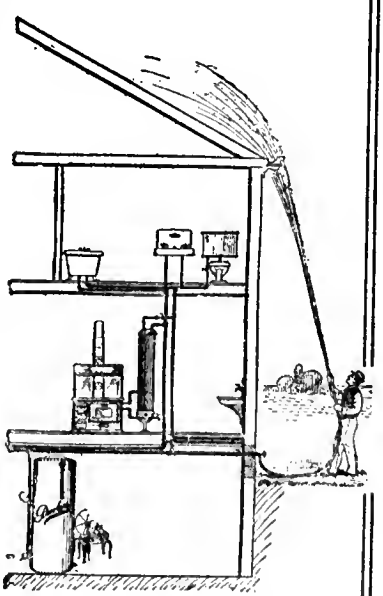
GEO. KEITH & SONS
Seed Merchants since 1866
124 King St. E. Toronto, Ont.

Water Means Money to You

DON'T try to struggle along with an inadequate water system. Where it is a lot of trouble to get water to the plants, the plants suffer. The Peerless gives you all the conveniences of a City Water System. Turn on the tap, use a hose—you need not be afraid of using more water than the Peerless will pump.

Peerless Water Systems

are dependable all the time. A reservoir tank in the cellar or outhouse, or buried underground, holds the water from the source of supply pumped in under air pressure. The pump is worked by hand, gasoline or electricity, as suits your convenience. No open tanks to allow water contamination. Water on tap in your bathroom, hot and cold; on tap in your gardens; on tap in your greenhouses—all costing astonishingly little to install, and practically nothing to operate.



Ample Fire Protection, too!

Write for full particulars and special information regarding your individual requirements.

National Equipment Company, Limited
9 Wabash Avenue, Toronto
(Sole Manufacturers of Peerless Water Systems).

Irrigation Tests

(Continued from page 251.)

at a few cents per thousand gallons. Where this low cost of water prevails, market gardeners and florists should give it a fair trial. From present indications, not only from the experimental farms, but also from the practical men who have already used it, there is great promise of its being a means of increasing our returns. It is a splendid way for the man of small acreage near our rapidly growing cities to increase his output without increasing his land area. In fact, with many crops it is possible to double them, which is equivalent to doubling one's acreage without irrigating. In many places you would not hesitate to pay from one to three hundred dollars an acre for land. This is only the cost of installation, and with irrigation you have the added satisfaction of growing better and earlier crops, that are more saleable, and will usually command the "top of the market" prices.

SOCIETY NOTES

Aylmer Ont.

A horticultural society has been established here with Mr. A. J. Elliott as provisional secretary. The society expects to have about 100 members. The good work accomplished during the past few years by the St. Thomas Society has proved an inspiration here. Dr. F. E. Bennett, of St. Thomas, helped in the organization work.

Toronto

Great interest was taken at a meeting held in the Massey Hall, Toronto, during October for the distribution of prizes in connection with the second annual Dovercourt Backyard Garden Contest. In all there were 616 contestants. The average size of each garden was 1,500 sq. ft., of which space two-thirds was devoted to the growing of vegetables. One of the most popular winners was Mr. Jos. Mantell, of 69 Herbert Ave., who was 105 years of age, and who was given a medal for the excellence of his garden. A boy seven years of age also won a prize. The chairman, Mr. W. W. Dinnick stated that if eighty per cent. of the backyard gardens of Toronto were devoted to the cultivation of vegetables, the net value of the production would be almost $2,000,000.

Bulletins and Reports

Cut worms are the cause annually of immense losses to fruit and vegetable growers, as well as to general farmers. This year their depredations have been unusually heavy. Those who have suffered from their activities will be interested in a 31 paged bulletin (No. 10) entitled "Cut Worms and Their Control," prepared by Mr. Arthur Gibson, Chief Assistant Entomologist, Department of Agriculture, Ottawa. This is an enlarged and revised edition of a former bulletin dealing with the same subject. It is well illustrated and worth procuring.

The University of Illinois Agriculture Experimental Station is distributing Circular No. 182, entitled "The Fertilizer Problem from the Vegetable Grower's Standpoint," by C. E. Durst.

The College of Agriculture, Berkeley, California, has issued bulletin No. 257 entitled "New Dosage Tables," one of a series relating to fumigation studies and investigations.

Rose growers in Canada will be interested in bulletin No. 85, entitled "Hardy Roses, Their Culture in Canada," prepared by Mr. W. T. Macoun, Dominion Horticulturist and his Assistant, Mr. F. E. Buck, of the Central Experimental Farm, Ottawa. This bulletin amplifies the information contained in a previous publication entitled Pamphlet No. 9, for which there was a large demand. It deals with the site and soil for roses, plants and planting, cultivation, pruning, winter protection, insect and fungus enemies, and gives also descriptions of the leading varieties of roses.

The Fruit Growing Society of the Province of Quebec is distributing the annual report for 1914. It is an ambitious publication, comprising almost 200 pages, and giving in full the papers and discussions at the last annual convention.

Catalogues.

Fall catalogues that have reached The Canadian Horticulturist include one from Harrison's Nurseries, Berlin, Maryland, which deals both with fruit and flowers, and one entitled "Bulbs, Alpines and Perennials for Autumn Planting," from Perry's Hardy Plant Farm, Enfield, Middlesex, England.

Recent bulletins and reports that have reached The Canadian Horticulturist include the following: Bulletins 128 on, "The Arsenates of Lead," 130 on "Pruning," and 129 on "Fruit Bud Development of the Apple." These three were issued by the Oregon Agricultural College, Corvallis, Oregon. The University of Florida has issued Bulletins 121 dealing with "Cucumber Rot," and 125 dealing with "Tomato Insects." These can be obtained free upon application to the Experiment Station, Gainesville, Fla.

Read the advertising guarantee on page 258.

THE
COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited

NICHOLSON & DEMPSTER
88 Colborne St., Toronto, Ont.
Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS
88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
See advertisement on page 248.

H. J. ASH
44-46 Church St.
TORONTO - - ONTARIO
Consignments of fruit and vegetables solicited. We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

Bankers:
London County and Westminster Bank, Southwark Branch.

Established 1880.
John Robinson
FRUIT IMPORTER AND SALESMAN,
3 Rochester St., Borough Market,
LONDON, ENG.
Telegraphic address: "Redsoil, London."
A.B.C. Codes.
I shall be pleased to have your consignments of Apples. Regular market reports sent on request.
Correspondence is invited.

JACKSON FRUIT CO.
REGINA, SASK.
WHOLESALE FRUIT AND PRODUCE.
Get in touch with us, we shall be pleased to advise you as to the conditions of prairie markets and will handle consignments to your satisfaction. Good connections throughout the prairies.

WANTED — Consignments of tomatoes, peaches, cherries, grapes, and all kinds of fruit and basket apples, also carlot apples. Centrally located; convenient to all car tracks.
LAING BROS.
Wholesale Fruit Merchants
307-309 Elgin Ave. : Winnipeg, Man.

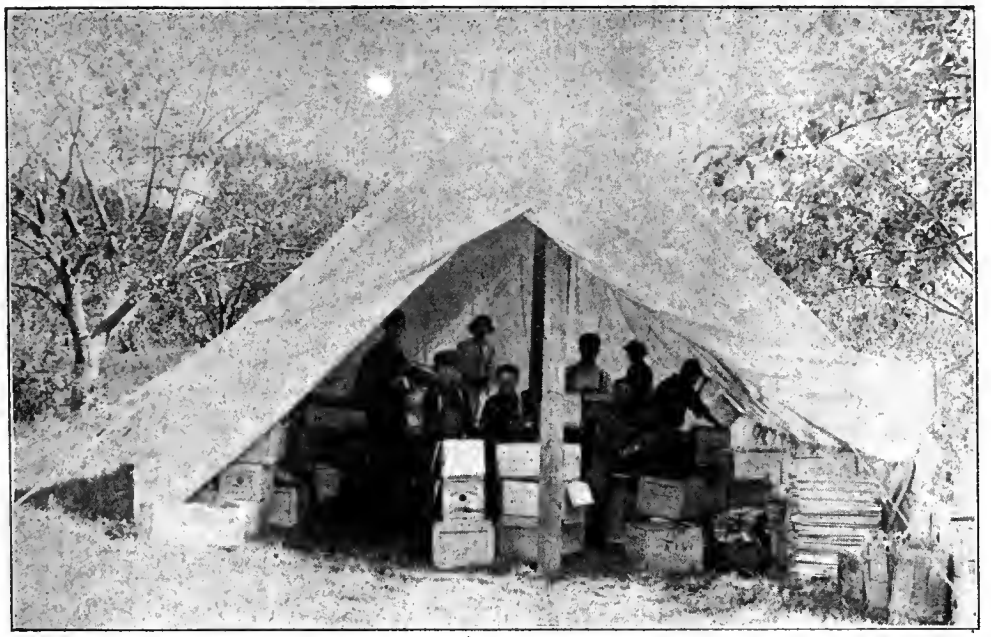
Rogers Fruit Co. Limited
WINNIPEG, MAN.
Largest fruit and vegetable dealers in the West. Write or wire your offerings.

The Oldest Commission House in Toronto
McWILLIAMS & EVERIST
Send your Consignments.

FRED BARKER
25 Church St., Toronto, Ont.
Representing J. H. Goodwin, Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. E. Cooper, Liverpool,
APPLE RECEIVERS.
Consignments Solicited.

HYSLOP & SONS
132 Princess Street : Winnipeg, Man.
Fruit Growers and Shippers
We have opened up a commission house in Winnipeg, and solicit consignments of fruit. Commission, 10 per cent.
References—Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

Dawson, Elliott Co.
32 West Market St.,
TORONTO.
Telephone Main 1471.
Consignments of Apples and Vegetables solicited. Highest prices obtained.



An apple grading machine as used successfully in the orchard of the Agricultural College, La Trappe, Que.

British Columbia

At a meeting of the executive of the Okanagan United Growers, held recently, it was shown that shipments of fruit up to October 13th had amounted to almost 1,000 cars, and that there were orders on hand which would bring the shipment for the season up to about 1,400 cars. The apple tonnage handled by The United Growers will be approximately 347,280 boxes. Up to the date of the meeting the export shipments included over 20,000 boxes to New Zealand and Australia and some 2,000 boxes to South Africa.

The cannery at Kelowna has been leased by R. J. Graham, of Belleville, Ontario, who may also secure a building in Vernon. This firm proposed to establish a big evaporating plant for the handling of vegetables to fill contracts secured with the British and French Governments for army purposes.

About 1,000 tons of British Columbia potatoes have been marketed this season in Australia. A large part of these shipments were obtained in the Delta and lower Mainland districts. The Government officials who looked after these shipments took great care in their selection and inspection.

Fruit Inspectors at Vancouver continue to condemn large quantities of apples from Washington State affected with the Codling Moth.

Okanagan fruit growers are well satisfied with the results obtained from the use of the Economy Crate. It has been used for the marketing of the lower grades of apples and contains about 45 lbs. Already it has been suggested that it be made a standard package.

Up to the middle of October some thirty-four carloads of fruit had been shipped by the Grand Forks Fruit Growers' Association. Before the end of the season upwards of sixty carloads will be shipped, including thirteen cars of prunes, one of plums, and three of pears.

The Dominion Fruit Division has appointed Mr. B. P. Boyce as a travelling instructor

Replace

the plant food your crops have taken from the soil. Our big book, "Bumper Crops," will tell you what fertilizers to use and how to use them.

FREE if you mention this paper.

Gunns Shur-Crop Fertilizers

CIDER APPLES WANTED

We are prepared to pay the highest cash prices for cider apples in car lots. Farmers who have not sufficient to make up a whole car themselves can arrange with their neighbors for joint shipment. Write us if you have any to offer.

BELLEVILLE CIDER AND VINEGAR CO.,
Hamilton, - - - Ontario.

SCALE
ON
TREES

Can be best reached in the dormant season when Lime Sulphur can be used full strength instead of diluted as it must be in summer spraying.

Grasselli
Lime Sulphur Solution
the tried and proven fungicide.

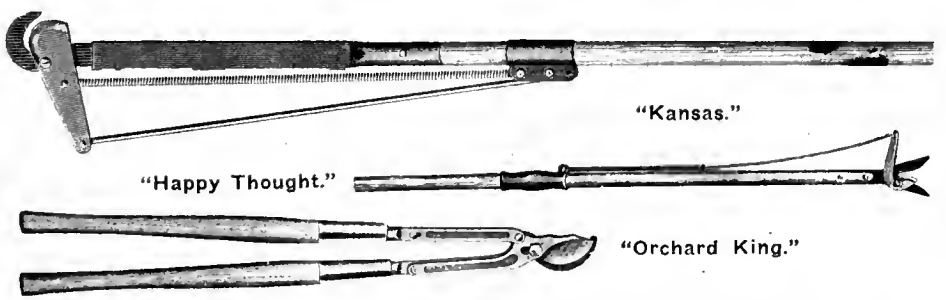
GUARANTEED MATERIAL — PROMPT SHIPMENT

The Grasselli Chemical Co., Limited

HAMILTON TORONTO MONTREAL

"TAYLOR-FORBES." "MADE IN CANADA."

Tree Pruners



Patented because they are light, strong and easily operated. Sold by responsible Hardware Dealers everywhere in Canada. Catalogue mailed on request.

TAYLOR-FORBES, Company, Limited
GUELPH, Canada

Horse-Radish Wanted

Highest price paid for good, firm roots free from dirt and small stringers.

Wm. Davies Company,
TORONTO, CANADA

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for All Kinds of Perishable Goods.

The Canada Cold Storage Co.
Limited
53 William St., MONTREAL, QUE.

What If You Could Make It Rain to Suit You Every Year?

AND everyone else had to take their chances or else spend most of their time at the end of a hose.

Think of being able to forget the word drought. Wouldn't every year be a profitable one?

That is exactly what we offer you—and it costs little more than hose.

RAIN as much as you want—wherever you want—any time you want it—as long as galvanized pipe will last.

Turn on the Valve. That's the Skinner System of Irrigation. Send for Bulletin 115.

SKINNER SYSTEM
OF IRRIGATION

The Skinner Irrigation Co.
217 Water Street,
TROY, OHIO

Picking Tomatoes for Seed.
Each tub contains a special strain. This method has been followed with success by L. A. Waitzinger, Echo Place, Ont.

in the commercial packing of fruit. He was expected to spend most of the month of October visiting isolated ranches where packing schools were not practicable.

An unusually large yield of onions has been reported from Vernon, where Mr. J. P. Mutrie, of Vernon, produced 206 tons of onions on six and a half acres of land, or an average of about thirty-two tons to the acre. The Yellow Globe Danvers variety was grown. At the price paid by the evaporating plant of fourteen dollars per ton in bulk, without sacks, this crop was expected to net Mr. Mutrie $2,884, or about $443 an acre.

Why School Gardens Fail

L. A. Dewolfe, Director of Elementary Education, Nova Scotia

School gardens, I think, fail (1) Because the teacher lacks enthusiasm and the power of leadership with the pupils.

(2) Because she is not well-balanced; and lacks persuasive powers and leadership with trustees and parents.

(3) Because teachers in various departments of the same school fail to co-operate.

(4) The teacher's ignorance of gardening causes the children to lose confidence in her.

(5) The school grounds are often unsuitable, either on account of condition or in size.

(6) Loafers on the school grounds after school hours often do damage. Making the school ground a thoroughfare also causes trouble.

(7) Too much is attempted.

(8) The frequent change of teachers.

(9) "Who will do the work" is a puzzling question. Frequently, the matter of ploughing is left to the voluntary efforts of some good-natured man instead of having the work done in a business-like way at the section's expense.

(10) Lack of care in summer vacation is, perhaps, the greatest drawback.

(11) Procrastination is fatal. Ploughing, ordering seeds, and making plans are often left until planting time. Hurriedly and poorly prepared ground never results in a good garden.

Bulletins and Reports

A remarkably fine volume in the Rural Text-Book Series entitled "Soils, Their Properties and Management" has recently been issued by The MacMillan Co., Ltd., Toronto. The authors are Prof. T. Lyttleton Lyon, Prof. Elmer O. Fippin, and Prof. Harry O. Buckman, of Cornell University. The subjects dealt with include soil forming processes, the geological classification of soils, physical properties of the soil, soil structure, forms of soil water and their movement, the control of soil moisture, acid or sour soil, and many other similar subjects. The book comprises over seven hundred pages, and for those interested is well worth the price asked for it, which is $1.90 a copy. It may be obtained through The Canadian Horticulture.

The University of Illinois, Urbana, Illinois, is distributing Circular No. 180, entitled "The San Jose Scale." The information contained is the latest available on this subject.

I have found the different articles on perennial borders in The Canadian Horticulturist a great help to me in the planting of mine. Enclosed please find $1.00 for renewal of my subscription.—Miss M. G. Gillies, Niagara-on-the-Lake, Ont.

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Minister of Agriculture
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Powdery Scab Regulations

Editor The Canadian Horticulturist:

The special plant disease regulations relating to Powdery Scab of potatoes which have been in force since November 7, 1914, requiring the inspection and certification of potatoes grown in the Maritime provinces and Quebec before they could be shipped either to the United States or any other part of Canada were rescinded by order-in-council on October the 8th, 1915.

This action was taken by the Hon. Martin Burrell, Minister of Agriculture, who arrived at the conclusion from investigations carried on in Canada that the disease in question did not warrant the drastic action that had been thought necessary by the United States in placing an embargo against all Canadian potatoes. The effect of the United States regulation barred Canada from the United States markets and seriously hampered the movement of potatoes within Canada itself. Moreover, the investigation carried on by the scientific staff of the Department of Agriculture under the direction of the Dominion Botanist revealed that Powdery Scab did certainly not prove a destructive disease in this country which would call for special legislative measures concerning its control.

The removal of the regulations now permits potatoes to be shipped unrestricted from one part of the Dominion to another. Negotiations are under way to induce the United States authorities who have already removed their own domestic quarantines against Powdery Scab, to also remove the embargo still in force against Canada. It is hoped that the action of the United States will be equally broad in its scope and that the former relations in the potato trade will be restored shortly.

Yours very truly,
H. T. GUSSOW,
Dominion Botanist, Ottawa.

Vegetable Growers' Convention

The annual convention of the Ontario Vegetable Growers' Association will be held in the Railway Committee Rooms, Parliament Buildings, Toronto, on Tuesday, November 9th. The programme is as follows:

Morning Session.

9.00.—President's Address. F. F. Reeves, Humber Bay.

9.15.—Discussion.

9.30.—Report of Secretary-Treasurer. J. Lockie Wilson.

9.45.—Discussion.

10.00.—Report of Vegetable Specialist. S. C. Johnston.

10.30.—Discussion.

11.00.—Report of Delegate to American Vegetable Growers' Convention, Cleveland, Ohio. F. F. Reeves, Humber Bay.

11.20.—"Fertilizers Best Suited for Vegetable Crops in Ontario." Prof. Shutt, C.E. F., Ottawa.

11.50.—Discussion.

12.00.—Address by fraternal delegates from Ontario Horticultural and American Vegetable Growers' Associations.

12.30.—Round Table Luncheon in Members' Dining Hall.

1.15.—Three-minute addresses.

Afternoon Session.

2.00.—Reports on Experimental Work Conducted at O. A. C., and Central Experimental Farms. J. E. Britton, and A. J. Logsdall.

2.30.—"The Vegetable Work at Vineland with Special reference to Seed Improvement." F. M. Clement, Jordan Harbor, Ont.

3.30.—"Tomato Bilght." D. H. Jones. O. A. C., Guelph.

4.00.—Discussion.

4.15.—"The Skinner System Necessary for Successful Market Gardening." Thos. Delworth.

4.45.—Discussion.

5.00.—"The Production and Preparation of Celery for Exhibitions." John Harris, Belleville.

5.30.—Discussion.

Evening Session.

8.00.—"Problems in Marketing." Howard W. Selby, Philadelphia.

8.15.—"Greenhouse Problems." C. W. Waid, Lansing, Michigan.

8.30.—Discussion.

9.00.—"Injurious Insects Which Affect Market Gardening." Arthur Gibson, C. E. F. Ottawa.

A booklet entitled "Fruit Growing in Lambton County," has been received from the Department of Agriculture at Petrolia. This booklet was compiled by G. G. Bramhill, B.S.A., District Representative for Lambton County, and is issued by the Lambton County Publicity Association with the object of presenting the advantages of Lambton County to prospective settlers. It is an attractive booklet, well illustrated and fulfils its purpose.

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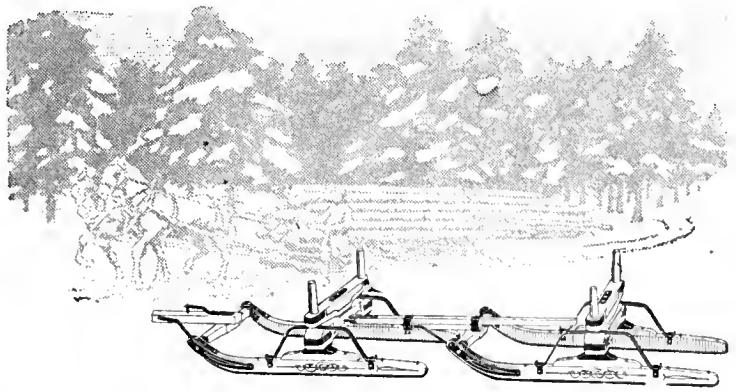

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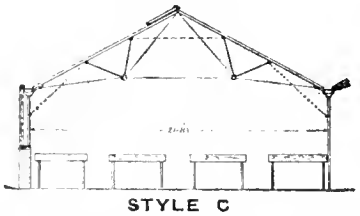

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Marketing Conditions for Ontario Apples

According to Mr. E. F. Palmer, Sales Manager of the Co-operative Fruit Growers of Ontario, Limited, who is looking after the marketing of a considerable portion of Ontario's 1915 apple crop, the crop for this year is only about one-third of last year's, and what crop there was of 1's and 2's has been reduced probably forty per cent. on account of scab.

At the beginning of 1915, everybody expected and looked for big prices on all kinds of fall apples as well as winter apples. The early fall varieties, such as Duchess, brought good prices, but since then growers have not received as much as they expected, the reason being that the fall crop was much better, comparatively, than the winter crop. Taking the apple crop as a whole, it was light throughout Ontario, but the fall apples were better, comparatively, than the winter ones, and, therefore, the price for fall apples ran lower proportionately than for winter apples.

Regarding the disposition of the crop, a circular recently issued by the Department of Agriculture states:

"The bulk of Ontario's apple crop will find a market in the Canadian northwest this season. Much of the winter apple crop has already been sold there at good prices, for the northwest consumer is in a position this year to buy fruit even in the face of a short apple crop everywhere and corresponding high prices. Flat prices being realized for Ontario apples are in the neighborhood of $3.00 or a little better per barrel for good winter varieties, ones and twos, f.o.b. shipping points.

"Considerable of the Ontario crop will also find its way over to Old Country markets. Several cars of fall stuff have already been shipped, though early in the season it was thought that considerable difficulty would be experienced in getting space across on the boats. It appears now, however, as if reliable shippers, whom the Steamship Companies can depend upon to always fill the space contracted for, and to get the fruit to the dock on time, will be able to get at least part if not all the space that they require.

"The British Columbia winter apple crop is practically all sold, chiefly in Alberta, Saskatchewan and Manitoba. The following word as to the approximate distribution of the crop, was received from R. M. Winslow, Provincial Horticulturist for British Columbia. 'About two hundred cars of our apples, or perhaps two hundred and fifty, are going into Saskatchewan and Manitoba; about three hundred cars into Alberta, and about one hundred and fifty cars for export, the balance to the coast local markets." Prices for British Columbia good winter varieties, ruled about $1.30 per box for No. 1 stock, f.o.b. shipping point.

"Nova Scotia apples are not being bought in the Canadian west this season, so that the bulk of the crop there will likely find its way over to the Old Country markets. Several boats have already been chartered by the Central Selling Association in Nova Scotia, to carry apples only. Much of their low grade fruit will likely be disposed of in Eastern Canadian cities, particularly in Quebec Province, as the apple crop there is very light and not nearly sufficient for home demands."

Old Country Conditions.

The working classes in England have more money this season than they have ever had and are spending money on what they previously considered luxuries. With the increased demand for labor, there is more money to spend and everyone is in a more prosperous condition.

Summing up the export situation, conditions apparently simmer down to about this, that the western and home markets are good while the Old Country market must, of necessity, be very good to justify taking the chance involved in shipping stuff there.

Books for Review

Several books have reached the editorial desk for review, that are well worthy of notice. One of these, entitled "Productive Vegetable Growing," by John W. Lloyd, M. S.A., Professor of Olericulture in the University of Illinois is a book that should be of value to vegetable growers. It contains over three hundred pages and is profusely illustrated. Chapter headings include such topics as Types of Vegetable Growing, Soil and Location, Factors Influencing the Quality of Vegetables, The Feed, Plant Food and Moisture Supply, The Temperature Factor, Methods of Transplanting, The Use of Glass in Vegetable Growing, The Preparation of Soil for Planting, The Planting of Seeds, Controlling Insects and Diseases, Intensive Cropping, Harvesting and Marketing, and many other topics. The book is one of Lippincott's Farm Manuals, being published by The J. B. Lippincott Co., Philadelphia, Pa. It may be purchased through The Canadian Horticulturist for $1.50. Postage extra 10c.

"Our Dooryard Friends" is the title of a well-arranged book on birds, by Sara V. Prueser, published by The Platform, The Lyceum and Chataugua Magazine, Steinway Hall, Chicago. Numerous illustrations furnish a guide to those who desire to become better acquainted with the birds common around most of our homes. Accompanying the illustrations are short articles descriptive of the birds, and their characteristics. Among the birds described are tree sparrows, chickadees, and tufted titmouse, white-breasted nuthatch, purple finch, woodpeckers, cardinals, meadow larks, blue jays, goldfinches, thrashers, and numerous others.

A book not horticultural in character, but of interest from a literary standpoint, is entitled "While the Fire Burns," by Alfred L. Flude. It comprises the musings of an editor on numerous subjects that are dealt with in a gay or pensive, but always attractive way, that holds the attention and interest. These include such unusual topics as "The shy young man," "The spider and the fly," "Being alone," "Ghosts," "A baby's teeth," "A white hyacinth," and many others. An extract from the latter may give an idea of the character of the work: "A white hyacinth is by my side as I write, and its perfume, more delicate than the breezes of Arabia, seems to linger lovingly about me in the firelight. I wonder where, in the cupful of mould, were hidden the pearly petals, the green leaves, the sensuous odor. I think it is like a handful of dust, called man, in which is hidden the embryonic soul, which leaves the clay and blossoms in an atmosphere divine. Yet, not like the soul, for the flower passes away and is gone. But the spicy odor greets me like an old-time friend. It is not from the tiny cluster beside me, but I think it comes wafted down through an avenue of years from the old home garden." This book is also published by The Platform, Steinway Hall, Chicago.

I could not do without the Canadian Horticulturist. Enclosed is one dollar to renew my subscription. — C. L. Biggar, Niagara Falls South, Ont.

The Canadian Horticulturist

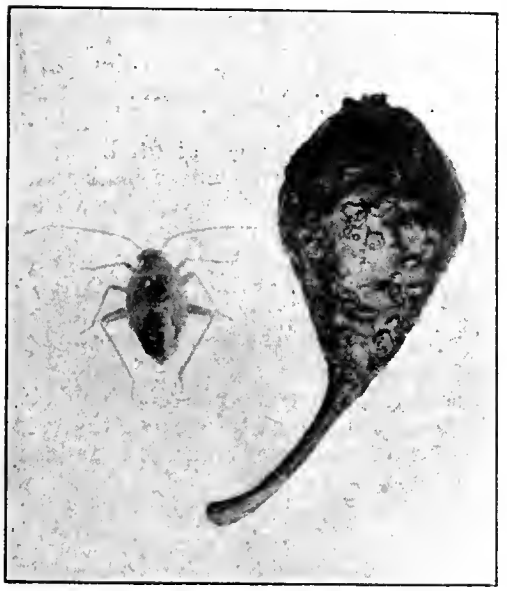
Floral Edition

Vol. XXXVIII PETERBORO, DECEMBER, 1915 No. 12

The Green Apple Bug on Apples and Pears

W. H. Brittain, Provincial Entomologist for Nova Scotia

FOR a number of years fruit growers in the Annapolis Valley of Nova Scotia have complained of the non-bearing of certain varieties of apples, especially the Nonpareil. Such

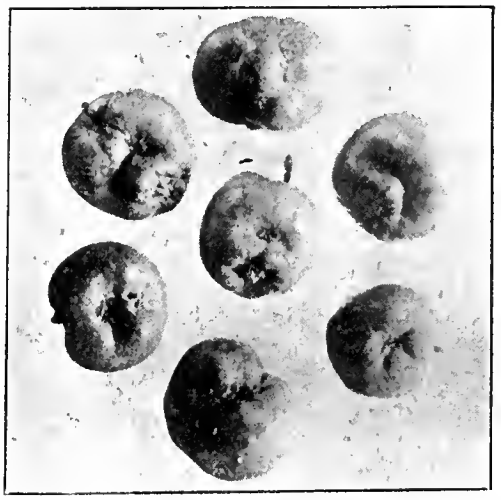


The Green Apple Bug and an injured pear.

trees would bloom heavily every year, but would invariably fail to set a crop of anything but a few gnarled, twisted apples. At the same time there came frequent reports of pears that "grew woody" and were covered with corky, disfiguring scars.

No one appears to have suspected the connection between the trouble in the apple and pears or that either of them was due to an insect. Examination of affected orchards about blossoming time showed them to be swarming with small yellowish or green sucking insects, which, in appearance resembled long-legged plant lice. These insects moved with extraordinary rapidity and had a wonderful ability to hide. They later developed wings and became a delicate brownish insect about one quarter of an inch long. This insect proved to be an insect known as a pear pest in New York State under the name False Tarnished Plant Bug (Lygus invitus). Lately it has gained an unenviable reputation in Nova Scotia as the "Green Bug" or the "Green Apple Bug."

The pest is well distributed through the main fruit producing centres of Hants, Kings, Annapolis and Digby counties, but, though the adult is a fairly strong flier, it does not seem to spread very fast. It is one of the most serious pests in the Annapolis Valley. In fact, where it once becomes established there is no pest to compare with it, either in amount of damage done or in the difficulty of controlling it. That such a pest should have gone so long unnoticed is rather surprising and can only be attributed to the very elusive habits of the insect.



Injury of the Green Apple Bug to apples.

As far as we have determined the insect breeds only on the apple and pear. It has been found feeding on plums in the adult stage, but has not been known to lay its eggs in that plant. When shaken from the tree, the young insects have been observed to feed on various plants growing on the ground, but when it reaches the winged state it always seeks the apple and pear tree to feed and deposit its eggs.

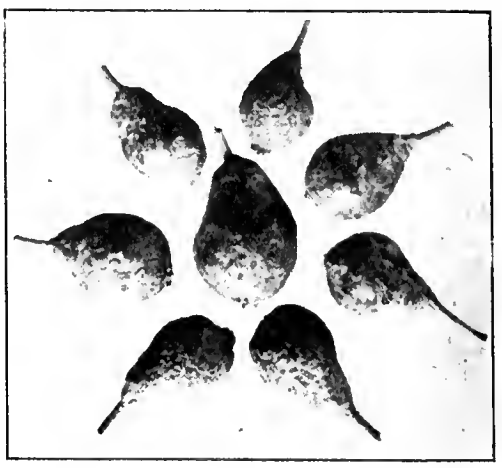
Life History.

The eggs, which are laid beneath the bark of the twigs, begin to hatch a few days before the blossoms open. The height of the emergence coincides with the opening of the blossoms and practically all are out by the time the last blossoms fall. From thirty-one to thirty-four days elapses from the time the insect hatches until it gets its wings. Soon after hatching the eggs are laid, after which the adult insects begin to die off, few remaining after a month has passed.

The young bugs are very active and when disturbed run rapidly, hiding in the axils of the leaves or any place that affords concealment. When suddenly disturbed they frequently drop, but generally alight on another branch before reaching the ground. When forced to drop by heavy rains, winds, sprays, etc., they may reascend the tree or they may feed on the herbage at its base until their wings are obtained, when they will fly up into the trees again.

Experiments have shown that insects that fall to the ground are capable of feeding on, completing their transformations on timothy, red clover, couch grass, dandelion and a great variety of other plants.

In feeding, the young insects prefer the young leaves of apple and pear, but also puncture the tender twigs. Later on they attack blossoms, but when the fruit is set, they feed on it to the exclusion of other food. The later stages will not feed on the leaves if other food can be obtained.



Injury of the Green Apple Bug to pears.

Injured apples.

Adult insects are, like their young, very active and take to flight readily when disturbed. The nymphs prefer green pears to all other food, but also feed upon the fruit of apples and plums. Pear trees kept free from the young insects by spraying had their crop destroyed later by bugs flying in from nearby apple trees.

The first evidence of injury to the apple is to the tender foliage in the form of purplish spots upon the surface of the affected leaves, accompanied in severe cases by a slight tendency to curl. As the leaves unfold and later reach full size, the discoloration disappears, but if affected leaves are held to the light they will be found to be pierced through and through with small holes. In very severe cases they have a ragged, frayed appearance.

The tender, succulent twigs are favorite points of attack and as the insect removes its beak a clear drop of liquid oozes through the bark. Later, as the twig increases in size, quite a decided lump may develop at the point of puncture, with, in severe cases, a cracking of the bark. In heavily infested orchards where insects are present in hundreds of thousands, the twigs may be literally stung to death, and afterwards remain clinging to the tree for some time, in a brown, dried up condition.

Blossoms are attacked with equal freedom, and like them may frequently be stung to death by the countless numbers of beaks, all withdrawing their sap at the same time. The dead, dry blossoms usually fall to the ground in a short time. These facts explain why susceptible varieties bloom year after year without giving any crop.

As soon as the young fruit has set, drops of gum oozing through the skin, reveal the spot of the insect's attack. A slight, reddish purple will mark the puncture and the young apple generally drops after being stung. Fruit that is able to still cling to the tree, or that is not attacked until it has reached some size, is usually badly gnarled and twisted as a result of the insects' attack. The failure of the tissue about the puncture to develop results in a one sided apple, with a pronounced depression, surrounding a brown, slightly raised scar, marking the spot where the insect inserted its beak.

Injury to Pears.

Injury to the leaves, stems and blossoms of the pear resembles that of apple, except that in this case the tissue about the puncture turns black. Stinging of the young pears does not often result in dropping as in the case of apples. The effect of the punctures on the fruit is, however, very conspicuous, it being covered with hard, granular, corky scars, which are often split open as in the case of those on the apple. Hard, flinty areas extend into the pulp, making the fruit useless for any purpose whatever.

Injury to Plums.

Injury to the fruit of plums is not uncommon, where these trees border on affected apples or pears. Plums injured by the bugs do not usually become scarred and twisted, as in the case of apples and pears, though they may sometimes grow somewhat one-sided. The seat of injury is usually at the extremity of the fruit furthest from the stem. As usual in the case of stone fruits this injury is marked by the exudation of colorless gum which flows through the small puncture, sometimes forming a globule and sometimes a coil of gum which finally hardens in the air.

Susceptibility of Varieties.

Nonpareil (Roxbury Russet) is the most susceptible variety of apple, next in order coming Ribstons, Gravensteins, Golden Russets, Blenheim and Greening. There is a tendency in an orchard for the insect to spread from the more susceptible to the less susceptible varieties.

The Bartlett pear is more subject to attack than other varieties, but Clapp's Favorite, Burbridge, Maria and Flemish Beauty are also affected.

Conditions Favoring Increase.

As a result of our observations throughout the infested area it appears that the most suitable conditions for an undue increase on the part of the insect are shady orchards with closely planted, thick growing trees, where air drainage is poor and a certain amount of herbage on the ground. These conditions are not essential, however, as the pest is known to flourish under all conceivable conditions.

Several factors make the control of this pest more difficult than that of any insect with which we have to contend. First, the insect is active, and clever at hiding, making it difficult to hit it with the spray. Second, when the tree is sprayed, large numbers of the young insects drop to the ground and may reascend the tree when the spraying is over. On one tree 1,389 insects were found going up it after it had been sprayed—enough to ruin the entire crop. Third, the insects are capable of coming to maturity on timothy, clover, couch grass, and other plants that may be growing at the bottom of the tree, after which they can fly back to the fruit trees and continue their work of destruction.

Methods of Control.

The following are therefore the measures to be followed in controlling the Green Apple Bug:

First: In normally planted, well pruned orchards, with only a moderate infestation, spraying the apples with Blackleaf 40, one pint to 100 gals., just before and just after the blossoms fall, and pears just after the blossoms fall and again five days later, should be sufficient. In others special measures must be taken.

Second: The trees must be banded with tree tanglefoot to prevent the reascent of those insects that have fallen to the ground.

Third: The orchard must be kept in a state of clean cultivation until the end of the first week in July, in order to starve all insects that have been forced down the tree.

Fourth: The trees must be thoroughly thinned out and pruned, so that all parts can be reached by the spray.

Fifth: A heavy drenching spray must be given.

I believe in the future of the Nova Scotia apple industry. We are in a strategic situation here for catering to the British market, and so far as I can see our position in the future will grow more and more secure. The major portion of the production of Ontario and British Columbia will in time be taken care of by the growing populations of our prairie provinces and of our rapidly-expanding inland cities. We shall be able to do something in those directions, too, but our principal market will always lie across the Atlantic. Dealers and consumers over there are becoming more widely acquainted with our product every year, and the greater the spread of this knowledge the stronger the demand.—W. W. Pineo, Waterville, N.S.

Common Vegetable Crop Insects and Their Control*

Arthur Gibson, in Charge of Vegetable and Field Crop Insect Investigations, Department of Agriculture, Ottawa

THE Entomological Branch of the Dominion Department of Agriculture has recently been conducting important experiments in the control of such serious pests of the market gardener as cutworms, root maggots, and locusts. Vegetables of all kinds suffered severely from cutworms during 1915. In Eastern Canada the species which caused most destruction were the Red-backed Cutworm, the Striped Cutworm, and the Dark-sided Cutworm. The habits of these species are similar, and all are surface-feeding cutworms.

During the past season the poisoned bran remedy, as recommended in our bulletin, "Cutworms and Their Control," with fruit added, as recommended for locusts, was used in our experiments near Ottawa, and outbreaks of cutworms quickly controlled. In one large field of onions, where the cutworms were especially abundant and destructive, a single application of the poisoned bait stopped the outbreak, and no further injury by these insects took place. The twenty pounds of bran mixture has been found sufficient to treat about three acres. The poisoned bait should be spread thinly in order to destroy the greatest number of cutworms, and when thus spread there is no danger of birds, poultry, or live stock being poisoned. A single poisoned flake of bran is sufficient to kill a cutworm.

*A paper submitted at the recent convention in Toronto, of the Ontario Vegetable Growers' Association.

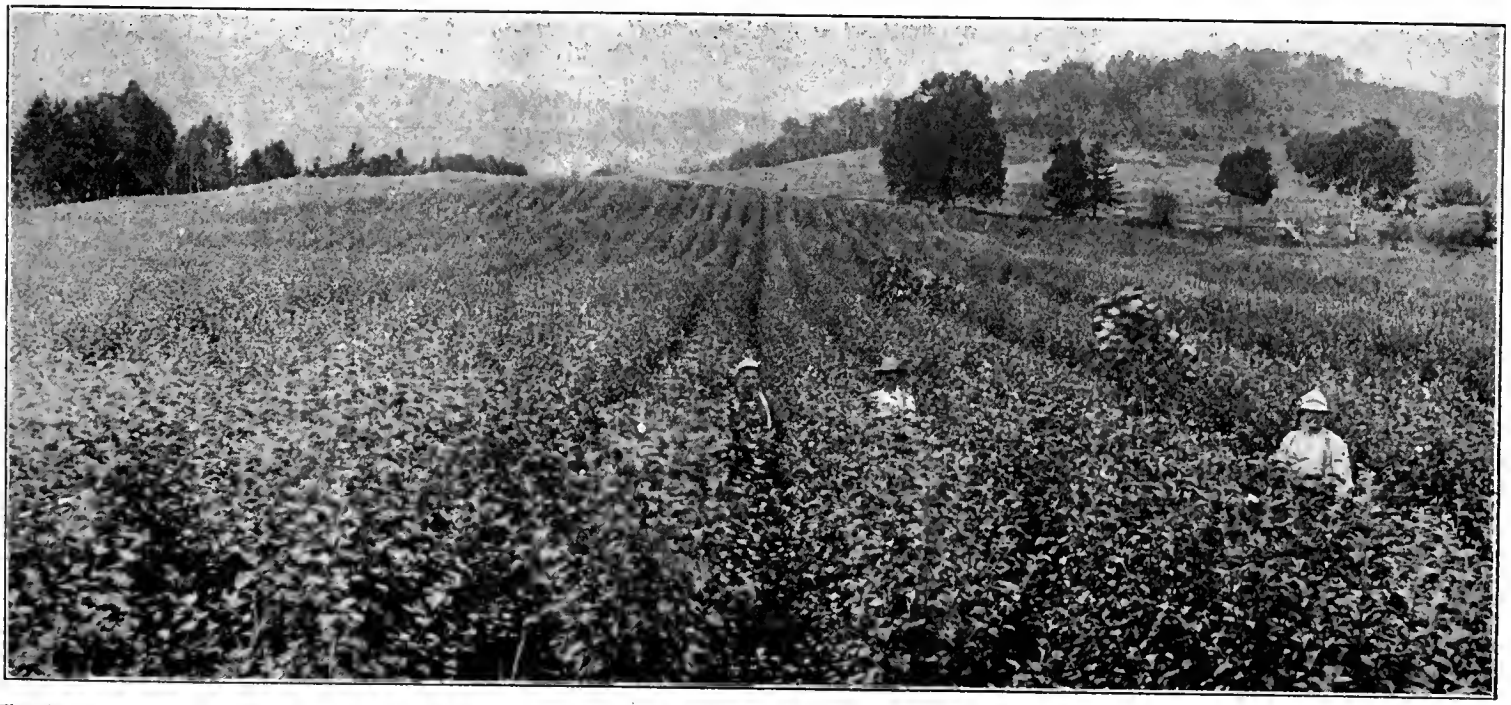
Like the old poisoned bran bait, the new mixture containing fruit juice should be distributed over the land in the early evening, so that it will be in the best condition to attract the cutworms when they come out to feed at night. This new poisoned bait is a cheap, reliable remedy for cutworms, and should be promptly used by every grower on the first sign of injury. If the cutworms are known to be present in the land in the spring, it is a wise precaution to scatter the poisoned bait after the ground has been worked, and several days before seeding or planting.

In widespread infestations of cutworms in 1915, we observed that the eggs had been laid during the late summer of 1914 on weeds or other plants growing on higher locations and left standing, and that the cutworms which hibernated nearby in their younger stages migrated in May to other parts of the field where food was in plenty. The importance of keeping down weeds and other useless plants, so that the cutworm moths will not be attracted to the land for egg-laying purposes, is therefore very important. If in spring the cutworms are noticed to be working chiefly on the higher elevations, large numbers may be destroyed before they begin to migrate by prompt application of the new poisoned bait.

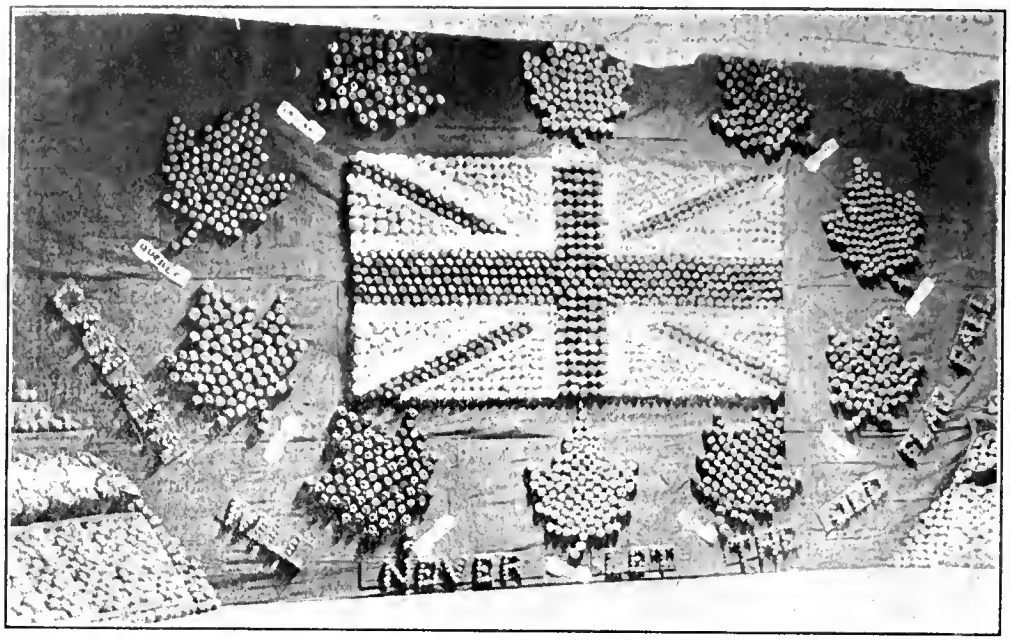
Root Maggots.

We have this year continued our experiments on the control of root maggots, and have again thoroughly demonstrated the value of the felt tarred paper discs to protect cabbages and cauliflowers. In one field near Ottawa, owned by a prominent market gardener, we placed these discs around about 1,600 plants at the time of planting. Before this planting the grower had lost a large percentage of his early cauliflowers, and even after we applied the discs to the second planting of 1,600 plants, many plants in adjoining rows were rendered useless owing to attack by the maggot. Of the 1,600 plants above mentioned, practically the whole number were protected from the maggot. This was an excellent demonstration of the value of the disc, and will lead many of the Ottawa growers to adopt this form of protection next year. It is practically the only satisfactory remedy which we have for protecting cabbages and cauliflowers from the ravages of root maggots.

Experiments were also conducted with a poisoned bait spray to attract and kill the adult flies before they deposited their eggs. This work, however, we hope will be continued next year. In Wisconsin a poisoned spray, which has been used successfully to kill the Onion Maggot Fly, is made in the proportion of five grains of sodium arsenate dissolved in a gallon of boiling water, into which is thoroughly mixed one pint of molasses. This mixture is applied as a coarse spray of large drops once a week in strips across onion fields throughout the summer. It is claimed that the results show almost perfect control of the insect at a cost of from fifty to seventy-five cents an acre for summer treatment. At Ottawa this year we also continued our experiments with various mixtures applied by means



The development that is taking place in the fruit industry in New Brunswick is indicated by the size of this nursery at Albert, N. B., which contains 100,000 three-year-old apple trees.



This patriotic design was much appreciated by the public who attended the Fredericton, N.B. Exhibition last fall. A description of it is published on this page.

of a watering can to the rows of radishes and similar plants, to destroy the eggs and young maggots. In small gardens, three applications made once a week from the time the plants appeared, of two ounces of white hellebore to one gallon of water, or fresh pyrethrum insect powder in the same strength, again gave fair results, as did also mixtures containing borax. In one experiment in which borax was used at a strength of one and one-half ounces to the gallon of water, only nine per cent. of the radishes were found to be infested by the maggot, while in a check row close by as high as sixty per cent. were infested.

White Grubs.

In co-operation with the United States Bureau of Entomology, we are making a study of the various species of white grubs which are so destructive to garden and field crops. These grubs feed naturally on the roots of the various grasses, and where grass land is ploughed up and used for agricultural purposes, their natural food is thereby reduced and crops planted on such land is often attacked, particularly if the same is potatoes or corn. During 1915, white grubs caused much damage in Canada. In the United States, in Iowa, Wisconsin, Illinois, Michigan, and Ohio, corn growers have this year lost millions of dollars owing to these grubs.

The species of grub which this year was so destructive requires three years to complete its life cycle, and a warning was recently issued by the entomologists of the United States Department of Agriculture for the year 1918. The grubs of this particular species will be more or less destructive up to the end of May or early June in 1916. They will then make earthen cells in the ground preparatory to changing to the beetle state. The beetles from these grubs do not leave the soil until the spring of 1917, when they will appear and lay eggs in land covered with vegetation, such as where such crops as the small grains and timothy are being grown. Land overgrown with weeds will also attract the beetles. In 1915, therefore, such land to which the beetle will likely be attracted in 1917 should not be used for such crops as corn, potatoes, or strawberries.

Land in which white grubs are now known to be injuriously present should be ploughed, if at all possible, as soon after the middle of July, 1916, as is practicable. The date, July 15, is recommended by the United States Department of Agriculture for the abovementioned States, and will doubtless apply also to Ontario, particularly the southern portions. The ploughing of course is to break up the tender pupal and beetle cells, which results in the death of the insects. A plough which will break up the soil is, of course, preferable, but if such an implement is not at hand the ground should be deeply disked. Chickens are fond of these grubs, and if available should be allowed to remain in the field during cultivation. Hogs are also useful in ridding small areas of white grubs.

A Striking Design

THE exhibit of the fruit division of the New Brunswick Department of Agriculture at the Fredericton Exhibition this fall consisted of the striking patriotic design illustrated on this page, which was erected in a booth about twenty-four feet long and ten feet wide. The design was worked out in apples and consisted of a large Union Jack, nine feet by five feet, surrounded by ten maple leaves, one for each province of Canada, and one for the Yukon Territory. The background was covered with dark green cloth, which contrasted effectively with the brilliant colors of the flag, which was in itself almost a perfect representation, both as to color and shape. The blue and white was obtained by wrapping the apples in paper.

The maple leaves were in various colors. The following varieties of apples were used in their make-up: Golden Russet, semi-matured Wealthy, Crimson Beauty, Switzer, and Hallett's White (a local apple). The sign: "Canada Will Never Let the Old Flag Fall," was worked in Montreal Beauty crabs. The centre design was flanked on each side by a pyramidal display of apples in half boxes and baskets, and in cones, and trimmed with dark green.

Fall Care of Strawberry Patch

A. C. Gorham, Macdonald College, Que.

STRAWBERRIES may be planted either in the fall or spring, providing the soil conditions are favorable. But I prefer, especially for colder sections, to plant in the spring. Then if they are planted in May the season as it advances becomes more favorable, the young plants become established and throw off runners which will take hold before fall, whereas the fall set plants do not have as great an opportunity to become established, and in this condition are not so likely to come through the winter. The later they are planted the less is their chance of coming through.

A deep clay loam or sandy loam well supplied with humus is best. They should never be planted where water stands on the land or where water runs down and freezes over them, as they are sure to kill out. Cultivation should be kept up through the first season to keep down the weeds, conserve the moisture and turn the runners in to make a more compact row.

Strawberries need some winter protection. Late in the fall, after growth has ceased and the ground becomes frozen, cover the plants well with some good clean straw, hay or spruce boughs if they can easily be obtained. These boughs can be removed in spring, giving a chance for further cultivation, but in the case of the straw or hay it is lifted from the plants and placed between the rows. This should not be done too early, as it would allow the plants to develop buds which would be killed by early frosts. The straw makes a mulch which holds the moisture, and makes cultivation unnecessary. It also helps to keep the berries clean and provides a soft mat for pickers to kneel on.

Garden Roses*

Percival H. Mitchell, Toronto, Ont.

So much has been written about roses as to the soil, the planting and their care as applicable to our local requirements, that I wish to deal more particularly here with the selection of the roses for the garden, for from the bewildering hundreds of varieties of roses which are to be had to-day it is extremely hard to choose by the mere descriptions given in the catalogue. Accurate as these descriptions may be they are apt to describe the more virtuous attributes of each and leave the grower to discover their other traits.

There are not merely hundreds of varieties of roses, but thousands, and gleaning from this multitude the rose growers of England and Ireland list in their catalogues some 750 varieties each, and yearly about fifty new creations make their debut with the greatest of hopes of their originators behind them. These great hopes are liberally interwoven into the glowing descriptions of their charms, and, alas, at the same time many retire into oblivion after a brief stay, when time has proven that beautiful as every rose may be there are others much more entitled to be included in the list of worthies.

All rose gardens have a beginning, and the realization of first hopes instills that enthusiasm which is the great essential of the future. The proper roses must be secured to start with. There were two determining influences in the selection of my own first roses, my rose growing neighbors who advised the planting of Richmond, and the local nurseryman who made the statement that hybrid perpetuals only should be attempted by the amateur for outside planting, as teas and hybrid teas were too delicate for this climate. To Richmond, once my most beloved rose, do I tender my thanks for an enthusiasm which can never be quenched.

Richmond bloomed that first year many, many times with no apparent exhaustion, and I well remember after an absence from the garden of several days how I found a most perfect scarlet bloom, in the waning days of November, encased in a sheathing of ice. The lack of bloom on my hybrid perpetuals that first year was a disappointment, and that winter when the first real rose list was evolved the blooming quality of the hybrid teas was predominant in my selection. I am afraid that had I gained my first impressions of rose gardening with the hybrid perpetuals I had bought I would have agreed with the prevailing general opinion that the rose garden was quite beyond the ordinary amateur gardener,

However, by the continual harassing of my rose growing acquaintances, by delving into many rose books written by authoritative authors, and by constantly poring over some English gardening magazines, I eventually compiled a further list, including about a hundred varieties, which were almost from universal opinion considered to be the best for garden growing. From my associations with these during the last few seasons I can say that their suitability for English gardens is quite duplicated for Ontario, and, further, that in several cases the roses have done better here than they are expected to do even in England.

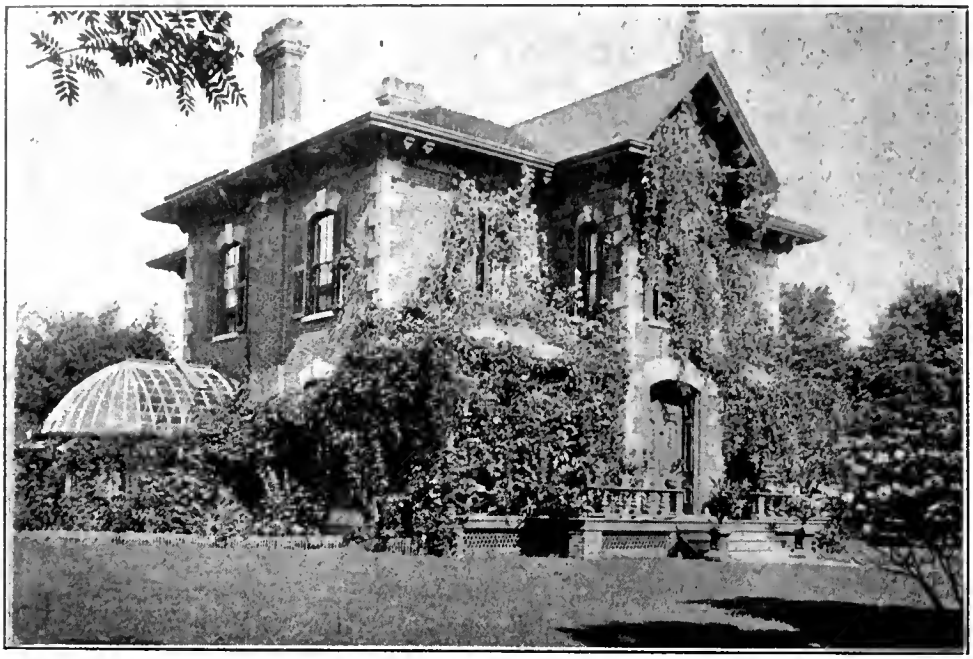
I wish to emphasize that practically every garden rose can be grown in Ontario, and with but a reasonable protection in winter. The cold of winter does not seem to be a harmful element; to my mind it is the thawing and freezing that works the harm, so that it is possibly because of our steady winter weather that rose growing in Ontario is so much more successful than further to the south of us. The protection usually given in winter to roses, by hilling up, is more to keep the rose from thawing until real spring arrives than to keep the rose from freezing.

There are three large classes of roses —teas, hybrid teas and hybrid perpetuals. The lines between these families are not so distinctly drawn as formerly, as the hybridizing has been productive of many roses having the characteristics of all the classes. Tea roses are straight descendants of Rosa indica, a native of China, and from this source it derives its delicacy of form and fragrance, as also its delicacy of constitution. Most of the tea roses can be readily grown here, the great advance in hybrid teas, however, have seen the development of many which readily duplicate most of the characteristics of the teas, but include a vigor which the tea rose lacks. Even in England the tea rose demands attention in cultivation and protection.

The great modern class of roses is formed of the hybrid teas. The hybrid perpetual was the forerunner in popularity and the rather meagre second blooming of this class, quite suffieient in its day of only June blooming roses to justify its title of "perpetual," was a great boon to the rosarian. The hybrid perpetual and the hybrid tea are very closely related. The hybrid perpetual was derived from the crossing of the tea rose ancestors and Rosa gallica, which is the parent of the cabbage rose of our grandparents' day and the mosses and damask roses, and is the element which has produced the showiness of the hybrid perpetual. The hybrid teas in turn have been produced by the crossing of the teas and hybrid perpetuals, and from these sources

Paeonies such as these are helping to make this flower one of the most popular grown in our Canadian gardens. This variety is the festiva maxima. The bush had 114 blooms. It was grown in the garden of Mr. A. H. Baker, Hamilton, Ont.

*Extract from paper read at the recent convention in Toronto of the Ontario Horticultural Association.



The beautifying effect of vines is well illustrated on this residence. What would many homes be without them?

have acquired their delicacy, colors, fragrance, hardiness and a remarkable blooming quality. In 1867, when La France, the first hybrid tea, was evolved, one can imagine the great joy of the rosarian in his proud possession of a rose that never seems to tire of blooming from early summer until winter sets in.

A new class of roses has been appearing in the last few years which has great promise. This has been evolved from the crossing of the Persian yellow briar rose with various hybrids. Soleil d'or was the first of these, and many of the later varieties have Soleil d'or as a parent. It has been quite fitting that the originator, Monsieur Pernet Ducher, of Lyons, France, should be honored by the class being named Pernetiana. Many of the Pernetiana roses are the most popular to-day on account of the wonderful yellow and shaded colors which predominate.

The Rugosa roses and their hybrids are of Japanese origin, the Rugosa being a common wild rose of the east. The great bold growth obtainable and the extreme hardiness as a class make them most valuable.

The Moss rose finds many friends and deserves a place in every garden.

The Dwarf Polyantha roses, which are commonly known here as Baby Ramblers, have many delightful varieties, and as several keep continuously in bloom for many months, these will appeal to all. The flowers in the Polyantha or Multiflora classes are small but in large clusters, and the bushes are completely clothed in bloom.

Climbers, pillar roses and roses which will form large bushes are derived from many classes. Multifloras and Wichuraianas comprise a large number, while the several classes just described contribute to a great extent. The Wichuraianas are developed from a Japanese wild rose of creeping habits. The Multifloras are quite similar.

The Penzance Briar is a charming class of rose, being a development of the English Sweet Briar. Lord Penzance introduced a large number of these, most of which bear the names of Scott's heroines. They are of a bushy or climbing nature and perfume the air with the fragrance of their leaves.

Climbers for Greenhouses

B. C. Tillett, Hamilton, Ont.

The general fine appearance of a glasshouse is greatly enhanced when a few climbing plants are trained under the roof-glass or to the sides of the walls on any pillars. We know how empty and bare the glasshouse looks before we put any pot plants in it; in the same degree is its appearance improved by a few climbers as when we introduced the first few plants. In the same way a winter garden may be made doubly interesting and twice as attractive to the visitor if a few suitable climbing plants are introduced and trained over the walls.

In low houses, climbers that are somewhat close-growing look the best, as those making long pendulous shoots would come in the way of persons entering the house; and, furthermore, the full beauty of the plants would not be appreciated.

In high houses, some of the most vigorous of climbers may be planted with advantage. For example, plumbagos and bougainvilleas may be given positions. The former will bear shoots with flowers two feet six inches long; the latter, shoots with bract flowers five feet long when well grown, and three feet when the rooting medium is rather a poor one.

Clematis indivisa, grown in a mixture of fibrous loam, peat, leaf-mould, and sand, will do nicely trained directly over the paths in any greenhouse and in any aspect. It is a climber that does well in a glasshouse in a town, where possibly much light and sunshine are shut out by high walls or buildings.

In sunny positions, bougainvillea glabra, plumbago—the blue and white kinds—and heliotrope all thrive and blossom remarkably well.

Fuchsias make capital climbing plants and are specially suitable for pillars and for positions where the strongest sunshine does not reach. One of the best is Rose of Castile Improved.

The red and white flowered lapagerias, especially the white, with its hanging wax-like flowers, do best trained to trellises on the north side of a span-roofed house or the back wall of a lean-to facing south or west. The lapagerias need very little heat.

The passifloras—passion flowers—are suitable for training under glass of high structures. They will grow twenty feet high, and their long shoots show to best advantage where there is plenty of space for them to show off.

The climbing lace fern—asparagus plumosus—and the beautiful smilax are two favorites which must not be overlooked. The asparagus fern is too well known to need description. Not only will it succeed under almost any conditions, but it is a most useful plant to grow for cutting. The smilax, with its dark glossy foliage, is also useful for decoration.

The foregoing are a few climbers from which a selection can be made to cover up a wall and to give a more tropical appearance to the glasshouse. Where there is a very large wall space to cover, the following suggestion is made, and I once saw it carried out with great success. Some fine-mesh wire netting (one-inch mesh) was stretched along the bottom of the wall and fastened along the bottom and ends, but not at the top. Behind this moss was rammed in so that the netting was forced out about three inches from the wall, and then another strip was similarly fastened and wired to the bottom strip, and so on to within a foot of the roof. In a very little while the newness of the netting wore off and it became quite invisible. Over this various climbing plants were trained, such as Euphorbia Splendens—Crown of Thorns—the brilliant red flowers showing off to perfection against the dark moss background. The effect was most pleasing to the eye, and the bare wall disappeared.

Experiences With a Northern Ontario Garden*

Mrs. John Lorne McDougal, Haileybury, Ontario

OUR Northern climate is a fascinating one. A fine day comes and it is so exhilarating that all memory of other less pleasant weather is obliterated. Fortunately there are many fine, sunny days. It is a changeable climate. I have lived seven years in Haileybury and cannot recall two seasons alike. But the "gardens" grow in every kind of season.

We have no genuine spring. Severe nights continue through the greater part of April. Spring may show herself for a while in May, but summer (with an occasional disconcerting, sometimes disastrous reversion to winter), is upon us with the coming of June. If the nights are still wintry when April comes, the mornings are already long. The sun rises in early summer shortly after three o'clock, and in June and July the daylight lingers until ten o'clock.

Horticulture in northern Ontario owes a great deal to the British gardeners who have settled there, for the methods that suit the home climate seem to be what is needed for success with us. But operations must be conducted literally "on the run." Naturally, this rush and hurry tends to make gardening expensive.

For these reasons fall digging is advisable. In fact, it is better to do all possible work in the autumn. All perennials, biennials, and shrubs should be planted or moved into position then.

Fall seeding might be practicable. I notice that nicotine, candytuft, pansies, schizanthus, produce fine plants from self-sown seeds.

Generally speaking, the hotbeds should be started by the middle of April. Then follows quickly the pricking out and the hardening off in the cold frames. It is very important that the little plants should be well hardened off. My experience is, that this early start in hotbed, or window garden, or small greenhouse, or for some plants (such as asters), simply in the cold frame, is the essential thing in all gardening of flowers and of many of the finer vegetables.

Along Lake Timiskaming we suffer less from unseasonable frosts than farther north, and a well protected garden suffers little. A high fence towards the north and west, or a wall of fir trees, are valuable possessions. A prospective gardener is recommended to make a study of protections against frost and cold winds suitable to his plot of ground. They might, too, add much to its beauty. With intelligent planting and a proper use of protections a garden can be enjoyed from the middle of May until the end of October.

As in other parts of the province, the cut worm has been a very serious enemy this past season. He spared nothing in June that he could reach, large tomato plants, beets, carrots, strong, vigorous growths in no danger formerly, all were felled.

Annuals Thrive.

I doubt if there is any other corner of our Dominion where annuals thrive better. I have one border one hundred and twenty-five long and ten feet wide devoted entirely to hardy annuals. Nothing is planted there that the first early autumn frost will injure. At the back grow miniature sunflowers, nicotine, and early cosmos—then come tall antirrhinums, and stretches of rosy salpiglossis with an occasional amaranthus,—in front of them clumps of schizanthus changing with antirrhinums of shorter growth, an odd gladiolus here and there, playing sentinel,—no abrupt transitions anywhere,—and salmon and buff phloxes and yellow pansies, and blue ageratum, and nemesias, pink and yellow, and dimerphotheticas, and mignonette, all crowding against a line of sweet alyssum.

Nowhere do the antirrhinums grow taller or heavier of bloom; nowhere are the salpiglossis more velvety, nor brighter of hue; nowhere are the schizanthus more literally buried in fairy blossoms,—and the heights of the plants, as given in the catalogues, are all understated. The stocks, too, will stand quite severe frost and grow taller and sturdier and sweeter with us than elsewhere. They and the asters are the last flowers in bloom in the fall.

We get wonderful results in size and height with asters. It is an easy thing to grow an aster bloom seven inches across and it needs no particular care. But with fertilizers and judicious pruning and constant cultivation certain varieties of asters will rival the chrysanthemums. Asters are, perhaps, more exacting to grow than other annuals. They are oftener attacked by insects and generally lose some of their number through stem rot.

I never put zinnias in my more exposed borders, for they are easily injured by frost. But grown in sunny, protected situations there is no flower that blooms more profusely, truer to form and color, absolutely Robusta Grandiflora Plenissima Maxima. Nor do I care for marigolds in prominent places. Provided they get an early start they certainly grow and bloom riotously.

This past summer produced some extraordinary dahlias. We grew decorative dahlias as large as a dessert plate, and very lovely. The paeony and cactus dahlias, the former almost as large of bloom, were really the queens of the

This Persian lilac adorns the garden of Mr. J. H. Bennett, of Barrie, Ont. The Persian lilac is a distinct species that rarely grows over six feet in height. It is more graceful in effect than most varieties of lilacs.

* Extract from a paper read at the recent annual convention, held in Toronto, of the Ontario Horticultural Association.

Shasta daisies, a clump of which is here shown, are very sweet and can he grown easily from seed. (Photo by Wm. Hunt, Guelph, Ont.)

garden, some of them quite ten feet high, their graceful flowers of exquisite colors hanging over everything. Each year some one flower grows to special perfection, and this season, with us, it was the paeony dahlia.

Sweet peas must not be forgotten. To attain good success, and the results are very fine, comparable to anywhere in the world, these things are necessary: The finest seed obtainable started in pots in the hot bed, and, directly they are up, removed to a cold frame, where they are kept until the weather is well settled, probably the first week in June, sometimes later, and then transplanted to specially prepared soil. In one of the gardens in Haileybury, that of Mrs. C. A. Foster, the sweet peas grown from Sutton's seeds in this way are very remarkable. The method of planting is unusual and worthy of imitation. The vines are set out in short rows across a long open border about eight feet wide. Each row is four feet apart, growing one variety of sweet pea. The supports, made of wire netting nailed to a narrow wooden frame painted green, serve from year to year.

Perennials Thrive.

We have had particular success with perennials, and are confident that any hardy perennial will thrive. True, the thermometer goes low, but the snows come early and there is little danger of a thaw. Slight coverings are needed against the hot spring sun rather than against the frost.

The Iberis is the first to appear in the border. Then when the lilacs are a fragrant blending irridescence of color come the tulips, the daffodils, and the narcissus. The Iceland poppies and the pansies follow, and then the long-spurred columbines, the pyrethrums and forget-me-nots, all such charming neighbors. Then come along the coral-red sweet williams, frosted blue and pink canterbury bells, and shasta daisies; then the oriental poppies, the paeonies, the feathery astilbes, and, in midsummer, the delphiniums. We must stop to admire them. How tall they grow, with their burnished blues and lavenders, their clear brilliant blues, their dark, rich black blues, their gray and silvery blues, their many different types of doubleness, their variety of centres, their long, thick spikes, fairy godmothers' wands! Were I boasting of our gardens, I should certainly add that nowhere out of Kelway's or Lemoine's catalogues do such delphiniums grow! The giant hollyhocks succeed them, vieing in beauty with the phloxes, so prodigal of bloom and color.

Roses are, similarly, of easy cultivation. I saw a bunch of rosebuds picked in October, looking like July. But I am convinced there is no perennial, with the exception of some of the lilies, which cannot be grown with equal, often with more, gratifying, success than in milder latitudes.

Winter Care of House Plants

Henry Gibson

SINCE the advent of the wonderful Nephrolepsis todeoides fern, many beautiful and desirable new varieties have been introduced, until now we have sufficient varieties of nephrolepsis to form a good collection—Whitmani, Amerpholi, Marshalli, Teddy Junr., Elegantissima Compacta, to mention only a few, are all charming ferns and are doubly valuable insomuch as they may be used for either house or conservatory decoration. The filmy nature of the fronds is very striking to the eye. I know of no more beautiful fern than the variety known as Elegantissima Compacta. They occasionally produce a few fronds of a coarse type, and as this occurs most frequently when the pots are root-bound, it is almost safe to say that poverty of the soil is the cause. The remedy is obvious.

House Palms.

Most amateur gardeners, especially those of the gentler sex, become possessed of a desire to grow palms for the decoration of their homes, and some continue trying unsuccessfully to do so for years. Good soil is one of the first essentials, as a heavy, sour soil soon induces disease of the roots and consequent foliage trouble. Any good garden soil is good enough for palm culture if mixed at the rate of three parts soil, one part well-decayed manure, one part leaf mold, and enough sand to make it porous. The soil must be kept moist, but the plant should not be watered every day, nor should it be allowed to stand in a jardiniere or ornamental bowl half full of water. Defer watering until the soil looks dry, and then give sufficient to thoroughly saturate the soil. Careful attention should be given to this, for not infrequently plants die even when watered regularly. The reason for this is that instead of soaking into the ball of soil the water trickles down the fissures between the soil and the side of the pot and runs out of the hole at the bottom. When this occurs, it is usually concluded that sufficient water has been given. In a plant that has been at all dry, an examination of the soil would reveal the fact that the water has only wet the outer surface, while the hard, compact centre remains dry. When this condition obtains, the best thing to do is to set the plant in a pail of water and allow it to soak for half an hour.

Palms and all other decorative foliage plants that are used to embellish the home should have their leaves sponged at frequent intervals, so that dust does not collect on them. Sponging keeps insect pests in check, and not only adds to the appearance of the plants, but by clearing away the dust allows them to perform their functions more satisfactorily. A plant is a living thing that has certain functions to perform that are essential to its existence. If this was more generally appreciated by plant lovers, we would see the dust being removed from the leaves of the plant just as frequently as from the piano.

Soapy water, fir-tree oil, or any of the tobacco extracts, diluted according to directions, make good washes.

Pelargonium Geraniums

I have found Pelargonium geraniums more difficult to propagate by cutting than the ordinary geranium. How should they be treated?—Mrs. E. B. C., Peterboro, Ont.

The Pelargonium geraniums are considered to be a little more difficult to grow than the ordinary bedding types of geraniums. In making cuttings it is very often found best to take what is known as the "growing shoots" rather than a cutting from one of the older branches. Sometimes, also, the cuttings are taken with the heals on them, but the ordinary shoot will callous over successfully, forming roots, if taken about August. It is wise to treat them, of course, in a way similar to the regular geranium cuttings, although the sand should not be allowed to become dry, which sometimes happens with ordinary geranium cuttings, without any injury to them.—F. E. Buck, Central Experimental Farm, Ottawa.

The Cyclamen

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

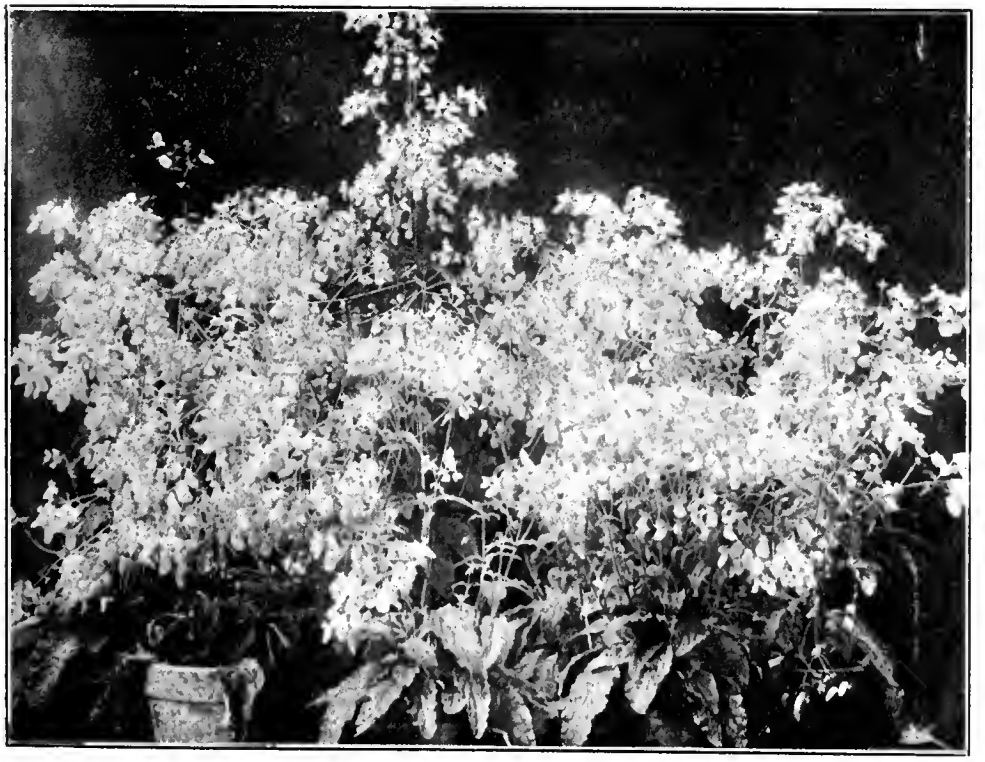
THE cyclamen, although classed as a half hardy perennial, with us is really tender, it does not, however, require a high temperature for its development. A steady temperature, which does not fall below the minimum of 55 or rise above the maximum of 70 during winter, is ideal for its successful culture. Extreme variations will spoil the most promising batch that ever existed. The plant must have all the light that is possible, except during the brightest days of summer, when the sun's rays should be subdued by shading.

Make the first sowing in October or November. This should furnish well flowered plants in fourteen months. Sow again in January for succession. Good, well-rotted loam and leaf soil in equal parts, with sufficient sand to make the whole porous, is a good compost in which to sow the seeds or to pot the seedlings. In the former case, however, the soil must be screened to a fine degree. Many growers incorporate finely broken charcoal. Prepare the seed pan by placing the coarsest soil in the bottom directly upon the crocks, and finish off by sprinkling a layer of fine soil at least one-half inch thick upon the surface. Press the seeds evenly and thinly into the soil one-quarter of an inch deep. As the cyclamen is somewhat slow and irregular in germination, a thin layer of sifted peat may be placed over the surface; this will aid in conserving the moisture and in preventing the seeds from drying. After watering the seed pans, place them in a temperature of 50 to 55, then as winter arrives remove them to a slightly warmer position, where it is possible to maintain humidity. Winter-sown seeds germinate best in a warm propagating case.

When potting or pricking off seedling cyclamen many growers make the mistake of inserting them too deeply. In a seedling stage the tuber may be covered lightly with soil. When potting, however, the crown of the tuber should not be covered at all, but left to protrude above the soil. Prick off the seedlings singly into small pots. By April or May they will develop sufficiently to allow of repotting into three-inch pots. During summer shade them from strong sunlight. In August pot them finally into five-inch pots. The plants should be kept as near the roof glass as possible.

During the fall, when growth is most active, apply manure water, but discontinue the practice when the color of the flowers is visible. From this time until the flowering period is past great care must be taken to prevent a lowering of temperature, as a sudden chill will check growth. With the advent of winter see that the plants are out of danger from cold draughts. In spring gradually dry the plants off. Plunge the pots containing the dormant tubers out of doors in a shady position. Water occasionally, as at no time should the plants become entirely dry.

The grower of the cyclamen must be observant. There are many essentials to success. Three of the chief are a steady temperature, a proper supply of moisture at the root and in the atmosphere, and freedom from insect pests.



Calceolaria profusa, the variety here shown, is one of the most graceful of the genus under cultivation and might well be more widely grown. Something of its beauty may here be seen. These plants were grown by Mr. H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

Notes About Roses

Jas. M. Bryson, Avoca Vale, Toronto, Ont.

In the practice of moulding roses into good pyramids the difficulty seldom or never is about the strength of the leader, but the maintenance of an equality of strength among the semi-horizontal branches; where this is the case these side branches may often be strengthened by the suppression of the leader by stopping several times during the growing season. The second running consists in the shortening back of the leader and the three or more branches under it.

Pyramidal roses, chiefly owing to their size and the number of roses they produce, seldom yield blooms of the highest and best type, but they make up in numbers what they lack in quality. No object within the whole range of nature could prove more attractive than a single bush or a group of these roses of perfect form and smothered with bloom from top to bottom. One of the most important points in achieving success with roses is the matter of pruning. The majority of people do not consider, nor do they study, the object aimed at in pruning. It is painful to see some bushes pruned with no more thought or care than if the operator were pruning a hedge, all the shoots being cropped over, big ones and little alike. The result is that the strong shoots give a few flowers, possibly only wood, while the small shoots produce a few sickly yellow leaves.

The first object in pruning should be to select a few strong, well-ripened shoots. The number selected will depend on the size and age of the plant. For dwarfs the nearer to the ground these shoots are the better. All short prematurely ripened wood and all the old weakly shoots should be cut clean away leaving only those I have described These should be cut back according to the strength of the shoots or variety, from four to six eyes or buds. The stronger they are the longer they should be left, care being taken to cut to an eye, pointing outwards. By this method plants should grow vigorously, bloom profusely, and keep young and healthy for years. Pruning should be done late in March or the middle of April for teas.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal. Published by The Horticultural Publishing Company, Limited.

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, 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. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 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 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

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 his 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."

Rogues shall not apply 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 honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

The Canning Situation

Fruit and vegetable growers are well aware that the success of their respective industries is closely bound up with that of the canning factories, and that for a number of seasons in the past they have been of great assistance in disposing of their crops. During the past two seasons, however, the contrary has been the case, and this has greatly contributed to the congestion of the markets and consequent depression in prices.

The canning industry had got into a very unhealthy condition. Large stocks of unsold goods accumulated in the hands of nearly all the Canning companies, big and little, and wholesale and retail merchants alike were loaded up with canned goods which they found it very difficult to dispose of to a public, whose buying capacity had greatly diminished. Internal strife amongst the canning companies themselves, in which the big fish tried to swallow the smaller ones and contracted severe indigestion in the process, also contributed materially to the difficulties of the situation.

At the beginning of the present year, 1915, the stagnation in the canning business was such that the existence of the industry itself seemed threatened. To cope with this condition, over three months ago a new Holding Company, the Canadian Canners, Limited, was formed for three years; uniting the interests of practically all the independents with those of the Dominion Canners for the time being. The leading ideas in the formation of that company were: to carry over the stocks then on hand which could not be disposed of, and to curtail the output of 1915 by at least fifty per cent.

This policy insured a lease of life for the smaller independents for at least three years, during which some of them, at all events, might establish themselves upon a sound footing. In addition to this, a short time ago the Dominion Canners absorbed the British Canadian Canners, the shareholders of the latter receiving one share of common stock of the Dominion Canners for every ten shares held by them. The Dominion Canners now own far the greater proportion of stock in the Holding Company, and have also advanced money to some of the independents to enable them to take up their proprtion of shares in the new company.

Since the new combination has been formed there has been a decided rise in the market for canned goods. For example, the price of tomatoes has advanced thirty cents, and that of peas, beans, and corn twenty cents, per case of a dozen cans.

As the output this season has been reduced to a new minimum, and as the tomato crop was far below normal, it would appear as though both the Dominion Canners and the Independents should show reasonable profits this year.

Undoubtedly the formation of the Holding Company has had the effect of giving stability to the market and has saved the smaller canning companies from immediate disaster. Quite a number of these were on the verge of bankruptcy, owing to being forced to realize on their stock of goods while the market was demoralized. This meant selling at less than the actual cost of canning.

In the long run, however the chief profits are likely to go to the Dominion Canners, who originated, and were the chief movers in carrying out the idea of the Holding Company, and they now see a paying market in sight for their heavy stocks of goods. Under the foregoing circumstances, such a combination apparently was justifiable to prevent universal disaster, all the same it is not without menace to the fruit and vegetable growers in the future. At the end of the three years, the Dominion Canners may occupy such a commanding position as to be able either to swallow the independents altogether or to at least dictate their policy. It seems, therefore, only common sense that fruit and vegetable growers should in the interval so organize their forces as each to form a solid co-operative body, with the heads of which the canners will have to deal, when it comes to fixing prices.

The only fair and proper way to have fruit and vegetable contracts made is for the representative heads of the co-operative bodies to meet the head of the canning industry early each year, and, after full consideration of pros and cons, fix the contract prices for the coming season. Apparently the only reasons why this has not been done before are: (a) The competition of the factories with one another for the produce; (b) The lack of proper organization on the part of the growers. Now that the former—already weak—is likely to be abolished altogether, the latter must be put on a strong sound footing.

Our live Fruit Commissioner, Mr. Dan. Johnson says if you want good clean fruit, you must "spray," 'spray," "spray." It is also equally true that if you want fair prices from the canners you must "co-operate," "co-operate," "co-operate." If the Dominion Canners in the future completely dominate the situation, and there are no organized bodies of growers to oppose them, there is nothing in their history to indicate that they would refrain from squeezing the growers to the limit.

Horticulture in Western Canada

The establishment of a horticultural option at the Manitoba Agricultural College calls attention to the rapid development that has taken place in horticulture in the Prairie Provinces during the last few years and to the prominent place which it now occupies in the attention of the people of Western Canada.

The impression that the prairie farm home is incapable of ornamentation by natural planting has now less grounds than formerly. It is now well known that the condition which exists on the majority of prairie farms is unnecessary. Here and there will be found men who have proven that there are abundant opportunities for the development of true home-like surronndings. Both deciduous and evergreen trees flourish when properly planted and cared for. Flowering shrubs and hedges are grown with little more difficulty than in the Eastern Provinces, and both annual and perennial flowers, when properly cared for, flourish in the richest profusion.

Nor need the prairie farmer's table be entirely lacking in contributions from his orchard and garden. The ordinary garden vegetables grow and mature as well in the West as in any other part of the Dominion. Small fruits, it has been found, are perfectly hardy and mature their fruit without difficulty. One well-known horticulturist, with a wide experience in Manitoba, is authority for the statement that he has had more good crops of strawberries in the last twenty-five years than there have been good

crops of wheat in that province. Several experimenters have been working for years in the development of hardy strains of apples suitable for prairie planting, and the success their efforts have met is very encouraging. Whether or not the apple will be thoroughly acclimated to Western conditions remains to be seen, but it has already been proven that apples can be grown when the conditions of soil and shelter are suitable.

The opportunities for development along horticultural lines in the Prairie Provinces are infinite. Great progress has already been made. The establishment of a horticultural option at the Winnipeg College to train men in horticulture under western conditions will result in the acceleration of that progress, and we may confidently look for still greater development in the future than has occurred in the past.

The Work of the Town Planner

In Canada, the tendency to divorce city dwellers from nature is more evident even than in the older countries of Europe. Notwithstanding the unlimited amount of land that we have for building and all other purposes, the tenement, with its ugly little back yard, is common in all our large centres. To find the beautiful garden, which we always associate with the ideal home, we have to go five, or even ten, miles out from the centres of our larger cities. Speculative interest, with no other motive than making money out of a rise in the price of land, holds it at such prices that it is not available for garden purposes, except on the further confines of the city, and the factory workers, who of all people are perhaps the most in need of the health-giving influence of a home garden, are excluded from the use of enough land to serve for that purpose.

The address of Mr. Thos. Adams, of Ottawa, at the recent convention in Toronto of the Ontario Horticultural Association indicated that the conservation of the health of the people of Canada through the instrumentality of the home garden has not been lost sight of by the Canadian Conservation Commission. Mr. Adams is the head of the Town Planning division of the commission, and it would appear from his remarks that in the future the planning of our cities will not be left entirely in the hands of real estate sharks, whose only motive is to cut the land up in the way which will yield the most money for them. The health and comfort of the people will not be lost sight of altogether in our future city planning.

PUBLISHER'S DESK

The front cover illustration on this issue of The Canadian Horticulturist will bring, we hope, to our readers pleasant anticipations of the approaching festive season. Never has the world needed the spirit of Christmas more than now. Let each of us do our part to make it as general as possible.

* * *

The January issue of The Canadian Horticulturist will devote special attention to the proper use of fertilizers. There will be articles for the fruit grower, vegetable grower and amateur horticulturist. These articles will be practical, interesting and instructive.

Ontario Horticulturists Meet in Annual Convention

THE tenth annual convention of the Ontario Horticultural Association, which met in the Railway Committee Room, Parliament Buildings, Toronto, on November 10th and 11th, was one of the most successful held in the history of the association. The interest which prevailed was characteristic of the amateur devotees of horticultural science. There were present 137 delegates representing 37 of the 78 societies in the province. The programme included several educational addresses of high merit, two of which were delivered by two lady delegates.

The chair was occupied by President J. H Bennett, of Barrie, who welcomed the delegates. President Bennett stated that though the war has made demands that interfere to some extent with the programmes of the societies it had not had the effect of limiting the supply of seeds and bulbs from Europe as had been feared at the previous annual convention. On the contrary, Holland had been anxious to unload her stocks and consequently there has been an abundant supply for Canadian planters. Treasurer C. A. Hesson, of St. Catharines, remarked that the financial condition of the Association was much improved since the last convention. During the year he had found it advisable to send out a circular letter to the societies urging upon them the payment of the affiliation fees, with the result that $80 had been added to the treasury from this source. The balance carried over from last year had been $167.96 whereas the close of the present financial year found them with a balance on hand of $256.76.

Secretary J. Lockie Wilson then presented his annual report. On the average the societies affiliated with the association had had a successful year. Some had experienced a slight falling off in membership, while two, viz., Caledonia and Paisley, had discontinued operations. To offset this several societies reported large increases in membership, and seven new societies had been organized, viz., Cayuga, Chatham, Dundas, Essex, Milton, Port Credit and Richmond Hill. The St. Thomas society was the largest in the province, reporting a membership of 1,400, an increase of 300 during the year. The total membership of the societies was now upwards of 14,000. Applications had already been received from citizens in half a dozen places in Ontario to organize societies during the coming year. Though the necessity of economy had made it advisable to restrict the number of lecturers sent out during the past season it was hoped that this year the number would be increased. Since last meeting death had removed three members who had taken a very live interest in horticulture. These were Mr. E. P. Cook, Toronto; Mr. J. Thos. Murphy, Simcoe, and Mrs. Allan Baines, Toronto. Resolutions of condolence to the bereaved relatives of the deceased were passed by the convention. A long list of extracts from the reports of the various societies was then read and the energetic manner in which the most of them were taking steps to beautify their home towns was very encouraging.

In the absence of the Minister of Agriculture who was on a recruiting tour in Simcoe, his home county, Deputy Minister Roadhouse conveyed to the convention the greetings of the Government. The American Civic Association was represented by Mr. G. Wray Lemon, Secretary of the Chamber of Commerce, Oil City, Pa. Mr. Lemon is a native born Canadian, and was at one time connected with town planning work in Calgary. One of the many helpful suggestions which he left with the delegates was the taking of before and after photographs that would convey a correct impression of the great improvement that could be made in the appearance of a town by the work of the horticultural society.

The programme included several addresses by well known amateur and professional horticulturists. Mr. John Dunbar, of Rochester, N.Y., who addressed the convention a year ago, again delighted the delegates with a very able lecture on the history, development and propagation of the lilac. After tracing the history of this favorite shrub, and stating that there were 25 species known fo science, Mr. Dunbar dealt at considerable length with the many new varieties which had very much lengthened the flowering season of the lilac. Some of the best of these had been originated in Canada. In dealing with the propagation of the lilac Mr. Dunbar outlined the methods by which this can be accomplished, favoring the grafting of green cuttings on the root of the California privet. It was his experience that the root of the privet eventually died leaving the shrub on its own roots. In the discussion that followed, Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, Ont., stated that in our severe climate it was not advisable to use the privet for this purpose as it lacked in the essential quality of hardiness.

Miss Yates, of Port Credit, gave a splendid paper on "Informal Planting of Home Grounds." The chief advantage of this over the formal method was that it did not demand suitable areas but could be adapted to any conditions. In designing the garden the house should be the central feature, while next in importance should be the lawn. This was no longer a lawn if it was cut up with trees, shrubs, or flower beds. The flowers, which should always have a background, were best, planted so as to do away as much as possible with straight lines. The vista should not be forgotten, and if this was grand enough the foreground should be designed so as to lead the eye to it with no trivial things to drag the attention away.

Mr. Wm. Hunt, florist at the O.A.C., Guelph, spoke on new plants and plants not well known, and Mr. Mitchell, of Toronto, gave a splendid paper on growing garden roses, dealing with the subject from an amateur's standpoint.

Mrs. John Lorne McDougall, of Haileybury, gave an account of what could be accomplished along horticultural lines in Northern Ontario, claiming that the success which was crowning the efforts of garden lovers in that district was most encouraging. The season, of course, was short and things had to be rushed through, but during the flowering season the perfection attained by the majority of varieties, and especially by the annuals, was very gratifying. Vegetable and fruit growing was also touched upon, and Mrs. McDougall astonished the delegates by showing them some fall strawberries that had been picked the previous day.

R. A. Penhale, of St. Thomas, suggested that the association might extend its organization work into the rural municipalities. He strongly emphasized the point that in the country the farmer must have an eye to the economy of labor in maintaining his home planting. He also suggested that where good roads were being made the road sides should be levelled in order that weeds could be controlled by the use of the mowing machine.

Speaking on the subject, "California in Summer from the Horticulturist's Stand-

(Concluded on page 282.)

Ontario Vegetable Growers' Annual Convention

F. G. H. Pattison, Winona, Ontario

THE Annual Convention of the Ontario Vegetable Growers' Association was held in the Parliament Buildings, Toronto, on November 9th. A noticeable feature was the spirit of optimism and patriotism which pervaded the proceedings. President F. F. Reeves, of Humber Bay, in his presidential address, called attention to the great progress that had been made by the association during the past nine years.

Great anxiety and loss was suffered by vegetable growers during the past season owing to the heavy spring frosts and continued wet weather during the summer. In spite of this a spirit of optimism prevailed throughout the vegetable growing fraternity, and over a million pounds of dessicated vegetables had been sent to the troops at the front. The Field Crop competitions had proved as successful as usual, and as a result, some excellent crops were shown by the prize-winners at the Toronto, London, and Ottawa Exhibitions. The Minister of Agriculture was commended for the interest he and his staff had taken in the work of the association and for appointing the President, ex officio, a member of the advisory board of the Vineland Experimental Farm.

Prices for vegetables had ruled on an average 25 per cent. lower than for the past few years. The seed market was unsettled owing chiefly to the wet weather experienced in the seed-growing centres of the United States. Reliable seed of onions, spinach, beans, and celery is likely to be scarce for the coming season.

Vegetable growers continued to have great difficulty in securing sufficient labor. The need for a suitable standard package for vegetables was very apparent. It was suggested that the association, with the assistance of the Department of Agriculture, should gather information as to the acreage and condition of vegetable crops at various seasons of the year, and issue this information to the growers. A concerted effort should be made to specially advertise Ontario vegetables.

Reference was made to the response Canada has made to the call of Great Britain to fight for the laws of freedom and justice. The address concluded with the following words: "Like all other classes of men, the vegetable growers have given of their sons and their wealth, and are prepared to give even further in this great world struggle."

Secretary-Treasurer J. Lockie Wilson presented his report, of which the chief items were: The continuous rains during the summer and early fall caused rust, blight, and rot to attack, and in many cases ruin, vegetable crops.

Detailed accounts from the various Local Branches showed them to be in a flourishing condition. The membership has remained about the same, but a large increase is looked for in 1916. The Field Crop competitions excited great interest amongst the growers. Four kinds of vegetables were selected: tomatoes, onions, celery, and early potatoes. For the first time the Central Association had provided neat boxes for the exhibitors to ship their products in to the exhibitions. This, and the wrapping and packing of tomatoes in two-layer boxes, were regarded as great improvements. The directors had curtailed expenditures as much as possible in this time of stress and strain.

Sympathy was expressed for the president's son, wounded on the battlefield in France. Scores of the members of the association had joined the ranks of the fighters for their country.

A short course at the O. A. C. for judges in the field crop competitions was recommended. Further investigation into the matter of co-operation by the Central Association was left in abeyance until the war is over.

This report concluded as follows: "It is the bounden duty of those of us who remain at home to do our part in increasing the products of the soil, and in making every possible sacrifice so that victory may perch on the banners of the men fighting for freedom's cause."

The balance sheet presented by Mr. Wilson covered the eleven months—Nov. 30, 1914, to Oct. 31st, 1915, and showed receipts of $1,330.98; expenses, $796.48; balance on hand, $534.80.

After some discussion it was decided to allow any member competing in the Field Crop Competition to exhibit at the Toronto, London, and Ottawa shows, but the association would pay express only on the exhibits of prize-takers in the local competitions. It was also decided that Field Vegetable Crop Judges should take the short course at the O. A. C., as recommended by Secretary Wilson.

The convention heard with deep regret of the death of Mr. M. F. Rittenhouse, of Chicago, and placed on record its sense of deep appreciation of his splendid personal qualities and of his generous and intelligent interest in horticulture in Ontario, his native province.

During the morning session the president welcomed two visiting delegates from the National Vegetable Growers' Association of the United States—Prof. C. W. Waid, of Lansing, Mich., and Mr. Howard W. Selby, of Philadelphia.

Prof. Waid expressed great pleasure at being with the vegetable growers of Ontario. The past season had been a trying one for gardeners in the States, as well as for those in Ontario. He highly complimented the Ontario growers on their thorough organization, and said that it was a question if any vegetable organization in the States was accomplishing as good work as they were. Mr. Selby said that from the moment they had crossed Suspension Bridge till their appearance before the convention, they had been more and more impressed with the great national spirit evinced by the Dominion of Canada during the present crisis. At the last meeting of vegetable growers in Philadelphia he gave the slogan "Co-operation must be put in operation." They had not accomplished much in that way as yet, but were getting down more to the business side of their work. "Getting the money out of it," said he, "is the most serious and interesting side of our work owing to the prevailing low prices." This had been the key-note of the Philadelphia meeting and of every other meeting throughout their country. He extended the greetings of the United States National Association and hoped that the Ontario Association would send more delegates over to the American convention next year. During the noon hour the association entertained the delegates and visitors to an excellent dinner. The health of "The King" was duly honored, as well as that of the American visitors. Short speeches were made by President F. F. Reeves, Secretary J. Lockie Wilson; the two American delegates, Prof. Waid and Mr. Selby; C. W. Baker, London; Thos. Delworth, Weston; J. J. Davis, London, and the representatives of the Farmer's Advocate and "The Canadian Horticulturist."

A number of interesting addresses and reports were given at the convention. During the morning, in addition to the president's address and secretary's report, the chief were the report of President Reeves as delegate to the American Growers' Convention held in Cleveland, Ohio; the report of the vegetable specialist, S. C. Johnston, and a paper on "Fertilizers Best Suited to Vegetable Crops in Ontario," by Leslie Elmsley, Central Experimental Farm, Ottawa.

At the afternoon session, reports on experimental work at the O. A. C., Guelph, and Central Experimental Farm, Ottawa, were given by Messrs. J. E. Britton, and A. J. Logsdail. A paper on "Tomato Blight" was given by D. H. Jones, O.A.C., Guelph. "The Skinner System Necessary for Successful Market Gardening," was the subject of an interesting address by Thos. Delworth, Weston.

In the evening, "Greenhouse Problems" were dealt with by Prof. C. W. Waid, of Lansing, Mich.," and "Problems in Marketing," by H. W. Selby, Philadelphia. "Vegetable Work at Vineland, with Special Reference to Seed Improvement," was described by F. M. Clement, of the Vineland Experimental Farm.

Separate references to some of these reports appear elsewhere in this issue, and more concerning them will appear later. The attendance of delegates was good.

Activities of the Fruit Division

The offices of the Fruit Division of the Dominion Department of Agriculture at Ottawa have recently been moved from the Canadian Building, Slater Street, to comfortable new quarters on Cliff Street, in the commodious building previously occupied by Railway Commissioner McLean. This has caused a separation from the offices of the Dairy and Cold Storage Division, which remain in the old quarters. The relations that have existed between the two branches have been most cordial.

A representative of The Canadian Horticulturist had an interview recently with Fruit Commissioner Johnson, who described the work his Division is carrying on of inspecting fruit at points of shipment. The new system has given excellent results. By it the quantity of bad fruit that reaches the markets has been reduced. The boxes and barrels are examined and inspected just before they are shipped, and in cases where bad fruit is found, or over-facing is discovered, the owner of the box or barrel is prosecuted under the Inspection and Sales Act.

The system of sending inspectors and experts through the country to give the growers and packers pointers and advice along the line of packing and shipping fruit is showing excellent results. "Occasionally we have come across a few who have refused to allow our representatives to give them advice," said Mr. Johnson, "but under the Inspection and Sales Act we are able to punish those who break the law." He added that by this method the Division is able to see that the fruit leaves the shipping point honestly packed and graded.

Commissioner Johnson is pleased with the results being obtained from the system now followed of distributing information. It seems to be working almost to perfection. "We have our representatives wire us twice a week regularly, giving us information as to the condition of fruit throughout the country," he explained. "They advise us as to how the fruit is growing, what the quality of it is, and how much there is likely to be on hand at certain periods. We have our officials in consuming centres, advising

us as to the condition of the markets, the quantity of fruit, and the prices being realized. All this is made up in the form of a summary report, and is sent out to the various shippers and dealers interested in the fruit business. Any shipper or grower can write or wire us and we will give him the latest information possible. In fact there are a number of the largest shippers who have asked us to keep them posted regularly as to market conditions."

"We have had to prosecute a number of shippers this year for violating the Inspection and Sales Act by overfacing their packages of fruit. Many still have the habit of piling the large fruit on top of the packages and the smaller fruit underneath. We intend to put a stop to this, and our officials have forced many packers to repack their fruit before they were allowed to sell it. The violations are not by the large and responsible growers and shippers, but by men with a small knowledge of the fruit industry, and who lack an established reputation to uphold."—E. G. W.

English Market Prospects for Apples

J. Forsyth Smith, Canadian Fruit Trade Commissioner, Manchester, Eng.

GREAT difficulty is being experienced by shippers and importers' agents in securing required steamer space, and the trade expect that although this will seriously handicap the apple business, it may prove a factor of considerable importance in maintaining values on British markets. The high freights on the other hand ($1.25 to $1.50 per barrel, and 80 cts. to $1.00 per cubic foot for box apples) will increase the risk taken by apple buyers in Canada, and make it necessary that fairly high prices be obtained if apples sold on shippers' account are to yield satisfactory returns.

Conditions of the Market.

War conditions, additional taxation, and the increased cost of living, together with the general tendency to restrict the number of banquets, dinners and similar public functions are expected to lessen the demand for fancy box fruit. Labor, however, is fully employed at wages considerably higher than normal, and the working classes will be able and probably willing to buy apples freely. Sound No. 1 and No. 2 barrel apples will be in good demand. The prospects for No. 3 apples appear more doubtful, especially while quantities of English apples are moving, but there is a distinct section of the consuming public calling for cheap fruit, and the large No. 3's especially (No. 1 in size and color, but showing scab or other defect) will experience a fair demand.

Price Prospects.

Prices are so variable, and depend so much upon fluctuating conditions of satisfactory supply, glut or market bareness, condition, quality, etc., that forecasts are always of doubtful value. The trade in Glasgow, however, agree that prices as follows may reasonably be expected for good No. 1 Ontario apples: Kings, 25s. to 30s.; Baldwins, 23s. to 26s.; Spies, 25s. to 30s. The size of the Nova Scotia barrel may be expected to make a difference of from two to four shillings. Any good varieties of No. 1 box apples, Jonathans, Spitzenbergs, Newtowns, Rome Beauty, should sell from ten to twelve shillings, possibly at a slightly higher price. Cox's Orange Pippin, in strong demand but of which there is a limited supply, may quite possibly reach fifteen or sixteen shillings, or higher. General price expectations are lower in Liverpool than in Glasgow, and in London lower than in Liverpool.

Fruit Imports into Great Britain.

The following tables show the quantities of various fruits imported into the United Kingdom during the month of August, and during the eight months ended August 31 for 1915, 1914, and 1913.

Fruit Imports for September.

The following quantities of fruits were imported into the United Kingdom in September, 1914 and 1915:—

		1915.	1914.
Apples	Cwts.	33,677	43,078
Apricots and peaches	"	77	170
Bananas (bunches)		593,917	650,000
Oranges	Cwts.	5,185	6,205
Pears	"	35,745	31,187
Plums	"	1,244	963

Quantities of Fruit Imported.

	Month of August.			8 Months ended August 31.		
Fruit.	1913. Cwts.	1914. Cwts.	1915. Cwts.	1913. Cwts.	1914. Cwts.	1915. Cwts.
Apples	58,028	7,354	29,415	1,705,774	1,179,184	2,092,009
Apricots and peaches	1,005	1,500	56	7,831	29,833	8,890
Bananas, bunches	798,262	1,143,104	970,583	4,952,091	5,851,165	5,997,263
Oranges	19,404	20,274	11,039	4,299,694	3,716,047	4,648,044
Pears	188,829	54,671	68,923	257,118	178,988	102,521

Banana and orange statistics are included in the tabulation for purposes of comparison.

Douglas Gardens

OAKVILLE, ONT.

At the date of writing (15th Oct.) the following named plants are showing good bloom, viz.:

BEDDING PLANTS—
Antirrhinums—"Silver Pink."
Pansies.
Salvia—"Bonfire."

PERENNIALS—
Coreopsis—(Second Crop).
Delphiniums—(Second Crop).
Echinacea—(Rudbeckia) purpurea.
Gaillardia.
Hardy Asters—Nos. 22, 23, 26, 34 and 40.
Helenium—4 sorts.
Holly Hocks.
Kniphofia—"Pfitzeri."
Phlox—"Miss Lingard" (Second crop) "Jeanne d'Arc."
Shasta Daisies.
Veronica Spicata.

Garden makers would do well to keep these plants in mind for late bloom.

JOHN CAVERS

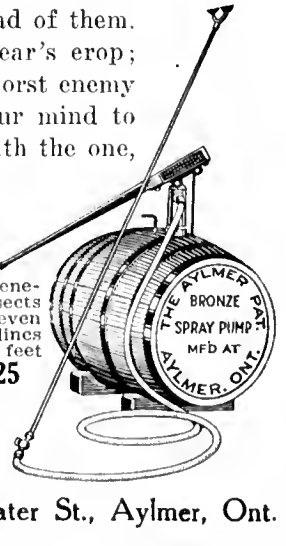
Receivers complain of the way the English apple is packed, and this, we think, is largely due to the difficulty growers have experienced in obtaining necessary labor.

Most of the English cooking sorts will be

The Early Spray Gets the Worm

Spray early—Spray thoroughly—Spray with a good Sprayer. Insects and worms are most prodigiously prolific, and it takes an early start with a first-class Sprayer to get ahead of them. Insects do not confine their devastation to this year's crop; they injure the trees permanently. They are the worst enemy of the orchardist and the gardener. Make up your mind to get after these injurious pests and destroy them with the one, best all round efficient Sprayer—the

AYLMER SPRAYER



It throws an unusually powerful, fine, misty spray which penetrates into crevices of bark, buds and foliage, where the insects and their eggs are hidden. The Aylmer Spray is used by seven Governments, has won medals, and is made on the original lines of strength and durability. The outfit consists of Pump, 10 feet hose, couplings, 2 Bordeaux nozzles, brass stopcock, one Y, one long extension rod, without barrel $15.25
With Barrel, add $3.00.

Send money Order and Sprayer will be shipped on next freight, prepaid, to your R. R. Station, anywhere in Ontario.

Write for free booklet—"SPRAYING."

Aylmer Pump & Scale Co. Ltd. 127 Water St., Aylmer, Ont.

over by the middle of November, and what dessert apples may be held in store will hardly be of sufficient importance to interfere with arrivals from the other side.

Spies, when good, are a particularly favored variety on the Liverpool market, and should realize twenty-five to thirty shillings per Ontario barrel, but unless the quality is good these figures will be doubtful, as a poor Spy will probably find a worse market than a poor Baldwin. On the same basis, allowing for the difference in weight, Nova Scotia Spies may be expected to make twenty to twenty-five shillings.

Were the crop large, we should not be at all inclined to encourage the shipment of No. 3's in view of the high cost of transportation. If, however, supplies prove inconsiderable, and, as we anticipate, prices for No. 1's and No. 2's reach a fairly high level, No. 3's may then be required for the lower class trade.

Apples are now considered an article of food rather than a luxury, and the working classes seem to be handling so much money that they are unlikely to neglect apples. Good boxed Yellow Newtowns will sell well in Liverpool at ten to twelve shillings. Rome Beauties also find a ready outlet here, but the price prospects, say ten shillings, are not so high.

With regard to Canadian pears, we are sorry we cannot hold out much prospect for shipments, as refrigerated space is now practically impossible on board steamers from the other side, and ordinary stowage will not give satisfactory results. A quantity for sale at Liverpool on October 8, received per ss. Corsican, turned out very poor, and prices realized will leave heavy losses to senders.

In our opinion, if Canadian pears can be landed at Glasgow in a sound and satisfactory conditon, they will meet with a good demand at satisfactory prices.

THE
BEEKEEPERS' DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1916. Order early.

E. E. MOTT,
Glenwood, Mich.
Northern Bred Italian Queens.

J. P. MOORE,
Morgan, Ky.
Try Moore's Strain Next Year.

W. R. STIRLING,
Ridgetown, Ont.
Fine Italian Queens.

J. I. BANKS,
Dowelltown, Tenn.
Italian "Queens of Quality."

P. TEMPLE,
438 Gladstone Ave., Toronto, Ont.
Canadian Bred Italian Stock.

THE DEROY TAYLOR CO.,
Newark, N.Y.
Northern Bred Italian Bees and Queens.

M. C. BERRY & CO.,
Successors to Brown & Berry,
Hayneville, Ala.
Best bred Italian Queens and Bees.

THE PENN COMPANY,
Penn, Miss.
Bees and Queens.

F. W. JONES,
Bedford, Que.
Bees by the pound, also best Italian Queens.

H. C. CLEMONS,
Boyd, Ky.
Three band Italians bred for business.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., Toronto, Ont.
Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

A. E. CRANDALL & SON,
Berlin, Conn.
"Quality" Italian Queens.

JOHN A. McKINNON,
St. Eugene, Ont.
Best northern bred stock.

WM. ATCHLEY,
of Mathis, Texas.
Wants to sell you your early bees by the pound. Queens in season.

STOVER APIARIES
Mayhew, Miss.
Not a single complaint.

J W K. SHAW & CO.,
Loreauville, La.
Everyone knows their strain of three-band Italians.

Ontario Horticulturists Meet

(Continued from page 279.)

point," Mr. Macoun said that that state was not to be compared with Ontario in the summer season. The climate was so dry that only the best drought resisting flowering plants would grow, and since these are usually covered with dust they lacked the green setting which so entrances the beauty of the flowers of our northern landscape. The growing of grass for lawns was almost an impossibility. In the winter, however, the increased precipitation made gardening much easier.

Geo. Baldwin, who had charge of vacant lot gardening in Toronto during the past summer, outlined the nature of the work which, he said, was instituted to provide an opportunity to those in need for acquiring material supplies by their own efforts, in cultivating tracts of vacant city land. Besides this, it tended to improve the health of city workers, created in them a love of nature, and instructed them in the work of practical gardening.

One of the most able addresses was that of Thos. Adams, of the Conservation Commission, Ottawa, who dealt with town planning from the horticultural standpoint. With the assistance of lantern slides, he showed the striking difference that exists between some of the Old Country cities, such as Edinburgh and some of our Canadian cities, such as Toronto. In the former the sky line was formed by church spires and monuments of historic interest, while in the latter the unattractive sky scraper and the hideous water tank all too frequently dominate the city. The lack of attention shown by Canadians to beautifying their cities by planting trees, shrubs and flowers was also freely commented upon. Our whole city life, said Mr. Adams, seems to be entirely divorced from nature, and we have yet to learn that the gardener should be the partner of the architect.

A resolution was passed asking the Government to have 14,000 copies of the annual report of the association printed, and requesting that a copy be sent to each member of the horticultural societies of Ontario. A committee was appointed to look into the matter of running excursions to the Experimental Farm, Ottawa, and to Rochester, N.Y. R. B. Whyte, of Ottawa, was appointed a delegate to the Canadian Town Planning League. Rev. A. H. Scott, Perth; Mrs. Cadwell, Windsor, and J. Lockie Wilson were appointed representatives to the American Civic Association, and W. B. Burgoyne, St. Catharines, representative to the Canadian National Exhibition. It was decided that in future the retiring president be the only honorary director.

The following officers were elected: President, Rev. G. W. Tebbs, Hamilton; First Vice-President, Dr. F. E. Bennett, St. Thomas; Second Vice-President, Prof. Crow. O.A.C., Guelph; Treasurer, C. A. Hesson, St. Catharines; Secretary and Editor, J. Lockie Wilson, Toronto; Honorary Director. J. H. Bennett, Barrie; Directors, Rev. A. H. Scott, Perth; H. J. Clarke, Belleville; R. Whorley, Haileybury; T. D. Dockray, Toronto; James Ogilvie, Hamilton; Wm. Harvey, Seaforth; R. W. Bothwell, Stratford, and W. E. Dignac, Sandwich.

Apple Box Competition

In October, the students at the Oka Agricultural Institute had an occasion to show their ability as fruit packers, when Rev. Father Leopold's annual special course in apple box packing ended by a competition. Valuable prizes had been generously offered, which contributed to make the competition very keen. The first one was ten dollars, presented by the Minister of Agriculture for the Province of Quebec, the Hon. C. E. Caron. Many other prizes were offered by some of the prominent members of the Pomological and Fruit Growing Society of the Province, and friends of the Institution.

The Dominion Fruit Commissioner, Mr. Dan. Johnson, acted as judge, with the assistance of Mr. Philippe Roy, B.S.A., from the College, whose competency was recognized by the students.

Mr. Johnson gave a severe test to the competitors by opening the boxes by the side instead of the cover. It was therefore a strictly commercial test. After three hours hard work, the judges came to the following decisions:

1. Xavier Rodrigue	96
2. Romeo Cossette	90
3. Alphonse Lafrance	89
4. Arthur Tremblay	88.5
5. Bernard Baribeau	88

There were nineteen competitors in all.

The points allotted were 100 as a maximum, divided as follows:

Fruit:	Size	10
	Color	20
	Uniformity	20
	Quality	15
Pack:	Appearance	5
	Bulge	10
	Solidity	10
	Alignment	10
		100

After the awarding of prizes, Mr. Johnson congratulated the competitors and their professor for their excellent work, and said that it was the best competition in apple boxing that he had ever seen. The boxes were so well and uniformly put up, it had required much labor to establish the difference between the first, second, third, and fourth prizes.

Fruit Commissioner Johnson also made another statement which made the boys feel

Notice to Beekeepers.

Customers will please note that our special Winter discounts and terms on all lines of Beekeepers' Supplies commence November first. Beekeepers would do well to take advantage of these offers, not only on account of the saving, but the satisfaction of having their appliances ready for the bee season when it opens. Now is also the best time to order goods that have to be made especially. We are anticipating a busy season and desire to give our beekeeping friends the best possible service.

THE HAM & NOTT CO., Ltd.
Mfgs. Beekeepers' Supplies
Brantford, Ontario.

FOR PROFIT
Plant our Top Noteh Fruit, Shade and Ornamental Trees this fall. Evergreens, Shrubs, Roses, Vines, Bushes. Ask for Priee List (no agents) at Central Nurseries.
A. G. HULL & SONS,
St. Catharines - Ontario.

The Lightest "Friend" King

LIGHT WEIGHT
LARGE CAPACITY

FRIEND POWER SPRAYER

Rough or Soft ground, or Steep Hillsides are easily covered by this lightest "King" of which W. H. Grinell, Albion, N.Y., writes: "After five years of spraying my 20-aere Apple orchard it is to-day the best outfit in the neighborhood."
The two types of Friend Sprayers, "King" and "Queen" (under slung), received the majority of all Sprayer awards at the Panama-Pacific Exposition because of these features:
NEAT mounting—LIGHT weight—EASY drawing—SHORT turning—LARGE eapacity—DIRECT PROPELLOR agitator—combined UNIT of motor and pump—QUICK aceessible, ADJUSTABLE and DETACHABLE parts—UNIQUE pressure regulator—COMPLETE — HIGH-GRADE — GUARANTEED throughout.
"Friend" has a hand or power sprayer for every man who sprays Fruit or Crops in hill or level country.
Write to-day for our eatalogue of Friend Sprayers, illustrated with photographs sent in by Friend owners, with eaeh statement backed by men who know. Then put your individual problem up to our experts. We ean furnish the sprayer that is most economieal for you to use. Splendid opportunities open for agents.

FRIEND MFG. COMPANY
24 East Ave., GASPORT, N.Y.
Largest Exclusive Sprayer Works.
Every part of every sprayer built in our own factory.

NOW IS THE TIME TO ORDER YOUR NURSERY STOCK

We have a large quantity of fine stock to offer for spring planting. Write at once for our FREE Catalogue of fruit and ornamental trees, small fruits, shrubs, roses, etc. Address,

J. H. McCOMB'S UNION NURSERIES
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HONEY WANTED—Comb and Extracted.
All kinds of bee supplies, journals and books.
Early discounts. Catalogue free.

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BEEWARE

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The REVIEW for 1916 ..... Oct., Nov. and Dec., 1915, free.	$1.00
Ameriean Bee Journal for 1916	1.00
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One REVIEW HONEY QUEEN	1.00
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ALL FOUR FOR ONLY $3.00.

For description of REVIEW QUEEN see another column. Add for Canadian Postage—Gleanings, 30e.; A. B. J., 10c.; Review Free.

Address, with remittance,

The BEEKEEPERS' REVIEW, Northstar, Michigan.

A New Bee Book Entitled BEEKEEPING

By Dr. E. F. Phillips, of the United States Department of Agriculture. 435 pages of interesting reading, with numerous illustrations, by an established authority.

Regular price $2.00 (postage extra)
(Mailing weight 2 lbs.)

By special arrangement we can offer this book, postpaid, with a year's subscription to American Bee Journal, both for $2.50.
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AMERICAN BEE JOURNAL, Hamilton, Illinois

QUEENS OF QUALITY

The Editor of the BEEKEEPERS' REVIEW and his sons have 1,100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same eare and attention, they have an opportunity unexeelled to ascertain, without a reasonable doubt, colonies desirable as breeders from a honey producer's standpoint. Likely, never in the history of beekeeping, was there a better opportunity to test out the honey getting strain of bees than this. Think of it, 1,100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor (with us) season, while the average of the entire 1,100 being not more than 40 pounds per colony. We have sent two of our very best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben. G. Davis, both of Spring Hill, Tenn., and they will breed queens for the Review during the season of 1916, from those four superior honey gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three banded strain of Italian, also that of John M. Davis, while Ben. G. Davis breeds that disease resisting strain of goldens, that is becoming so popular.

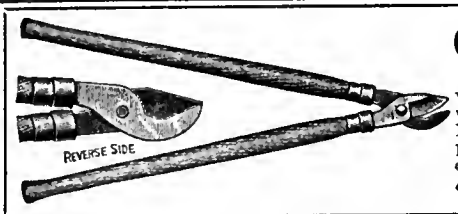
By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of Review queens and how you can secure one or more of those superior honey gathering queens as a breeder. We will tell you: They will be sold to none exeept Review subscribers. If you are a paid-in-advanee subscriber to the Review for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subseriber to the Review for 1916, send $1.75 for a year's subscription to the Review and one of those famous young queens. Those queens are well worth two dollars each, eompared to the price usually eharged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of The Beekeeper (Canadian postage free), a subscriber of the Review, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment.

Address, with remittance,

THE BEEKEEPERS' REVIEW, Northstar, Michigan

GRASSELLI SPRAY MATERIALS ARE AS GOOD AS CAN BE MADE.

GRASSELLI CHEMICAL CO., Limited
Hamilton, Toronto, Montreal



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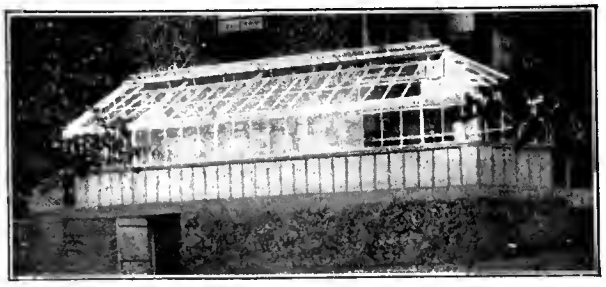
To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09 1-2 guaranteed pruner at $1.25 per pair, via parcel post, prepaid; cash with order, or ask your dealer for same.

CRONK & CARRIER MFG. CO., ELMIRA, N.Y.

Green-House Flowers
The Prize Winners



THERE is only one sure way to raise prize winning flowers. That is under glass where you can control atmospheric conditions. Out in the open you are at the mercy of the seasons, heavy rains, winds and cold snaps. Flowers that you are nursing along carefully may be killed off any night, and you are helpless.

We are erecting some of the biggest and finest greenhouses in Canada, as well as small but highly efficient houses that represent a very limited outlay. We will be glad to figure on your requirements. You will find the cost moderate, and the workmanship thorough.

Write NOW for Booklet "B".

GLASS GARDEN BUILDERS, LIMITED

201 Church Street, TORONTO

Room 1013, Transportation Bldg., St. James St., MONTREAL

proud of their College. He said that the best apples at the World's Fair at San Francisco were the Canadian Fameuse apples, and that the best Fameuse had been supplied by the Oka Agricultural Institute. Mr. Johnson encouraged the students to continue their work in order to stimulate the development of the fruit industry in this country.

Annapolis Valley

Eunice Buchanan, Berwick, N.S.

A few miles of barren bog separates the apple centre of Berwick from the cranberry districts of Aylesford and Auburn, where the crop, with the exception of about a carload, has been shipped chiefly to Montreal and then to other points in upper Canada and the prairies. This year's yield of cranberries has been about six thousand barrels; the fruit is of excellent quality, having been free from pests and diseases, and consequently is keeping well.

This year the Auburn growers are receiving $4.50 to $4.75 per barrel; by the carload the price is around $5.00. If it had not been for careless packing in the past, the grower should now be receiving one dollar more a barrel; dealers give more for Cape Cod cranberries because of the reliable pack and a standard barrel. Cape Cod barrels hold 95 quarts, whereas many of our barrels hold only 80 to 85 quarts.

A slight frost in August injured some of the cranberries, but where the bogs were well sanded they were not hurt until the frost of September 25, but most of the crop was gathered by that date.

One to two cents a quart is paid for picking the berries by hand, but the progressive growers use scoops, which reduces the time and frost risk, also the cost of picking to about 40c per barrel. The fruit is put into bushel crates made of lath, with solid ends, where, when placed in the cellar, they keep much better than in barrels.

The varieties of cranberries grown in Nova Scotia are determined by their shape, namely, cherry, olive, bugle and bell. A well kept bog will yield from 50 to 75 barrels per acre, but a neglected bog will not grow more than 10 to 20 barrels.

There are vast tracts of bog yielding nothing more profitable than blueberries, but it costs from $75 to $100 per acre to cut off the top growth or turf, then from $40 to $60 more to spread a layer of sand over it, and finally a few more dollars, the least part of the expense, to plant the vines.

The apple crop in the Auburn district is about 50 per cent. of a full crop; much of the fruit is deformed and spotted. The market for apples is reported from $2.00 to $2.50 and more; this information comes from a buyer, but there seems to be little real knowledge with regard to prices. Private shippers are satisfied with their returns, even if the freights are high. Wages in England have never been so high as at present, and for this reason fruit should be in good demand.

The weather has been mild and much plowing has been done; also it is becoming the fashion to plant apple trees in the fall, a few hundred having been planted in this vicinity.

The present year has not been a favorable one for vegetable growers in Ontario. Speaking at the recent Lambton County Horticultural Exhibition, the provincial vegetable specialist, Mr. Johnson, of Toronto, said that the continued wet weather from July 1 to the end of August caused considerable losses in many part of the province. Also there had been more insects which damage vegetables than had been known in the past twenty-five years.

Niagara District Notes

F. G. H. Pattison, Winona

THE past month in this district has been characterized by fine mild weather. Up to the night of the 16th no frost had occurred in the western portion to do any real damage. On the nights of the 16th, 17th and 18th sharp frosts took place, but since then the weather has remained mild. On the 19th heavy rain fell, which proved a great boon to both fruit growers and farmers, enabling them to get their fall plowing properly done. Previous to that many had ceased plowing, owing to the hardness of the land, especially where it had been tramped on by horses during the summer.

East of St. Catharines, and in the neighborhood of old Niagara, fruit and vegetable growers have not had a very favorable year. Peaches and blackberries were a good crop, but their chief market, Toronto, was glutted most of the season, and prices were very low. Strawberries were rather a short crop. Apples and pears were very light; potatoes a failure. Except along the lake shore and along a portion of the Niagara River, most of the grapes were frozen in May, and yielded little or nothing.

The accommodation at the old Niagara wharf was insufficient. Many times fruit shippers had to wait hours and hours to get their stuff on board the boat. This was partly owing to the large amount of freight coming in for the soldiers, but the arrangements made by the steamboat company for handling this freight and the fruit seem to have been utterly lacking in system. Instead of having one place to drive in and unload fruit, and another place to take away freight, they had the whole thing mixed up. This caused much delay and waste of time for the fruit growers.

Fruit shipping is now done for the season, few apples even being left, except in cellars, where some still remain to be packed. On the whole, the apple crop west of St. Catharines in the Niagara and surrounding district has been about as good as anywhere in Ontario this season. Lately there has been a keen demand for apples, especially Spies, at very remunerative prices. Even No. 3's have sold well.

Around Winona and Grimsby fruit growers have not done so badly. Peaches did fairly well, also plums. Currants, apples and grapes were a great help, all selling for good prices. The fruit growers in this section have reaped considerable benefit from the action of Sir George Foster, who secured large orders for the jam factories at both Winona and Hamilton. In consequence of this, they were enabled to purchase large quantities of black currants, plums, peaches and apples at prices fairly remunerative to the growers. The Winona jam factory alone purchased in the neighborhood of forty-five thousand baskets of plums.

The grape season was well prolonged, owing to the absence of frost, and the growers had a good chance to get the crop off without being frozen. Prices were good, but the crop was not heavy, and a large percentage of red grapes were never picked, owing to mildew.

Keiffer pears were a fair crop and sold well, as they generally do when the apple crop is light.

The executive of the Niagara Peninsula Fruit Growers' Association met recently in St. Catharines to finish up the season's business. The chief item of business was winding up the accounts of the advertising committee. As all the collections were not yet completed, the executive adjourned to meet once more.

It is generally felt that the advertising campaign conducted this season has been

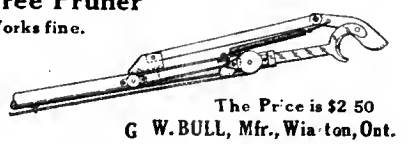
Practical Vegetable Grower Wanted

The owner of land, with railway flag station on the premises and water pressure by gravity, wants a practical man who will supply overhead irrigating piping and plant, also operate the land on shares. Send references when replying.

Box 5, Canadian Horticulturist.

The Georgian Bay Tree Pruner

Works fine.



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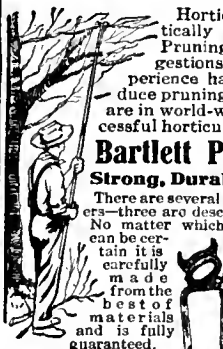
G W. BULL, Mfr., Wiarton, Ont.

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

Practical Tools For Profitable Pruning



Horticulturists have practically designed Bartlett Pruning Tools. Their suggestions and their own experience have combined to produce pruning tools of quality that are in world-wide use among successful horticulturists.

Bartlett Pruning Tools

Strong, Durable, Easy Cutting

There are several styles of Bartlett Pruners—three are described briefly herewith. No matter which one you buy you can be certain it is carefully made from the best of materials and is fully guaranteed.

Two-Hand Pruner—(No. 777) cuts clean and easy—does not wound the bark—right-handed—26-inch ash handles. $2 00 prepaid.

Pruning Saw—(No. 18) light weight—blade quickly turned to cut at any angle. $1.75 prepaid.

Jointed Tree Trimmer—(No. 4) compound lever head—handle in 4-foot sections—can be made any length desired up to 16 feet—simple, convenient, strong, durable. 8-foot (2 sections) $3 00; 12-foot (3 sections) $3.25; 16-foot (4 sections) $3.50, prepaid For long pole deduct 50c on each length

Most dealers carry a complete line of Bartlett Pruning Tools. If yours does not, send direct to us. We'll see you are supplied promptly. Send for catalogue and free booklet on "How and When to Prune." BARTLETT MFG. COMPANY,
15 Lafayette Ave. East, Detroit, Mich.

1866 1916

The Standard for Fifty Years

Our 1916 Catalogue of Flower and Vegetable Seeds will be ready for distribution early in the New Year.

It is free for the asking, and we want every reader of The Canadian Horticulturist to have one.

It is a complete catalogue of the best and most prolific varieties of garden seeds, and will be a guide to you in the selection of your supplies next spring.

We want every reader of this journal to help us make this—our FIFTIETH YEAR—the biggest year in our history.

Drop us a Post Card to-day for your copy.

GEO. KEITH & SONS

Seed Merchants since 1866

124 King Street East Toronto, Ont.

HIGHEST TYPE SPRAYING MACHINE IN THE WORLD

Pretty big claim that, but fully justified by the facts. At the Canadian Government Spraying Contest, Grimsby, Ont., the SPRAMOTOR took first prize with ease from eleven competitors. That puts SPRAMOTORS in the lead among all makes.

The outfit illustrated here is our latest model C. Gasoline Power Machine—used throughout the country by the principal fruit growers, and one which has demonstrated its superiority to all other spraying outfits. We make SPRAMOTORS in many styles and sizes, for the largest farm and for the smallest, at prices from $6 up to $400—every one the best outfit for the money. We are

Sole makers of the

Spramotor

It isn't a SPRAMOTOR unless we made it

and have been making nothing else for the past twenty years. Over 20 patents covering features you can get in no other machine but the SPRAMOTOR. We have won over 100 Gold Medals and First Awards in all parts of the world. The next best machine isn't good enough for you.

FREE write us, giving some idea of your spraying needs and we will send you free, a copy of our valuable treatise on Crop Diseases, also full details of a SPRAMOTOR that will best fill your requirements.

MADE IN CANADA. NO DUTY TO PAY.

SPRAMOTOR WORKS - - - 2700 King Street, London Can.

We pay highest Prices For RAW FURS And Remit Promptly

FREE

More Trappers and Fur Collectors send their Raw Furs to us than to any other five houses in Canada. Because they know we pay highest prices, pay mail and express charges, charge no commissions, and treat our shippers right. Result, we are the largest in our line in Canada. Ship to us today and deal with a Reliable House. No Shipment too small or too large to receive our prompt attention.

Guns We sell Guns, Rifles, Traps, Animal Bait, Shoepacks, Flashlights, Headlights, Fishing Nets, Fishing Tackle and Sportsmen's Supplies at lowest prices. CATALOG FREE.

Hallam's Three Books "Trapper's Guide" English or French 96 pages, illustrated tells how and where to trap and other valuable information for trappers; also "Trapper's and Sportsmen's Supply Catalog" "Raw Fur Price List," and latest "Fur Style Book" of beautiful fur sets and fur garments. All these books fully illustrated and sent FREE ON REQUEST.

John Hallam Limited 348 Hallam Building TORONTO

Spray Your Crops

KANT-KLOG SPRAYER
9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. *Send for catalog.* Agents wanted.
Rochester Spray Pump Co.
195 Broadway Rochester, N. Y.

Small Fruits
Josselyn Gooseberries
Perfection Currants
Herbert Raspberries
Price list on application
WM. FLEMING
496 4th Ave. W.
Owen Sound, Ontario

THE COMMISSION MAN

Under-noted are Canadian and British firms wishing consignments of fruit and vegetables. Correspondence is solicited

NICHOLSON & DEMPSTER

88 Colborne St., Toronto, Ont.

Receivers and shippers of local and carloads lots Potatoes, Apples, and Mixed Vegetables.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 248.

H. J. ASH

44-46 Church St.
TORONTO - - ONTARIO

Consignments of fruit and vegetables solicited. We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

Dawson, Elliott Co.

32 West Market St.,
TORONTO.
Telephone Main 1471.

Consignments of Apples and Vegetables solicited. Highest prices obtained.

Bankers:
London County and Westminster Bank, Southwark Branch.

Established 1880.

John Robinson

FRUIT IMPORTER AND SALESMAN,
3 Rochester St., Borough Market,
LONDON, ENG.

Telegraphic address: "Redsoil, London."
A.B.C. Codes.

I shall be pleased to have your consignments of Apples. Regular market reports sent on request.
Correspondence is invited.

Rogers Fruit Co. Limited

WINNIPEG, MAN.

Largest fruit and vegetable dealers in the West. Write or wire your offerings.

The Oldest Commission House in Toronto

McWILLIAMS & EVERIST

Send your Consignments.

GLADIOLUS

Nothing will please your flower loving friend better than a Christmas box of Gladiolus. Next August the flowers will be a pleasant reminder. 10 bulbs, in four choice named varieties in four colors, 30, 50 or 100 cents postpaid. 100 America 1½ in., 80c, charges collect. The crop has been disappointing in America and Holland. Prices are tending higher. Order now. Circular.

H. P. VAN WAGNER,
R. R. No. 5, Hamilton, Ont.

GILSON Johnny-on-the-Spot

A husky trouble chaser. Will pump water, churn, separate cream, run grindstone and do other chores. Lengthen your days by lightening your labors. Write for catalogue. Sizes up to 15 H.P.

$47.50

1 1-2 H. P. Gasoline Engine, Skidder truck. Sizes up to 15 H.P.

Gilson Mfg. Company,
5 York St
Guelph, Canada.

HERE AT LAST

"FRIEND" unique Power Sprayer Pressure Regulator. Positive action on any desired pressure; quick change of 50 lbs. by movement of handy lever. Quick bypass. Works on any power sprayer. Satisfaction guaranteed. Write for circular. We make exchanges.

"Friend" Mfg. Co.
Gasport, N.Y.

WE ARE PROTECTED BY THE PRODUCE REPORTER CO. SYSTEM. ALL CONTRACTS GOVERNED BY THE TRADING RULES AND GRADES. CREDIT BOOK CHICAGO

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

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.

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

quite successful, and the association intend to carry on a similar campaign next season, only on a larger and more ambitious scale. The annual meeting will be held next month at St. Catharines.

The chief subjects of discussion amongst the fruit men of this district during the winter are likely to be: "Advertising Our Fruit," "Better Packages in Shipping Fruit," and "A Larger and Better Co-operation of the District in Marketing Our Fruit."

Early on the morning of Nov. 7 occurred the death in Chicago of Mr. M. F. Rittenhouse, the well-known millionaire lumberman, who was born at Vineland, and who has been so generous, both to his native land and to the Province of Ontario. Mr. Rittenhouse spent thousands of dollars on improvements in the neighborhood of Vineland. He erected at his own expense that splendid public building, Victoria Hall, where educational lectures and entertainments are given, and added a beautiful park, together with a band-stand. He purchased and presented to the Ontario Government the land on which the Vineland Experimental Station has been established. He bore half the cost of the Rittenhouse school, famous for its beautiful gardens, added a library and stocked it with two thousand volumes. He also built a splendid, up-to-date road, at great expense, extending from Queenston and Grimsby stone road to the lake, a distance of over three miles. For ten years past Mr. Rittenhouse has contributed in many ways to the welfare of that part of the district, and his death will be much regretted by all who knew of his good work.

Mr. Rittenhouse set a fine example to other wealthy men in the admirable way in which he spent his money for the benefit of his native place and province. His funeral took place on Nov. 10 to Vineland Cemetery. There was a large attendance from all parts of the country. The following, amongst many others, were present: Municipal Council of Lincoln, Township Councils of Louth and Clinton, Dr. Mills, P. W. Hodgetts, Dr. C. C. James, of Ottawa, and Dr. Creelman, of O.A.C., Guelph.

The children of the Rittenhouse school sang "Nearer My God to Thee," and the flowers sent from friends and others were very numerous and beautiful.

The scarcity of potatoes is somewhat serious here as well as in most other parts of Ontario. Locally, at Winona, potatoes of fair quality have been freely obtainable at $1.25 per bag. Now, however, they are soaring again, and have reached $1.75 in Toronto. Two dollars a bag is spoken of as likely by the end of February.

Twenty thousand gallons of peaches and also a quantity of pears have been put up at the Vineland Experimental Station private cannery, and will be sent to Great Britain and France for use in the Canadian hospitals. This fruit is a donation from the Ontario Government.

Robt. Buchart was recently fined $10 and costs in Hamilton, being convicted on a charge brought against him by F. L. Gabel, Dominion Fruit Inspector, of having packed apples for export in violation of the Inspection and Sales Act of Canada.

After a remarkable season's business the Toronto fruit market at the foot of Yonge Street closed in the second week of November. A very large business was done there during the summer, but the prices of most kinds of fruit, and of many kinds of vegetables were so low as to constitute a record for the past few years.

Prof. Bottomley's discoveries and experiments with bacterial peat, or "Humogen," have roused great interest in England, and an influential committee has been formed to conduct experiments on a large scale.

RENNIES SEEDS

PUREST-CLEANEST
MOST RELIABLE
FOR SALE AT BEST DEALERS.
WRITE FOR CATALOGUE
TORONTO ~ MONTREAL
WINNIPEG ~ VANCOUVER.

RAW FURS

WOOL AND HIDES

At all times, whether peace or war, you will do best by shipping your raw furs to the fastest growing and most reliable fur house in Canada. We have a large demand for all kinds of raw furs, and are paying highest market prices. It will pay you to ship to us.

We pay all express charges, give honest assortment, and make remittances same day shipments are received.

Price list and tags sent on request by personal letter.

Write to-day and be convinced.

BRITISH RAW FUR COMPANY

28½ West Market Street, Toronto.

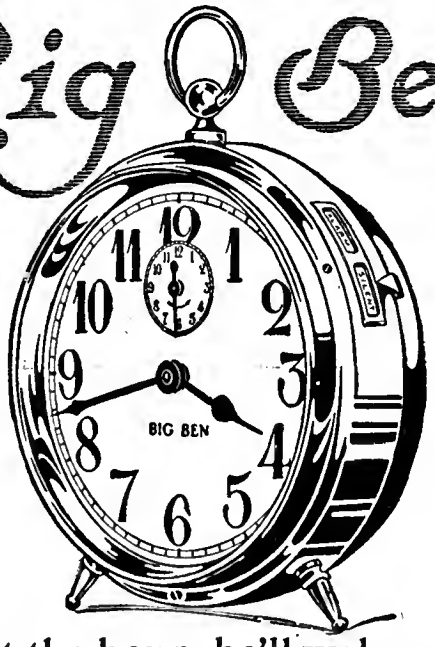
SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

Big Ben



You set the hour--he'll wake you up

If it's *two-thirty* to get the milk to town, he calls you right on the dot. If it's *five o'clock* when work is light, Big Ben lets you get the extra sleep.

Dodge him around—*two* today—*five* tomorrow—give him a thorough try-out. Any hour *you* say suits Big Ben. Just arrange it with him at bed time.

It's his business to get you up on time and he does it loyally—punctually—cheerfully. He stands seven inches tall; has great, strong keys that make him easy to wind; a big, deep-toned gong that makes him pleasing to hear—a round, jolly face that makes him easy to read.

If your dealer hasn't him, a money order addressed to his makers, Westclox, La Salle, Illinois, will bring him to you postpaid. $2.50 in the States—in Canada, $3.00

Wholesale Retail

Northern Grown Fruit Trees for Northern Planters

Look for a view of a section of our Nurseries in this issue.

Specialties—Crimson Beauty, North Star, Wealthy and Stark Apples; Black Champion Currant.

ALBERT NURSERIES. **Albert, New Brunswick**

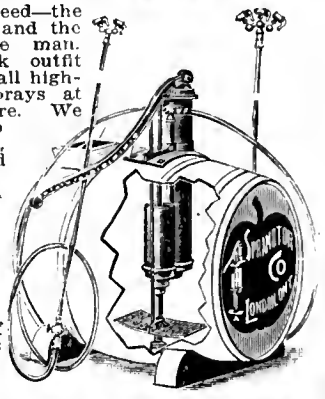
Price Need Not Stand in the Way!

Don't let the question of price prevent you from owning a SPRAMOTOR and getting better crops. We make a SPRAMOTOR as low as $6, and from that all the way up to $400.00. Our $6 outfit is as good value in proportion as the $400 machine. There's a

Spramotor

It isn't a SPRAMOTOR unless we made it.

for every need—the small farmer and the thousand-acre man. The knapsack outfit at the left is all high-grade and sprays at high pressure. We guarantee it to spray paint, whitewash and chemicals. The SPRAMOTOR is all brass, with dashing agitator around screen, automatic plunger, brass ball valves and patent hand valve. In galvanized or brass 5-gal. tank.



Barrel outfit consists of all-brass No. 2 SPRAMOTOR, with two 10-feet lines of hose, couplings attached, patent hand valves, two bamboo extension rods with brass cupped ends and patent drip guards, two double-nozzle clusters, complete, mounted on 50-gal. cask. Can be used for all kinds of work.

FREE Write us giving some idea of your spraying needs. In return we will mail you without charge a copy of our valuable illustrated treatise on Crop Diseases, also details of a SPRAMOTOR best suited to your requirements.

MADE IN CANADA. NO DUTY TO PAY.

SPRAMOTOR WORKS, 2701 King Street, LONDON, Canada

NORTHERN GROWN NURSERY STOCK FOR SALE

Our nurseries are situated on the tableland of the Ottawa Valley. We are the originators and direct propagators of the famous McIntosh Red apple tree. We do all of our grafting on Crab Roots, which assures a strong, hardy root system. All of our Scions are taken from our thoroughbred McIntosh Red Orchard. Every tree in this orchard was grafted from the original tree that gives the fruit the same beautiful color and delicious flavor as the original. In continually grafting from one tree to the other the parent stock has some influence, and in time a good part of both color and flavor is lost. We also grow some other hardy varieties of Apple, Pear, Plum, Cherry, Small Fruits, Flowering Shrubs, Shade and Ornamental Trees.

Send want list for prices to

McINTOSH NURSERY CO., DUNDELA, ONTARIO

Already experiments have shown that one ton of "Humogen" applied to the soil produced 41 per cent. more potatoes, 26 per cent. more turnips, 43 per cent. more beets, 46 per cent. more onions, and 28 per cent. more carrots than eighty tons of barnyard manure from the same soil.

English Apple Crop

Mr. J. Forsyth Smith, Fruit Trade Commissioner Manchester

The English apple crop was a good average one, in spite of the off year, but a large proportion of inferior fruit is in evidence, and the quantity of high class apples is limited. While the supply of cooking varieties is good, scarcely any first-class dessert apples are available, except the Worcester Pearmain, Cox's Orange, and the Bienheim Orange. These varieties have been on sale in all markets, the first being especially popular on account of its bright red color.

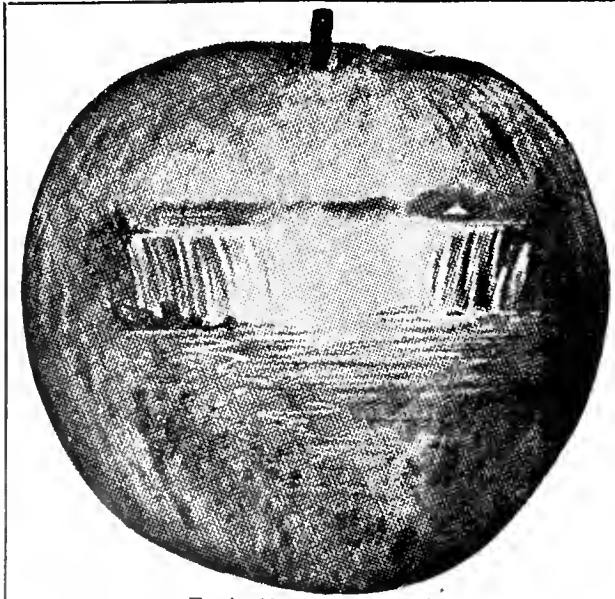
The English apple crop has only a small effect upon the price that may be obtained for Canadian apples. During the summer months, its comparatively poor quality, and the fact that it is placed upon the market with little attention to grading and packing, make the English apple a serious competitor of Canadian No. 3's only. This effect disappears towards the second week in November, when the bulk of the crop has gone into consumption.

The Harvest Tells

what fields need Plant-food the most. Ask us to help you build up your soil. A 52-page book, "Bumper Crops," is full of valuable pointers on fertilizing.

FREE if you mention this paper.

Gunns Shur-Crop Fertilizers



Trade Mark—Registered.

Does Spraying Pay?

Ask the Farmer who sprayed this year and got three to four dollars for his fruit. He knows better than the Farmer who did not spray and sold his fruit to the evaporator. Let us solve your spraying problem. We are the oldest manufacturers of sprays in Canada. Lime-Sulphur. Soluble Sulphur. Arsenate of Lead. Hand Pumps. Power Pumps and all accessories. Quality that gives results and profits. *Write to-day.*

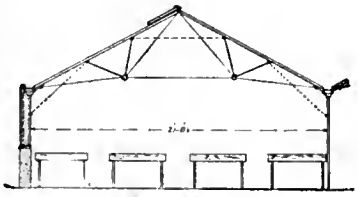
Niagara Brand Spray Co., Limited

Burlington - Ontario

An Unfortunate Episode

Those Canadians who have appreciated the sympathetic feelings of most of the people of the United States to the Allies in the war might have obtained some light on why the people of the United States have not done more than they have had they attended a banquet held in Cleveland in connection with the big Cleveland flower show in November. Among the Canadian exhibitors were the Dale Estate, of Brampton, and John H. Dunlop, of Toronto, both of whom were quite successful. During the banquet some complimentary remarks were made about Canada, and while the toasts were being proposed, as there were a number of Canadians present, "Tipperary" was sung and joined in heartily by the great majority of those sitting at the festive board.

It happened that there was a considerable German element present. The singing of "Tipperary" was too much for them to stand, and led by one prominent German florist, they stood up at the same time and sang "The Watch on the Rhine." Not satisfied with what they had done, the leader clenched his fists and shouted, "Take that, will yer!" This was too much for the loyal representatives of Canada present, who got up immediately and retired to the rotunda of the hotel. Later, when the toast to "Our Canadian Visitors" was being given there was no one there to respond. The incident was much regretted by the majority of those present.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

FREE LAND
For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO

HON. JAS. S. DUFF,
Minister of Agriculture
Parliament Bldgs., Toronto

Big Drop in Prices of FURS AND FUR GARMENTS

No matter where you live or what you or your family want in Furs, or Fur garments, you can buy cheaper and better by dealing direct with us.

It will pay you to send for our Fur Style Book, 1915-16 edition, SENT FREE on request which contains 34 Pages of Illustrations of beautiful furs, and will tell you how you can buy cheaper and better from us under our system of

FROM TRAPPER TO WEARER

When you realize that we are the largest cash buyers of Raw Furs in Canada, purchasing direct from the trapper, you will appreciate the unrivalled opportunity we have to select the finest skins, manufacture them into desirable Fur sets and Fur garments, then by selling direct by mail save you the middlemen's profits.

You will be astonished to see the beautiful Furs you can purchase from us for a little money, every one a gem in its class

This season furs are lower in price than ever before, owing largely to most of the European markets being closed on account of the war, but the stock of Raw Furs in America now is so low, that prices are stiffening up, and it looks to us as if they will advance steadily from now on. You should buy your furs this season *without fail*. Remember our Fur Style Book prices mean goods *delivered to you, as*

WE PAY ALL DELIVERY CHARGES.

Every article is sold under OUR POSITIVE GUARANTEE to "SATISFY YOU OR REFUND YOUR MONEY".

The furs illustrated here are taken from our Fur Style Book, and give you but a faint idea of the numerous bargains offered to you, which are shown in our Fur Style Book. Should the furs shown here meet with your approval, send us their price, and we will ship at once, delivery charges paid by us, and guaranteed to be satisfactory.

No. 112 Muskrat Coat $34.50

No. 113 Muff to Match $5.50

Black Wolf Set $12.75

No. 224 Stole $6.25

No. 225 Muff $6.50

MUSKRAT COAT

112.—This MUSKRAT COAT is 40 inches long, made from evenly matched Muskrat skins in this popular style. This coat is very special value, well made in every way. Lined throughout with good quality brown satin. Deep shawl collar and cuffs, fastens with large crochet buttons and silk loops. Sizes 33 to 42 bust ..... Price $34.50

Same coat 43 inches long ..... Price $37.00

113.—MUSKRAT MUFF to match above coat, in large pillow shape, silk lined, down bed and wrist cord..... Price $5.00

BLACK WOLF SET

This is a beautiful set made from long haired—good quality - whole skins. The stole is cut extra deep and wide over shoulder and back—giving good protection against cold—is trimmed with head and tail over shoulders and tails at each end—lined with good quality satin and warmly interlined.

The muff is made in the large classy pillow style, trimmed with head, tail and paw and mounted on good down bed giving great warmth and comfort—lined with good satin—with wrist cord.

No. 224. Stole $6.25 No 225, Muff . $6.50

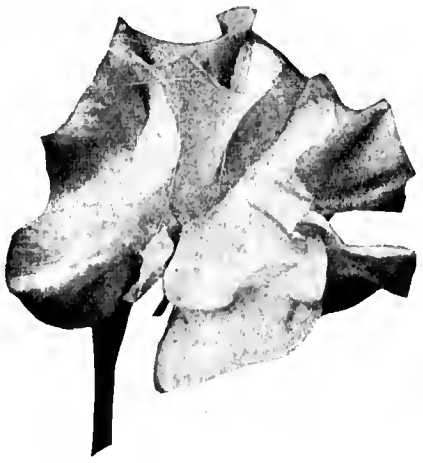
Do not wait but send to-day to

John Hallam Limited

WE ARE THE LARGEST CASH BUYERS OF RAW FURS IN CANADA.

Room 280, Hallam Bldg., TORONTO, CANADA

DUPUY & FERGUSON'S CATALOGUE OF HIGH GRADE SEEDS FOR 1916



will be ready for distribution about the first of January; the handsomest, most practical and complete seed catalogue published in this country. It tells the plain truth about

D. & F.'s High Grade Seeds that Grow

The descriptions are accurate, absolutely correct and free from exaggeration and extravagant claims.

Write a post card for a FREE COPY today.

60 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, Sept., 1915, to Mr. F. S. Watson, on products grown from D. & F.'s seeds.

DUPUY & FERGUSON
38 Jacques Cartier Sq.
MONTREAL

Classified Advertisements

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruits farms a specialty. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Pearl Card Co., Clintonville, Conn.

FLOWER POTS

We have a Large Stock of all sized

FLOWER POTS

FERN OR BULB PANS

3/4 AZALEA POTS

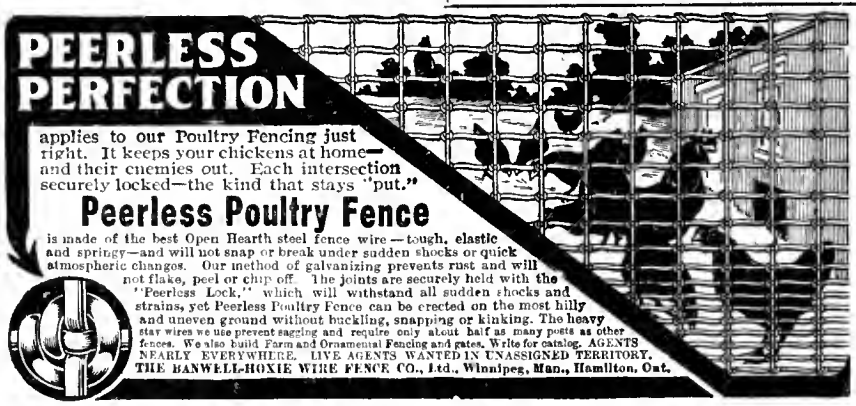
and

RIMLESS PANS

Orders Filled Promptly. Send for Prices.

The Foster Pottery Co., Ltd.

HAMILTON, ONT.



Success Depends on Water Supply

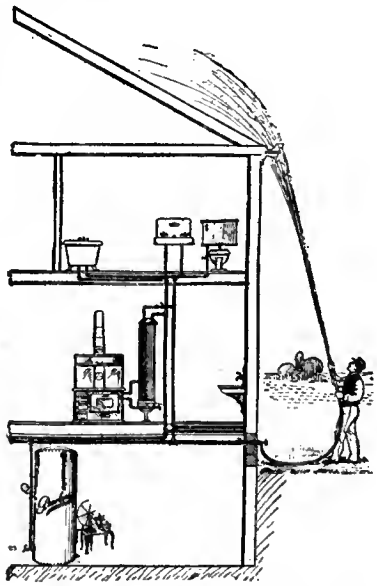
WHEN it is simply a matter of turning on a tap, your flowers get all the water they need, and thrive accordingly. So that it really pays you to stop carrying water from place to place, and install a water system, which can be done at very little expense, and gives you all the water you need, when and wherever you need it.

Peerless Water Systems

The water from your source of supply is pumped under air pressure into the reservoir tank in the cellar or outhouse, or buried underground. The force pump is operated by hand, gasoline or electricity as suits your convenience.

No open tanks to allow water contamination. Water on tap in your bathroom, hot or cold, on tap in your gardens, on tap in your greenhouses—all costing astonishingly little to install and practically nothing to operate.

Write us for full particulars and any special information you may desire regarding your individual requirements.



National Equipment Company, Limited

9 Wabash Avenue, Toronto

(Sole Manufacturers of Peerless Water Systems).

The Sarnia Exhibition

A county fruit, vegetable, flower and honey exhibition was held in Sarnia, Ont., on October 27, 28, 29. It was the only exhibition of its nature held in Ontario this fall. In spite of adverse financial conditions and a small fruit crop, the growers of Lambton county assembled an exhibit which was a credit, not alone to Lambton county, but to the province.

The chief commercial exhibit of apples was put up by the Thedford Fruit Growers' Association. It consisted of five hundred boxes. It is doubtful if ever a finer display of apples was exhibited in Ontario. The Thedford Fruit Growers' Association own and operate a central packing house, and are establishing an excellent reputation for quality fruit. This association is now making arrangements for an association pruning and grafting gang, which will insure greater uniformity from the orchards of the various members.

Honey and Vegetable Displays.

Two vegetable displays, each consisting of one hundred packages, were put up by the Lambton Growers' Co-operative Association and the Independent Vegetable Growers' Association of Sarnia. These two organizations have worked wonders in developing the vegetable growing industry of Lambton county. Five years ago the township of Sarnia did not produce enough vegetables to supply its own needs. This year over five hundred carloads of produce were handled by these two associations.

The beekeepers of Lambton were also represented by a large display of honey, occupying the whole of one end of the building. It consisted of a huge pile of honey, put up in cans, while arranged on each side was a large display of honey in glasses.

An Educational Exhibit.

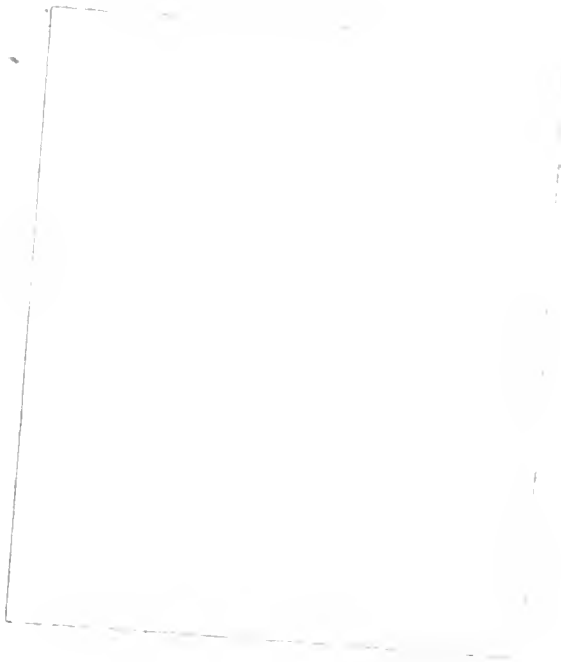
An educational exhibit, which proved a centre of interest, was arranged by the Lambton County Branch of the Ontario Department of Agriculture, in charge of G. G. Bramhill. A feature of this exhibit was the warnings against San Jose Scale. This serious insect pest is making rapid strides in Lambton County, and energetic efforts must be applied by Lambton County Fruit Growers if their orchards are to be saved. The exhibit showed a display of apples from an orchard in Euphemia township, which three years ago was threatened with destruction by San Jose scale. The Department of Agriculture took over this orchard as a demonstration. To-day the orchard is alive and healthy, and two hundred and forty boxes of apples, worth $1.25 per box, were picked from forty trees. Other specially interesting features of the exhibit were a collection of fungus diseases and insect pests injurious to farmers; up-to-date pruning tools, poultry appliances and exhibits demonstrating proper methods of pruning.

SEED NOTES.

Seed potatoes are going to be very scarce. Ontario stock is practically nothing. New Brunswick stock is advancing in price every day, as there is only a fair supply. This is all on account of the rot.

Onion sets are not well matured either in Canada or the United States, and will be difficult to carry over.

Clover seed, owing to prevailing conditions, rains, etc., will be high in price next season.

Beans have been a very short crop.

I am much pleased with The Canadian Horticulturist and find it very instructive. —C. N. Holdsworth, Barrie, Ont.