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The Canadian Horticulturist and Beekeeper

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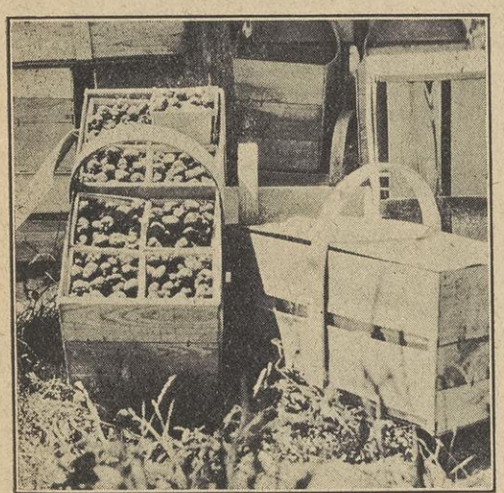
Strawberry Crates for Ontario

Edwin Smith, in charge of Fruit Cold Storage and Transportation Investigations, Dominion Cold Storage Division, Grimsby, Ont.

THE satisfactory strawberry package is one which is attractive in itself and in the display of the fruit, one that will carry the fruit with the least possible injury, one that is



The Ontario 24 qt. crate which needs to be replaced by a more suitable package.

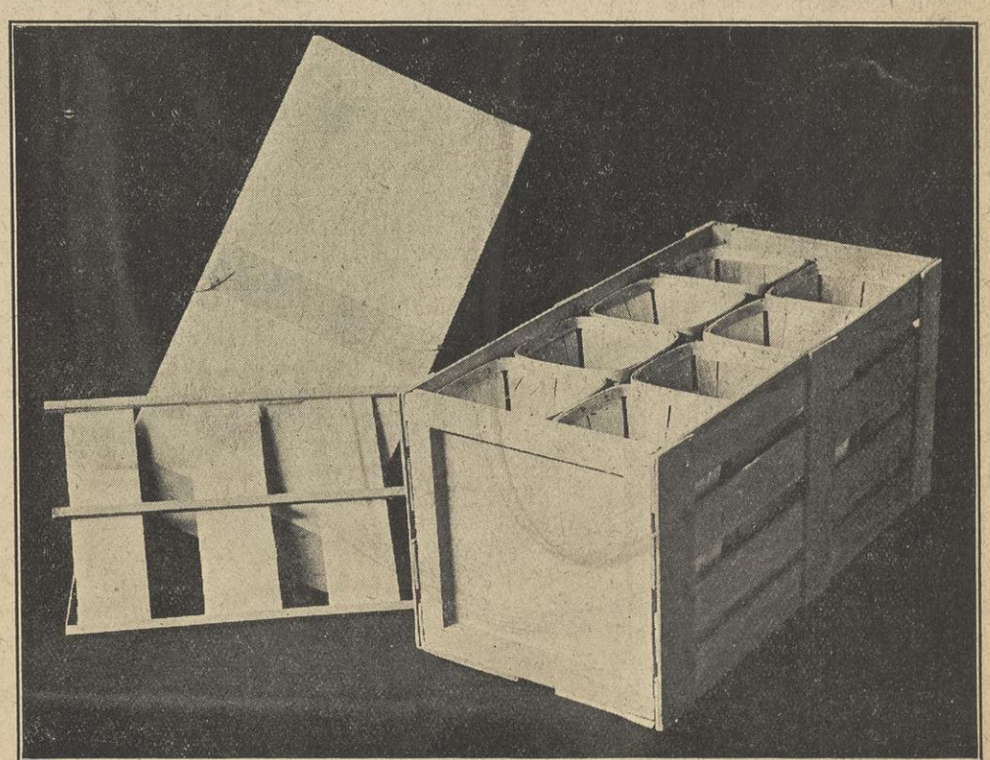
well ventilated and one that will sell so as to make greatest net returns to the growers. The 24-quart crate now used in many parts of Ontario fulfils none of these requirements.

The 24-quart Ontario crate is more or less fragile, often becoming broken in transit, and has an appearance that is not in keeping with the fruit which it is designed to carry. Of all the packages used to carry fruit, few, if any, can compare with this package in its rough, unattractive makeup. Aside from its ugly appearance, the package has a shakiness that gives the impression that it is ready to fall to pieces, and often it does so before reaching the consumer. It is an easy package to pilfer in less than carload shipments, and one which loads badly on account of its handles when shipped in car lots.

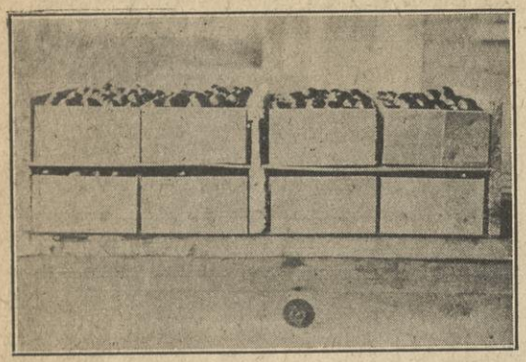
The greatest fault which is to be found with the package is its construction with regard to the safe carriage of the fruit. The dividers or separators are made so thin that the weight of the top tier of boxes falls on the berries beneath instead of on the edges of the underneath boxes, rendering the use of separators of very little benefit. Thus it is impossible to pack the boxes of the crate full without injury to the fruit during shipment. For this reason many growers have come to grief at the hands of the fruit inspector, for it is his business to see that all packages are properly filled. This places the strawberry grower in an awkward position, for if he fills his boxes full the berries are certain to be crushed, bringing claims from the consignee. On the other hand, if the grower fills the boxes so that they will not crush, they will not be full enough to conform with the requirements of the Fruit Marks Act and the fruit inspector will "haul him over the coals" for violation of the federal law.

In testing out the Ontario crate in our pre-cooling experiments during the past season, some very careful packing was done in the Ontario 24-quart crate by the Vineland Horticultural Experiment Station. Care was taken to fill the boxes as nearly even full as was justifiable for shipment without injury, and it was thoroughly believed that the packing was done in accordance with the Sales and Inspection Act. After hauling to the Pre-cooling Plant the crates were examined and all boxes were not more than two-thirds full Had the poor grower done the packing, he would have been accused of dishonesty—yet no other results could have followed with the use of this package.

In making net returns the Dominion Department's shipping tests have shown that the Ontario crate falls down



The American 24 qt. (dry measure) strawberry crate. This shows the crate, cups and the dividers (separators) which are placed between the layers. One divider is also placed on top before the cover is nailed on. The three strips running lengthwise rest on the edges of the boxes and protect the berries from mashing. Probably more berries are shipped in this type of berry box than in any other or perhaps all others.



Cross section of the Western 24 pint Hallock crate. The separators rest on the sides of the crate instead of on the fruit.

badly in western markets when compared with other packages. In eastern markets a crate which will arrive in an attractive condition with boxes even full of sound berries will sell for a higher figure than a crate that has the appearance of having been pulled out of the scrap heap and whose fruit is crushed or is not filling the boxes.

Some growers who have previously used the 24-quart package have given it up, and this season a great many in the Niagara District are going to supplant it with a better article. In replacing the package the grower should look to the demands of his markets. The Ontario strawberry grower has markets demanding two distinct types of packages—the western and the eastern markets.

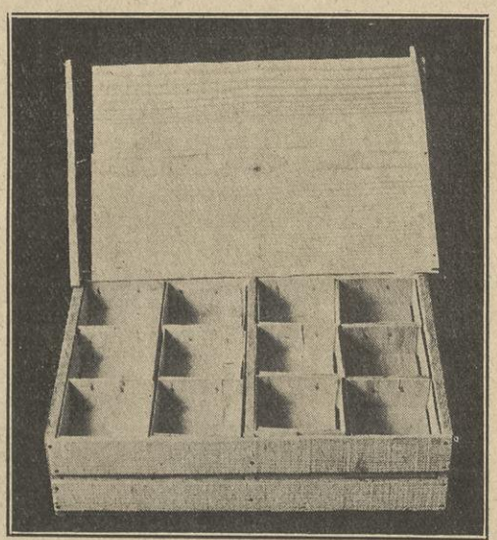
Western Markets.

The largest part of the strawberries used in the prairie provinces are shipped from Hood River, Oregon, and Spokane, Washington, in the 24-Full Pint Hallock Crate. This package is well adapted to long-distance shipments and admirably suits western marketing conditions. In tests made during the past season by the Department, the Pint Hallock crate proved superior to the 4-5-quart Hallock crate—especially since it always ships full where the deeper boxes shake down and appear slack, and netted greater returns. The 24 Pint Hallock crate from Hood River sells for from three dollars to four dollars wholesale in Winnipeg, and in the Department's test the pint crate averaged ten cents more than did the Ontario crate, although it required but about half the amount of berries for filling.

There is a large opening for Ontario strawberries in western markets, as Hood River and British Columbia berries have a slightly earlier season and are scarce in prairie markets when Ontarios are at their height. However, there is little use working for this trade unless the berries **are packed so as to readily compete with those from Hood River,** and to do this the 24-Pint Hallock crate must be used.

The 24-Pint Hallock crate is well shown in the illustration. Each box has its bottom raised so as to protect the top of the lower boxes when dividers are not used. In some cases dividers or separators are used, in which case they rest on shoulders or rabbits in the sides of the crate instead of on the underneath fruit. The cost of this crate ranges from fifteen to twenty-one cents.

It is general practice in western strawberry districts to pack the berries, taking them to a field packing shed for this operation. Berries of only one degree of ripeness are included, and the tops are faced off. This manner of packing is imperative since packing in the field by the pickers is certain to result in ripe berries getting in the boxes, which spells disaster to the whole package when shipped long distances.



Western United States Standard deep pint Hallock crate and boxes.

The Department's investigations in eastern markets would not warrant the use of the Hallock crate. Neither is it probable that the pint box will ever be used for Ontario berries in eastern markets. The deeper boxes carry satisfactorily for these shipments, and the consumer prefers the boxes they have been accustomed to—as a rule they look askance at the raised bottoms of the Hallock boxes and call them "false bottoms."

The 24-quart crate, after the American type, would be most satisfactory for these shipments. The 32-quart crate used in New Brunswick, or the 27-quart crate used somewhat in the Burlington district would also be recommended, **providing the separators have strips thick enough to prevent the weight of the upper boxes from mashing the berries underneath when the lower boxes are properly filled.** (Note the thickness of the strips on the separators of the American crate.) What is to be desired for eastern markets in the place of the present 24-quart Ontario crate is one that is strong, well ventilated, not easily pilfered, convenient for handling and one in which the boxes can be filled without mashing. Growers should decide upon having a better package at once and insist upon securing such a package by ordering early enough in the winter or spring so that the factories can meet their specifications—otherwise, the manufacturers will make no change in their package, and when the rush of the berry season is on all that will be found in stock will be the old, flimsy 24-quart crate, with the same veneer separators that are practically worthless as a protection to the berries in the bottom tiers.

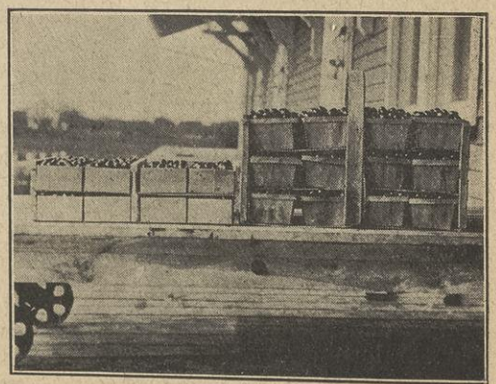
Tomato Blight

D. H. Jones, O.A.C., Guelph, Ont.

It would appear from experiments and observations, conducted at Guelph and elsewhere, that the disease of tomatoes called "Tomato Blight" is not of a parasitic nature, either insect, fungous or bacterial. It resembles in many respects the Brown Rot of Solanaceae, particularly in the browning of the vascular bundes. So far as we can determine, it appears as a physiological trouble in the plant tissue, induced by some factor in the soil, possibly an injurious chemical reaction, which enters the plant system through the roots. It occurs in tomato plants grown under cover, and is liable to cause heavy losses. It has been found only to a very limited extent in the field.

Steaming the diseased soil has, in a limited number of experiments, proved beneficial. Whether treatment of the soil with chemicals will prove equally effective we cannot say from our own experience, as we have not tried it.

Thin your fruit from the first year of bearing, and you are more likely to have annual crops.



Cross sections of the Ontario 24 quart crate and the Western 24 pint Hallock crate. The pint crate sold for ten cents more than the quart crate in the Winnipeg market.

Orchard Fertilizers

A. W. Cook, Guelph, Ont.

FERTILIZERS must be understood —their nature, their contents, their time of application, and what results they will produce. These being understood by the grower, he can use them without fear as to the ultimate results, and each year will see him using them in larger quantities, thus making his manure go farther, which will not only enable him to produce more, but to produce at a reduction in cost. Fertilizers in the commercial sense are destined to play an increasing part in our fruit growing business, and the sooner we get acquainted, the sooner shall we be enabled to make our investment in the fruit growing industry pay us maximum returns at a minimum expense.

To use our various brands of manufactured and mineral fertilizers, economically and with profit, it is essential that the fruit grower be conversant with the nature of fertilizers, whether they are conductive to tree growth, or whether they shall be to produce fruit, or to aid the tree in assimiliating plant foods in larger quantities. He must know his soil, and what it is deficient in. He must understand the availability of the plant foods in the fertilizer, because to a large extent, it is only the available plant foods which are of actual value to the purchaser of fertilizers. Without an understanding of these principles, many will risk the possibility of wasting time and money, and experiencing a sad failure in the uses of commercial fertilizers.

Commercial fertilizers may be purchased in many forms. They may be had in special brands for special crops, or they can be purchased separately, each plant food by itself. We have advocates, who strongly uphold the use of fertilizers in both the prepared and the mineral, which are mixed by the user. As a general rule a saving from four to ten dollars can be saved by using fertilizers such as nitrate soda and acid phosphate, and mixing one's own fertilizers during the winter months. This can be best done by the use of a cement mixer. It can be mixed both by hand or power, and gives most satisfactory results in most instances. By using fertilizers in this way, the fruit grower is able to apply just what his land requires. He can supply greater quantities of nitrogen or phosphorus—and until the outbreak of the war—potash, by home mixing. It is not necessary to purchase so many special brands for special crops. The strongest advocates for "home mixing" are often those men who have used the factory prepared fertilizers, and in an experimental way tried the home mixing. The result is that they are still users of home-mixed fertilizers.

We are only concerned in four plant foods, because of early depletion from continuous cropping. These are generally known as nitrogen, potash, phosphorus, and calcium or lime. They are to be had in nitrate soda, sulphate ammonia, muriate and sulphate potash, acid phosphate and bone meal. Lime comes in the form of quick lime, carbonate of lime, and marl.

Nitrogen forces the growth and produces thriftiness; without its presence in our soils, our orchards would make but little growth. Large sized leaves of a dark green color indicate its presence in quantity.

Phosphorus aids the tree in assimilating other plant foods. It also assists in transporting the various foods to each section of the tree. Without its presence we have a poorly developed tree.

Potash produces fruit; hence the necessity of an abundant supply.

Calcium hardens and makes our trees sturdy, enabling them to bear the crops of fruit. It is of great importance to-day, because it breaks down the crude potash in our soils making it available for the trees. It is also essential for correcting acidity in sour soils.

A Lesson Learnt.

The use of commercial fertilizers without the addition of humus in some form has taught us that it is not conducive to the upkeep of our soil. Humus in such forms as barnyard manure and green cover crops helps us to obtain the most satisfactory results, because they give our soils a greater capacity for retaining water, which is so essential to all plant growth. They supply the necessary organic matter which goes to keep our soils in a porous condition so that we may obtain a good circulation of air within our soils. Without its addition in the practice of applying commercial fertilizers, our soils will soon cease to be profitable because of the depleted organic matter.

Systematic cultivation must invariably accompany the use of manures and fertilizers, but it must also be remembered that one cannot take the place of the other. Cultivation is essential, because it helps to make our fertilizers more available, by the thorough incorporating of them within the soil, hence making the plant's food within easy reach of its multitude of roots. It also assists the climatic conditions in breaking down some of the insoluble foods by bringing them in contact with the action of the sun, rain and winds.

Application of Fertilizers.

The time and manner of application requires more serious thought than has generally been given to these essential

A profitable crop of strawberries grown last season by Mr. S. B. Chute, Berwick, N.S. Mr. Chute is a firm believer in the benefits derived from the use of commercial fertilizers.

A FAITHFUL READER.

I have been a subscriber to The Canadian Horticulturist for 39 years and am much pleased with the magazine, as I find it very instructive.—R. McLagan, Stratford, Ont.

A display of vegetables, crated and open pack, made at the recent Lambton County Horticultural Exhibition, held in Sarnia, Ont.

points. In our apple orchards we have a considerable length of time after planting has taken place before the trees begin to make demands upon the soil, and because of this the tree, as a general rule, manages to make sufficient growth upon soils of general fertility without the addition of manure. The peach and such quick growing trees require fertilizing from the time of planting. However, an over-supply of nitrogen in the case of peaches is apt to prolong growth, with the result, that in some sections of Ontario there is twig freezing, because of the immature condition of the tree. In applying fertilizers or manure to young trees, it must be remembered to plough them under. If not, the growth of the roots is towards the surface, where their food is, and during times of drought they suffer because of an insufficient supply of moisture. Also when ploughing takes place a great many are severed because of their closeness to the surface of the soil.

Continuous cropping from year to year, exacting from the soil plant foods in the same quantity, places a handicap against the fruit grower. The farmer by a rotation of his crops can build up his soil, but the fruit trees' demand for certain foods is continuous, hence the necessity of an annual amount of manure and fertilizers to produce fruit.

With a slow maturing fruit, such as the apple, some of our fertilizers which become available slowly can be used. These are in the form of tankages, bone meal, etc., but with such fruits as the peach, we must invariably supply quick acting fertilizers, because they come into maturity earlier in the season. It has been determined by various experimenters that trees which have been properly fertilized, have been able to produce larger quantities of fruit in adverse seasons than the unfertilized ones. This is because the trees have been enabled, by the liberal use of plant foods, to make them stronger and less susceptible to adverse conditions which make other trees unprofitable in such seasons. Because of the usages of manures and fertilizers we find that such trees bear profitable crops for a greater length of time. All stone fruits require greater quantities of lime than our seeded fruits.

Experiment First.

It is well to experiment in one's own orchard to determine the nature and amount of fertilizers and manures which can be used most profitably. If one desires to use cover crops to supply the nitrogen and organic matter, he can best supply this in the clovers, and generally the use of mineral fertilizers will prove most satisfactory in such an experiment, because one can supply them in any given amounts as he deems it necessary. He can also have a better idea of each individual plant food, and see more clearly the results from the same. Plots can be laid off in a section where the soil is most uniform, also where the trees are as near alike as possible, both as to variety and size. On these plots one can use both manures and fertilizers together, also try each plant food by itself, or in conjunction with others. In the application of nitrate of soda, it should be applied in three applications, because it is immediately available. In supplying potash, wood ashes will have to supply the necessary potash, but be sure and apply only those which have not been bleached. Definite results cannot be determined in two years. An experiment of this nature helps one to get a broader view of fertilizers and their uses, and besides one learns at a small expense; neither does one run the risk of losing money by their careless use.

We hear a great deal about the scarcity of potash, and if the situation was as alarming as some would have us believe, we certainly would have cause to worry. A year has passed without its use to a large extent, and many of us have as large crops as ever. In the most of our soils we generally have from one to two per cent. of potash, this being equivalent to twenty thousand pounds per acre to a plough depth. However, as it is in a crude form, we must resort to other agents to break it down so that it may become available. This is done by the application of lime, along with barnyard manures, or cover crops. The lime hastens the decay of cover crops, which form aids to break up the crude potash. In applying lime to sandy lands, it should not be applied at more than one thousand two hundred pounds per acre in about every four years. Thoroughly air-slacked lime, or the ground lime stone rock are the safest forms to use, as they do not hasten the decay of our organic matter, as other forms of lime do. Lime should be applied during the fall or early winter, so as to obtain best results.

Fertilizers Have Paid

L. D. Robinson, Berwick, N.S.

Probably no farmer in Canada has used so much commercial fertilizer as S. B. Chute. He has demonstrated the fact that these chemical manures can take the place of stable manure in ordinary farm operations. His magnificent orchards have been built up almost wholly by their use. Only during the past few years has he been able to use any considerable quantity of stable manure. His main dependence has been, and still is, commercial fertilizers. He has tried them all—bone-meal, acid phosphate, basic slag, muriate and sulphate potash, nitrate of soda, sulphate of ammonia, fish scrap, and others. He believes in using liberal quantities of these manures. For the present he has almost discontinued the use of potash, in the belief that his soil is not in need of that element.

Nitrogen is supplied by using nitrate of soda at the rate of 100—200 lbs. yearly per acre, about the time when the buds are bursting. Phosphoric acid is supplied either in the form of acid phosphate at the rate of 300—500 lbs. per acre; bone at the rate of 350—400 lbs. per acre; or slag at the rate of 500—1,000 lbs. per acre.

Insect Pests in the Amateur's Greenhouse

John Gall, Inglewood, Ont.

THE combatting of insect pests is always a serious problem to the owner of a greenhouse. Green and black aphids are generally the first insects to make their appearance. They make great headway unless checked when they first appear. A small quantity of tobacco stems laid on the benches or, better still, on the hot water pipes, will keep them in check. Replace the stems with fresh ones about every two weeks.

Nicotine is a splendid insecticide for syringing or spraying almost everything in the greenhouse without injuring the plants. If diluted to about the color of tea, a teaspoonful to a gallon of water will be strong enough.

The red spider often becomes a pest during winter months, if the house should become very dry during the night owing to hard firing. It can be killed with nicotine, or, in the case of foliage plants becoming infested, by constant spraying with cold water, especially on the under side of the leaves.

White and black thrips also can be got rid of by spraying with nicotine. When these pests appear on plants in bloom, the nicotine can be sprayed on the hot pipes after the house has been closed for the night, and the results will be surprising.

The well known mealy bug must be watched for and when noticed must be picked off by hand. Spraying mixtures strong enough to kill it will also destroy plants. Constant watching and killing on their first appearance is the best remedy.

One of the hardest pests to contend with is the white fly. Its presence can be detected by making an examination of the underside of the leaves of the plant. In the adult stage, the insects will fly around the plant when disturbed, usually returning to the same plant. In the egg and nymph stage they are attached to the under side of the leaf, and can scarcely be recognized with the naked eye. This insect has sucking mouth parts and cannot easily be controlled by the use of spray poisons. There is but one sure remedy, when once these pests make their appearance in the greenhouse. Prepare to "present arms" to them immediately and keep prepared for their return.

Hydro-cyanic acid gas is the only kind of fumigation that will clear them out, but on account of its dangerous character on human, as well as insect, life, people are rather timid about using it. If ordinary care is taken, there is not the slightest danger. In using it, the first thing to be done is to measure the cubic feet of the house carefully. See that all ventilators are closed, and all doors locked, except the one through which you will make your exit. Heating pipes should be set for the night. The temperature of the house should not exceed sixty degrees Fahr. The foliage should be as dry as possible, as the presence of moisture increases the liability of injury to the foliage. Use a stone or glass vessel, and place it in the aisle in the centre of the house.

The following directions will serve for the use of cyanic acid gas in a small house, about fifteen feet long, eight feet wide, and about seven feet high at the ridge. Put into your vessel a pint of water, then pour in a quarter of a pint of sulphuric acid. Next, place one ounce of cyanide of potassium in a piece of tissue paper, and, when all is ready, drop into the acid. Get out as quickly as possible and lock the door. Allow the gas to remain for about fifteen minutes, then open the door and allow it to remain open for about half an hour before any attempt is made to enter the house. By that time all danger will be over. Do not let the acid spatter on the hands, either in handling it, or when placing the cyanide in the vessel, and above all things do not make any attempt to pass the vessel after you have placed the cyanide in it.

Watch the new house plants, obtained at Christmas time. Remember they are from a greenhouse, in which the air is moist, so water frequently and thoroughly. A good way is to set the pot in a tub or pan and sprinkle the leaves. If it is a flowering plant, be careful not to get water on the flowers.

Fore St. Avenue, St. Thomas, Ont., is lined by the residences of railroad men. The St. Thomas Horticultural Society has planted beds at the corners of the streets similar to the one on the left hand side here shown, which was 4 x 20 feet. The other beds were planted by the residents.

The Rose and Perennial garden of Mr. W. H. Heard, The Maples, St. Thomas, Ont. Note the planting arrangement.

Care and Culture of House Plants

HOW refreshing it is to enter a home and find plants growing in all their beauty. Then we really appreciate them. Palms are one of the leading and most useful house plants, as their bold yet graceful foliage makes them stand out prominently as a decoration whether in the hall or sitting room. There are several varieties of palms. The Kentias are used mostly here. Kentia Belmoreana and Kentia Forsteriana are among the hardiest varieties and give the best results. Do not neglect them for a time and let them dry out, for then they will receive a check, although they may not show the effects of it for some time afterwards.

Palms should be repotted at least once a year, using good fibrous loam, three parts, and one part sand. If it is a large plant, add a dust of bonemeal which is very beneficial. Palms need to be firmly potted. Do not over water at the roots. For a good sized plant in good growing condition and not pot bound, watering once a week will be sufficient unless the house is kept exceedingly hot. Sponge the leaves as often as possible as they derive considerable nourishment through the leaves, and this practice will also keep down insect pests. If this is done regularly, palms will grow and thrive for several years.

Araucarias (Norfolk Island Pine) make a beautiful house plant. They will grow in almost any part of the house, as a small plant can be used on the table, and larger species look well on pedestals, or in any convenient corner of the room. Water once or twice a week according to the condition of the roots. If the pots are full of roots they will take water nearly every day. No insects seem to bother these plants, but they like the overhead spray, otherwise they get too dusty and dry. This can be done at this season of the year by standing them in a bath and using a watering can with a fine rose. In the summer the spraying can be done on the lawn. Re-pot them the same as the palm. Do not forget to give a clean pot with good drainage.

Aspidistras Greenleaved and Aspidistra Lurida variegata, striped with white, are the easiest of all house plants to grow. In them you have a plant that will do fine in the hall and will always attract attention. They like a good supply of water with leaves sponged often. When re-potting, use a good stiff loam. They can easily be parted when they get too large.

Ferns.

Ferns you will find in nearly every home. The varieties are numerous, though only a few of the hardiest varieties are grown here. I suppose the old Bostoniensis,. commonly called Sword Fern, are just as popular as ever. Every one can grow a Sword Fern, as they are strong growers and will adapt themselves to almost any position in the home. There are several varieties of the Nephrolepis family. The finer varieties are not quite as hardy as the plain sword, but still they can be successfully grown. The varieties which have proved satisfactory here are Nephrolepis Elegantissima, Nephrolepis Whitmani, Nephrolepis Scotti, Nephrolepis Amerpholi.

Many people seem to have trouble with their ferns at this season of the year. It is a little hard to understand the causes sometimes. Generally it is because they have received a check at some time. In the Nephrolepis family, the chief trouble is turning brown in the centre. This is often caused by their either being allowed to get too dry at the roots or being kept too wet. You will find them sometimes standing in a jardiniere half filled with water. This will soon decay the roots and turn the soil sour. Care and judgment should be used in the watering of ferns. Never let them become either dust dry nor too wet. An occasional spray overhead will give them strength. This, I consider, is really necessary, as with so much dry heat the fronds get far too dusty and dry. Greenhouse treatment is different, as several varieties can be grown in greenhouses without overhead spraying, but this is because they have a moist atmosphere all the time. Fancy fern dishes are used extensively. Asparagus Plumosus, Small Nephrolepis, Pteris, green and variegated, and Holly ferns are good for this purpose. It is much better to plant them in a separate liner made of pottery, not tin, as the tin liner excludes all air from the roots, especially when a crust is allowed to form on top of the soil.

Asparagus Sprengeri makes a good trailing fern suitable for hanging baskets in the window. They like a good supply of water.

Remember To

Repot small geraniums.

Plan the garden now.

Sow pansy seed in the greenhouse for early plants.

Go over the canna, dahlia and gladioli bulbs to see whether they are keeping.

Plan to plant some of the herbs, such as dill, anise, and caraway, this spring.

Hotbed sash and soil should be made ready soon. In most regions hotbeds may be started next month.

Plant a few hardy gaillardia. No plant is more showy or can be used to better advantage for its cut flowers.

A few of the bulbs may be brought from the cellar, and forced slowly for flowers.

A potted plant must have air about the roots and good drainage, as it would in the garden.

A Method of Recording Color Variations

F. W. L. Sladen, Dominion Apiarist, Ottawa, Ont.

THE abdomen of the worker honey-bee is protected on the upper or dorsal side by six hard plates or segments telescoping into one another. Normally the apical margin of each segment covers more or less of the base of the segment that follows it. If, however, the abdomen is sufficiently stretched all the segments are fully exposed.

In certain races of bees, for instance, those inhabiting Western Europe and the typical Carniolan bee, the segments are entirely black. In other races, for instance, those found in Italy, the basal portion of the first three segments is orange. In certain races found in Southern Asia and Northeast Africa, and in the artificial American breed known as the "Golden" bee, the orange color covers the whole of the first three segments, and part of the fourth segment and also a crescent-shaped portion of the thorax known as the "scutellum." In extreme goldens a stage further is reached; the first four segments are entirely orange and the fifth is more or less so. Between these four stages every degree occurs.

Dominion Bee-Mating Station on the Kazubazua Plains, Que.

To denote the different degrees of coloring the terms "black," "leather-colored Italian," "three-banded Italians," "four-banded," "five-banded" and "golden" have been used, but these terms are employed somewhat loosely and the writer is not aware that they have ever been scientifically defined. In 1901 (British Bee Journal, 1909, "Breeding the British Golden Bee in Ripple Court Apiary") he used the term "black" for bees that had the segments entirely or almost entirely black, "intermediate" for those in which the basal portion of the first, second and third segments were orange, and "golden" for those in which these segments were entirely orange, dividing the intermediates into dark intermediates and light intermediates, and the goldens into dark goldens and goldens.

But, for the bee-breeding, work upon which is now under way at the Central Experimental Farm, Ottawa, these distinctions are inadequate, and the proposal is now made to divide the degrees of color into eleven stages, the expressions one-tenth (or .1) yellow, two-tenths (.2) yellow, and so on up to nine-tenths (.9) yellow, being used to denote the different stages between full black and full yellow. Each of these stages may be sub-divided into any number of "types" up to 10. Thus we may have a total of 101 types, ranging from entirely black to the most extensively yellow. There is a certain amount of irregularity in the spread of the yellow, suggesting, as was remarked in 1912 (Canadian Bee Journal, Volume XX., page 362), the presence of more than one Mendelian factor.

Definitions of the eleven stages that the writer has so far found to be most satisfactory are:—

Full Black.—Abdomen entirely black.

.1 Yellow.—Segment 2 black with two widely separated yellow spots at the base. (These spots are usually connected by a narrow yellow line at the base).

.2 Yellow.—Basal half or thereabouts of segment 2 yellow, but markedly clouded in the middle; apical half black.

.3 Yellow.—Basal half or thereabouts of segment 2 almost or quite clear yellow, apical half black. Segment 3 with a black band or large dark spot anterior to felt band.

.4 Yellow.—Segment 1 with narrow black margin. Portion of segment 3 anterior to felt band only slightly clouded in middle or almost or quite clear.

.5 Yellow.—Segment 1 with very narrow brown-black margin interrupted or almost so in the middle. Dark margin of segment 2 narrower than in previous stage.

.6 Yellow.—Segment 1 almost or quite clear yellow to the margin. Segment 2 very narrowly edged with brownish-black.

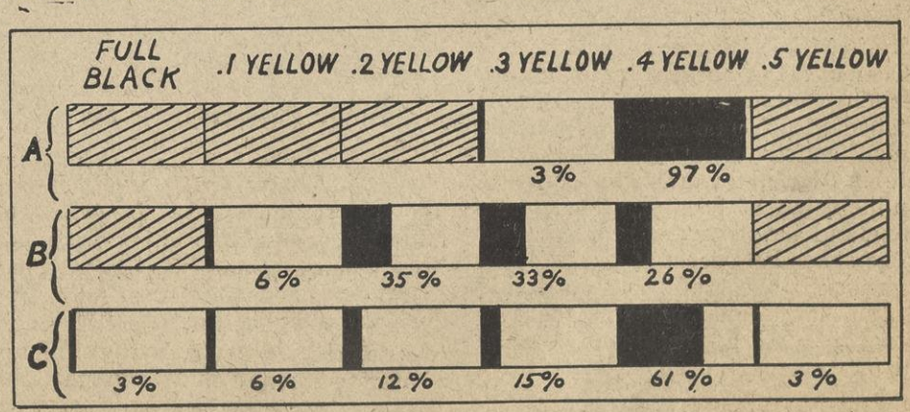
.7 Yellow.—Segment 2 almost or quite clear yellow to the margin. Segment 3 narrowly edged with brown-black.

.8 Yellow.—Segments 2 and 3 clear yellow to the margin. Segment 4 with black band wider than yellow band.

.9 Yellow.—Segments 2 and 3 clear yellow to the margin. Segment 4 yellow in middle.

Full Yellow.—Segments 2, 3 and 4 with no black.

It will probably take a year or two of study to define the different "types." However, a "type" to which I have given the designation .45 yellow, illustrated herewith, will serve as an example. In this the yellow on segment 3 extends under the felt band except at the sides.



Color Index of Colonies of Bees.

Diagram of Distribution of Color in Worker Honey-Bee .45 Yellow.

Provided thus with a designation for practically every variation in tegumental coloration, we can proceed to record the color differences of colonies.

It must be noted here that the honey-bee is unique among live-stock in its method of reproduction. The queen or female bee when only a few days old is mated by the drone or male, who dies immediately. For the rest of her life, lasting three or four years, the female eggs she lays, which have been computed by F. R. Cheshire for a prolific queen to number 1,500,000 and develop into workers or, if specially treated, into queens, are the result of this one union; but all the males she produces, it is believed, are parthenogetic, that is, they are exclusively the progeny of the queen. The point in these remarkable facts that chiefly concerns us here is, that an impregnated queen honey-bee, like a hermaphrodite animal, carries in herself the female and male reproductive elements of one pair of individuals, and she continues to produce an enormous number of individuals "true" to this pair without any possibility of taint from other individuals until her death three or four years later.

It will thus be seen how very important an analysis of the color of the workers produced in the different colonies is in bee breeding work.

To make the analysis, one hundred workers are taken (preferably recently hatched ones from a cage that has been placed a few days previously over hatching brood in order to insure the non-inclusion of bees of other parentages), and are separated into "stages."

The space between two parallel lines drawn on a sheet of paper is divided into as many equal parts as there are "stages," and a portion of the left end of each part proportionate to the percentage of workers belonging to the "stage" to which that part is devoted is blackened. This diagram is called the "color index" of the colony. The accompanying engraving gives at "A" the color index taken on April 1, 1915, of a colony produced by an impregnated queen imported from Novara, Italy, in June, 1913, and at "B" and "C" of two colonies produced by two daughters of this queen that were mated at the Dominion Bee-Mating Station at Kazubazua, Que., forty miles north of Ottawa, with local black drones in July, 1913. These analyses had to be made with adult workers, because the two cross-mated queens were killed in October, 1914, to make room for other queens.

Outdoor Wintering*

H. G. Sibbald, 111 Concord Avenue, Toronto, Ontario.

I CANNOT think of anything to relate about wintering bees except to describe the way I do it. Very many people fail to winter their bees. I know many people who bought nice equipments and started out in good shape. They got along all right for a few years, and then a hard winter came, and that was the rock upon which their ship was wrecked. After a hard winter the bee yard sometimes looks more like a grave-yard, with the hives for monuments, than anything else.

The only way in which I can make anything out of this subject is to tell you how to prepare the bees for the winter. That is the main thing in wintering bees. There is no use trying to winter half a colony of bees, or a small colony, and expecting them to come out strong the next spring. There is very little use bothering with half a colony of bees at any time. You must have a full colony in the fall if you wish to winter them successfully; if you have two half colonies, the best way is to unite them and make one good strong colony. It is better to have them all uniform, strong colonies than a lot of weak ones.

The only way to keep your bees strong and to winter them properly is to keep them with good queens. See to it that they are not queenless at any time during the season. If you do that you will have a constant flow of young bees hatching in the hive, and when the right time comes to fix them up for the winter, you will have a strong colony. It is a wise thing to have a good queen in the hive during the winter ready for the spring. Just before you get them ready for wintering, if they have not a good queen, give them one. The queen is the engine that has to supply the power for the next season.

The next point, and perhaps it is just as important, is the stores. There is no use wasting stores if you have not a good colony and a good queen. Some of the honey that our bees gather is not good honey for winter. That is not true, of course, of all honey, because good clover honey and good basswood honey and even good buckwheat honey makes good stores if the honey is well ripened, but a lot of other honey that comes in between seasons, for instance, the honey dew—a little honey dew—will kill a colony in the winter.

The stores that I use are mostly sugar stores. My method of management during the season leaves the colonies in such condition that there is very little honey below. They use the brood-nest for brood nearly all the season, and when the fall comes there is practically no honey in the bottom. I use sugar syrup to feed them, and I give them plenty. There is no use being stingy about it. When you have 20, 25 or 30 pounds in, by putting five more in, you will sometimes save the colony and keep them good and strong. Somebody has said that a colony would winter well on ten pounds, but they won't winter on ten pounds if that is all they have. If they have plenty of stores, they do not use quite as much as they would if they were short of stores, especially if the stores are well ripened and sealed over. When the bees gather tight for the winter and leave the stores at the outside uncovered, moisture gets in. If the unsealed stores are at the outside, they will absorb moisture, stores will sour and be poor stuff and the bees will soon have dysentery, and they will start to breed. They seem to realize that they are getting diseased, and they have got to have a new generation, and they will breed early in the winter. That is wrong. They should not have to do that. For every bee they raise at that time of the year, they have to keep a certain amount of heat up, and for every bee they raise, you will lose four or five. It is not very hard to figure out where your colony will go at that rate.

I like to feed my colonies up to 70 pounds without the board on top, just with the quilt on top. That is a ten frame Langstroth or ten frame Richardson Hive. After you have taken them up to 70 pounds, it won't be very long until it will decrease from evaporation. Therefore, I would not quit feeding until they have 70 pounds; I would not mind 75 pounds.

In our district we have not as much fruit as there is in the lower lake re-

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

A portion of the apiary of the Manitoba Agricultural College, Winnipeg. (Photo by R. M. Muckle.)

gions of Ontario, where the fruit belt is located. Therefore, I have to provide them with a little more feed in the spring.

Another point about wintering outside is to have your bees in a sheltered location. I have wintered bees in a windy, open location, but I very much prefer a good sheltered place. I would rather have a natural wood shelter—the south side of a bush, surrounded a little bit by a bush or hedge or something of that kind, that makes a good natural shelter against the north and west winds. If you cannot get that, a good board fence will do. I got a good idea at Mr. Chrysler's bee yard. He nails every other board on the fence and every other one just slips through the wire to hold it in the winter. In the spring he takes every other board out and that gives ventilation for the summer. A lot of ventilation through your yard in the summer will help to control swarming. If you have a well-sheltered yard, and the bees are well fed for winter, the next thing of importance is the packing.

I have had experience in wintering with a single case, but I prefer four in a case. There is more warmth in four colonies placed in a case together, and it helps to keep a nice, even, dry temperature. As a rule you will find four colonies will cluster in severe weather towards the centre, making one cluster out of four, and in that way keep the inside walls nice and warm all the time. I consider that a great advantage.

There is economy in this method, because you can make the case for four with about the same cost that you can make one single case, and that, to my mind, is quite an item. Another advantage of having four in a group is that it gives you very much more room in your yard. You can go through the yard with a wheelbarrow or anything to take the honey to the honey house, or work in your yard in any way that you might desire.

Experimental Work in Manitoba.

R. M. Muckle, Dept. of Agriculture, Winnipeg, Man.

During the cold weather of 1914-15 the bees were wintered in the basement of the Dairy Building at the Agricultural College. They were taken from their winter quarters on the evening of fifth of April. Of the fourteen hives, one was set aside for queen rearing; the young queens hatched in this hive were the progeny of a select imported queen. From this hive all the queens needed for the College Apiary were reared. It was found that queen rearing is not a difficult operation during a honey flow.

A number of colonies were used for an experiment in the control of swarming in extracted honey production, by giving sufficient hive space and proper ventilation to check the tendency. We were fairly successful in the prevention of swarming.

One colony was set aside for experiments with laying workers. Our experience during the past summer goes to show that the smoke method of introducing queens, when the hive has laying workers, is of considerable value.

Different methods of introducing queens were tried. It was found that queens were more easily introduced during a honey flow; with greater difficulty just after a honey flow, especially if the bees were inclined to rob. It was found wise not to disturb the colony until a week after the queen had been introduced.

A number of colonies were packed in straw to conserve the heat during the cold fall weather. The protected colonies were found to contain brood eggs, etc., on October 20, while colonies not protected did not contain brood on this date. From this experiment we do not hesitate to recommend the double walled hive for Manitoba.

The average yield per colony for the entire apiary for 1915 was 70 lbs. per colony, spring count. We increased the colonies from fourteen to twenty-eight. Four colonies were packed in a box with chaff for an experiment in outside wintering.

Losses from Maple Honey*

F. W. Krouse, Guelph, Ont.

We should guard against losses from hard maple honey. If you are in a district where you get much of it you should by all means see that it is out of the brood-nest before winter. If you have very much of it in the brood-nest you are almost sure to lose the colony of bees. We have a lot of hard maple in our district, and every colony that went into winter quarters with mostly hard maple honey died in the spring, not early, but later on. When I examined the hives I found this honey granulated hard in the brood-nest. When I extracted this honey I noticed that it granulated quickly. We left the extractor full of honey from Saturday night until Monday, and on Monday it was so thick that it would not run out.

Mr. F. P. Clare, Toronto: Will you kindly tell us how we are to know maple honey from clover honey?

Mr. Krouse: It is not as light as clover honey and comes in before the clover honey. It comes in early in May. If you have a lot of that honey stored in the brood-nest the best way is to work it in the brood-nest or take it out and extract it. I was foolish enough to leave quite a lot in a year ago last summer. That seemed to be about the only honey I got and there was lots of it in my big hives and I left it there.

Mr. C. Blake, Snow Road: I do not suppose there is much danger of that unless we have a short season?

Mr. Krouse: No. A year ago we had no clover honey in our district.

*Report of a discussion at the Ontario Beekeepers' Convention.

Quebec Beekeepers' Annual Convention.

THE annual convention of the Beekeepers' Association of the Province of Quebec, was held in Montreal, November 10th and 11th. There were about 500 members present under the presidency of Dr. Emery Lalonde, including Sisters from the farm of St. Joseph, of St. Hyacinthe, several ladies, the Hon. J. E. Caron, Minister of Agriculture, Dr. H. Pilon, M.P., E. A. Vaillancourt, president of the Bank of Hochelaga, and Mr. Jacques Verret, president of the Association of Apiculturists, of Quebec.

Dr. Pilon spoke on the advantages of bee culture, and said that although they had had to insist on certain measures in favor of bee keepers, people have become convinced of the importance of this branch of agriculture.

Mr. J. C. Magnan, of St. Casimir, County of Portneuf, official apiculturist, gave an address describing the functions of the school gardens and their aim. He showed the important effect they are having in raising the standard of the schools and the academies. In these schools not only do the children attend to the cultivation of the earth, but also the culture of bees. They were surprised at the increasing interest on the part of the children.

Mr. J. F. Prudhomme, of St. Philomene, County of Chateauguay, a practical beekeeper, claimed that of all the means employed for better bee culture with a view to greater production of honey, the best was a change of queens every year.

Dr. A. O. Comire, of St. Francis du Lac, the first secretary of the association, gave an interesting account of the history of the association.

The president of the Beekeepers' Association for the Province of Quebec, Mr. Jacques Verret, gave a lecture on "Apiculture in the District of Quebec," in which he showed that owing to the long duration of low temperatures the beekeepers of Quebec meet many difficulties.

Dr. Lalonde, speaking on the production of honey from a commercial point of view, advised beekeeepers to continue and even to augment their production.

Mr. J. I. Beaulme, of the Entomological Department of the Central Experimental Farm, Ottawa, gave a talk on the "Wintering of Bees in the Cellar and Outside."

Addresses were given the last day of the convention by Mr. A. L. Beaudin, of St. Chrysostome, on the "Nourishment of Bees," and by Mr. E. Barbeau, of Montreal, on "Wintering Bees Outside."

The Provincial Minister of Agriculture, Hon. J. E. Caron, advised the beekeepers that as always he was disposed to aid them to the extent of his ability. Last year he gave the association an increase in the ordinary grant of $100, and a special prize of ten dollars for the best exhibit of honey. He promised to authorize inspectors to give talks this winter in their respective districts, and announced that at the request of the directors he would have translated into French the English bee pamphlet, entitled "The Management of Out Apiaries." Free distribution of these will be made to those who desire them. He is disposed also to aid the association to promote the culture of bees and to prevent the adulteration of honey and beeswax.

A question box was conducted by Mr. McKinnon, of St. Eugene, Ont. Mr. F. W. L. Sladen, of the Central Experimental Farm, Ottawa, described how to distinguish the American Foul Brood from the European Foul Brood. Mr. E. A. Fortin, of Rougemont, gave some practical notes on bee culture.

Mr. Vaillancourt and Mr. Dionno, judges for the exhibit of honey, gave the result of the prizes awarded. These, in part, were as follows:

Class 1: White honey in honey comb, five dozen in sections—1st, F. X. D. Clermont, of Berthier, $4.

Class 2: Honey in comb, brown—1st, F. X. D. Clermont.

Class 5: Extracted white honey, 30 lbs.—1st, E. A. Fortin, Rougemont, $4; 2nd, J. O. Levac, Rigaud, $3.

Class 6: Extracted brown honey, 30 lbs.—1st, E. A. Fortin, Rougemont, $4; 2nd, F. X. D. Clermont, Berthier, $3.

It was decided that the addresses should be printed in the form of a pamphlet and distributed to the members of the association.

The election of officers showed no change in the board of directors. Dr. Emery Lalonde is president, and Oscar Comire, secretary.

Manitoba Notes.

R. M. Muckle, Dept. of Agriculture, Winnipeg, Man.

Some idea of the honey crop obtained by some of our best beekeepers in Manitoba during the past summer may be obtained from the following letter, which tells its own tale:

"St. Norbert, October 30, 1915.

"Our report is correct. One colony "has given 420 lbs. and more than ten "colonies have given 300 lbs. each.

"But I must tell you:

"1st. Our hives are 12 frame.

"2nd. We extract all the honey we "can, as we find artificial winter feed-"ing cheaper and healthier.

"Our apiarist will be glad to see any "inspector, especially if he is able to "speak French.

"Yours very truly, Father Joseph,
"Ordre des Cisterciens Reformes de
"N. D. des Prairies, St. Norbert,
"Man."

When the honey crop report of 10,500 lbs. from forty-one colonies, spring count, with an increase of twenty-five, was received, we thought it rather high, and thinking that there might be some mistake we wrote the Rev. Father Joseph and received the foregoing reply, which argues well for the large hive in Manitoba.

The annual convention of the Manitoba Beekeepers' Association takes place on February fifteenth and sixteenth at the Manitoba Agricultural College. A programme is being prepared dealing with subjects of practical interest to beekeepers in Manitoba.

An experiment of outside wintering is being conducted at the College. Four colonies are packed in chaff. Three have the covers removed and burlap placed over the top of the frames. One is left with the cover sealed tight.

Outside wintering in Manitoba is a decided success, as practised by Mr. Isaac Spillett, who lives at Dauphin, one hundred miles north of Winnipeg. Mr. Spillett has consented to give a paper at the annual convention on his method of outside wintering by packing the colonies in dry sawdust.

A number of books on beekeeping have been purchased by the Manitoba Department of Agriculture, to be used as a circulating library. A list of these books will be sent to every beekeeper in the province, together with the rules and regulations regarding their distribution.

The beekeepers of the province will be pleased to learn that Prof. S. A. Bedford, who might be said to be the father of beekeeping in Manitoba, has been appointed Weed Commissioner and Superintendent of Demonstration Farms.

One thing that is needed in Manitoba is some person to go in for queen rearing on a commercial scale. If there is anything in "the survival of the fittest," or hardening by acclimatizing, we should have the best bees on earth.

During the summer of 1915 eighteen hundred and seventy-eight colonies of bees were inspected in different parts of the province. Of this number only seven were found diseased with American foul brood. These seven colonies were treated for the disease by the McEvoy method. One hundred and twenty-two empty hives, in which the bees had died, apparently from disease, were disinfected and made fit for use again.

Death of Mr. Robinson.

The beekeepers of British Columbia were shocked recently when they heard of the death of Mr. E. F. Robinson, one of the best known apiarists in British Columbia. The deceased had been a resident of this province for twenty years. For a number of years before moving to British Columbia, the late Mr. Robinson followed the occupation of a manufacturing jeweller. In time he became interested in bees.

While he at first undertook the study and culture of the bee as merely a form of amusement and a hobby, his expert knowledge of the industry soon found public recognition. He was more or less interested in bee-keeping ever since he came to Canada, but in recent years he purchased some land in the vicinity of Shawinigan Lake, B. C., where he established an extensive apiary. His enthusiasm for knowledge with regard to apiculture found practical expression in his work for the provincial government on many occasions. His lecture tours through various parts of British Columbia were of great value and he was instrumental in laying the foundations for the bee industry here by demonstrating through his experiments what could be done with the bee in this latitude.

Gave Lectures.

Two years ago he was employed by the government to give lectures throughout the province and he continued this work until only a few months ago. Three years ago he sent an exhibit of bees and honey to Lethbridge and other towns in the Prairies and it was subsequently bought by the government and sent on to an exhibition at Chicago as an example of what could be done with bees in British Columbia. The exhibit brought considerable publicity to this country and was admired everywhere it was sent. Last spring Mr. Robinson sent another comprehensive exhibit to the San Francisco Panama-Pacific Exposition, where it attracted wide notice.

The sixth annual Short Course in Apiculture will be conducted at the Ontario Agriculture College, Guelph, from January 11th to 22nd.

We took the Canadian Bee Journal for years, and were glad when it was united with The Canadian Horticulturist. The united paper is better for us and we enjoy it.—Mrs. Geo. Clarke, Halloway, Ont.

Poison Baits in Their Relation to Bees

Prof. L. Caesar, O.A.C. Guelph, Ont.

(Continued from December issue.)

I WISHED to be still more sure of my ground, and so wrote to Kansas to Profs. Dean and Hunter, who were the chief advocates of this remedy, and asked them if the bee men of that state had made any complaints. They said that they had not done so, and that they themselves had no evidence of danger to the bees though many tons of the mixture had been used. Prof. Hunter stated that now that I had called his attention to the matter he would investigate carefully. He did so the next year and the following extract from his paper shows the result:

"Two years ago, during the extensive use of the poison bran mash against the native grasshoppers, the question was frequently asked as to what effect the poison would have on bees, when distributed through a large alfalfa field where bees from large apiaries were at work. Last summer, Prof. Caesar, of Ontario, wrote me that similar inquiries came to him from apiarists. Under date of July 24, Professor Caesar writes:

" 'The beekeepers of Ontario are alarmed at the supposed danger to the bees which they believed attends the use of your remedy for grasshoppers. I used this remedy this year, and saw no bees feeding on it. I should, however, be very pleased if you would kindly let me hear, as soon as possible, whether bees have been poisoned by it to any extent in Kansas.

'Yours sincerely

'(Signed) L. CAESAR.'

"In order to satisfy ourselves even more fully on this subject, Mr. George H. Vansell, our Apiary Inspector, undertook a series of experiments to determine whether the bees would feed at all on the poison bran mash, and, if so, under what conditions, and with what results.

"First, to determine whether the bees would partake of the poison at all, small piles were placed on the running board of the hives. Here, the bees did not go out of their way to come to the piles, but those which ran against it, stopped and began to lap up the mixture quite greedily, sometimes starting off, to return to lap again. Such were retained, and all died within three hours.

"A number of the bees were confined in a bell-jar with this poison. After a time, the bees came down and sipped the mash contentedly; they would then fly to the top of the jar, to return again for more of the mixture. All those confined in the bell-jar partook of the mash and died; but on the running board of the hive only fifteen of those that passed over it during an hour's observation stopped to taste it. When the bran mash was scattered about a few feet from the hive, not a single bee halted to taste the substance.

"Second, the bran mash was distributed in a sweet clover patch, where bees were unusually abundant, and not one was observed feeding, or in any way being drawn toward the mixture. It was also distributed freely among rotting peaches on the ground where bees were feeding in large numbers, with similar results.

"Last year the poison was placed around in small piles among apiaries of thirty-eight stands of bees and the honey systematically taken from the stands. This usually makes bees more active in feeding. Even under these conditions, but a single bee was observed feeding on the mash. These attempts at feeding the poison bran mash to the bees were repeated morning, noon and night, and no evidences were observed which would tend to show that there was any appreciable danger to the bees from the distribution of this poison.

"Furthermore, against the insects for which this poison is used, it is most effective when scattered early in the morning or late in the evening. Before the working hours of the bees begin the poison would then be too dry for them to feed upon.

"From this it would appear that when the poison mash confronts the bees they will partake of it and perish; but that the use of the mash in field work is not attended by danger to bees."

I think that this is as near conclusive proof as can be obtained that you need not worry over these sweetened poison baits.

This is, I believe, all the information of any importance that I can give you on this disquieting subject of the use of poison baits and sprays. I feel satisfied that any further observations or experiments conducted will bear out the correctness of the statements here made. I should be glad to see your Association conduct careful experiments and prove the facts to your full satisfaction.

Notes from the Year's Work*

By Morley Pettit, Provincial Apiarist, Guelph, Ont.

The first event of the year was the Apiculture Short Course, held for two weeks in January at the Ontario Agricultural College. There were between forty and fifty regularly in attendance, and the course on the whole was very satisfactory.

The work with the regular college students consists of a course of twenty-five lectures and a few laboratory periods compulsory with all first year students. While very little practical work can be given owing to limited accommodation, care is taken to impress the principles of bee nature and management. This year each first year student is given practical work to the extent of making up a complete bee hive, and it is hoped that in the future this practical work may be extended.

Wax Rendering.

That large quantities of beeswax are wasted annually for want of proper facilities for rendering it from old combs and scraps cannot be gainsaid. If the beekeeper will carry a 10-pound honey pail or similar receptacle on his round of apiary work and drop into it, instead of on the ground, all bits of comb, scrapings, etc., he will be surprised at the amount of wax he will accumulate. That this waste of scraps and even combs is only greater in degree than the waste of wax in slumgum through improper methods of rendering may be illustrated by the following account of a typical case.

One hundred and forty-six pounds of refuse from an ordinary press in the hands of a careful beekeeper was put through a Hershiser wax press and twenty pounds of fairly good beeswax extracted. The beekeeper in question stated that at that rate he had been burning in his kitchen stove the price of a good wax press almost every year.

The inspection of apiaries was carried on as usual, after the preliminary conference of apiary inspectors held at the Ontario Agricultural College early in May. While marked progress is being made in the control of American foul brood, European foul brood is still spreading. It will be seen that the policy of making this primarily an educational campaign is being pursued, by the fact that sixty apiary demonstrations were held during the season, with an average attendance of thirty-two.

The value of this work might be increased by establishing demonstration apiaries, particularly in districts infected by disease, where discouraged beekeepers might be shown how bees can be profitably kept in spite of obstacles.

*Extract from a report presented at the recent convention of the Ontario Beekeepers' Association.

British Columbia Notes

The Late E. F. Robinson, Victoria, B.C.

The annual report of the Ontario Beekeepers' Association for 1914 was a valuable one. The paper on non-swarming was worth the year's subscription. Go on with the good work. I have discontinued taking other bee journals, as I am stocked up with them, but continue with the Ontario Beekeepers' Association, as I value its annual report and the honey crop report. The latter was worth $87 to me, as I raised my honey price five cents a pound on account of the Ontario shortage. I had high-class goods and the people stood the rise without a murmur. I spent about ten dollars on advertising to get them started. The quality of the article brought big orders to the finish.

The American Foul Brood has been and is most likely to continue in British Columbia. In 1913, at Vernon they found nine cases in a bunch. Everything was burned up. At the annual meeting of the British Columbia Entomological Society, January, 1914, I moved that a petition be presented to the Minister of Agriculture to so amend the Foul Brood Act as to exclude the entry of live bees and bee fixtures that have been used into the province of British Columbia, as there was evidence that foul brood had been found in three or four places scattered over the province, and that the quarantining of bees for nine months had not proved advantageous in keeping out the disease. However, no action was taken, and there was an outbreak of American Foul Brood at Collingwood East between Vancouver and New Westminster in August, 1914, in fifty-four colonies.

New Zealand Conditions.

Editor, The Beekeeper: I received a sample copy of The Beekeeper some time ago and herewith enclose $1.00 in English money for a year's subscription. Our seasons being quite opposite to yours in Canada, we are just getting over our winter now. As we have had snow only once in twenty years, you will realize that our bees do not need much winter protection. It is possible for them to fly nearly every day if it is not raining.

In this section, bee men average around 50 to 55 lbs. In other parts of New Zealand they average from that down to nothing. We sometimes have too much cool, dry, windy weather.

T. J. MANNEX.

Eltham, New Zealand.

Newspaper men in the west are stirring up the bee business. The 1911 census states that Manitoba has 2,841 colonies of bees owned on farms, and that 62,047 lbs. of honey were sold the previous year.

Quebec Fruit Growers Hold Profitable Meetings

THE Pomological and Fruit Growing Society, of the Province of Quebec, held its annual meeting at Macdonald College, December 9th and 10th. While the number of members in attendance was not as large as that of last year, yet the interest was keener than ever. This was evidenced by the discussion following each address.

After the opening address by the President, R. A. Rousseau, the members were cordially welcomed to the halls of Macdonald College by Dr. F. C. Harrison, President of the College. Hon. J. Ed. Caron, Minister of Agriculture for the Province of Quebec, explained what the Provincial Government was endeavoring to do to benefit the fruit growers. Having mentioned the value of the demonstration orchards, and the demonstrations given at many different places in the Province, he outlined a plan which was already under way, whereby the farmer with the aid of experts, would grow their own nursery stock for the orchards that were to be. The nurseries now established aggregate ten acres in extent. Either in the addresses or discussions nearly every problem of vital importance to the fruit grower was touched upon.

The Rev. Father Leopold's interpretation and remarks on the Inspection and Sales Act made it clear that it was necessary to explain to farmers and fruit growers this act a little more in detail, endeavoring to fix in their minds standards as to size, amount of coloring, etc., and to impress upon them the fact that to set a standard higher than that called for by the "Sales Act," would be of the greatest benefit, not only to themselves, but to fruit growing in general. The purpose of the Act was to help them rather than hinder, while at the same time protecting the consumer. The question of making a separate class of wind falls was brought up and many growers felt, after the experience of the past season, when a great deal of money was lost on account of the large number of wind falls, that these apples might be classed separately, and the grade marked in some way so as not to confuse it with the ordinary grades. In this way the grower might get a fairer deal. This year windfalls, No. 1 fruit, except for a slight bruise, and capable of being kept for considerable time, had to be classed as No. 3 grade and, of course, brought a small return.

A Recognized Authority.

Much interest was taken in the address of Mr. B. C. Case, of Sodus, New York, a remarkably successful fruit grower of that state. Speaking of Mr. Case, Dominion Fruit Commissioner, D. Johnson said he considered him to be the most successful fruit grower he had met in his 4,000 mile tour of orchard inspection in the Eastern and Western United States and Canada. He is a thoroughly practical man, having some 650 acres, mostly of apple orchard, 130 acres being in cherries. On his farm are growing some of the finest Baldwins and Greenings in the country. Mr. Case was enthusiastic in his encouragement to the fruit growers to solve the problems confronting them. Forty years ago production of apples was small and what were produced were used for making cider. As a young man he was advised to tear out the two and one-half acres of apples he had and plant corn or clover or some more profitable crop. No one dreamed then what the future of the apple industry would be. Now the two and one-half acres of orchard will give a greater return than all the rest of the farm would at that time.

"In New York state evaporation of apples is no small branch of the apple industry. This takes care of the inferior fruit. Distribution is the weak point to-day. Only half the problem is solved when the fruit is packed and at the station. With proper organization and good management there would be no over-production. If each person in the United States ate one apple each day, the biggest crop ever produced (59,000,000 barrels) would not be half enough to meet the demand. The best pack is the only pack to bring success. The poor pack deceives only the packer. The essentials to the greatest success are: "Do unto others as you would they should do to you," and "love your neighbor as yourself." Then will come that co-operation which is so necessary to large and permanent markets.

Prof. T. G. Bunting said that just as good fruit can be grown in Quebec as in any other fruit growing district, and splendid markets are available. From statistics it might appear that we have a large number of trees coming into bearing each year, but in reality there are comparatively few. There have been no large plantings, filling in vacancies caused by winter killing and neglect account for a great number. Not over twenty-five per cent. of trees planted ever come into profitable bearing. To size up the situation correctly, the number of unprofitable as well as the profitable bearing trees should be considered, not simply bearing trees.

Where it is advisable to plant, large plantings would prabably fare better than small ones, as considerable money would be invested and, therefore, the orchard would be likely to receive better care.

Too many varieties were being planted, also varieties which had not been tested for hardiness, or those which were decidedly too tender. Young trees were bought and set out simply on the recommendation of the tree agent, who often knew nothing of conditions.

The number of varieties, the poor choice, close planting, and the lack of thorough spraying were responsible for failures in many cases, and the small degree of success attained in so many others.

In Quebec McIntosh and Fameuse should be the chief varieties, planted with few others, probably in the proportion of 50 per cent. McIntosh and 40 per cent. Fameuse.

Several of the addresses given were illustrated with lantern views, and many obscure points were made clear in this way. The views shown by Mr. R. B. Whyte, of Ottawa, were particularly fine. He took his audience on an interesting trip through the parks and gardens of England, visiting on the way Stoke Pogis, and many other historical and beautiful places.

Mr. M. B. Davis spoke on "The renovation of an old apple orchard by dehorning," that is, cutting back to the larger limbs and growing a new top. In this way profitable crops had been obtained in three years after cutting back. Treatment of wounds with creosote and coal tar was advised. Dehorning sometimes does more to invigorate an old tree than cultivation and fertilizers. The best time to perform this operation is in March.

Prof. Lockhead showed the relation of fruit spur formation to pruning, bringing out the fact that the crop next season depended upon the treatment given this season.

Mr. Duports, Macdonald College, found from experiments he conducted during the past season that the most effective single spray for the Bud Moth, was the one applied as soon as the leaves were fairly well expanded. The spray mixture was lime sulphur with arsenate of lead. The application given three days before the opening of the flowers was next in effectiveness. The one applied as soon as the larvae began to enter the buds, was not very effective, which is contrary to the general opinion. The combination of second and third sprays given in ordinary spray calendars should be sufficient to control this pest.

The paper read by Mr. W. T. Macoun, of the Dominion Experimental Department, Ottawa, on the work of the Experimental Station in Quebec, was very interesting to the growers of this Province. Some valuable information was given regarding the degree of frost in the different districts in Quebec.—A.C.G.

The Future of Fruit Growing

"I do not believe that there are any grounds for pessimism as to the future of fruit growing in Ontario," said P. W. Hodgetts, of Toronto, recently while addressing a meeting held in connection with the recent Lambton County Horticultural Exhibition. "The business will have its ups and downs, as in the past. Gluts there have been many times, growers discouraged and orchards neglected, but to the man with energy and push and stick-to-itiveness, along with common sense, the future is just as bright as it ever was. When we consider what our apple growers are up against in marketing the miscellaneous assortment of apples planted in Ontario thirty or forty years ago, one almost wonders that we have made the success we have. Small orchards, of many varieties, fully fifty per cent. not wanted in the present markets at any price, trees neglected through ignorance or lack of care, in early days poor marketing facilities, etc., all have been against us.

"With new orchards of larger size, fewer and better varieties and improved methods of marketing, Ontario can still more than hold her own in all markets of the world. The west is handicapped by expensive labor and land, and the extreme east by a more unfavorable climate. Ontario has large local markets, and is favorably situated for export and prairie markets. Nova Scotia is well situated for its export trade, but lacks both local and prairie markets. The west also lacks local markets and has extremely heavy transportation charges to British and European markets. With everything in our favor I would not hestitate to continue planting with varieties in demand and in blocks of large enough size to provide straight or mixed cars as the various markets demand.

Of other fruits, the present situation is favorable to pears, sweet cherries, strawberries and raspberries, and not so good for plums, sour cherries, red currants and American gooseberries, except for local markets. The peach has always been an uncertain quantity, large profits or heavy losses coming at times. The future outlook would not deter me from continuing in the fruit business and increasing my acreage under the favorable conditions of Lambton county."

You cannot plant poor off- type potatoes year after year, and get good results.

Notes on The Season's Fruit Trade

E. H. Wartman, Dominion Fruit Inspector, Montreal

THE export of apples from Montreal have been the smallest in my recollection of forty years' trade, 93,876 barrels and 66,639 boxes. The record of this port is over 700,000 barrels. Fortunately for shippers, the season was mild, as there were none frozen throughout the season. The apples tested by thermometer showed temperature not of a destroying nature.

As I have inspected here apples from four Provinces, I have come to the conclusion that it has been the worst season for funge diseases throughout the Dominion that fruit men have ever had to encounter, and as invariably follows, large quantities of apples have been graded seconds and thirds. The seconds have come into common use and are considered by the housewife to be an economical asset at 75c a barrel less than No. 1 fruit. This pack has been uniformly good this season, and much credit must be given to the inspectors who know the technicalities of grading, and who have imparted to those in a quandary, as to what to do, reliable and practical information just at the time when most needed.

One very noticeable thing has been the great number of cars of apples containing 150 barrels. These have shown clearly that this number necessitates only three tiers, which are easier loaded and unloaded, with less breakage. To illustrate what I mean, I might state that while inspecting apples close to where three cars were being unloaded, and the barrels being rolled into a shed, two cars were unloaded that had 150 barrels piled in three tiers, without a broken barrel. The other car had 200 barrels piled in four tiers and in unloading, two barrels uncontrolled from fourth tier fell. The face end of one barrel came out and the tail end of the other. Imagine the loss on such recoopered barrels when the work is done in a hurry. Besides there are always those who are eager to see a barrel break open in order that they may get a pocket full. These barrels would land in a slack, bruised condition, and sell for one dollar to one dollar and fifty cents a barrel less than a good sound barrel. Therefore I am led to believe the three tier car much the safer.

The barrels this season were of the eight hoop type, both strong in stave and hoop, which reflects credit on our coopers.

As our Northern Spy apples have touched forty shillings per barrel, or nearly $10.00, it shows how much our best varieties are appreciated in the old land. Let us hope that this cruel war will soon be over, that normal conditions may reign once more when all nations will be at peace. Our fruit trade would then flourish as never before.

Vegetable Growers Had Losses

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 parts of the province. Also there had been more insects which damage vegetables than had been known in the past twenty-five years. Fungus diseases had this year attacked vegetables that heretofore had been practically immune to disease. The average loss in all vegetable districts would amount to twenty-five per cent.; some districts as high as fifty per cent. As the vegetables produced annually in Ontario are valued at over three

million dollars, the loss to the province may be understood.

Potatoes suffered severely this year from blight and wet weather. Cauliflowers were practically destroyed by wet. Onions were blistered more than had ever been known. Carrots, beets and parsnips suffered from green aphis in many sections. These conditions reveal some of the trials and difficulties of vegetable growers.

Manitoba

Prof. F. W. Brodrick, Secretary of the Manitoba Horticultural Association, Winnipeg

It was a pleasure to me to have the opportunity of attending the annual meeting of the Minnesota Horticultural Society which was held at Minneapolis, Minn., on December 7, 8, 9, 10. It was a delightful change to come into touch with the horticulturists of our neighboring state. The meeting was well attended, delegates being present from all parts of Minnesota, and from the adjoining states of Illinois, Wisconsin, North and South Dakota, as well as from Manitoba. The meetings were bright and interesting throughout.

One of the interesting features was the number and variety of papers and addresses that were given. No paper was longer than twenty minutes, with a limited time for discussion. This prevented any speaker from monopolizing too much time, and also prevented the discussions from becoming wearisome and dull.

Practically all phases of horticultural work, including fruit and vegetable growing, landscape gardening and floriculture came in for a place on the programme. These papers, coupled with the interesting discussions given by experts brought out much valuable information.

Through the efforts of the Horticultural Society, Minnesota has become a fairly important fruit growing state, and discussions on varieties and new fruits came in for an important place on the programme. To increase the planting of fruits, the state has established a fruit breeding farm at Excelsior, Minn., in charge of Charles Harleson, where many new fruits are being bred from hardy strains, tried out at the Experiment Stations and sent out for distribution throughout the state. The discussion on fruits brought forth some interesting suggestions on hardiness from Professor Waldron, of Fargo, North Dakota, and Prof. Hansen, of Brookings, South Dakota. Professor Hansen, who has given the question of plant improvement considerable attention, and who has been to Siberia to locate hardy types for the United States Federal Government, contends that the only method of getting hardiness in fruit is to bring plants from countries where hardiness is essential, or produce hardy strains by infusing the blood of hardy native fruits.

The meeting of the Women's Auxiliary on Thursday afternoon brought forth interesting papers and discussions on the place of horticulture in the home. A valuable paper on "The value of horticulture on the farm" was contributed by Mrs. Clarence Wedge, of Albert Lea, Minn., and an interesting illustrated adress on "The Highway Beautiful," by Mrs. James Jenneson, of Minneapolis.

Governor Hammond, of Minnesota, complimented the Society during the annual banquet, on the excellent work which had been done in furthering horticulture, and predicted that Minnesota would, in time, become an important horticultural state through the efforts of the Society. President Vincent, of the University of Minnesota, delighted the convention with a half hour talk, on Friday afternoon, on "How may the State University and the State Horticultural Society best co-operate in advancing the horticultural interests of the State." The convention closed with short addresses from old members, among the more prominent of whom were George J. Kellogg, Strawberry grower of Janesville, Wis.; Clarence Wedge, Nurseryman, Albert Lea, Minn.; and C. S. Harrison, Nurseryman, York, Neb.

One of the features of the convention was the attractive floral exhibits put up by the florists of St. Paul and Minneapolis, and the exhibits of fruit and vegetables put up by the members of the Society. These exhibits gave the visitors an excellent idea of the horticultural possibilities of the State.

A pleasant event was the presentation of a gold watch and chain to secretary Latham on the anniversary of the twenty-fifth year of his service as secretary of the association. Secretary Latham has built up the Society from a small, struggling organization, to a live, vigorous society, with membership of over three thousand members.

The features of the convention that impressed me most were: first, the good organization that existed, and the despatch with which the business of the convention

was carried through; second, the close relationship between the State Agricultural College and the Society; third, the wide range and practical nature of the activities that are being carried on by the society itself.

British Columbia

The Department of Agriculture will again conduct fruit packing schools during the coming winter. While the supply of packers was nearly equal to the demand in 1914, there was a shortage in many districts this year owing to the enlistment of a number of the packers. It is hoped that advantage will be taken of this opportunity to supply the deficiency. As in previous years, the local administration of the packing schools will be placed in the hands of a responsible body as the Farmers' Institute, the Fruit Growers' Association, or the Board of Trade.

The local organization must guarantee not less than twelve pupils, but not more than fifteen, at a fee of two dollars each, to take the twelve lessons of two and a half hours each, the school extending over the week. When twenty-four to thirty pupils can be secured, a double packing school will be arranged. The hall provided should not be smaller than thirty feet by fifteen feet, well lighted, and sufficiently heated to prevent freezing of the fruit at night.

In districts where it is impossible to secure the number of pupils mentioned, a three-day packing school may be arranged for with a minimum of eight and not over twelve pupils, at a fee of one dollar per

pupil, to take six lessons of two and a half hours each.

The Department of Agriculture provides the instructor and pays his expenses, supplies packing paper and tables, and bears the cost of fruit and all other legitimate expenses except that of the secretarial work, the rent of the hall, and its heating and lighting. Local fruit is used where possible and the department pays the legitimate market price as determined by the instructor or inspector. At the time of making the application for the packing school the responsible organization is requested to reserve two and a half to three boxes of fruit for each pupil. The harder varieties, such as Ben Davis, are preferred. It need not be graded, but must be in good condition and not smaller than two and a quarter inches in diameter.

In addition to the packing work, modern methods and equipment for packing, packing for exhibition, and the Fruit Marks Act will be studied. Pupils who score 75 per cent. and put up a creditable pack for the department prizes next autumn will receive a diploma certifying to the same from the department.

Pruning Schools Also.

In 1914, the first year pruning schools were offered, twenty-five were held, and in 1915 the number increased to forty-seven. As these schools proved to be very beneficial to the fruit growers, the department has decided to offer them again.

The department will provide a competent instructor, and pay his expenses. The local administration will be placed in the hands of a responsible local body, who will be responsible for the guarantee of a minimum of eight pupils (but not more than twelve), with the proper qualifications, at a fee of one dollar each, to take ten lessons of three hours a lesson, the school extending over five days. Where the number of pupils in a district justifies, two pruning schools may be arranged for, in which the minimum guarantee will be sixteen pupils, and not over twenty-four. The local organization also provides an orchard or orchards, where the instructor may hold the pruning classes, and a hall or room in which the lectures may be held.

Besides the actual practice in the orchard, of which the course will consist chiefly, where the pupils will prune trees under the supervision of the instructor, there will be lectures on the theory of pruning, which will include talks on pruning as related to the formation of fruit buds, and to plant growth, also the subject of top-grafting undesirable varieties will be dealt with, along with many other points of interest. The pupils provide their own pruning tools, the necessary tools being a pair of pruning shears, a saw, and a pocket whetstone.

A well designed Market Wagon that is of ample capacity and suitable for the purpose. Vegetables and fruits may be properly displayed, thus resulting in increased sales and more satisfied customers.

Marketing Garden Produce

The conditions under which some vegetable growers display their goods on city markets might be considerably improved with advantage to themselves. Not only are vegetables and fruits shown in great confusion but, in many cases, the market waggons are such as to almost repel prospective customers.

Probably the greatest incentive to purchase is the appearance of vegetables in clean and orderly condition, the market waggon suitable to its use, and personal cleanliness of the owner. The illustration on page 16 shows a suitable market waggon. It is large, and can accommodate considerable garden produce, which can be displayed in an attractive and orderly manner.

As the successful merchant looks to his show windows to attract purchasers, so the successful grower should endeavor to meet his customers under the most favorable conditions.

The Poultry Yard

F. C. Elford, Central Experimental Farm, Ottawa

By January all pullets should be well matured and a good percentage of eggs being laid. See that the house is free from draughts, that it has plenty of fresh air and sunlight. Give plenty of feed and mix the grain ration in a good heavy litter so as to induce exercise. Watch both the cost of production and the selling end, and know whether the flock is paying or not. If you find that it isn't paying it's your fault; others make the hens pay and pay well; so can you if you use business methods.

Care must be taken that the cost of production is not too high. The first step to lessen the cost is taken when we eliminate everything from the breeding stock but that which has the very best constitution. Adopt system in the poultry work. Give it into the care of some one person, rather than allow any person (which very often means no person) to be responsible for the plant.

System in feeding, system in marketing, along with clean sanitary conditions, go a long way to cut down the expense of production.

Every year eggs are scarce and high in price during the late fall and early winter. The only way to have eggs to sell at this time of the year is to get ready in plenty of time. Early spring is the time to prepare for eggs the following November. See that the pullets are hatched early, because it is only the early pullet that will give the early egg. If possible, mate with the healthy hens in the spring, a good vigorous cockerel that comes from a laying strain. Feed the young chicks well throughout their growing period and have the pullets matured early, and put into winter quarters before they are ready to lay, so that they can go right ahead without any interruption.

Market When Ready.—Though there is a good deal of waste in the system of production, there is even more in the methods of marketing. Study the egg market as well as the wheat market, and sell eggs when and where they are worth the most. Of course, the only time to market eggs is when they are absolutely new laid. Market eggs as direct to the consumer as is practicable and market in such a condition that the producer can guarantee the product, and so that he will not be ashamed to have his name appear on every package.

There is no reason why the keeping of poultry should not be more popular in the towns and villages, and even in some sections of the cities. The objection frequently advanced can be traced to two sources: the unsanitary conditions in which a few poultrymen keep their poultry plant, and the presence of nervous or over-sensitive neighbors.

At this time, when so much is being said about the high cost of living, ordinary common sense should lead us not to object to the rooster's early morning greeting.

On the other hand, there is no reason why poultry plants in the limits of the town or city should become a nuisance if ordinary sanitary precautions are taken. It might be a good plan if all towns or cities would appoint a capable inspector who would see that all poultry plants were kept in sanitary condition. There are many city families that could not only provide themselves with new laid eggs, and table poultry, but by keeping a small flock of laying hens, could make use of feed that goes into the garbage can, and might in some instances almost keep the family table provided with eggs and broilers.

It is the summer conditions of the city poultry plants to which most objections are raised. To overcome this, many city and town families follow the practice of buying on the market or elsewhere well matured pullets in October and November, feeding them heavily for eggs throughout the winter and selling or eating them in the spring. This method is to be recommended as it provides eggs when eggs are high in price, turns table scraps into new laid eggs and leaves the back yard for the summer garden with a quantity of good fertilizer for growing vegetables and flowers. In most cases the birds can be sold in the spring for what will replace them with pullets in the fall.

In the case of fruit you may prune, spray, cultivate and practice every precaution in the picking, packing and loading, but just as soon as it passes into the care of a carrying company, be it railroad or steamboat, it rests with them just in what condition the fruit will appear on the market.—G. E. McIntosh, Forest, Ont.

Canadian Apples in South Africa.

W. J. Egan, Canadian Trade Commissioner, Cape Town, South Africa.

The first shipment of apples from Canada for this season arrived on the S.S. Kwarra, October 15. They were all from British Columbia, and consisted mostly of "Wealthys" with some "Gravensteins."

The packing was of the very best and the shipment was healthy, being almost free from scale. The apples were of good size but did not come up to the requirements of the South African market in color, and unfortunately a large percentage of the shipments was frozen in cold storage. The fruit which carried without freezing realized from 15s. to 17s. a box. On the Johannesburg market prices ranged from 19s. to 24s.

This shipment of 1,160 boxes is the first on record to consist of Canadian fruit only. The contention of several jobbers has been the impossibility of securing fruit for the early boats, and many severe comments were made in reference to the recommendations that the cold storage space on our steamers should be reserved for Canadian fruit. Although the above-mentioned shipment was unfortunate, dealers now admit that a suitable apple can be procured for the early sailings as well as for the end of the season. As they are all prepared to purchase Canadian fruit, they are now advocating that it alone should be carried in the cold storage of Canadian steamers during the limited season of delivery, from October to December 15, which under normal conditions can dispose of 35,000 to 40,000 boxes of a good, hardy, medium size well-colored apple.

Vegetable Packages.

Vegetable growers should endeavor to standardize the packages used for shipping vegetables. While this does not affect the growers in the vicinity of large cities, it is becoming a grave problem for those who ship vegetables from other districts into the large markets of Montreal and Toronto.

It would be a beneficial work if the Ontario Vegetable Growers' Association would gather inforamtion relating to the various vegetable packages used in Ontario. This would enable the growers to prepare to standardize the best packages used.

Items of Interest.

Mr. B. Leslie Emslie, formerly of Toronto, has recently been added to the staff of the Central Experimental Farm, Ottawa, to act as supervisor, under the direction of the Dominion Chemist, of investigational work with fertilizers.

The annual convention of the Nova Scotia Fruit-Growers' Association will be held at Wolfville, January 18th to 20th, 1916. One session will be devoted to a debate on the question of mixed farming versus exclusive fruit growing for the Annapolis Valley.

The United Fruit Companies of Nova Scotia, Ltd., on December 2nd, published the average price that will be paid to all their

affiliated companies on Blenheims this year, as follows:

No. 2, 13,848 barrels	$2.22
No. 2, 3,067 barrels	1.75
Co-operative, No. 3, 2,760 barrels	1.41
Small, No. 3, 2,375 barrels	1.02

The average for ones and twos is $2.13½.

Market Conditions in England.

J. Forsyth Smith, Canadian Fruit Trade Commissioner, Manchester, Eng.

THERE will be no difficulty this season in securing excellent prices for all good Canadian apples, whether in boxes or barrels, provided they can be landed in satisfactory condition. The short crop, high freight rates and steamer space limitations have so restricted supplies that, in Glasgow and Liverpool especially, prices have considerably exceeded early expectations. The demand continues strong and steady, and is regarded by the trade in general as normal, or even better than ordinary. In London there has been a somewhat lessened demand for high-priced fruit on account of the lessening of the number of dinners and public functions owing to the war, while the requirements of a darkened London has also had an adverse effect by reducing the number of theatre parties and similar evening festivities, which are important factors in fancy apple consumption. London is also so near the principal Engilsh apple-producing counties that it has been steadily supplied with large quantities of home-grown fruit, and this has had an observable effect on prices, which have been considerably lower than those obtained in the North.

Steamer Space and Rates.

Steamer space seems, if anything, more difficult to secure, and, though particulars are not obtainable from the shipping companies, it is generally expected that ocean rates will be still further increased. Brokers' charges will also be raised.

Apples in Barrels.

Canadian apples, in the main, have been arriving in good condition, with only a normal percentage of slack packs, though many Nova Scotia No. 3's have been badly spotted and wasty. In some cases color has been lacking, and the quality poor or only fair, but reliable shippers have been sending in some excellent stock, and, in general, there has not been much cause for complaint. There is a tendency observable, however, in many packs of Ontario apples to include a proportion of small apples in No. 1 barrels. This is, perhaps, natural,

in a short crop year, but it is likely to affect the prestige of Canadian apples seriously on the British market.

Reliable Pack as an Asset.

A noticeable feature on the various markets is the premium constantly placed by buyers upon packs which have earned a reputation for quality and reliability. There are certain packers known to the trade generally for the dependability of their output, and whenever these favored "marks" are offered for sale, the brisk demand always results in top prices. It cannot be too strongly emphasized that a pack favorably known to the trade has a definite monetary value, that this carefully built up reputation is a most valuable asset, and that shippers contented to rank as second or third-class packers over a period of years are needlessly throwing away value that a more business-like policy would have secured for them.

Apples in Boxes.

California Yellow Newtowns in boxes are reaching the market in considerable quantities, and have found a ready sale, though, as a rule, their quality leaves much to be desired. The Yakima and Wenatchee districts of Washington have also sent Jonathans, King Davids, Grimes Goldens, and Winter Bananas, very good fruit, and most of which arrived in excellent condition. Some superior Yellow Newtowns from Rogue River, Ore., have also been observed. Arrangements for the placing of these Western American apples are in the hands of agents resident in London, who advise as to the distribution to the various markets. It would appear to be advisable for British Columbia shippers of similar popular varieties, box packed, not to allow their American competitors to secure too strong a foothold on the British market before offering them serious competition. At the present, for obvious reasons, the foreign box apple is far better known to the trade than the Canadian. Nova Scotia and Ontario apples in boxes have been on sale in comparatively small quantities, and are popular with certain sections of the trade. Some large retailers are emphatic in their preference for box-packed apples. As a rule the Eastern box apple does not show the skill and care in grading and packing, the color and general perfection, that have given the Western apple a distinctive place in the market.

Niagara District Notes.

By F. G. H. Pattison, Winona, Ont.

THE weather in the fruit belt has been very changeable. Up to Dec. 10th it was open and mild, and very favorable for plowing, pruning, setting grape posts, etc. After that a nice little winter set in, with about two inches of snow and steady frost. But on Xmas Eve a thaw took place, and Xmas day itself was the most unpleasant experienced in these parts for many years.

On awakening on Xmas morning everything was weeping; the skies, the horses, the trees, and even the soil, sodden with two inches of slush and water, and this condition prevailed during the greater part of Xmas day. To the writer, however, it seemed the most appropriate Xmas possible to this terrible war year of 1915. How many million hearts the world over are weeping now, as they never wept before? And is it not befitting that nature weep also? "Rachel weeping for her children and refusing to be comforted, because they are not."

On Dec. 4th last, the first annual meeting of the Lincoln and Welland Vegetable and Fruit Growers' Association was held in the County Buildings, St. Catharines.

There was a fair attendance of members. R. H. Crow was unanimously re-elected as President; L. Moyer, of Welland, as Vice-President, and W. F. Mitchell, as Sec'y.-Treasurer. The old committee was re-elected. Many matters of particular interest to fruit and vegetable growers were discussed, of which the tomato question occupied the most prominent place, as it was on account of the poor price offered for tomatoes last year by the canning factories, that this Association was formed. The feeling of the

meeting was that the canning companies had so improved their positions, that it was felt that they would offer this year the old price of 30 cents per bushel, in which case there would be growers willing to contract. The President intimated in closing that the next meeting would be held on the first Saturday in January, and that a special speaker would be secured to address the members.

A meeting of the shareholders of the St. Catharines Cold Storage Co., Ltd., was held in the County Buildings on Wednesday, Dec. 22nd. After the meeting Mr. E. Smith, of the Grimsby Pre-Cooling Plant, gave an excellent address on "The Pre-Cooling of Fruit for the Western and other markets."

Mr. Geo. Baxter of the G. T.R. was also present for the purpose of discussing the matter of transportation, especially with regard to shipping arrangements for the coming season. A number of suggestions were made by the growers, most of which were promised consideration.

The first meeting of the Niagara Peninsula Fruit Growers' Association for this winter is to be held in the County Buildings, St. Catharines, on Dec. 30th, at which a full report of the advertising and publicity committee will be presented; also the question of the standardization of fruit packages, and some amendments to the "Fruit Marks Act," will be considered.

Early in December, J. B. Fairbairn, of Beamsville, left for a tour of Western Ontario, to secure pointers from the books of the different Co-operative Apple and Fruit Growers' Associations, in order that in the future the important details of organization, bookkeeping, etc., may be at the disposal of the Ontario Department of Agriculture, to be embodied in a pamphlet for the benefit of companies yet to be formed.

By the will of the late Mr. M. F. Rittenhouse, of Chicago, the trustees of Union School Sections No. 1 and No. 2, Clinton Township, are given $20,000 in trust. This is to be invested and the income applied to the maintenance of the Rittenhouse Public Library, Victoria Hall, and the grounds and buildings belonging to the School Section.

That all is not yet complete harmony between the Canning Co.'s, is evidenced by the fact that an action has been entered at Osgoode Hall on behalf of the Canadian Canners, Ltd., the new Holding Company, against the Trent Valley Canners Co., of Trenton, for $50,000, and against the Frankford Canning and Preserving Co., of the same place, for $50,000. These amounts are claimed for breach of contract.

Quite recently head office officials of the Dominion Canners, Ltd., have stated that the markets are at present strong, with a possibility of a large export demand, especially for tomatoes. They point out that prices in the United States for tomatoes, corn, and peas, are well up to Canadian prices; in fact, where quality is taken into consideration, they range higher. That is to say, as regards the export business, Dominion Canners will not be handicapped by having to compete with the lower-priced American lines. From this it appears as though the outlook for the Dominion Canners' should be brightening up, and it looks as though the company has a better chance now to make profits.

Early in December there died in Oakville, Alexander Robertson, a pioneer in one branch of fruit industry. Mr. Robertson settled in Oakville in 1830, and engaged in fruit growing, being one of the first men there to grow strawberries in large quantities for the market. He began shipping them in 1850. Mr. Robertson was born in Sterling, Scotland.

According to Mr. P. W. Hodgetts, Chief of the Ontario Fruit Division, Ontario cannot hope to compete with British Columbia and the Western States in the production of high class apples for show purposes. These showy apples are produced in an irrigation country. "We can't grow the splendid Spitzenbergs and Jonathans here that they do," says Mr. Hodgetts, "and so it is natural to expect that they will continue to hold that trade."

The Canadian Club Fruit Campaign Committee, which has already shipped from this district, including St. Catharines and Niagara Falls, Ont., 53,000 quarts of canned fruits for the Canadian soldiers in the oversea hospitals of England and France, is now engaged in a campaign to secure dried fruit to be forwarded directly to the men in the trenches. A case of fruit prepared for the soldiers is also being made ready for presentation to King George. A case of a dozen jars will also be sent to the Canadian High Commissioner's office in London, England, to be placed on exhibition, through the courtesy of Sir George Foster, Minister of Trade and Commerce.

The following letter from Miss Strong, Hospital Matron No. 2 Canadian Stationary Hospital, Boulogne, France, speaks for itself: "The Secretary, Canadian Club, Hamilton, Ontario.

"Dear Sir,—Please accept my sincere thanks on behalf of No. 2 Canadian Stationary Hospital, for the delicious fruit which came to us yesterday through the Red Cross Commissioner, Canadians. We have a number of Canadian patients here at present, and they were delighted at the thought of fruit grown and preserved at home. Signed, Sincerely Yours, Annie C. Strong."

The Beamsville Preserving Company is steadily receiving orders for canned goods of all kinds, and expects, if the rush keeps up, to have its big warehouse pretty well emptied by spring. The cleaning out of the various canning factories will be hailed with delight by the growers, in view of the conservative buying the past couple of seasions by the factories, which were overstocked.

A most important improvement has been accomplished at St. Catharines in the completion of the new steel viaduct over the old Welland Canal, connecting St. Catharines with the West, at a cost of $155,000. This was opened for traffic on Dec. 20th last.

Recently there passed away at Dulverton Fruit Farm, in the Township of Niagara, Mrs. Lavina Fisher, widow of the late Charles Fisher, and mother of Mr. Carl C Fisher, County Registrar, St. Catharines, and Secretary of the Niagara Peninsula Fruit-Growers' Association. Mrs. Fisher was a daughter of Hamilton Goring, and was born in Niagara Township, Nov. 18, 1832.

A case of considerable importance to fruit growers was decided recently. Mr. W. F. Geddes is a fruit grower at Grimsby. He had his products shipped by rail to Cobalt, and he himself sold from the car on the tracks to all comers. The town of Cobalt charged him with breaking the transient trader's by-law, but the magistrate found in his favor on the ground that he was selling the produce of his own farm. Cobalt appealed the case, but Chancellor Boyd gave judgment in Geddes' favor, on the ground that the Act did not apply to a farmer selling his own product.

A report from Grimsby says that tomato growers are looking for the old price of 30 cents a bushel again next year on account of the cleaning out of the canning factory

stocks throughout the district. War orders for consignments of canned goods are steadily growing.

According to a United States Government report New York State alone lost many millions, through low prices, on its peach crop of last season. Had our markets been open to the New York State growers then our Niagara District growers would have known what low prices meant.

Alleghany County farmers, N.Y., lost $800,000 this year owing to the almost total failure of the potato crop. Farmers who raised as much as 5,000 bushels last year, had to purchase for their own use this. Most of them neglected to spray their potato vines this year, with the result that the crop was destroyed by blight.

Ontario Fruit Growers' Convention

The following is the program for the annual convention of the Fruit Growers' Association, to be held in the Hotel Carls Rite, Toronto, January 19, 20 and 21.

Wednesday, January 19th: 10 a.m.President's address, Elmer Lick, Oshawa. Transportation report, G. E. McIntosh, Forest. Historical Committee report, A. W. Peart, Burlington.

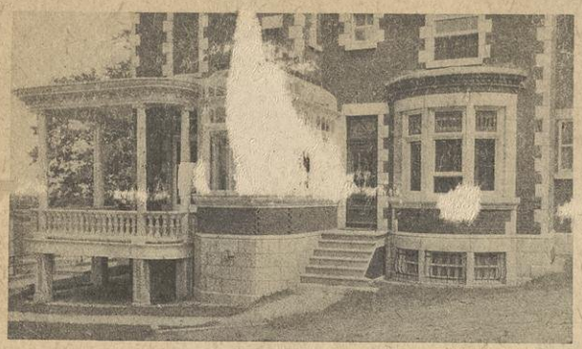
2 p.m.—**Packages:** Berry Crates and Containers, J. B. Fairbairn, Beamsville. Economy Crates for Apples, J. W. Clark, Cainsville. Baskets, F. M. Clement, Vineland. Boxes and Barrels, C. W. Baxter, Fruit Inspector. Questions on Tender Fruits.

Thursday, January 20th: 9.30 a.m.—**Marketing Tender Fruits:** Amalgamation in Niagara Peninsula, J. R. Hastings, Winona. The Advertising of our Tender Fruits, W. H. Bunting, St. Catharines, and T. B. Revett, Niagara-on-the-Lake. Results of the Precooling Experiments at Grimsby, Edwin Smith, Grimsby, and J. M. Creelman, Grimsby. Questions on Tender Fruits.

2 p.m.—**Fruit Marks Act:** What Constitutes a No. 2 Apple, D. Johnson, Fruit Commissioner, Ottawa. Shipping of Immature Fruit, Fred Carpenter, Winona. Grading of Basket Fruits, F. M. Clement, Vineland. Questions on Apples.

Friday, January 21st: 9.30 a.m.—**Marketing Apples:** The Co-operative Fruit Growers of Ontario, Ltd., Elmer Lick, President, Oshawa. Better Net Returns for Local Associations, Dr. A. J. Grant, Thedford, and C. F. Howard, Hagersville. Members' Difficulties, A. E. Bellman, Bowmanville, and J. S. H. Guest, Oakville. Questions on Apples.

2 p.m.—Marketing Problems, R. M. Winslow, British Columbia. Are Ontario Apples Only a Second-Class Product? Gordon Furrow (Globe). The Leaf Rollers, L. Caesar, Guelph.



Part glimpse of R. O. Grothe's residence with conservatory.

J. W. Julbert married the Grothe brothers' sister, and lives just next door to R. O. Grothe.

A. A. Grothe's residence is across the street from his brothers'. How attractively the conservatory fits in the angle.

Three Conservatories Recently Completed in Montreal

HERE, indeed, is an exceptionally interesting instance.

Two brothers and a brother-in-law all built residences a stone's throw from each other.

For all three we built our indestructible iron frame conservatories.

Each one opens off the hall by elaborate leaded glass doors.

In the centre of each there will be fountains of special design, made in New York.

Although the way we construct our conservatories; with a complete iron frame bolted to a cast iron sill that goes over the top of the foundation; costs more than the usual short-lived, all wood construction; it is worth every cent it costs because of its long life.

Leaded glass door leading from R. O. Grothe's hall into the conservatory.

How inconsistent to build a lasting residence of brick or stone, and then add a conservatory of wood that must have constant repairs and eventually be replaced.

If you are interested in having a conservatory, let us send you some photographs.

If you are thinking of a greenhouse send for our Two G's Booklet —Glass Gardens—A Peep Into Their Delights.

Lord & Burnham Co. *Limited of Canada*

Greenhouse Designers and Manufacturers

Royal Bank Bldg., Toronto **Factory, St. Catharines, Can.** **Transportation Bldg., Montreal**