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Regular Edition.

The Canadian Horticulturist and Beekeeper

Vol. 23 SEPTEMBER, 1915 No. 9

Pointers for Exhibitors of Fruit

Prof. J. W. Crow, O.A.C., Guelph, Ont.

IT is much to be desired that judges and exhibitors should agree concerning the requirements of exhibition fruit. The responsibility of passing judgment lies with the judge, and his ideas are supposed to be correct. If he knows his business as he should, exhibitors would do well to study his decisions, and in case of doubt to go to him personally for an explanation. Judges make mistakes, but no honest judge would refuse an explanation or a discussion of the point in question. It is with the idea of bringing out helpful discussion that I have been encouraged to deal in a brief way with the requirements of exhibition fruit, referring more particularly to plate exhibits.

The points usually embodied in a score card for plates of apples, pears, plums, and peaches are about as follows:

1.	Form	10
2.	Size	10
3.	Color	20
4.	Uniformity	20
5.	Quality	20
6	Soundness	20
		100

The score card is seldom used in actual judging, except in cases such as large collections or displays, where the points involved are too big or too complex to be mentally compared. I find the score card very useful, however, in explaining the qualities looked for and in teaching the relative value of each.

The first point for an exhibitor to bear in mind is that the judge's decision is based on the exhibits as they stand at the moment of judging. In the case of an "export" class, the judge does require, of course, to forecast the probable "arriving condition" of the fruit, but in ordinary open competition the judge takes them as they stand. This is one reason why southern-grown exhibits so frequently win at our early fall shows, or even at the November show in Toronto. Northern-grown winter apples, for instance, are not at their best until perhaps February, and in competition at a September or October show are handicapped by lack of maturity. They get a fairer chance when the prize list offers a class for "export," and would show up still better if classes could be put on covering "apples for winter storage."

As most of our prize lists stand, the greatest difficulty the judge has is to give proper weight to all the various uses or purposes which may be represented in a given class.

A class of Northern Spy apples may contain some plates which would rank as "fancy dessert"; other plates might rank as "export dessert"; others might more properly class as excellent for "cold storage dessert," and still others might, on account of large size or over maturity, take rank as any one of several grades of "cooking" apples. It is obviously difficult for a judge to take into account all the range of purposes for which the various exhibits in the class might be used, but in the ordinary variety list this is what he is required to do. The moral for the exhibitor is that where "varieties" are shown, with no special provisions attached, the judge looks for variety type. Other things being equal, the plate wins which best represents the variety.

If the class is for "dessert" purposes, quality counts, and size is much less important. The degree of maturity, which is obviously very closely connected with quality, also becomes of much importance, and is considered under the heading "Quality."

In "cooking" classes, large size is frequently very important. For a hotel or restaurant trade, where the cost of peeling becomes an item, good size is most desirable because of the time saved in peeling.

The points covered in the score card may be explained somewhat as follows:

First.—Form is a varietal character and is frequently one of the important means of variety identification.

Second.—Size is also a varietal character, but, as has been pointed out, size requirements may vary according as the class of fruit called for may be

Harvesting the crop in the orchard of W. W. Pineo, Waterville, N.S. There are 9,000 trees in this orchard, the average yield of which for some years has been 5,000 barrels a year.

A portion of an exhibit of fruit and vegetables arranged by the Central Experimental Farm, Ottawa.

"dessert," "cooking," "export," or "home market."

Third.—Color is of greatest importance as a means of appealing to the eye of the consumer. It is of great importance in commercial packages, and in plate competitions color wins, other things being equal. In green or yellow varieties of fruit, such as Reine Claude plum or Bartlett pear, the color expresses the quality, but in red varieties such is by no means the case. The poorest McIntosh apple I ever tasted was beautifully colored.

Color is more important in dessert varieties than in cooking sorts, and is perhaps even more important in some of the near-dessert commercial varieties, such as Baldwin apple and Elberta peach. These varieties are extensively grown, and color helps more to sell them than does their quality.

Uniformity.

Fourth.—Uniformity is of the greatest importance in commercial packages, and is scarcely less so in the case of those varieties which most commonly go into commercial packages. Especially is it important with those varieties commonly packed in boxes. Dessert Spies, for instance, should be wrapped and packed in boxes, and should be uniform in form, in size, and in color. Large sizes of Northern Spy, on the other hand, are less desirable as dessert apples and are less likely to go into boxes. In a general way, there is not the same necessity for uniformity in barrel stock as in boxes. (In order to avoid being misunderstood on this point, I should like to point out incidentally that most of our barrelled apples have too much variation in size and color.)

Uniformity covers form, size and color, and any experienced judge can vouch for the rarity of plate exhibits which show good uniformity in all three characteristics. This is the stumbling block of most exhibitors. I should be inclined to put more emphasis on uniformity than on any other one point in the score card.

Fifth.—Quality is detected partly by color, partly by aroma, partly by texture, and partly by the degree of maturity. The degree of maturity and the texture can be detected by the "feel," and also by the eye. It is not necessary to shove one's thumb into an apple or peach to know if it is ripe. A gentle pressure between the fingers and the palm of the hand will determine the matter very accurately, after a little practice.

Quality also bears an important relation to size. A large Ben Davis is likely to be of better quality than a small one, because the texture is likely to be more open. Conversely, a large Spy is likely to lack firmness and crispness because of the coarse texture.

Texture may vary exceedingly within the variety. I have handled Duchess pears which were as fine-grained and smooth to the touch as a Bartlett. The best example I can give of the extent to which texture and quality can be determined by touch is in the Sheldon pear. A good Sheldon feels literally "as fine as silk."

Sixth.—Soundness is usually defined as "freedom from blemishes." According to the Inspection and Sales Act, a blemish is an imperfection serious enough "to cause material waste." In the fruit show, a blemish is any imperfection which would lessen the sale value of the fruit. A limb-rub or an insect injury may heal over so perfectly as not to lessen in any way the keeping quality of the fruit, and the only detriment is to the appearance of the specimen. A scab spot is not necessarily injurious, especially to fruit intended for early use. I fail, however, to see any other way of evaluating injuries such as these than to call them blemishes.

A worse type of blemish is a skin puncture, and it is perhaps even more common. Judges should cut heavily for any evidences of rough or careless handling. Breaks in the skin and bruises are caused by lack of care, and lessen the value of the fruit for almost any purpose.

Under this heading reference should also be made to the practice of polishing, which unfortunately is becoming so common in plate apples. I know of no judges who favor polishing—in fact all the best judges discriminate against it—and perhaps the only remedy is for exhibition authorities to adopt a definite prohibitory rule. In plate fruit, all specimens should appear in their natural condition, and with the bloom on. In most cases there is quite a wide margin between simply removing dust or spray and actual polishing.

Polishing may be allowed in "cones" and "pyramids," because these are purely display exhibits, such as a grocer would make use of for advertising purposes.

Worm injuries are considered serious blemishes, so much so that at the better shows exhibits are frequently disqualified on account of them. No apple showing worm injury should be allowed to win a place at the Canadian National or at the November show in Toronto. The highest class apple show in Ontario is at Norfolk County Fall Fair, and a wormy apple there is a rarity.

Another frequent blemish is caused by the loss of the stem in picking or handling. If the stem is simply broken off, no real harm may be done, although in apples and pears the stem should always be present, as it is sometimes an important work of identification. If, however, the loss of the stem results in breaking the skin, the fruit is blemished, because of the liability of decay. Such injuries are frequently as bad as worm holes, and should be penalized accordingly.

In conclusion, I should like to emphasize the importance of care in picking and handling exhibition specimens. One cannot be too careful.

As to uniformity, select specimens as nearly alike as possible in form, size, and color. It is better that all the specimens on one plate should be a little off type than that the type should vary.

Packing Fruit for Long-Distance Shipment

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

IN the general development of the fruit-growing industry of the Pacific Coast, one of the main, if not the main characteristic, has been the evolution of successful long-distance shipping. There is on the Pacific Coast itself a comparatively large demand for fruit. Nevertheless, Pacific Coast fruit-growing is based on the markets of the middle west, those of the United States, and on the markets in the large Eastern centres for the highest grade fruit. In evolving this long-distance trade, a number of essential principles seem to be firmly established.

First of all, the fruit itself must be well selected. In the soft fruits especially, a prime requirement is size. A second requirement, often placed as the most important, is high color. Given even a moderate attainment in size and color, the fruit must certainly be firm and in such condition as to hold up under refrigeration. To meet these requirements, the fruit must practically be perfect in respect to blemishes, form, color and size. Long-distance shipping requires also most timely picking. Much has been done to put in writing just when fruit should be picked; the proper state of maturity is, however, a matter much more of experience than of precept. It is a curious fact that in the judging of condition and the ability of fruit to hold up, the average wholesaler is a much keener and more accurate judge than the average fruit-grower. Every jobber in, say, a Prairie city, becomes expert in estimating the commercial "life" of the fruit he receives to an extent not at all appreciated by the growers. In the west, however, the growers are steadily learning much about the "life" of fruit. It is not necessarily the ripest fruit that decays most rapidly; it is not the best-colored fruit that keeps best or looks best on the market.

The handling of fruit for long-distance should be most careful; in addition, there should be a minimum amount of handling, because even most careful handling means slight bruises or abrasions. On the other hand, grading requires a second handling; the picker cannot pick, grade, and pack. In British Columbia there has been a tendency, however, to too much handling. The custom of packing apples from tables is gradually giving way to packing direct from the orchard boxes, as is the practice with soft fruits, the mechanical graders now being largely adopted in Washington furnishing an exception to this rule.

The mechanical grader has come to stay, the improvements brought in in 1914 and 1915 having assured its success. The most up-to-date graders will handle peaches as well as apples, and do it without any discoverable bruising. It is a common demonstration with the new graders to use eggs. The mechanical grader has, however, a number of disadvantages. After all, it grades only to size or weight, and the grading for color, blemishes and grade must still be done by hand; the cost is high, and either gasoline or electric power is required. The graders, further, are not practical with less than 300, and preferably 600, boxes of apples a day. Also, there is a great loss of time in co-operative warehouses in handling small lots, even of the same variety.

On the other hand, the new mechanical graders have definite advantages. They are very accurate as to sizes; the presence of the machine enables speeding up of all the operations, given one good man at the head of the machine. With a good machine and three or four experienced graders, it is possible to pack 600 boxes of apples a day with six or seven inexperienced packers, and still put out a very high grade. The mechanical grader, to a very large extent in Washington, has freed the fruit sections from the domination of the expert packer, and has made available a large supply of packers who, under old grading methods, would not put up a uniform high grade pack. Under favorable conditions, the grader saves two cents to three cents a box over the old methods of operation.

The newness of the apple industry in British Columbia naturally results in small lots of the variety from each orchard: this has been the principal obstacle to the adoption of the grader so far in this province. A further reason is that the Canadian Prairies do not demand the greatest uniformity in pack.

Rigid Packages Used.

Packages for long-distance shipping are characteristic. The west has evolved the square, rigid package, contrasting with the packages of the east, most of which lack rigidity or show curves or taper. There are practically no tapering packages used in the west, and practically no flexible packages, such as the "Climax" basket or the peach basket of New York State. These rigid, square packages are the result of two causes: First, the abundance of suitable sawn lumber in the west; but, more important, the necessities of long-distance shipping.

The great objection to any package of a tapering shape is that in the packing and the later settling of the fruit

All Hands at Work in the Orchard of Mr. D. C. Galbraith, Huron County, Ont.

In this ten-acre orchard the principal varieties of fruit grown are Northern Spy, Golden Russett and Twenty Ounce Pippin, as well as a few earlier varieties, such as Duchess, Alexander and Cayuga Red Streak. The orchard has been in sod for four years, the grass being cut and left as a mulch, previous to which it was cultivated and a cover crop of rape used, which was turned under in June. Better colored fruit has been obtained since the sod method has been followed.

A Beurre D'Amanlis pear tree, in the orchard of Mr. Palmer, Victoria, B.C., laden with fruit. The weight of the crop injured the tree.

the tendency to wedge the lower layers causes undue pressure and injury. Further, the tapering packages allow of motion. In the square, rigid package. the individual fruits can be so packed that none of them alter position in any respect; this package makes firm packing possible. In long-distance shipping it is one essential that the fruit should not move from its original position in relation to the other fruits in the package.

The only package used in the west to any extent which contains the tapering side is the tin-top basket used in the four-basket plum crate. Even in this package there is practically no settling or movement of the fruit because of the firm packing employed. It will be noted further that the sides of this veneered tin-top are protected by the outer package, as is not the case with the "Climax" basket.

A further essential of packing for long-distance shipping is, of course, the wrapping. The use of paper for apples, peaches, pears, plums, and apricots in the west is so well known as to need no further comment. Aside from the improvement in appearance, the paper improves greatly the shipping quality.

The shipping of soft fruits for long-distance involves prompt cooling and quick refrigerator service. The general adoption of pre-cooling in the west, and the provision of the modern refrigerator car system and rapid moving on schedule, have all gone hand in hand together with the recent great interest in the volume of shipments moving. The Government pre-cooling plant at Summerland, B.C., for instance, is handling up to two carloads a day of soft fruits, which takes care of the great bulk of the freight shipments from the Lower Okanagan Valley. A similar pre-cooling plant at Okanagan Landing, on a larger scale, is under consideration for next year.

Quick transportation has much the same effect as lessening the distance. The Okanagan Valley shipped a considerable number of straight carloads of cherries by freight under ice this year, travelling as far as Winnipeg.

A Wealthy apple tree in full fruit, and its owner, F. N. Borden, a prosperous Victoria, B.C. fruit grower.

The quality of the shipments, as a whole, was much superior on arrival to that of L.C.L. express shipments; the service was nearly as quick as express. Every day a special freight train, known as the "Fruit Special," leaves Okanagan Landing for the Prairies, making the run through the mountains in twenty-eight hours. This quick movement enables the grower to get all the benefit to which he is entitled for his extreme care in the selection, picking, grading, packing, and handling of the fruit.

One of the best ways to control insects on strawberries is by rotation of crops and clean cultivation.

A Strawberry Root Disease

Dr. J. B. Dandeno, O.A.C., Guelph, Ont.

A plant disease of a serious nature in parts of New Brunswick is what is called "black root" of strawberry. It is so serious in some parts of the province that it has put out of business several strawberry growers. The disease affects the roots, causing a blackening and decay. The plant becomes sickly and dries up soon after the trouble begins. Plants may be attacked even when in fruit. When this happens the fruit becomes soft and dark-colored and utterly unfit for use. It is caused by a fungus or bacteria, the life history of which has not yet been worked out. The disease appeared also in Bowmanville, Ont., this year.

The remedy is to secure plants from a clean source and plant on land which has previously been thoroughly cultivated and on which strawberries have not recently been grown. Barnyard manure seems to be favorable to the disease; therefore, if fertilizer be necessary, it would seem wise to use commercial fertilizer. It might be a wise precaution to dip the roots of plants, previous to planting, in dilute formalin solution for a few minutes—formalin about one per cent., and for about five minutes.

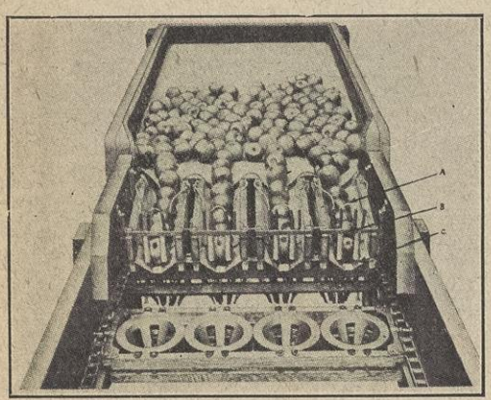
Chinamen are a chief source of labor in British Columbia orchards. One is here shown picking Belle 'd Boskoop apples in Mr. Palmer's orchard at Victoria, B.C.

Grading and Packing Apples

Father Leopold, Oka Agric. Inst., La Trappe, Que.

ALL other things being equal, the article placed on the market in the most attractive manner and package will find the readiest sale and command the highest price. This fact has led the manufacturers of staple articles of commerce to put their best grades in attractive packages.

The advisability of marketing farm produce in as convenient a form as possible for handling is universally admitted, and the advent of the apple



One view of the apple-grading machine as used successfully at the Oka Agricultural Institute.

box, even in our Quebec Province, for such apples as Fameuse, McIntosh, and Wealthy, has marked the entering wedge in the better organization of the orchard. The reason the apple box is so well liked is because only well-graded and uniform apples can be thus sold in the same box, as the different packs adopted will not come out true if the grading and sizing has not been well done.

There is no reason not to grade and size uniformly even apples of first quality that enter into a barrel. The barrel, it is true, has for so many years been the cloak which covered, not so much inferior grades of apples, as ungraded and unsized apples. The barrel has seemed to encourage carelessness in grading, for how many times have not inspectors seen the top and bottom artistically faced, and in the space between have found the general run of the pick?

The law on apple grading for No. 1 apples is not so very exacting, as we may put in the barrel apples of well-grown specimens of one variety, sound, of not less than medium size, etc. Of course a medium-sized apple differs from a large and a very large apple, so there is considerable latitude left, and in one barrel one can find medium, large and very large apples. Could we not put up a barrel pack by which we could put in one barrel the medium, in another the large, and in a third barrel the very large specimens of the same variety, but at the same time have still a No. 1 pack? In a word, could we not get a uniform pack of apples of quality No. 1 in the barrel as well as in the box?

Much can be said in favor of this practice. It gives the buyer a more favorable impression when all the fruit within a given package is of uniform grade and size. As certain dealers require large apples for their trade, and others demand a rather medium size, the practice has an economic importance that we can readily understand.

The objection is sometimes heard that large apples packed by themselves do not carry as well as a mixture of medium and large sized apples. This has not been the case with us in our shipments of barrels packed in a uniform grade.

The real objection comes from those growers who say that the grading of No. 1 apples in uniform sizes is quite a job. I admit this, and yet no packer can put up a uniform pack that has not been accurately graded. Here is where the grading machine comes in to help the fruit grower.

We have been using a grading machine at Oka for the last two seasons, both for barrel and box packing. Now we would not do without it. As most of our apples are packed by the students at the College, who thus have a great chance to acquire some practical experience in packing apples, one readily understands the usefulness of such a machine. The boys handle only fruit graded very accurately and of uniform size.

Here is a brief description of the Model C Schellenger machine we have operated with such success that two other co-operative societies in the Province of Quebec, at Rougemont and Abbotsford, have purchased the same machine and are satisfied also in saying that for a large fruit farm or a co-operative society such a machine is

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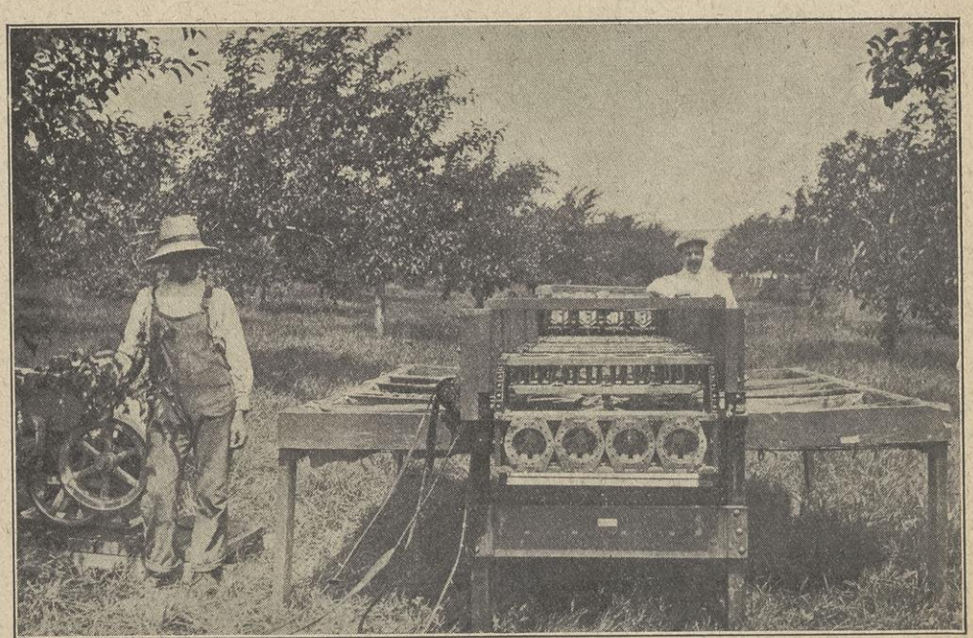
Marketing the Nova Scotia Apple Crop

By A. E. Adams, Secretary of the United Fruit Companies of N. S., Limited,

SEVEN years ago such a matter as co-operation was unknown in the Valley. To-day seventy per cent. of the fruit growers are artive co-operators, owning fifty-five warehouses, marketing all their fruit co-operatively, and buying all their supplies in a similar manner. A parallel to this cannot be found as far as rapidity of development is concerned.

Ten years ago there was an entire lack of system in the method of marketing the apple crop. Each grower fought for himself. He made the best bargains he could with buyers who knew considerably more about the market than he did, or he took the big risk of shipping his product to London, knowing nothing whatever as to the condition of that market, and paying big tolls to commissionmen agents. Certain favored individuals took



The apple-grading machine, with side receiving tables, as used at the Oka Agricultural Institute. Note the gasoline engine at the left, which provides the power. This is the same engine engine that is used on the spraying machine.

A simple apple-grading machine, as used in the fruit warehouse at Waterville, N.S.

steamship rebates off every barrel sent across. After all these parasites had been satisfied he received whatever balance there was. Often there was no balance, and he had to send money after his fruit, so that the parasites referred to might be satisfied.

Sometimes the market would be so good that even after all the middlemen mentioned had had their fill there would be a substantial margin, but it was curious that, generally speaking, it was the larger growers that received returns more frequently than their smaller brothers.

To-day a different order of things exists. I will endeavor to explain as briefly as possible the methods now employed.

There are now operating in the Annapolis Valley some forty-eight co-operative fruit companies. These companies are all incorporated under a special Act of the Local House, passed in the year 1908. The Act is a simple document, consisting of only seventeen paragraphs, and is worded in simple language that can be understood by any person of ordinary intelligence.

Forms of memoranda of association are supplied by the Provincial Government, specially printed to comply with the requirements of the Act, and these are sent to any body of farmers requiring them. Any five farmers can form a company by filling in one of these forms and mailing it to the Registrar of Joint Stock Companies, who will thereupon register their company and register a certificate of incorporation.

The forty-eight companies now operating have memberships varying from ten to one hundred and twenty. A board of directors, elected from the shareholders and consisting of "not less than three, nor more than seven," are responsible for the proper conduct of the company's business. These directors usually employ a manager to conduct the business in detail. This manager keeps the books of the company, engages the help required, and superintends the packing of the apples and distributing of supplies to members.

Forty of the local companies have taken stock in a central association, incorporated under a special Act of the Local House passed in the year 1912, and known as The United Fruit Companies of Nova Scotia, Ltd. These companies market the whole of their fruit through their central, and purchase all their supplies through the same source.

The system of central packing as practised in Nova Scotia, works in the following manner:

Before apple picking commences the managers of all local companies obtain from their members approximate estimates as to the number of barrels of all varieties they are likely to have. These particulars are tabulated, and the total of each variety is forwarded to the central office for the purpose of information. On these estimates the local manager bases his calculations as to what help will be required and what storage room will be necessary. On receiving instructions from the local managers the members pick and haul certain varieties.

The careful manager keeps closely in touch with all of his members. He is careful to have only such apples hauled during the warm fall months as he can expeditiously handle. He also makes himself familiar with the keeping qualities of various members' apples. For instance, Tom Brown's Ribstons, grown on heavy soil under the Mountain, will hold up longer than John Smith's, grown on the sandy soil of the Valley, therefore the manager instructs John Smith to haul his in early and instructs Tom Brown to put his Ribstons down the cellar and wait further instructions.

Each member stencils his name on the side of all barrels sent in, and as the apples are hauled into the warehouse the teamster is given a receipt, of which a duplicate is retained by the warehouse foreman. This receipt gives the number of barrels and the varieties. All apples are hauled in tree-run and are picked in the warehouse.

Entries are made from these duplicate receipt books into a large tabulated book, called "Barrels inwards and outwards." In this book there are certain pages set apart for each shareholder, and this book is so arranged that on opening them one has at view entries of all apples as brought in on the left hand page, while on the right hand page are entries showing exactly how these apples packed out.

For instance, on the left hand page one sees that on various dates given Tom Brown hauled in fifty-seven barrels of Gravensteins. On the right hand page one sees under the heading Gravensteins that those apples packed out thirty-five ones, thirteen twos, seven threes, there being two barrels shrinkage and culls.

A daily record of the pack is kept by the packing room foreman, he having specially ruled sheets for that purpose. As a certain quantity of fruit is rolled into the packing room this man carefully records on these sheets the name on the side of the barrel and the variety. When that parcel is packed he records the number of barrels procured in each grade.

The men employed in grading, facing and heading are experts, and receive instructions from and are under the supervision of inspectors employed by the central association. The aim of the central association is to have an absolutely uniform pack, and when

(Continued on page 226.)

Planting the Bulbs

John Gall, Inglewood, Ont.

OF all window gardening perhaps the most fascinating branch is that which concerns the forcing of spring bulbs — hyacinths, daffodils, tulips, and crocuses. To insure success we must consider well not only the time and the method, but also the material.

The best bulbs are imported from Holland, arriving in this country early in the fall. It is well to have your order placed early with some responsible florist, together with instructions for him to fill it and forward the goods as soon as possible after they reach him. The earlier the bulbs are in the ground the better the results attained from their culture. Crocuses, in particular, should be planted before November, since their vitality is badly impaired by longer waiting. As to varieties, each must be his own judge, as tastes vary. It is only necessary to make selections of double and single varieties and of the color range which seems desirable.

Having made sure of good material and an early planting, the next point to be considered is the method to be used in forcing the bulbs if you wish to use them for your window garden. Here, as in the selection of varieties to be purchased, we find upon looking into the matter that we have a large number of excellent methods from which to choose.

If you elect to put the bulbs in soil use the five-inch earthen pots, which will hold only one hyacinth or tulip, but will contain five crocuses or three daffodils. Be sure that the drainage is perfect, and let the earth be light loam or leaf mould, with a strong admixture of sand. Hyacinths and tulips must be placed near the bottom of the pot, but the smaller bulbs go in about half-way up. There should be a layer of coarse charcoal placed at the bottom of each pot to encourage drainage, a filling above it of sharp sand mixed with the loam, and a layer of sand to draw the heat of the sun and keep both flowers and foliage perfectly clean.

When the planting is done and the soil packed down firmly the bulbs must be set away to make roots in the dark cellar, shed, storeroom, or closet, and the soil must be moistened occasionally. It is best to leave them in the dark until about November, when they should be brought to the light gradually. When the bunches of buds are in plain sight an application of any liquid fertilizer will hasten the growth and increase the size of the blooms. Hyacinths and narcissus are especially well adapted for culture in water. Care should be taken not to let the water touch the base of the bulb, by which is meant the part where the roots start, as the bulb would rot if given so much moisture. When the roots start they will soon reach the water if kept in a warm, dark place. Keep a little charcoal in the water to absorb impurities, and if this does not preserve perfect freshness, change the water every few days.

Crocuses can be grown in water. A little fern dish not more than three inches deep will answer the purpose. A more novel method is growing them in sponges. Select a well-shaped sponge containing rather large holes, which can be cut larger if necessary. Arrange some reliable method of hanging it by means of fine copper wire, which will neither rust nor rot. String can be used for this purpose, but it is likely to fail in time of need.

Having made sure that the sponge will hang securely, put the crocuses into it while it is dry. Use as many as you can crowd in, being careful that each is in a proper position, with the crown showing through the mouth of the hole. Then soak the sponge in a bowl of water until it is thoroughly saturated, and remove it at once. You will find that the swelling of the fibre has contracted those holes so perceptibly as to hold the crocuses firmly in position.

Hang the wet sponge from a shelf in a dark closet which is well warmed for at least two months, keeping it well saturated all the time, but never leaving it in the bowl for a longer time than absolutely necessary. The roots soon become firmly established, and then the top growth begins.

A few days before bringing the sponge to the light sow it full of lawn grass, clover, or flaxseed, which will germinate and form a covering for the sponge. Hang in a shady place at first, and afterwards bring it out in front of the window, although not into direct sunlight.

A Canadian Garden Worked by Irish Boys

Rev. Geo. W. Tebbs, Orangeville, Ont.

IN the little town of Hespeler, in the county of Waterloo, there is the Canadian Branch of the Smyly Orphan Homes of Dublin, Ireland. Nearly twelve acres of land surround the beautiful home, and the major portion of it is under garden cultivation. It is one of the rules of the institution, of which I was the superintendent for some years, that the boys as they arrive are to be trained in garden work before being placed out on the farms of western Ontario. Thus the little fellows become familiarized with Canadian conditions of life before they are sent out from the care of the Home authorities.

The accompanying illustration gives some idea of the beautiful surroundings and work of the lads. In the early spring the boys are given a training in plant raising in the green house, until such time as the land is ready for cultivation. A few old trees of a valueless variety are reserved for experiments in grafting and pruning, and this work follows. In the cultivation of the land only hand labor is employed, and the lads working together find real healthy outdoor exercise in the

Irish boys making garden walks in a garden at Hespeler, Ont.

A Legenaria vulgaris, or dipper gourd vine, as grown on the verandah of Dr. W. T. Gemmell, Stratford, Ont. In the late afternoon it becomes covered with beautiful white blossoms,

handling of the spade and fork. About five acres have been planted with small fruits, and one hundred plum trees planted some years ago are now bearing. All the produce over and above the needs of the Home itself can readily be disposed of locally, and thereby the institution is becoming partially self supporting.

While connected with this institution I found that the English greenhouse varieties of tomatoes give excellent satisfaction out of doors here in Canada. The fruit is of delicious quality. About two hundred and forty dozen tomato plants were sold in the town of these varieties in one spring. Three acres are under cultivation of Cuthbert raspberries, of which I believe there are none better. The boys each have a plot of ground of their own which they work in their spare time. Prizes are awarded to them for the best kept gardens. In addition to the garden the lads have the care of seven lawns around the Home, on which are growing beautiful full grown Norway Spruce trees. They also have colonies of bees, and some two hundred head of pure bred poultry to care for. It is hoped that the two hundred boys who have already had this training will all their days be lovers of gardens and gardening, and make our beautiful country still more beautiful when they have homes of their own.

We should work for "A beauty that supplies a daily need and not a Sunday pride."

The Vegetable Garden

Henry Gibson

Continue to blanch your celery by earthing up. Keep a sharp lookout for rust; take off and burn affected parts, and spray the plants with bordeaux.

Dig the potatoes as they are ready. If you have a cool place to store them they are better out of the ground now. Protect tender crops from the first frosts. Lettuce should have the protection of a cold frame. Turnips, radishes, and any quick maturing crops can still be sown in cold frames.

Smudge fires of wet, salt hay, marsh grass, or anything that will smoke rather than burn, made ready during the day and lighted at night when frost threatens, will save a good many of the more tender vegetables. Careful note should be made of the location of the wind when setting the fires, so that the smoke will hang over as large an area as possible.

As each batch of vegetables matures, clean off the ground. It may pay to sow rye broadcast. Just sufficient loose soil to cover it and allow it to germinate is all that it asks. This will not only keep the weeds in check but will furnish considerable "humus" in the soil when ploughed or spaded under.

For blanching celery the new method of blanching is recommended. This consists of using some pliable material very similar to heavy roofing felt. The paper or felt is of a tar composition, but has no odor and is cut to the desired height. The system simply consists of enclosing a whole row of the plants to be blanched with this material, holding it in position by bent or shaped wires which are inserted over the two sides and into the ground. The advantage of this material is its cheapness, ease of handling, and longevity of life. In addition the celery rows may be much closer together than when blanched with dirt.

Garden Reminders

High bush cranberries make excellent jelly.

Black raspberries may still be layered with good results.

Paeonies and iris may be transplanted to advantage in September.

Cut out all old canes of blackberries and raspberries and burn them.

See that the celery gets plenty of moisture and good cultivation.

Common drain tile, set over celery, blanches it nicely. Cylinders of heavy paper are also used to advantage.

Order bulbs for fall planting. Tulips are easily grown outside. Daffodils may be planted outside in some locations.

Take in geraniums and other plants that are to be kept in the house this winter, before they are injured by the frost.

If weather conditions are cool and moist, grass seed may be sown early in September to good advantage. It is well to add a little rye to help hold the snow.

Potassium sulphide, one ounce to two gallons of water, is recommended for mildew on lilacs or roses. This disease may be recognized by the white spots appearing on the plant.

All runners should be kept off the strawberry plants, and the ground kept thoroughly cultivated during September. Young plantations may still be made. Runners potted up a month ago are the most satisfactory for setting out now.

All fruits that are ready should be picked during dry weather and stored in a dry, cool cellar or fruit room. Peach trees should be examined for borers.

Single and double flowering geraniums, primulas, cyclamen, calla, Christmas cactus, hyacinths, narcissi, are among the best winter flowering plants there are. Most of these can be had in a great variety of colors.—Wm. Hunt, Guelph, Ont.

A horticultural society must be an ever ardent supporter of the improvement of public grounds and parks, and encourage its members and the general public to become interested.—W. Dilger, Detroit, Mich.

Wintering Bees* in the Cellar

By G. G. Gunn, Lockport, Man.

TO the beekeepers of Manitoba the question of wintering their bees is a very important one, on account of the severe winter that we have in that province. I have been keeping bees for the past twenty-eight years, and have always wintered them in the cellar or basement of my house; and as I have not tried any other place in which to winter them, I do not know if it can be done or not. I know one man who tried wintering his outside, and they all died.

The basement in which I keep my bees is one of the ordinary stone basements, with a wood floor. It has proved very satisfactory. I have noticed that when other beekeepers in Manitoba or Ontario have had small losses during the winter mine also have been small and if their loss was large mine very likely proved the same.

The great difficulty I find with my basement is to keep it at an even temperature. As you all know, the temperature of a basement rises and falls with the temperature outside. The trouble is not to keep the bees warm enough, but to keep them dry, so that they will not mould. I have overcome this trouble by having a ventilating pipe leading from the cellar up through the floor above and into the stove pipes. My cellar is 18x20x7 feet, and I have a two-inch ventilating pipe, but intend to put in a larger one.

It has been my experience that the warmer the winter is the greater the loss. I account for this in two ways: One is that the temperature in the cellar becomes too warm, and the bees come out of their hives and drop to the floor. The other is that on account of the rise in temperature the cellar becomes damp, and then, when it turns cold again, the walls gather rime, the sides get damp, and mould gathers on them. When the hives get into this condition the bees get dysentery and die in great numbers. This drawback to wintering bees in a cellar, to a great extent, can be overcome by having proper ventilation and having the walls of the cellar double, with a good air space between the walls. There would be very little danger of dampness and the bad effects from it.

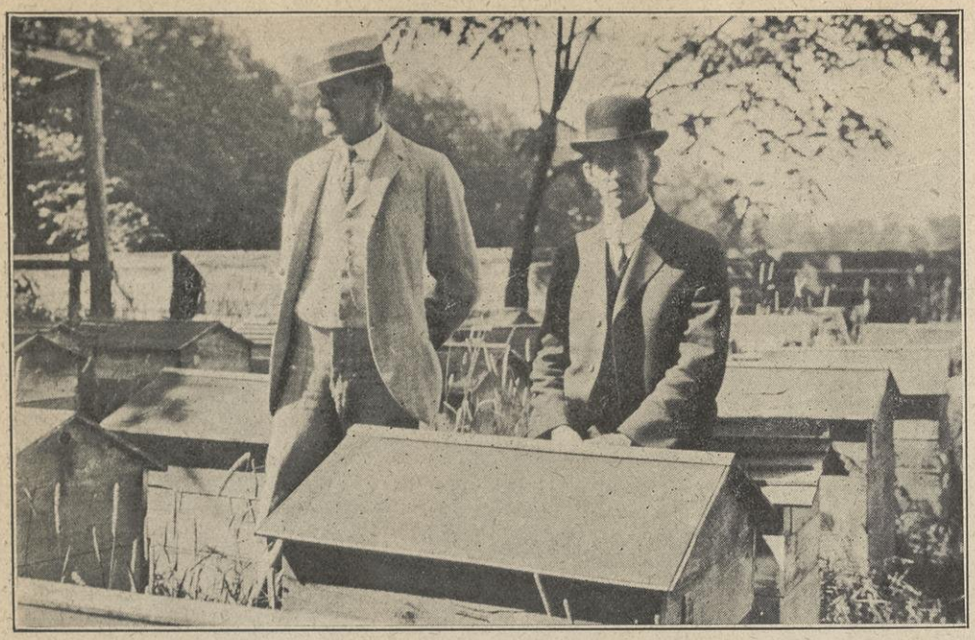
Some of you may want to know at what time the bees should be put in the cellar for the winter. This is a question that it is rather hard to answer, and one that each beekeeper will have to answer for himself. I have not had any set time to put them away, but have been guided by the season more than by a particular date. My rule is that as soon as we have a good fall of snow, that we might reasonably expect to be the first of winter, then it is time to put them away. To show you how these dates may vary, I have put them away on the 5th of November and on one occasion on the 2nd of January, and in both years they wintered with very little loss. For the benefit of the beginner, I may add that my losses have run all the way from nothing up to 50 per cent., but I am glad to say that the latter loss has not occurred very often.

As soon as the honey crop has been gathered and the frosts kill the flowers, I set to work to prepare my bees for winter. I see that they all have enough honey to last them through the long winter, leaving from 20 to 30 pounds of honey with each hive. Formerly I used to take all the honey away from them and feed them a syrup made of two parts sugar and one of water, heated until all the sugar was dissolved. I must say that I had fewer losses from a shortage of food then than I do now. The reason for this is that I always knew exactly how much I was giving each hive, and could feed it to suit its size. On account of this syrup being pure, fewer bees died from sickness than would have been the case if they had been left with late gathered honey, some of which would have been taken from frozen flowers. Outside of seeing that they have plenty of food I do not make any other preparation for wintering except that after they are in the cellar for a few days I raise the covers of the hives and so give them better ventilation.

As with putting them away, so with taking them out—there is no set time. I always take them out when all the snow is gone and the sun is warm and bright, so that they do not get chilled when they go for their first fly. Where I live we have a great variety of good honey-producing flowers, but the one I would like to draw your attention to is the sweet white clover (Albu Mililot). I would urge all beekeepers to grow it. It is very easy to grow, and will grow almost anywhere. Sow the seed in any old waste corner of the farm and it will grow. It will grow along the shores of rivers or on the banks of creeks. It is

*A paper read at the last annual meeting of the Manitoba Beekeepers' Association.

A group of beekeepers which had gathered from a radius of 75 miles to attend the Field Day at the home of Messrs. Peabody Bros., Woodstock, N. B. in July. Mr. Morley Pettit, of Guelph, who addressed the meeting, may be seen a little to the left of the centre of the front row.



This illustration is from a snapshot taken in the apiary of Mr. F. W. Jones, Bedford, Quebec, July 10th. It shows Mr. Jones on the left and Mr. Morley Pettit on the right. An article by Mr. Pettit describing this apiary appeared in the August issue.

growing on the hard, stony bank of the river where I live, and grows to a height of six to eight feet. From early in the season until late in the fall it is a mass of bloom, blossoms that produce the finest, the whitest, and best-flavored honey that can be produced. As I said before, it is very easy to grow. All you have to do is to get some of the seed and sow it in any waste place where you wish it to grow and spread, and nature will do the rest.

The Beekeepers by the Atlantic

Morley Pettit, Guelph, Ont.

I HAVE just returned to the mainland (July 22) from the tight little island of Prince Edward, the land of foxes, horses, and anti-motor legislation. Only three days in the week—Monday, Wednesday, and Friday—and only on certain roads are automobiles allowed. I was told that if a motor car dared appear on the street of Charlottetown on market day it would be mobbed. The people are strictly agricultural, a large percentage of the land being under cultivation, and practically all of it fit for cultivation. There are no high elevations, and apparently very few rocks or stones. The soil is all of a brick-red color, giving the roadways a very artistic appearance, threading, as they frequently do, between overgrown hedges, which shade them from both sides. It is a land of cool showers and verdure. Clover grows abundantly in many sections, but bees are all but unknown.

One of the most progressive beekeepers — Harold Newsome, at Charlottetown — has about ten colonies—good, strong ones, Italians. He has averaged over 100 pounds per colony for the last three years. There are apparently no black bees in that neighborhood at least. They used to be very plentiful, not only in hives but in trees, but about fifteen or twenty years ago they were all "killed off by the wax worms"—so the people said. Those who have attempted to keep bees since have had indifferent success, losing nearly all every few years. A few colonies examined showed European foul brood in a comparatively mild form. It does not take a Sherlock Holmes to guess what happened the bees before the wax worms destroyed their combs.

There is at present no government work in apiculture in the province, with the exception of a small apiary at the Dominion Experimental Farm. The writer met the Commissioner of Agriculture, Mr. McFarlane; also Mr. W. R. Reek, the Director of Agricultural Education. In fact, the visit to the island was on Mr. Reek's invitation. Both of these men are much interested in promoting beekeeping, and promised at an early date bee disease legislation would be enacted, and that some one with a proper training would be allowed to devote a part of his time in the interests of the beekeepers.

July 23. — Judging by appearances from the train window, the flat country between Moncton and Amherst, N.B., is one of the finest white clover and alsike districts I have seen. Some parts are too low and wet, of course, but it is all a heavy clay, which just now is covered with hay full of clover. Both Mr. B. W. Baker and Mr. Inglis C. Craig, who appear to be almost the only beekeepers in the district, are of the opinion that many tons of honey annually go to waste in these flats. And such honey — clear, heavy, and good-flavored — is not surpassed anywhere!

Mr. Baker is collector of customs and Mr. Craig is public school inspector. Each keeps from twenty to thirty colonies. They winter in the cellar exclusively, claiming that outdoor wintering simply cannot be successfully practised. They are equally positive that the native black bees are far superior to Italians. I sincerely hope that European foul brood will not come along and compel them to revise their opinions, because they are having good success. One hundred pounds per colony is considered a fair average, in spite of excessive swarming.

Swarming and wintering seem to be the main problems with which these men have to contend. They have overcome the latter by extracting all honey from the brood chamber in autumn and feeding up on sugar syrup, but the swarming problem seems to be a very real one. However, after a demonstration on methods practised by the writer they both wrote for our bulletin 233, and are going at it with renewed vigor.

Seasonable Reminders

F. W. L. Sladen, Dominion Apiarist

Early in September every colony should be examined and it should be ascertained not only that each one is populous, but also that it possesses a fertile queen (preferably young), a point that one can be sure of if worker brood in all stages is still to be found. If any colony to be wintered out-of-doors has less than about 35 or 40 pounds, or, in the cellar, less than 25 to 30 pounds, of sealed stores, the deficiency should be rectified by feeding at the end of September with syrup made by dissolving two parts, by weight or measure, of best white granulated sugar in one part of water. To quickly and completely dissolve the sugar the syrup may be made over a fire, but in this case care has to be taken to prevent the least burning of the sugar by constantly stirring until it is all dissolved.

Where the perfect wholesomeness of the honey stored for winter food is open to doubt it is always advisable to supplement it with well-made sugar syrup. The syrup should be given to the bees in a "Miller" rapid feeder or in a common lever-lid tin having a few small holes punched in the lid, and inverted when in use; the feeder is placed over the combs in an empty, bee-tight super and filled up every evening until about one and one-half times the required weight of syrup

(to allow for evaporation and consumption) has been given. In very dry regions or for wintering in very dry cellars, especially where the honey stored is liable to granulate, a somewhat thinner syrup, made with, say, one and one-half parts of sugar to one of water should be given.

A Dead Colony

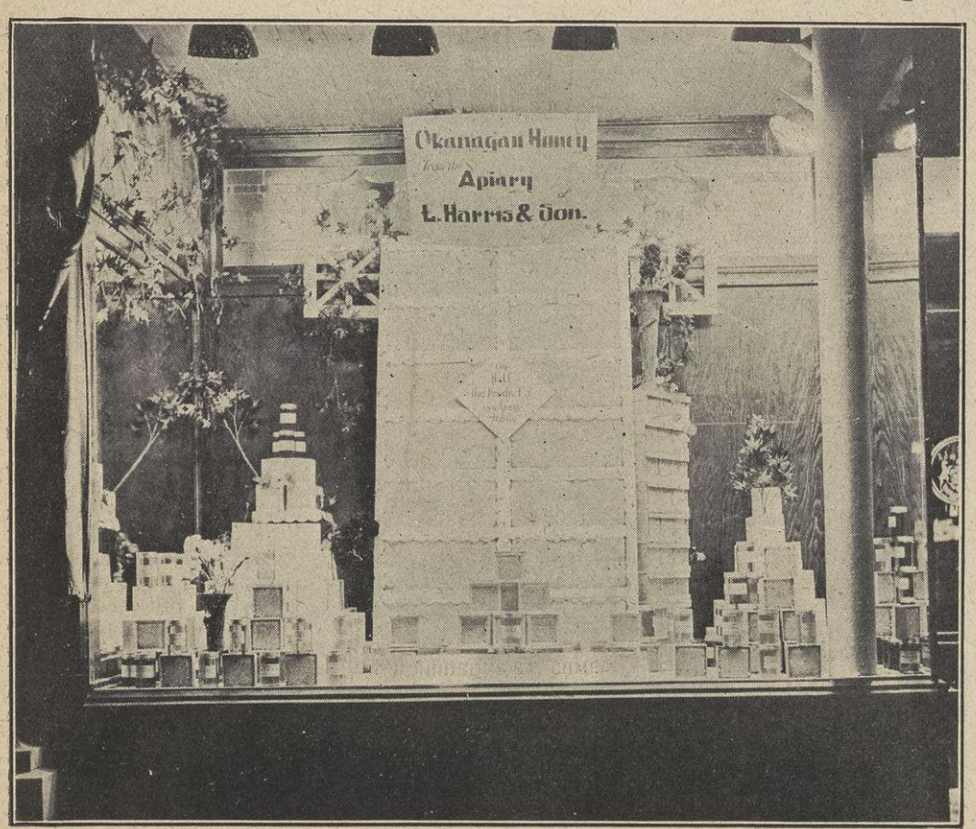
John A. McKinnon, St. Eugene, Ont.

ON the afternoon of April 8th, 1 removed fifty colonies that I had wintered in the cellar of a friend at one of my outyards, and placed them on their summer stands. Two days later I returned to look things over, bringing a supply of sealed combs of honey to give to any that were short of food. On looking over the yard I found one colony that had evidently been robbed the day previous. The bees in this colony were lifeless and all scattered over the combs and bottom board, and as far as I could detect were done for. Three more colonies were too weak in bees to defend themselves properly against robbers once the weather warmed up, and I took them to my home and yard, where closer attention could be given to them. The weather was quite cold. Arriving home I brought the dead colony into the house and placed it beside the stove to see if a little warmth would not revive them sufficiently so that they would take some warm syrup. After being twenty minutes in the house, I decided that they were too far gone to revive, so they were placed outdoors. Later in the evening my wife drew my attention to two bees that were crawling on the floor under the stove, and remarked that they must have come from the dead colony. My hopes were revived. I brought the box in again, screened the entrance, and placed them on top of the kitchen stove. Soon I detected a slight movement among some of the bees along the top bars. I immediately made a thin sugar syrup and sprinkled it over and between the frames. I made everything bee tight and left them beside the stove. Next morning my dead colony was a real live one. A further examination revealed a good queen. Two frames of honey were given, and later they developed into quite a prosperous condition. Moral: Make sure your bees are dead.

Fall Reminders

Whether bees are wintered inside or out—the method of preparing them for the winter is the same. Bees should be looked over and their stores estimated by the twentieth of September. They should be fed as early in October as possible or during the latter part of September. If they are fed during a time when bees are flying, extreme care should be taken to prevent robbing. Feed only at night after bees have ceased flying. Keep all entrances contracted and do not expose any syrup. It is easier to prevent robbing than to check it after it is started.

Syrup for winter stores should be made up in the proportion of two parts white granulated sugar to one of water. If bees are fed late in October a larger proportion of sugar should be used. In wintering bees out of doors it is necessary to remove covers from hives and also the sheet of oilcloth over the frames and substitute a piece of burlap that will allow the moisture to escape freely from the cluster. Bees in the cellar should have between twenty-two and twenty-five pounds and those out of doors should have twenty-five to twenty-seven to winter successfully. When the hives are put in the cellar the bottom boards should be removed and the hive placed about two feet above the cellar floor on planks, and piled diagonally above one another to allow dead bees to drop from between the frames.



An exhibit of honey-made in British Columbia from an apiary of L. Harris & Son, situated in the Okanagan. It comprised one-half the product of one hive of 112 lbs.

Question Box

The following questions were asked through the question box at the last annual convention of the Ontario Beekeepers' Association. Most of them were answered by Mr. Pettit and others were answered by Mr. Pettit and other beekeepers who were present.

Is there a positive cure for E. F. B?

Mr. Pettit: I don't know of anyone who ever got absolutely rid of the disease.

How do you keep bees from swarming when producing comb honey?

Introduce a young queen before the honey flow commences.

Do king birds make a regular practice of eating bees?

Several members testified that they had found the remains of bees when dissecting kingbirds. President Byer considers them useful to some extent.

How do you regard the smoke method of introducing queens?

The average beekeeper will have about the same percentage of success as with the age method. If a beekeeper has a good system of his own, stay with it.

Can drone brood jelly be used for grafted queen cells?

Yes; but royal jelly is best.

When introducing queens, should the hive be freed from eggs by removing the old queen four days previous?

It makes very little difference. It is sometimes easier in the spring to introduce a queen into a colony when there is no larvae.

What is the best wall for a bee cellar—stone, brick or concrete?

Concrete. The owner can build it himself and be sure of a good job.

Destruction of Comb by the Wax Moth Larvae*

E. W. Atkins, O. A. C., Guelph, Ont.

IN ONTARIO there are thousands of pounds of wax destroyed every year, generally through the neglect of the bee-keeper. This loss is caused by the wax moth larvae, so a few facts about this pest will be in order.

The adult wax moth is about five-eights of an inch in length, with a wing expanse of one and one-quarter inches. The moth, with its wings folded, appears ashy-gray in color, but the back third of each front wing is bronze colored. The hind wings are uniform in color, usually gray. The male is slightly smaller than the female. Anyone that has seen this moth will always recognize it in future, because of its color and characteristic movements.

In the evening the moths may be seen flitting about the entrance of the hives, seeking an opportunity to enter and deposit their eggs in some convenient place. If the hive is weak, the moth gains entrance, but if she cannot get inside she will lay her eggs in crevices near the entrance. The eggs adhere firmly where deposited. The eggs are elliptical in shape and about one-fiftieth of an inch in length; they are pearly white, with wavy lines running diagonally across them at regular intervals. As the incubator period advances, the eggs gradually darken to yellow. The incubator period varies from ten to twelve days, according to the season when laid; eggs laid later in summer hatch in less time than those laid earlier.

When the eggs hatch, the larvae are about one-eighth of an inch in length, and white in color. They remain in the larvae stage from thirty-five days to six weeks, again varying with the season. The full-grown larvae are about three-quarters of an inch in length and of a dirty gray color with a brown head. The body is large and rounded, while the head is small and pointed.

When the eggs hatch, the larvae find their way to the combs. This is the only time they may be exposed to the bees. Once on the combs, they quickly eat their way in under the cappings and form galleries along the mid ribs. They line these galleries with a strong silken web, and in this web they can advance or retreat quite rapidly, thus they often escape their enemies.

At first it was thought that the larvae lived entirely on wax. This is why they are called wax moths. From recent experiments, however, we know that the larvae do not feed on the wax except to a slight extent. When a number of larvae are given pure beeswax they soon die from starvation. The larvae feed chiefly on the old cocoons that are left in the cells from the developing bees; they also feed on pollen grains. The pollen supplies nitrogen, which, together with the animal tissue of the old cocoons, forms a very nutritious food. This is plainly seen from the fat and healthy appearance of the larvae.

Any hive that becomes weak in bees in the summer will, in most cases, be overcome by the greedy wax moth larvae, and in a few weeks nothing but a mass of webs and excreta is left in the hive.

The larvae pupate as soon as sufficient food is consumed. Before pupating, they enter a crevice or gnaw a groove in the frame or wall of the hive, and after spinning a cocoon enter the pupal stage. The pupae are first white, finally turning to a dark brown before emerging as adults. The moths emerge about two weeks after the larvae have transformed to pupae.

*Extract from a thesis entitled "Comb Building."

The best method of control is prevention. Strong colonies of Italian bees, with young, vigorous queens, will do this part.

There are three parasites of the wax moth. One is found in Italy, and the other two in France. At present these parasites are not found in any part of North America.

In Ontario, the moths very seldom attack clean white combs, but white combs should not be stored with combs that have contained brood.

If black combs are hung in the light they will not be injured so often by the wax moth larvae. A convenient framework for the frames can be made from laths, and the frames spaced three inches apart. Rows of these frames can be hung along the sides of a light room.

Where the frames cannot be kept in the light, they should be stored in hive bodies, and every three weeks, from early summer to frost, they should be thoroughly fumigated. There are two methods by which this fumigation can be carried out: first, with the aid of sulphur, and second, with carbon bisulphide.

If sulphur is used, take about two ounces of sulphur for every eight hive bodies containing frames. Then place an empty super on a flat board or ground and place the sulphur on a small pan of red hot coals in a larger pan containing water. After placing this in the empty super, tier up the hive bodies containing the frames and cover the top as tightly as possible. Leave them like this until next treatment.

With carbon bisulphide, the treatment is somewhat more simple, but on account of the extreme explosiveness of this liquid it must never be used where there is a flame of any kind, or an explosion will take place. If, however, due care is used, there is little danger. Carbon bisulphide is heavier than air, so instead of having to move the hives containing the frames for every treatment, an empty super is placed on top of the hive bodies. For six ten-framed hives, two ounces of carbon bisulphide are needed. This can be poured in any small vessel and allowed to evaporate. Cover up all crevices and keep closed until next treatment.

Prospects For Beekeeping in British Columbia

SPEAKING to a newspaper representative recently, Mr. F. Dundas Todd, Provincial Apiary Inspector for British Columbia, who had just returned from a trip to the Chilliwack Valley, predicted great things for the beekeeping industry in that Province.

"Last year," said Mr. Todd, "our production had increased to one hundred and fifty tons, the value of which was $68,000. With our thousands of square miles of fireweed, this province is one of the finest fields on this continent for the production of honey. Fireweed is the bright wild flower which is just now flowering. All of the mountains in the coast regions are covered with it. Some day, on the mountains of the Lower Fraser, we are going to have the bee rancher. In the canyons of Southern California, we find the bee rancher. His is the easy life. He does not need to fence his stock, tend them or bother himself with them. But he leaves them alone and they come home and bring their honey with them.

"In British Columbia we are on the verge of having a number of bee ranchers who will be able to lead an independent existence by means of their apiaries. There are nearly a dozen men who are now reaching the hundred-colony mark. The average colony will net the bee rancher from ten dollars to twenty dollars a year with good care. You can easily figure out that fifty colonies of bees will give an income of $500 to $1,000 a year. With a hundred colonies, the bee rancher should have from $1,000 to $2,000 income in a year. One good man can take care of three hundred colonies.

150 Pounds to a Hive.

"British Columbia is remarkable for the productivity of the bee colonies. There are between 4,000 and 5,000 bees in a hive when spring comes. At the present time, when the honey season is on, the colonies are increased to their greatest size. A hive will have between 75,000 and 100,000 bees. British Columbia is peculiar in this, that we get bigger colonies at the time of the honey flow, on account of our long spring season. There are plenty of colonies here in British Columbia that average 150 pounds to the hive. At the average price of seventeen cents a pound, this will give the bee rancher $25 for the hive. In California they do business and make a profit of $3.50 a hive."

Mr. Todd says there are now a number of young men in Vancouver who are learning the bee business, with the ultimate intention of getting back to the land. Many farmers' sons are also keeping a few colonies for the sake of pocket money. The Provincial Bee Inspector says the second storey in hives is what has made possible the great yield per hive. Mr. Todd instanced the case of one man who secured a colony of bees and followed the instructions laid down by the Department in its pamphlet, with the result that he secured 200 pounds of honey the first year from the one hive.

"If the bee men of British Columbia were all equally efficient," said Mr. Todd, "we could quadruple the present honey production without the increase of a single hive over those now in existence."

Mr. Todd has been in the Chilliwack Valley trying to root out the foul brood. Last year there were thirty-eight hives in the neighborhood of Vancouver destroyed on account of this disease. This year some seventeen hives have been destroyed. On his recent trip to Sardis, he had fourteen colonies in one apiary destroyed, and in another seven colonies. The Department has succeeded in keeping this disease well in check.

Reminiscences of a Veteran

Hugh Orr, St. Thomas, Ont.

I made my first acquaintance with bees when quite a small boy. My father took me to visit an uncle who had hives. That day they could hardly get me away from the bee-yard. Ever since I have been exceedingly fond of bees.

I bought my first bees in 1873. At that time I was in New Zealand. The year was a wet one, and although I tried to feed them, my bees died. I spent over three years there and then returned to my home in Ireland, where I worked for several years as an assistant gardener. Bees were kept on the estate, and although the gardener said he had served a seven years' apprenticeship he knew no more about bees than I did, which was not much. When honey was required the bees were killed with brimstone.

When I came to this country I bought some bees, but in the course of two years they died. I made enquiries for a book on beekeeping, and secured one, the "A.B.C. of Beekeeping." From that day to this success has been mine.

My first bees were blacks, but after giving them a year's trial I was not satisfied with them. I secured a queen of the Golden Adel strain, bred by Henry Alley, of Wenham, Mass. These bees are splendid foragers, good comb builders, prolific and hardy. The Holylands was another strain of golden bees that I secured from Texas. They are a fine species, but somewhat vindictive.

In 1911 I sent to Switzerland for some prize-winning Golden Italians. I received a queen and fifty bees, only five of which remained alive. I got her introduced, and in 1912 reared three queens. These were fertilized with their own drones and kept by themselves. I now have four hives of beautiful Golden Italians.

I had intended to establish an out apiary for the rearing of queens, and wrote Mr. Henry Alley for some advice. I did not quite like one idea in his management—the very small hives for fertilized young queens, so I thought out a plan of my own. I would make a hive half the length of the Langstroth and the same depth. This hive would hold four frames that would be half the length of the ordinary frame. In the spring I would place these four frames, end to end in pairs, in the centre of a hive containing a strong colony. When about to swarm I would take out the two centre frames, with brood, eggs and adhering bees, unjoint them, and place them side by side in the small hive. I would then have a fine colony for fertilizing queens. After queen rearing the colony could be united with another colony until spring. When I had everything nicely planned out I read in an issue of the American Bee Journal that someone else had done the same thing.

Five years ago I paid a visit to my home in County Antrim, Ireland. I met several beekeepers, and told them we had much finer bees in Canada. I explained to them that they could greatly improve their bees. On my return I sent each of them a queen. When the queens arrived they sent for the Government apiarist, who introduced them successfully. The queen cages were a nine days' wonder to them.

I have been practising the Alexander plan to prevent swarming when working for extractor honey. I would like to know a good method to prevent swarming when working for comb honey. If any readers of The Beekeeper know of one I should be glad to hear from them.

Market Prospects

The white honey crop committee of the Ontario Beekeepers' Association, early in August, issued a report that there was about an average crop and that the quality was excellent. The prices recommended by the committee were as follows:

No. 1, light extracted, wholesale, 10c to 11½c per lb.

No. 1, light extracted, retail, 12½c to 15c per lb.

No. 1, comb, wholesale, $2.00 to $2.75 per doz.

No. 2, comb, wholesale, $1.50 to $2.00 per doz.

These prices are f.o.b. in 60-lb., 10-lb., and 5-lb. tins; the former being net weight with the tin thrown in, the two latter being gross weight. The difference in time and trouble of filling the small tins about equalizes the price. In selling to the wholesale merchant, the lowest wholesale price should be asked; while the retail grocer should pay the highest wholesale price. The retail price to the consumer may vary according to the quantity he takes in any one purchase, and whether he supplies his own package.

The Beekeeper: I enjoyed the June number of The Beekeeper very much.—Mrs. Bellhouse, Chatham, Ontario.

The family of Jas. M. Munro, Slate River, Thunder Bay District, Ont. One of which to be proud Can any other of our readers surpass it? Mr. Munro is a director of the Ontario Beekeepers' Association.

Fall Care of the Colonies

G. Guyer, Port Elgin, Ont.

As soon as the buckwheat flow is over, I move all late swarms by degrees closer together until the entrances are 24 inches apart. I mean those colonies that are not sufficiently strong to put up for winter singly. I move them a few inches every day until I get them 24 inches from entrance to entrance. Then I unite all swarms that are weak or all that I think will not be sufficiently strong to winter well. Sometimes I unite two and sometimes three, as the case may be. I then put out my open-air feeders and attend to them well. Even if the weather is fit the little fellows will carry in the stores to beat the band. If they have queens worthy of calling a queen, they start to lay and will lay right along as long as the stores continue coming in from outside. They breed fifty per cent. better than when fed inside the hive. Of course I recommend the cluster feeder in all the hives that need the most, so that it can be taken down at night or in bad weather when they cannot work outside at the feeders. I also recommend a tumbler feeder behind the division board in all those where the hive has been contracted.

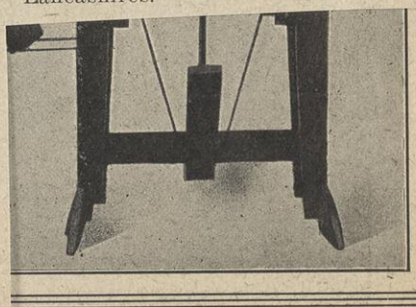
I have all the entrances turned to the east to get the morning sun. If a hive is to be contracted with a division board, I put the division board on the north side. As soon as the nights become cool in the fall, I take the tumbler feeder out and fill up the space behind the division board with dry, fine cotton rags. I keep them warm and dry and keep a cluster feeder in all of them that need it the most. The open-air feeders are kept going as long as the weather is fit for a bee to fly eight rods and return to its entrance. They will do this on a pretty chilly day.

When the fall is so far advanced that they do not fly for a few days, I go around and take their alighting boards and stand them up edgeways to the hive or cage. This prevents the cold winds from blowing in the entrances. If there comes a fine day, I take the boards away and let them have a good fly.

Bees Fought the Troops

In the bush fighting in East Africa, the Germans and their black troops placed hives of wild bees, partially stupefied by smoke, under lids on each side of narrow tracks along which the British and colonial troops must advance. Wires or cords lifted the lids when touched by the advancing troops, and swarms of infuriated bees, recovered from their temporary stupor, were let loose on the attackers.

The failure of the attack at certain points is said to have been due as much to this onslaught of the "little people" as to the German rifles and machine guns, many men being so horribly stung on the face or hands as to be temporarily blinded or rendered incapable of holding their weapons. Over 100 stings are said to have been extracted from one of the men of the Loyal North Lancashires.



Standardizing the Apple

Prof. T. G. Bunting, Macdonald College, Que.

PROBLEMS connected with the marketing of fruit are occupying the minds of fruit growers and the Departments of Agriculture as never before. The production end of the business has been given most attention in the past, but growers are now realizing that it is necessary to develop the sales end of the business if they are to continue successful.

Co-operation is doing much and will do more in the future, but there is a phase of the fruit business that has not been given the study that it should be given if co-operation is to be finally successful on a large scale in the fruit sections of Canada. This phase is a question of varieties; too many varieties have been planted in the past, many of such inferior value that they have affected the market adversely time and again, and too many varieties are still being planted. Any leading nurseryman will list in his catalogue from fifty to one hundred and fifty varieties of apples. He does this because he believes there is a demand for them and, of course, he endeavors to fill the demand. Nurserymen cannot dictate to the growers how many varieties they should plant, consequently we cannot look to them for any special guidance in this matter.

Co-operation in fruit growing will not be highly successful without standardization of its product, and standardization of the apple cannot be brought about without the commercial elimination of many of the varieties now grown. By this one must clearly understand what is meant. Different varieties are necessary to cover the different seasons, for dessert and cooking purposes, for shipping and for adaptation to climatic and soil conditions in the different fruit growing sections. It does not mean that "one-hundred-and-one" varieties should be grown, but rather a few of the best that have stood the test of years and that cover the demands for cooking and eating for the various seasons.

Lack of definite knowledge has led fruit growers to plant too many varieties in the past, but the time has come for the fruit growers to change this. They can do it through the authoritative bodies of fruit growers, such as the provincial associations, in co-operation with the local associations and co-operative societies. These associations have recommended from time to time lists of varieties for planting, but these lists are even yet much too lengthy and could with advantage be cut down to a minimum.

Co-operative selling associations could exert a great influence towards the standardization of the apple by refusing to accept for marketing varieties that are not on the approved list, and in a short while growers would either top-graft the undesirable varieties or entirely replace them by new orchards of the approved ones. Such standardization of the apple would lead to greater efficiency in the apple ad- [illegible] of the future and with season and that of poor quality apples for eating purposes. With an efficient standdardization on a commercial basis the question of apple advertising to increase consumption would be largely solved, for the public could then be more intelligently informed of the merits of the varieties as they come in season, all of which is of vital importance to the customer.

Part of the success met with by the Pacific Coast apple growers in marketing their fruit is due to the fact that their apples are standardized, which practically means few varieties, a minimum number of packs, and careful grading, so that every apple in one box is of the same grade. If this is the case with a box, why should it not be with a barrel.

Statistics show us that there has been a large falling off in the production of apples in the United States and Canada in the last two decades without a corresponding increase in prices. Other fruits have largely taken the place of apples in the market, and if the apple is still to remain the "King of Fruits," the apple growers must see that this position is not usurped by some other fruit.

An authoritative planting list of varieties of apples would not necessarily lessen or prevent the introduction and trial of new varieties, but would largely prevent their extensive planting for commercial purposes until they have been thoroughly tested and proved their desirability. We have an abundance of good varieties to select from and such an authoritative list put into effect by the fruit growers' associations and co-operative societies should have a marked effect on the future prospects of the apple in Canada.

excreta is left in the hive.

The larvae pupate as soon as sufficie food is consumed. Before pupating, th enter a crevice or gnaw a groove in t frame or wall of the hive, and after spinnir a cocoon enter the pupal stage. The pup are first white, finally turning to a da brown before emerging as adults. The mot emerge about two weeks after the larv have transformed to pupae.

* Extract from a thesis entitled "Co Building."

Essentials of Marketing Fruit

F. H. Grindley, Fruit Division, Ottawa

THERE has been much criticism made of the methods in vogue for marketing the fruit crop of Canada. Such criticism has been largely merited. In order to effect improvements there must be organized effort. Lack of this has been one of the greatest obstacles to progress. While every fruit grower is willing to admit the faults of our marketing systems, and while many know just where improvements are most needed, there are many who are unwilling to carry their complaints or their knowledge beyond their neighbors or beyond verbal utterance. Consequently the big efforts towards rectifying faults that have become more urgent and troublesome, have devolved upon a few individuals, and to them the growers' thanks are due for most of the advantages we now possess.

That many improvements must yet be made we all admit, but during the duration of the war, probably, many of them will not be effected, therefore we must make the most of the privileges we have. We must find ways and means under existing conditions of disposing of our crop at fair prices. In order to do that we must create a demand, a larger demand than ever before because conditions at the consuming end are not ordinary.

There are a number of points that growers should bear in mind before and during the marketing season. In the first place we should organize the distribution. There are plenty of small towns and villages in Ontario and other provinces that are inadequately supplied with fruit, and many that are overstocked. That means faulty distribution. This condition offers opportunities for the wideawake grower or co-operative association.

Do not deal with firms or individuals unless you know their reputation. Avoid indiscriminate consignment as much as possible. If you have no established trade connections, make careful enquiries from some reliable shipper and get in touch with a consignee whose honesty in business dealings has been established. Communicate with the provincial and federal departments of agriculture, whose duty it is to keep in touch with markets. They will be glad to assist.

Try to create an early demand for your product. This is a matter for organized bodies to take up, just as the Niagara Peninsula growers have already done. Get to the public through the press, or by any other means. The individual grower can probably do little, but small bodies can make some impression and large organizations a proportionately greater one. This year it is essential that "Canadian Fruit" be constantly before the public eye. The palates of the people must be tickled. Do not be narrow minded and think that by advertising you are helping the other fellow. Why not? Try to make 1915 a year of co-operation, of working in harmony for a common object—increased home consumption.

Plan for the future. Be careful that everything you market is fit for consumption. There is no promise of a regular steamship service to Great Britain, and while satisfactory arrangements may yet be made, we are not assured that the usual amount of fruit will be exported. With markets as they are it is of the greatest importance that only the best grades be packed. An Ontario shipper had apples on the Toronto market on July 17, which were little larger than cherries, and utterly unfit for food. Such practices cannot be tolerated. Every possible effort is being made to stop them. There are strong reasons for believing that for the higher grades of fruit there will be a good demand in the Old Country and in our own markets. Whether transportation facilities will be satisfactory remains to be seen. The Fruit Branch at Ottawa will keep in close touch with the steamship companies and be prepared to advise shippers as to dates of sailings, and rates.

The three features mentioned are the most important—distribution, advertising and proper packing. With them in mind, the growers ought to succeed in selling their fruit at good prices. The market for early fruits has been satisfactory. There is no reason why such a condition should not extend over the season for later fruits. Be optimistic. If each of us will do our share towards bringing about a common result, the success of our united efforts is assured.

Prospects for Marketing Fruit

Already Canadian fruit growers are becoming anxious as to the likelihood of disposing of their crops this year at satisfactory prices. There will be a fair crop of practically all varieties of fruit, and the growers are apparently keeping in mind the panic which followed the outbreak of war last summer, when shipping facilities to the Old Country markets were temporarily demoralized, and when a considerable quantity of Canadian

fruit was allowed to go to waste. This was largely due to the fact that many itinerant apple buyers were not operating. Consequently, growers who in previous years had been dependent upon these men to handle their fruit found themselves left with a crop of apples on their trees, with no knowledge of marketing and with no established trade connections. At all events the season was not a satisfactory one.

To predict now what is likely to be the market situation this autumn is impossible. There is reason to hope that a much more satisfactory state of affairs will prevail than in 1914. In the first place the panic is over; all classes have had time to reflect upon the general situation and upon their own positions. Reflection has resulted in, or been followed by, optimism, and the Canadian public, outwardly at all events, is less perturbed now than it was last fall.

In the second place, our large consuming markets in the west promise to be as large and important a factor as ever in disposing of the fruit crop. Conditions there depend largely upon the grain crop, which is reported good in all districts. Money should circulate freely and consumers should buy readily.

Thirdly, the laboring classes in Great Britain have secured employment at better wages than they ever received, and the buying power which was reduced last year through unemployment and panic, has now been improved by the demand for labor.

To these facts we must add one more: the added publicity which is being given to Canadian fruit. In British Columbia, in the Niagara Peninsula, and in Nova Scotia, great efforts are being put forth to increase consumption by direct advertising, and good results are assured.—Dominion Fruit Division.

Bees Saved the Strawberry Crop

Editor, The Canadian Horticulturist: Some time ago, while travelling, I chanced to mention to some parties whom I met that we had received one thousand dollars for the crop of strawberries we had grown on an acre of our farm at Central Norton. From there the story found its way into the local paper. Since then we have received many enquiries about it, and as the subject seemed to be of interest to so many, I thought I would like to state one of the reasons why we succeeded in harvesting this crop in a year when berries were generally a failure.

We got a fairly good stand of plants on this patch the season before. They wintered fairly well, but the spring was backward and cold. They began to bloom about June 1st. On the night of June 4th we had a heavy frost, which killed all the blossoms down to the smallest buds. We thought our crop was doomed, because we remembered a season about seven years before when a lighter frost had ruined our crop. This was before we began keeping bees.

The evening after the frost it rained, a good soaking rain, which caused the plants to set more fruit buds out of the crowns. Where one or two fruit stems had been before, there sprang many more—and in about ten days the patch was white with blossoms again.

Near to this patch we had fourteen colonies of bees. At this time of year the hives were brimming full, and every fine day, while the plants were in bloom, you could hear their busy hum quite a distance from the patch. The spring being so cold, there were very few wild bees or other wild insects, so we had to depend solely on our own bees for the fertilization of these blossoms, and they made a good job of it. How do we know? Because, as the season drew near its close, every blossom that had not been frozen grew a berry. There were none of the small hard knots often seen towards the last of the harvest.

How much do you think those bees were worth to us on that crop of berries? We place it at hundreds of dollars, but this is only an estimate. One thing we are sure of, and that is that it pays well to have a good crop of berries in a year when they are scarce and high in price; and we know the bees were largely responsible for the excellent pollenization of the blossoms. We had more than half these berries picked before it began to dawn on us that we were going to have a crop, we were so sure the frost had fixed them.

The sooner that fruit growers find out the benefit that bees are to them, the sooner they will catch the dollars that are slipping through their fingers because of imperfect pollenization. The profits in beekeeping are not all to be counted in the number of pounds of honey harvested.

L. T. FLOYD, Central Norton, N.B.

Ten fruit growers in the vicinity of Thorold, Ontario, have brought suit against the Coniagas Production Co., of Thorold, asking for damages of various amounts, on the ground that deadly vaporous gas from the company's smelter at Thorold, killed the bees for a radius of many miles about the works. They also contend that the poisonous vapors have killed vegetation, making it almost impossible to conduct farming or fruit growing in the vicinity.

The damages asked for range from $400, in the case of Wm. Selby, of Homer, to $10,000, in the cases of Manford Miles, of Thorold, and John Newhouse, of Homer. The claimants contend that their bees were killed by sucking poison out of the flowers.

The Middleman Issue

At the recent conference held in Calgary, Alberta, between representative British Columbia fruit growers, commission dealers and consumers, considerable attention was given to the part the middleman plays in the distribution of fruit. Mr. R. M. Winslow, Provincial Horticulturist for British Columbia, claimed that the fruit growers were doing everything possible to reduce the cost of production, but in spite of the fact that labor prices in British Columbia had been slowly decreasing, nevertheless, practically all of the profit went to the laborer, shippers and handlers of the fruit, rather than to the grower. Although the duty on supplies has increased the cost of producing and marketing fruit by increasing the cost of the supplies needed in its production and handling, he contended that the cost of production in British Columbia was very little higher than in the Coast States. Mr. Winslow thought that the present demoralization of the fruit trade in the Pacific Coast States would last for four or five years, and urged the prairie consumers to stand by the growers while conditions were adjusting themselves.

Interesting figures supplementing some that had been given by Mr. Winslow, were presented by Mr. Sherwood of the Regina Board of Trade, showed that a box of fruit for which the producer received 17 cents net was sold to the retailer in Vancouver for $1.15 per box and retailed to the consumer at $1.35. He declared that in the northwestern states, the producer received from 10 to 15 per cent. more, while the consumer actually paid less. Altogether, it cost $1 to ship 17 cents' worth of fruit from Okanagan to the jobber in Regina.

Mr. Winslow went into detail on the subject of the California citrus growers, especially in regard to transportation expenses, and declared that British Columbia fruit growers' organizations had secured just as good rates and minimums and an equal service from the Canadian railways. He would not say that lower rates might not be secured, but at present the rates were as fair as those on the American side.

BULLETINS AND REPORTS.

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: The Bi-Monthly Zoological Bulletin of the Division of Zoology of the Pennsylvania Department of Agriculture, by H. A. Surface, D. Sci., Economic Zoologist, and "The Control of Potato Diseases," by H. T. Gussow, Dominion Botanist, being circular No. 9 of the Dominion Experimental Farm, Ottawa. The Department of Agriculture has also published Pamphlet No. 2, entitled "The Potato." This pamphlet gives the methods and results of the growing of potatoes in the different Provinces of the Dominion. It is instructive and should be applied for by those interested.

The New Jersey Agricultural Experiment Stations, New Brunswick, N. J., is distributing Circular No. 42, entitled "Spraying and Dusting White Potatoes," by Thos. J. Headlee, Ph. D., Entomologist, Circular No. 44, entitled "Common Diseases of Apples, Pears and Quinces," and Circular No. 45, entitled "Common Diseases of the Peach, Plum and Cherry," both by Mel. T. Cook, Ph. D., Plant Pathologist. These circulars are well illustrated and will be found of interest and value. The British Columbia Fruit Growers' Association has recently issued their Twenty-Fifth Annual Report for 1914.

Grading and Packing Apples

(Continued from Page 209)

necessary if the pack is going to be uniform.

The Schellenger machine, by an ingenious and gentle method of handling apples, can run about a carload of apples a day, if a grower has enough hands to keep up with the machine. The machine occupies a space of 19 ft. 10 ins. by 8 ft. 3½ ins. It may be operated by an electric current or by a gasoline engine. We are using the same engine that operates our gasoline spraying outfit. It is very light running, requiring less than one-half horse power to operate it. As our motor is three and a half horse power, we have to run the machine very slowly, as the grader operates better if only four apples are passed to the gauges at a time at the rate of 50 per minute. This is for medium-sized apples. Larger varieties take a longer time, and smaller ones can pass quickly through the feed-end.

One man empties orchard boxes of apples, or, better, the very baskets in which the apples are picked from the trees, thus avoiding useless transfers. We have our grading machine right in the orchard, under a large tent, and we use another tent to pack in. As the grader cannot possibly sort wormy apples, we suppose that the modern orchardist, having sprayed and thinned his fruit in due time, the number of blemished and wormy fruit will be easily seen by the men sorting for color.

The machine is so designed and operated that the feeding into the four rubber chutes is done automatically, thus permitting the sorters to have an eye open to the sorting alone. This sorting is done easily by two men, one on each side of the feeder. With an average orchard crop, two chutes are reserved for the colored apples and the other two for the less colored ones. No culls are let through the machine; they are picked up by the sorters and thrown into the cull barrel or box. In sorting, it is not necessary to pick up an apple in the hand; a glance is sufficient if one just rolls over the apple on the canvas part of the feeder.

Fifty times a minute four pockets or rubber-lined gauges come into position a few inches directly under the chutes. An automatic trip drops one apple from the end of each chute into the respective pocket, in which it is carried along on an endless chain (fig. 1).

These pockets are formed by a circle of hanging fingers which are squeezed together at the bottom at the moment the pockets are under the chutes. As the pockets move forward, the rings which hold the fingers together slowly slip down and allow the ends of the fingers to gradually separate. The apple settles down, without any bruise whatsoever, as the bottom opens, until it slips through into a canvas and rolls down upon cloth-lined bins or tables on either side of the machine, two chutes handling apples on one side, and two others those on the other side, thus having the colored apples all on the one side. In this province we do not have to bother about color in a well pruned orchard, as McIntosh, Fameuse, Wealthy and Duchess are all well colored varieties, Golden Russet not having to be sorted at any time for color.

As the carrier moves forward, the apples are successively sorted in six different sizes. The farther down the carrier moves, the wider the fingers open. This allows larger-sized apples to be deposited in the right compartments. We have numbered orchard boxes to correspond with each of the six divisions on the table. The apples taken from the fourth division are put into the same barrel or box, and the apples from the fifth into another barrel or box, and so on. Once a box is full and not to be immediately emptied into a barrel, they are tiered up—all the number fours together, and the number fives together, and so on. Then there is no chance for mistakes.

The machine, I find after two years' experience, does not bruise the fruit. If there are any apples that are bruised, it is either in picking them in the trees and not taking enough care during their transport to the grader, or there is bruising caused in emptying boxes or baskets upon the canvas feeding table at the upper part of the machine. We have avoided this bruising by using special baskets which we have made here in osier, and which open by the bottom.

If there ever was a machine that would pay for itself by its work and in saving of labor, this is one of them. Where enough fruit is packed to warrant the investment, I strongly advise its use. It is easily operated and very simple, and is easily put up when it arrives in pieces, as the pieces are tagged and numbered.

It is reported that the Canadian Canners, Ltd., has been formed with the object of bringing order out of chaos in the canning situation in Ontario. It is understood that the new company will act in a holding capacity for the purpose of uniting the interests of about fifty of the large and small independents with those of the Dominion Canners. The present arrangement is to last for three years at least. The object is to carry over stock now on hand, and to greatly curtail the output of 1915. Price cutting is to be eliminated.

Transportation Conditions

G. E. McIntosh, Forest, Ont., Traffic Agent, Ontario Fruit Growers' Association

Last season the commodity rates on all rail shipments of apples to the western market applied only for carloads. This season the tariff will provide for less carloads, and the rates be reduced accordingly. For instance, the Winnipeg class rate per 100 lbs. for less carload is $1.08, the new commodity rate is $1.02 in bags or boxes, and 81c in barrels. To other principal points the L. C. L. rate will be as follows:—

	In Bags and Boxes cents per 100 lbs.	In Barrels cents per 100 lbs.
Calgary	201	159
Edmonton	239	132
Moosejaw	167	189
Portage la Prairie	123	97
Regina	162	128

An allowance of $3.00 per refrigerator car, in which the shipper placed a slatted floor to protect the shipment, was made last season by the Railways, under an order of the Board of Railway Commissioners. It has been stated by several shippers, that the Railway Companies charged freight on the weight of these floors. If your records show this has been done, kindly send me particulars, as an application will shortly be made for an allowance of 1,000 lbs. off the carload weight for these floors, if it can be shown the charge is being made.

Under present tariffs if a shipper loads vegetables in a car with fruit for points east of Port Arthur, he must either pay the less carload rate on the vegetables and the carload rate on the fruit, or pay third class rate, minimum 20,000 lbs., on the fruit and vegetables. Although there has never been a tariff permitting the mixing of these commodities for Ontario points, at the fruit rate, the privilege was allowed till last season. Vegetables are classified first class for L. C. L. and eighth class for C. L. No other commodity bears so great a raise on the L. C. L. shipments. An application is therefore being prepared to be submitted to the Railway Commission, asking for an order to meet the wish of the fruit shippers. In support of this application we will want evidence to show that it is really required. Can you furnish such?

In the matter of express claims, sub. sec. (k) of sec. 5 of the terms and conditions of merchandise receipt form reads: "The company shall not be liable for any damage or partial loss, or shortage, unless written notice thereof is given at any office of the Company within thirty days from delivery." It is important that claims be filed promptly. According to a recent court decision a shipper suing a carrier for loss or damage to a shipment has the burden of proving that he presented his claim to the carrier within the time fixed by the bill of lading, but it has also been decided that a common carrier may not, by special contract, exempt itself from or evade its common law liability for the consequences of its own negligence or that of its agents. The safest way, is to make claims promptly, and decide later if you want to press them.

I would not like to be without The Canadian Horticulturist.—Mrs. H. Pickering, R.R. No. 1, Streetsville, Ont.

Potato Growing in New Brunswick

By J. B. Daggett, Secretary for Agriculture

THE potato industry in New Brunswick has assumed large proportions in the last ten years, until the crop in 1914 amounted to approximately ten millions of bushels. Very much has been learned during these years as to the place in the rotation, preparation and cultivation of the soil, fertilizers and potato diseases.

Previous to ten years ago, commercial fertilizers were practically unknown in the province, but in recent years they have come into very general use, until at present seventy-five per cent of the potatoes raised are grown with commercial fertilizers with an increase in the crop of twenty-five to thirty-five per cent. reported. The potatoes so raised are not so susceptible to scab as when raised upon ordinary barn-yard manures or fish manures, such as are used in some sections of the province. It has been found that commercial fertilizers cannot be continuously used successfully without a proper rotation and by some means adding vegetable matter to the soil. Farmers who have attempted this have found that their land would soon require two thousand pounds instead of fifteen hundred pounds to the acre.

The following rotation is being adopted throughout the province: First year, potatoes with commercial fertilizer; second year, seed down with a grain crop, with a much larger proportion of clover than was formerly used; third year, hay; very many are now taking off but one crop of hay and then breaking up and ploughing under the second growth of clover; the next year a crop of corn or turnips is raised, the field having been well fertilized with barn-yard manures. This we consider a very satisfactory rotation. The same system is followed by all our farmers, except that some take off two or even three crops of hay before breaking up. From three to five years, however, is the average length of rotation among our best farmers.

While there are a number of varieties of potatoes being raised in New Brunswick, the two favorites are Irish Cobbler for the early crop and Green Mountain for the late.

We have the usual potato diseases common to all countries, but we are learning that the vast majority of these may be successfully combatted by the proper treatment of seed, by careful selection of all seed stock and the faithful use of the Bordeaux mixture. I would like to emphasize the word "faithful" as, in my observations, very many of our farmers are not faithful in the use of this excellent article. When the farmer persistently uses this mixture from the time the plant is a few inches above the ground until well toward the harvest, our experience has been that we have very little blight and the tubers are invariably much better keepers in storage.

The New Brunswick product is in very much better condition than it was several years ago. There is a general agreement that there has been a steady improvement and that we are turning out a much better quality of potatoes than in the past. From a recent visit to the potato growing areas, I am satisfied that the majority of our farmers are giving close attention to the things that are necessary for the production of the very best crop. Large quantities are shipped to the market directly from the field at the time of harvesting, probably twenty-five per cent., the balance being stored either in cellars or in specially built frost-proof potato houses, used exclusively for the storing of potatoes. These buildings are light and well ventilated and are so arranged that teams can drive into them and the potatoes can be sorted and loaded in the building. They are fitted with heating apparatus that will heat the building during excessive cold. These buildings are giving splendid satisfaction.

The Dominion Government has appropriated $4,000, which will be used in an advertising campaign in favor of peaches and plums. The money will be used in twenty-five daily newspapers and three hundred weekly newspapers. There is a possibility that the campaign may be extended.

The Dominion Government has appointed Mr. J. Forsyth Smith as a fruit market commissioner in England. Mr. Smith has been acting as provincial market commissioner for British Columbia for some three years.

Marketing the Apple Crop

(Continued from page 210)

you learn that all the co-operative apples are pooled, and that every grower receives exactly the same for apples of the same variety and grade, you will understand the necessity of this uniformity of pack and the necessity of inspection. The inspectors mail to the head office of the central a daily report of their work; and, should they find any company packing below the standard set by the central, the company in question has to repack the fruit.

The managers of all local companies report to the central association each day as to the condition of the fruit and quantity packed, and receive instructions from the central office as to when, how, where and what quantity to ship.

Owing to the fact that such a large percentage of the entire crop of Nova Scotia is handled by the central association it is able, to a certain extent, to regulate the quantity of fruit going to the various markets to prevent any one market being overcrowded and others left bare. Information is collected through its various connections concerning the space booked on steamers from the various apple-shipping ports, and in this way calculations determine just about what quantity of apples will be arriving on the various European markets at certain dates. The London office cables daily conditions on all markets, and the central association places its fruit just where it is most needed — that is, where the least fruit is offering. When necessary special boats are brought in to carry the co-operative apples, for it is not always that the regular boats fit in right.

Returns to Locals.

Whenever shipments of apples are made from a local company the manager sends in a return on a tabulated sheet in triplicate, two copies being mailed to the head office and one being retained. Should the apples covered by this return be consigned to one of the central's own offices one of these slips is forwarded; but, in any case, entries are made at the central office into what is known as an "average price book," and in another tabulated book the company shipping is credited with so many barrels of each grade in certain varieties. At the end of the month each company receives a statement showing the number of barrels received during the month, and accompanying the statement is a cheque, being an advance of so much per barrel for every barrel shipped during the month.

As soon as all returns are in for any variety the average price obtained for each grade of that variety is ascertained, and, after deducting a sum sufficient to cover central's expenses, all companies receive the balance due to them on that variety. For instance, say the amount advanced when the apples were shipped was $1.50 per barrel, and subsequently the average price works out at $2.50 for No. 1, $2.15 for No. 2, $1.25 for No. 3, whatever is due the subsidiary companies over and above the $1.50 is immediately paid.

It will be seen by this system that each member's apples lose their identity as soon as they enter the packing-room, but each member receives pay according to the quality of his fruit, because the better the fruit the more No. 1's are procured; and, as all members are paid according to the grade into which their fruit packs, justice is done to all.

In the same way with the central association. As soon as the apples of any company enter the average price book at the head office its identity is, to a certain extent, immaterial; and should a carload of apples from one company be placed on a market making 50c per barrel more than a car of apples equally good from another company, all receive the same return—namely, the average for the season. The justice of this system will be readily understood, but to emphasize it I will cite a circumstance that frequently arises:

The central association receives a cable from, say, the Buenos Ayres office for 1,000 barrels of apples which have been sold at a fancy price, possibly a dollar above anything that can be obtained on any other market. Only five carloads are required to fill that order, so at the most only five companies can supply these apples. Yet on the same day possibly 10,000 barrels are shipped from various companies. Which companies are to have the plum?

The central association does not have to decide any such issue. It takes any five cars and fills that order, and the companies whose apples are used receive the same average price for that variety as all other companies.

Has Proved a Great Benefit.

This system of co-operative marketing has made many reforms possible, and has placed thousands of dollars in the pockets of the growers that, under the old regime, went into the pockets of numerous and unnecessary middlemen. Six years ago the valley, during the winter months, was crowded with representatives of the various commission houses in England, high-salaried men, who lived on the best that Nova Scotia could give. While these men were

paid by the English houses whom they represented, it is obvious that it was the produce of the orchards that supplied the funds from which their salaries and expenses were drawn. With the advent of a central association, with their own offices on the various markets, these men became unnecessary, and during the past three seasons they have been conspicuous by their absence.

It might be argued that the expense has only been transferred to others, and that the European office costs almost as much as these men's salaries and expenses. Yes, the European office costs something, but in 1913 the total expense of that office, including salaries and absolutely everything, was less than $2,000, and I guarantee that the salary alone of any one of those representatives was more than that amount, and their expenses per head would have amounted to another $2,000. At the very lowest there were twenty of these representatives here, so some idea can readily be gained as to the saving effected in that direction. That saving is at once apparent by an examination of accounts of sale to-day and similar documents of a few years back.

Many other unjust taxes on the fruit industry of Nova Scotia have been eliminated. The Liverpool ring of associations is no longer an effective machine to levy toll as far as 70 per cent. of the fruit of the valley is concerned. The iniquitous system of steamship rebates is also a thing of the past. The selfish interests of the individual have been eliminated, and to-day the best interests of the whole community of fruit-growers has taken its place.

Packs for Apples

The following is a table of packs of apples prepared by Mr. D. Johnson, Dominion Fruit Commissioner:

Diagonal 2-1 Pack

	Apples to the box	
2-1, 4-4	36	Pack on side.
2-1, 4-5	41	" " "
2-1, 5-5	45	" " "

Straight 3 Pack

3 wide 5 long	45	Pack on side
3 " 6 "	54	" " "

Diagonal 2-2 Pack

	Apples to the box	
2-2, 3-4	56	Pack on end.
2-2, 4-4	64	" " "
2-2, 4-5	72	" " "
2-2, 5-5	80	" " "
2-2, 5-6	88	" " "
2-2, 6-6	96	*Pack on side.
2-2, 6-7	104	" " "
2-2, 7-7	112	" " "
2-2, 7-8	120	" " "

Diagonal 2-3 Pack

2-3, 4-5	113	Pack on end.
2-3, 5-5	125	" " "
2-3, 5-6	138	" " "
2-3, 6-6	150	" " "
2-3, 6-7	163	" " "
2-3, 7-7	175	*Pack on side.
2-3, 7-8	188	" " "
2-3, 8-8	200	" " "
2-3, 8-9	213	" " "
2-3, 9-9	225	" " "

The monthly crop report issued by the United States Department of Agriculture, under date of August 17, estimates the total apple crop as 205,000,000 bushels, as against a yield last year of 253.000,000. The yield of peaches is placed at 59,000,000 bushels, compared with 54,000,000 last year; of pears at 11,000,000 bushels, against 12,000,000 last year; and of grapes a yield of 85 per cent., as against a ten years' average yield of 84 per cent.

The annual meeting of the Ontario Ginseng Growers' Association will be held at 1087 Queen street west, Toronto, on September 7, opening at 1.30 in the afternoon.

Canada's National Dish

Winning poem in the contest recently conducted by The Canadian Horticulturist with the object of advertising The Apple as Canada's National Dish.

You may talk of the fruits grown in Europe,
That come to us packed with great care;
You may sing of the fruits from the southland,
In fact, fruits that grow everywhere,
But from where breaks the stormy Atlantic,
To the west where the tide ebbs and flows;
Why the National Dish of our country,
Is the Apple that Canada grows.

Now after a day in the harvest,
When you're feeling as dry as you can,
What fruit will compare with the flavor
Of a Duchess or Red Astrachan?
And when by the fireside you're sitting,
What fruit tastes as good as the Snows?
And these are but few out of many
Of the Apples that Canada grows.

And then on a Saturday morning,
When Mother commences to bake,
It doesn't seem to interest me greatly,
If I see that she's making a cake;
But surely it makes me feel happy,
And, oh, how my heart fairly glows,
When I see that she's filling the pie-crust,
With the Apples that Canada grows.

And when at the glad Christmas season,
You're puzzled at just what to send,
To those who yet dwell in the homeland,
To show that you still are a friend;
It matters not what is their emblem,
Be it shamrock, or thistle, or rose,
Just send them a box or a barrel,
Of the Apples that Canada grows.

Toronto T. G. ROBINSON

Investigations which have been made into the trade done in dried and evaporated apples in the vicinity of Leeds, England, indicate that the public demand continues to be on a limited scale. The little demand which exists for apples prepared in this way is supplied mainly from California and at the time of writing "apple rings" are quoted at 12 cents a pound retail and "cored apples" at 16 cents a pound retail. The only direction, it would appear, in which the use of dried apples shows signs of increasing, is that of mixing it with other fruit for the making of salads.

I appreciate The Canadian Horticulturist and desire to receive it right along.—R. H. Cowan, Berlin, Ont.

Annapolis Valley Notes

Manning Ells, Port Williams, N.S.

More or less burning from all sprays used caused quite an injury this year, probably because so much spraying was done in dark and cloudy weather. Users of soluble sulphur report more injury than those using the commercial lime-sulphur. The foliage as a whole is not as healthy as one would wish at this season of the year. In varieties, Gravensteins, Ribstons, Kings, Golden Russets and Nonpareils will give eighty per cent. of a full crop. Blenheims, Baldwins, Fallawaters, Ben Davis and Spys, fifty per cent. of a crop, with the total from thirty to fifty per cent. greater than last year.

Not for a decade have we had such a large strawberry crop as that just harvested. The price consequently has been much below the level of former years. An average return to the growers, however, of eight cents a box, shows some profit on the right side of the ledger, while many people in our towns, to whom berries have been a luxury, were this year able to buy and enjoy without feeling it an extravagance. The United Fruit Company handled the berries grown by their members, and through their branch in Halifax distributed direct to all parts of the province. This service benefitted both grower and consumer, placing a fresher and consequently better article in the hands of the latter, and on account of their low handling charges, giving to the grower the full value of the market.

Plums and pears are only half a crop, but so few of these are grown that the difference between a full crop and half a crop is not of great importance. Other farm crops are all that could be desired, the hay crop especially being one of the largest in the history of the Valley.

Control of Vegetable Insects

Arthur Gibson, Chief Assistant Entomologist, Ottawa.

Growers of vegetables are troubled with insect pests which every year levy a heavy toll. In addition to the regularly occurring kinds, there are almost every season outbreaks more or less widespread in occurrence, of little known species or of certain ones which occur intermittently, such as, for instance, the army-worm, which in 1914 cost the province of Ontario alone a quarter of a million dollars. It has been estimated that at least twenty per cent. of vegetables grown every year are destroyed or rendered useless by injurious insects. The wide-awake grower is every year learning more and more about the common forms of insects which, almost every season, attack in varying degree the different vegetables which he grows. It is surprising, however, that in many parts of Canada, growers of vegetable crops have not given sufficient attention to those kinds of insect pests which occur almost annually, and which, of course, destroy, more or less, cabbages, cauliflowers, tomatoes and other cultivated plants. Such losses could often be prevented or a large percentage of the crops saved if the grower had properly investigated the injury and applied the correct remedy. It is not, of course, necessary that the vegetable grower should make a special study of the insects themselves. He has not the time nor the inclination to do this. What every grower should, however, notice when an insect is attacking a crop is how it feeds—whether it bites its food or sucks it up through its beak which it inserts into the plant tissue. If the insect is a biting one a stomach poison, such as Paris green or arsenate of lead, is usually recommended, but if the species is a sucking one, such a stomach poison would be useless, because the insect would insert its beak through the poison and reach a safe feeding ground beneath. A contact insecticide is, therefore, necessary, for controlling sucking insects, and those usually recommended are kerosene emulsion, whale oil soap and tobacco preparations.

The Entomological Branch of the Dominion Department of Agriculture has devoted considerable attention to the study of vegetable insects and their control, and circulars and bulletins have been published on some of the more important pests. Investigations are now in progress on the life-history, habits and control of cutworms, locusts, root maggots, etc.

The present season has witnessed serious outbreaks of such well-known pests as the Red-backed Cutworm, the Army Cutworm, the Lesser Migratory Locust, the Onion Maggot, the Cabbage Maggot, the Seed Corn Maggot, the Colorado Potato Beetle, etc. Since the publication in April of a new poisoned bran remedy for cutworms, we have conducted further experiments in the control of these caterpillars and in certain dry areas, such as in Southern Alberta, we have found that where shorts was substituted for bran better results were secured. The protection of cabbages and cauliflowers by placing tarred felt paper discs around the stems at the time of planting out has again given satisfaction. For radishes and onions fresh pyrethrum insect powder, two ounces in one gallon of water, or white hellebore in the same strength, has some years given good results, the mixture being applied once a week for three weeks from the time the plants appear above ground. Owing to the cost of the material, however, the use of either of these insecticides at the above strength is only practicable on a small scale.

British Columbia

Dominion Fruit Commissioner D. Johnson has recently visited a number of the important fruit districts of the province. In the Nelson District, Mr. Johnson made a trip along the lake, and visited a number of the leading ranches. Mr. Johnson was well pleased with the appearance of the orchards. He expressed the view that good prices are likely to prevail for apples in Canada this year. A number of the representatives of the Kootenay Boundary Fruit Growers waited on Mr. Johnson, and urged the necessity for a legal limit being established for the cups used in packing berries. The bulk of the berries shipped from the district are packed in 4-5 cups. Shippers in the United States send their fruit into the prairie country in 3-5 cups. Buyers find it difficult to distinguish between the two cups, and this condition is taken advantage of by the retailer, to the disadvantage of the grower. It was suggested that the standard for cups should be either pints or quarts, and that it should apply to fruit shipped into Canada.

One of the leading officers of the Dominion Canners, Mr. Marshall, of Aylmer, Ontario, spent a few days recently in the Okanagan with a view to locating a large factory there next year. Mr. Marshall stated that conditions this year do not warrant any expenditure of this character.

The Provincial Department of Agriculture has sent out a circular to the secretaries of fall fairs advising them that the department will provide prize money for displays of packed fruit put up by pupils of the packing schools this year. These prizes will be offered in connection with the fairs held at Salmon Arm, Summerland, Creston, Nelson, Kelowna, Nakusp, Chilliwack, Mission, Kaslo, Armstrong, Grand Forks, Ganges, and Trail. At each of these points prizes of $5, $10 and $15 will be offered. Twenty points will be allowed for grading and 80 points for packing. In the packing, 20 points are given for alignment, 20 for bulge, 20 for the height of the ends, and 20 for firmness.

British Columbia

Orders have been received through Mr. H. G. White, British Columbia's trade commissioner to Jamaica and South America, for some hundreds of cases of different varieties of British Columbia apples and pears. These are to be sent to Buenos Ayres. It is understood that shipments may also be sent to Rio de Janeiro.

Shipments of potatoes, it is expected, will be forwarded in October to various points in South America. Considerable shipments have already been made to Australia and the Fiji Islands. Government officials are inspecting these potatoes and are certifying them to be free from disease.

Crop estimates, prepared about the first of August, made the following estimates for fruit this year:

	1914.	1915.
	Boxes.	Boxes.
Apples	684,840	613,000
Pears	28,800	35,000
	Crates.	Crates.
Plums and prunes	200,300	200,000
Peaches	113,300	115,000
Apricots	41,000	50,000
Cherries	33,400	35,000

As a result of the efforts of Government officials the C.P.R. this year has instructed its station agents to sidetrack any cars of British Columbia fruit that are noticed to be in an unclean or unsanitary condition. The company will use the new improved slatted box cars to a considerable extent in the handling of the fruit crop.

The provincial government, under the provisions of the new Agricultural Act, which will come into force shortly, may declare a quarantine against Washington and Californian fruit, as shipments of apples and pears from these states have been found to be affected by codling moth and San Jose scale. So much fruit has been condemned from these provinces it is believed that these diseases must be spreading in these states.

Canadian Horticultural Association

The eighteenth annual convention of the Canadian Horticultural Association was held in London, Ont., August 3 to 5. The association is representative of the professional florists and gardeners of Canada. The reports presented showed that, in spite of the war, trade conditions had been satisfactory. The association has a larger membership than ever before and a substantial cash balance.

Addresses were given as follows: "Fertilizers," by Prof. R. Harcourt, Guelph; "The Cost of Producing Florist Stock," A. O. C. O'Brien, Toronto; "The Florist as a Business Man," E. J. Hayward, Montreal; "Irrigation Principles and Methods," Prof. T. G. Bunting, Macdonald College, Quebec; "Insects That Affect Greenhouse Stock," W. A. Ross, Dominion Entomological Laboratory, Vineland, Ont.; "Perrenials," W. J. Potter, Toronto; "Orchids," W. J. Jones, Brampton, Ont.

Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, reported that the commissioners of the park were willing to assist the association, in co-operation with other similar organizations, in the establishment of a national plant register, and would allow a portion of the park grounds to be used for testing purposes. The offer was accepted, a committee appointed to take further action, and funds voted to promote the work. Mr. F. E. Buck, of the Central Experimental Farm, Ottawa, presented an interesting re-

port on behalf of the Names and Varieties Committee. The retiring president—H. B. Cowan, of Peterboro—was presented with a cabinet of silver.

Election of Officers.

The election of officers resulted as follows: President, F. W. Adams, Toronto; first vice-president, James Fraser, Prescott; second vice-president, F. Dicks, London, Ont.; secretary-treasurer, Julius Luck, 1018 Queen Mary Road, Montreal.

Executive Committee—For two years: E. B. Hamilton, London, Ont. For three years: E. J. Hayward, Montreal; E. F. Collins, Toronto; F. Wise, Peterboro. Other members of the executive are: For two years: Luke Williams, Ottawa; George Douglas, Toronto. For one year: R. L. Dunn, St. Catharines; H. J. Eddy, Montreal; S. Jordan, Peterboro.

Improvement of the Potato Industry

H. T. Gussow, Dominion Botanist, Ottawa, Ont.

The Hon. Minister of Agriculture has appointed Mr. G. C. Cunningham, B. S. A., and Mr. Paul A. Murphy, B. A., to assist the farmers of the Maritime Provinces in combating the diseases which attack their crops, particularly the potato crop.

The primary object is to help the farmers to produce larger crops of A. No. 1 seed potatoes, and to ensure for that seed the place in the market which its high quality deserves. Produce which is marketed under a guarantee of freedom from disease and purity is bound to obtain a higher price than could be otherwise secured. Such a course, if followed regularly for a few years, will give seed potatoes from these provinces an enviable position of superiority among buyers, and thus increase the returns of the growers.

It is proposed to make an examination of the potato fields, first during the growing season and then at the time of harvest, to detect the presence of all diseases which depreciate the value of the crop by lowering the yield and reducing the price.

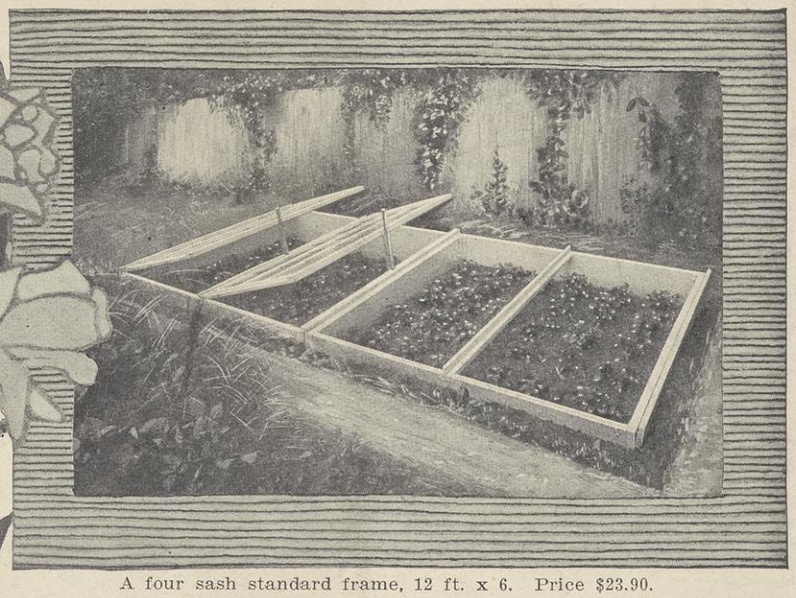
Those who wish to have the services of these men for any special purpose during the current season are asked to send a request to G. C. Cunningham, care of Experimental Station, Fredericton, N. B., for the provinces of New Brunswick, Nova Scotia and Quebec, and to Paul A. Murphy, Experimental Station, Charlottetown, for Prince Edward Island. These pathologists will be entirely at the service of the farmers of their respective provinces in assisting them to improve all their crops, as well as the potato, in yield and quality, and all inquiries concerning diseases will be gladly answered.

Items of Interest

The Ontario Department of Agriculture is conducting experiments on Pelee Island in Lake Erie in the growing of early tomatoes. It is expected that it will be found that tomatoes can be matured on this island at least a week earlier than in any other section of the province. Only about a quarter of an acre is under test but if the experiment proves successful it may result in large plantings in the future, owing to the high prices generally paid for early tomatoes.

The Canadian Forestry Association has issued a little booklet entitled "Twenty Canadian Trees," by Jas. Lawler, B.A., a former secretary of the association. The booklet contains illustrations of twenty of our best known Canadian trees with descriptions of them which will enable us to pick them out and distinguish them. Any one unacquainted with our Canadian trees will find this booklet helpful and interesting. Copies may be obtained from The Canadian Forestry Association, Journal Building, Ottawa.

We always find much of interest in The Canadian Horticulturist and wish it the continued success such a good journal deserves. —Mrs. Laura Rose Stephen, Huntingdon,



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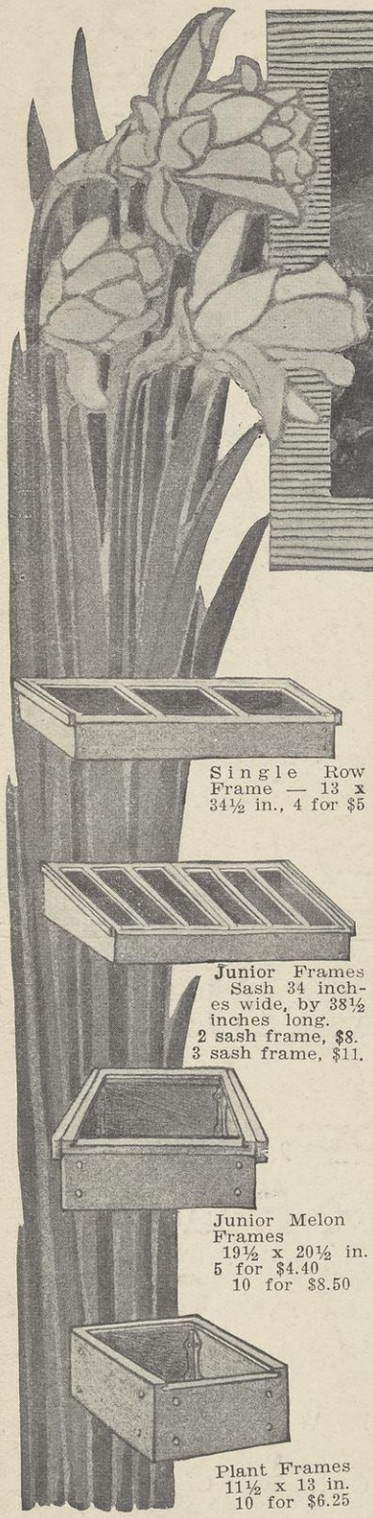

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Junior Frames Sash 34 inches wide, by 38½ inches long. 2 sash frame, $8. 3 sash frame, $11.

Junior Melon Frames 19½ x 20½ in. 5 for $4.40 10 for $8.50

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Buy some of our frames, which are veritable little greenhouses, and have flowers and vegetables all winter long.

Save some of your special flower favorites and enjoy their blooms on Thanksgiving Day.

Plant your hardy flower seed in them at once and have good strong plants for next spring's setting out. Use them to protect your semi-hardy things—those choice pets of yours which other winters have succumbed. Have these frames all ready for early sowing of both flowers and vegetables for next spring's setting out. They will boost your garden along at least six weeks. They cost so little and do so much, that you can't afford not to afford them.

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