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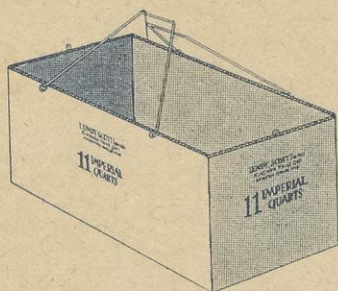
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THE CANADIAN HORTICULTURIST & BEEKEEPER

Vol. 26, No. 7, July, 1918
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The Canadian Horticulturist

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TORONTO, JULY, 1918

No. 7

Strawberry Diseases

W. A. McCubbin, Field Laboratory of Plant Pathology, St. Catharines, Ont.

IN the following notes there are dealt with the five most prominent strawberry diseases in Ontario. It is hoped that the hints for control given may prove helpful to many whose plants are affected by one or more of these diseases.

Strawberry Mildew appears during June and early July. It is due to a fungus which grows mainly on the under sides of the leaves, and may be seen there as a white, webby or frost-like coating, usually rather scanty in amount. It causes the leaves to curl upwards, and a field which is badly affected has a peculiar whitish cast, due to this curling. Later on the lower surfaces of these curled-up leaves which are exposed to the sun are likely to turn purple or die at the edges, and when the leaves are badly attacked they may be totally destroyed. Besides reducing the feeding power of the leaves, a very serious effect of the Mildew is to allow the hot sun to penetrate through the leaves so that the fruit which ought to develop in a compara-

tively cool, shaded position is exposed to dry, hot air, which shrivels the fruit and prevents it from reaching normal size. The fungus also attacks and rots the fruit.

The Mildew is rather erratic in its occurrence. In some years it is almost absent and other years very prevalent over large areas. It develops most rapidly in warm and moist weather and will hardly spread at all when the weather is dry and hot.

Methods of Control.

The most useful means of combatting Strawberry Mildew is in the use of ordinary sulphur, which should be applied to the rows when the first symptoms of mildew are noted. The sulphur may be applied either by using a dusting apparatus, by shaking through a fine sieve, or by putting it in a coarse cotton bag and pounding the bag as it is carried over the rows. Since it is the fumes of the sulphur, which are produced in the hot sun, which are effective against the disease, it is not neces-

sary to cover every leaf with the dust, as has to be done in spraying. One feature of this treatment should be noted: If the sulphur is applied too close to picking time the fumes are apt to be rather irritating to the pickers on a hot day.

Leaf Spot.

The Leaf Spot disease is often very damaging to strawberry plantations where it is allowed to become prevalent. As the name indicates, spots occur in the leaf which are purple in color at first or with grey or white colored centre and a purple border as the spots get older.

Measures of control should begin when setting out the plants. Select healthy young plants and remove any spotted leaves from them. They should be sprayed with Bordeaux mixture 4-4-40 shortly after they are set out, and the leaves should be kept covered with the same mixture by two or more sprayings as needed throughout the growing season. In the second year they should be sprayed before the blossoms are out with the same material. After the fruit is picked another spraying of Bordeaux mixture may be given, or else the leaves should all be mowed after picking, and when dry burned as they lie.

Root Rot.

During the last few years a great many strawberry plants have been lost and many plantations badly damaged by a peculiar "rot" of the roots, which is noticed during the spring and summer months. The plants which are worst affected die early in spring and others survive only till blossoming time or until the fruit is being formed, when they gradually shrivel up and die. It is suspected that the injury is mainly due to winter, although there is some evidence for believing that soil fungi may also play a part in aggravating this trouble.

It has been found that when young transplants are taken from a badly affected field early in spring they are likely to die and result in a poor stand.



Picking strawberries on the farm of Samuel Chute, South Berwick, N. S.

It is, therefore, advisable when setting out a new plantation to examine the roots carefully. The roots may be browned on the outside, but if the small cord-like centre is still white and moist they are still uninjured, but if the central cord-like part is also browned, then these roots are dead.

It is encouraging to note that several cases have been observed where plantations which were rather seriously affected one year recovered and did well during the following year.

The only control measure that seems necessary in this case is the protection of the plants from winter conditions. It is probable that the damage is done by late spring frosts after an early start of growth processes, rather than by hard or severe winter conditions. In either case, however, the remedy is a mulch of strawy manure or leaves applied in late fall.

Fruit Rots.

The two most important rots of strawberry fruits which have been noted are the Dry Rot and Leak. Both of these occur in the strawberry regions of Ontario, in some cases to a considerable extent. The symptoms and method of control for both are clearly given in a recent article by Dr. C. L. Shear, of the Fruit Disease Investigations Branch at Washington. His statement is quoted as follows:

"The importance of the diseases of strawberry fruits is not generally recognized by growers because they rarely see the fruit at the market. These diseases are, however, of great importance, since they injure the keeping quality of the fruit and thus reduce the returns to grower, shipper and merchant, and also increase the cost of the berries to the consumer. No plant diseases cause more serious losses than those which decay the ripe fruits and thus destroy food which has been produced at great expense and labor. A careful study of the diseases of strawberry fruits carried on by the Office of Fruit Disease Investigations during the past three years has shown that the two most important diseases may be very largely reduced by means which are within the reach of every grower.

Dry Rot.

"Dry Rot, caused by a grey mold (*Botrytis* sp.), is a field trouble and is particularly common and destructive on fields which are unusually wet either from excessive rains or because of poor drainage. This disease is readily recognized by the fact that the berries become rather firm and somewhat discolored. Berries of any age, whether green or ripe, may be attacked on the vines, and frequently the grey, powdery mold is seen growing on the outside of the

berry. Not only berries, but at times leaf stems and blossoms, are attacked by this fungus.

"While the grey mold fungus grows rather slowly on ripe berries, and so is not of great importance after picking, it may become very conspicuous, due to its ability to grow at the temperature of a refrigerator car. This characteristic enables it to develop on the top of the load, so that it is very noticeable when the car reaches the market and is being examined by buyers, a fact which frequently results in serious reduction in price.

"The only effective method of reducing the spread of this disease in the field is by proper drainage. Dry Rot can be and should be largely eliminated as a cause of loss after picking by proper sorting. Diseased berries should be thrown out by the pickers or packers.

Leak.

"Leak, caused by the common black mold (*Rhizopus nigricans*), is by far the most common and most destructive disease of ripe strawberry fruits. It is characterized by a rapid softening of the berry and the escape of much juice. This characteristic makes it particularly conspicuous on the market, where boxes and even crates are badly stained, giving them a most unattractive appearance. Moreover, the fruit soon settles in the basket or box and is unsaleable except at a great reduction.

"Study of this disease has shown that black mold can enter strawberries only when they are injured; thus one sure method of reducing loss is to handle berries carefully, so that they may be injured as little as possible. Black mold grows very slowly if at all below 50 degrees Fahrenheit, but very rapidly as the temperature rises above this point. Strawberries should therefore be kept as cool as possible.

"One simple method of keeping down the temperature of strawberries, and one which is available to every grower, is to pick the berries as early as possible in the day, before they have been warmed up by the sun's heat. This should be done even if the berries are wet, as experiments have shown that it is much better to pick berries cool and wet than to wait until they are dry and warm. In any case strawberries should be placed in the shade as soon as picked and protected from the sun by a light cloth while being hauled to the station. Dark, heavy canvas or oilcloth retains the heat and hastens the decay of the fruit.

"In some sections of Florida certain growers regularly practise washing the strawberries before they are picked. In case this method is followed strawberries should be packed wet rather than



Spraying Celery.

allowed to dry, even in the shade, as experiments have shown conclusively that this drying greatly increases the amount of rot."

Brown Rot of Peach.—An examination of peach orchards this last season in Wayne County, N.Y., at the time when early varieties of peaches were beginning to ripen, showed excellent results from dusting for brown rot. Untreated orchards had sometimes as much as 25% of rotted fruit even before picking began, while the same varieties in dusted varieties showed scarcely a rotten fruit. In most seasons the dusting of early varieties, like the Carmen and the Rochester, will be profitable. — Prof. H. H. Whetzel, Ithaca, N. Y.

Sod fruit has a much better color than any other. After that comes the mulch, and after that the tillage, and then the tillage and cover crop. Where a definite mulch is used the mulch fruit will be in general as large, if not slightly larger, than the other fruit.

Don't neglect the celery. It is now ready for blanching, and the quality, when you come to eat it, depends entirely on how you handle it now. Blanch by all means, either by earthing, boards or brown paper.

Cultivation of the soil in the autumn preparatory to spring planting is advantageous: it makes earlier planting possible, and leaves the soil in good condition for the roots of the young trees.

Suggestions on Potato Growing

Austin Richardson, O.A.C., Guelph, Ont.

THE potato seems to offer much room for improvement in yield. I propose to suggest a few ideas as to the increasing of yield by seed selection.

If you observe any given number of hills of potatoes being taken up you will invariably find that a large percentage of them are not uniform in their yield. That is to say, there will be a large difference between the yield of each hill. I would like to suggest one or two reasons for this variation. The first being due to the general custom of selecting the seed from a bulk of potatoes, regardless of the kind of a hill they came from, and not choosing any of uniform size, often choosing the very smallest. In many cases small potatoes come from hills that have had no marketable potatoes in the hill, and the choice of small potatoes for seed should be avoided on that account amongst others, as it is a form of degeneracy. It has been my experience that if the potatoes for seed are chosen in this way from a crop that has not been uniform in yield, the resulting crop has not been uniform.

Experiments have been carried out (O. A. C., Guelph) that seem to prove that each part of the potato yields differently. That is to say, the top or eye part has a different yield to both the middle and stem end, and the middle part to each of the others. This being the case, it is only natural to suppose that if a potato is cut up with each cut piece coming from a different part of the potato, and planted, that the yield would not be either uniform or the best that could be attained as the opportunity allowed. It is commonly conceded that like begets like to a certain extent, therefore to plant potatoes from an irregular crop and cut potatoes in an irregular way one should expect an irregular crop, and it is only using common sense to say an irregular crop is not the best yield that might have been produced. Now as a suggestion to the removing of the first fault, would it not be wiser to select your seed from the best hills, making a standard of say six marketable potatoes, of good shape and as uniform as possible to a hill; any hill with less than six marketable tubers to be passed by. The standard could be made higher than six if the crop allowed, selecting, of course, good shaped potatoes. My experience has been that if this plan is carried out that the yield is greater and more uniform.

As to cutting, first of all the potatoes should be of good shape. Discard all potatoes that have a tendency to go

to a point. Invariably the more pointed the potatoes are the more eyes there are crowded on that point. This, I suggest, is a type of deformity and weakness. As a crude explanation, I offer as the cause of the many eyes, to be the fear of the potato, which, knowing its weakness, makes a supreme effort to reproduce itself by supplying many eyes. With this idea in mind, such potatoes should be avoided as seed potatoes. Choose instead a potato that carries its shape or thickness right through from stem to eye. The eye end should be as broad as the stem end in the case of a long potato, or shorter potato. If other shapes they should be even all around, the main idea being to have the eye end as broad as the shape will allow. With potatoes of this type there are generally fewer eyes, and these eyes are stronger, more healthy and vigorous.

In cutting see that the potato is cut in such a way that each cut piece is approximately the same size and shape and comes from approximately the same part of the potato. The way to get this is to quarter it, starting from the eye and cutting straight down to the stem. If the potato is a healthy one and of good shape there will be approximately the same number of eyes on each piece, and each piece will be of about the same weight and shape. No potato less than marketable size should be planted, and each potato would have four pieces. Cutting in this uniform way, the hills would be more likely to produce alike, and with a high standard of selection, which should be increased when possible, the yield would soon be greater and more uniform.

Selecting Seed Potatoes.

In buying potatoes for seed care

should be taken to see that the potato comes from a cooler class of land to that in which you intend to plant. I do not think it wise to buy potato seed that has been grown in very poor soil. If you buy seed from the north it would not be much of a change if seed came from soil similar to that intended to be planted. From experience I would suggest that the seed be chosen from soil that is cooler than your own, providing, of course, the term "wet" could not be applicable to your own. The seed from a cooler soil is generally of stronger vitality.

Care should be taken that in cultivating the yield is not spoiled by cultivating at a wrong time, or not cultivating enough at the right time. The right time is up to, approximately, seven weeks after planting, and as much as possible before planting, the potato being a plant that requires a very loose or friable soil. The soil should be all turned over at the time of planting and as little as possible left trodden over.

Dibbling, that is, making a hole and dropping the potato in it, is not a good way to plant. If planted this way the soil should be exceedingly friable, as the least degree of solidity of soil is detrimental to the potato, and dibbling favors this because it can be done with the least cultivation, and cultivation is what the potato requires; also generally the soil is left trodden over.

The potato should be cultivated as much as possible up to a certain stage; after that stage it should be left entirely alone. The stage where it should be left alone is when in cultivating between the rows you disturb small fibrous roots that look like small white threads. If you cut or break off these fibrous roots you stop the root growth, which interferes very considerably with the yield, as the potato plant is of very quick growth. The least interference with its root system is detrimental.



This crop of Irish Cobbler potatoes produced from New Brunswick seed, the first year grown in Ontario, produced 484 bushels to the acre in the vegetable garden of Mr. J. A. Williams, Peterboro', Ontario.

Many have had experience of what damage is done by frost that has come a week or so before the haulm is fully grown. The same applies to the root system, with the exception that the root system is only partly injured by cultivation, but the nearer the cultivation to the row after the stage mentioned has arrived the more the damage, also the oftener cultivated after this stage (to a certain extent) the more the yield is decreased up to the stage that root growth ceases.

With reference to this, I quote from the *Gardener's Chronicle*, April 27th, 1918, taken from an article from the *Journal of the Department of Agriculture, Victoria, Australia*. Their object was to ascertain the rate at which the plant absorbs food from the soil, etc. In order to obtain this knowledge, the authors made complete analysis of set, haulm, root and tuber at four stages of the life history of the potato, roughly at the end of the 1st, 2nd, 3rd and 4th month of growth. From these analysis the point of interest is that 41 per cent. of the total growth is completed in the first month. In the second month the plant makes 52 per cent. of its root growth, and at the end of that period root growth is practically completed. During these two periods the haulm makes 22.5 of its total growth in the first month and 49.8 per cent. during the second. In the third month the roots practically cease to grow, but the haulm makes 27.7 per cent., practically finishing its growth. From this it is easy to see what damage could be done by interfering with root or haulm growth at any stage.

The article also points out that any food substances should be available from the start, if these are to aid root growth, owing to the limited time.

Northern Grown Seed.

Lately it has been found out that seed potatoes brought from northern parts of Ontario and other northern places give a larger yield, so that the argument may be raised of what avail would it be to spend time and care in selecting your own seed, if it is shown that the yield can be increased by importing certain northern seed. As a suggestion I should like to say that if good seed was obtained by care and selection that it would be wise to find a reliable grower in the north; send him some of the selected seed to grow for your use the following season. Or he could grow it for two seasons; by this means a system of exchange could be made, and the result of care and selection would not only not be lost, but the vitality would be increased. It should not be difficult to find a reliable grower who would be pleased to do business in this way. The English and Scotch

growers are particular about the soil the seed has grown in being cooler than that in which they intend to plant it. The more northern the climate and cooler the soil the slower the potato would grow, and generally the slower formation of seed, providing it is healthy, the better vitality. I would not choose a hot, dry, sandy soil from the north, if my own was of that nature, as the change would not be likely to be of much difference.

Some diseases are first transmitted from the haulm to the tuber. These diseases can be eradicated by taking up the potato before the haulm has died. If this is done the disease will not be transmitted to the tubers, as the disease does not go into the tuber until the haulm is almost dead. The tuber, or potato, does not suffer in any respect to be used as seed if this is done.

Renewing the Strawberry Bed

One question frequently asked is: "How long may a bed of strawberries be profitably kept?" This question is incapable of a general answer. There are a number of factors which affect the answer, such as stand, freedom from disease, presence or absence of weeds or grass, variety and the relation of the bed to the rest of the farm operations. Commercial growers usually fruit a bed for one or two seasons and then plow it up, because usually by this time the grass and weeds have gotten such a hold that it is easier to plant a new bed than to clean up the old one. When the weeds are kept out, the fertility kept up and diseases

do not appear a bed may be kept for several years, especially for home use. The size of the berries, even under the most favorable conditions, will diminish after the second year. With varieties like Dunlap, Warfield and Bederwood, which produce large crops of medium sized fruit, a bed would become commercially unprofitable sooner than other varieties which are not so inclined to overbear. Plants grown under hill culture are frequently grown more than two years, and those varieties adapted to hill culture are the ones which, under the matted row system, will prove best adapted to a longer fruiting period than two years.

In case it is decided to leave a bed for another season, it should be mowed after fruiting and the leaves either burned or raked off. Burning is risky and should be undertaken only when there is plenty of moisture in the ground and just enough mulch left to enable the fire to run. When this is done, a brisk wind will speed the fire quickly across the field without allowing it to linger long enough to cause injury. In case the leaves are not burned they should be raked off, together with the surplus mulch. After burning and raking, the middles are then plowed and worked down, the weeds and grass removed from the rows, fertilizer applied between the rows and the bed given the same treatment as a newly set bed.

Arsenate of lime is of some value as a fungicide when used alone. Whether it adds to the value of lime-sulphur as a fungicide is not known.



Picking Peaches in the Niagara District. Peaches in this district this year are not likely to be more than 25 percent. of an average crop.

A Strawberry Section With a Future

The B.C. Correspondent of The Canadian Horticulturist

ALTHOUGH it comprises barely 120 acres, nestled away in the sunny southeastern corner of Vancouver Island, Gordon Head is still western Canada's chief source of strawberry supply. Not only do the forty odd growers, owners of this tiny parcel of heavy production acreage, supply the home market and the nearby regions with luscious berries three months in the year, but the Gordon Head berry has now established a reputation of its own as far east as Manitoba.

This is only the fourth year that the Gordon Head product has figured on British Columbia's export list. Before that, the farmers were content to grow sufficient berries to meet the Victoria demand with a small surplus for Vancouver. Year after year they grew their crops, and with encouraging results, but it was not until the co-operation germ got busy in 1914 that real expansion began.

The Gordon Head growers banded themselves together in a co-operative association and the South Saanich growers soon followed their example, with the result that the two organizations, working together, have put their respective districts more on the map of Canada in the last three years than in fifty years previous, for it was 'way back in the fifties that the Hudson Bay Company first recognized the agricultural possibilities of the Saanich Peninsula.

In 1915, the export trade in strawberries to the prairies was more of an experiment than anything else. Four cars were shipped east of the Rockies, but the results were so good that acreage was increased substantially and a bigger portion of the crop was sent out of the province, eleven cars in all being sent out in 1916. Last year the shipment totalled twenty-two cars, and in addition Vancouver took 2,800 crates and Victoria 4,500 crates. Eight hundred and sixteen crates make up a full carload.

Gordon Head and Saanich growers are looking forward with confidence to the day when Southern Vancouver Island will become known as the leading strawberry centre on the continent. And there is sound basis for such hopes, because it has been proven by test that the berries grown in their locality will ship greater distances without spoiling than those from any other section in Canada. They say it is the climate that makes this possible, and Victoria is supposed to have the most equable climate in Canada. Saanich and Gordon Head, it might be

mentioned, are hardly more than suburbs of Victoria, for only four or five miles separate them.

The Difficulties.

Now, what are these difficulties we spoke about? In the first place, the labor shortage is just as acute on the Pacific coast as in any other section of the Dominion, and as an example of the way farm wages have been skyrocketting, it may be cited that last year the Chinese employed on the berry fields of Saanich and Gordon Head got an average of \$1.50 a day, whereas \$2.50 a day must be paid this year. Then there has been a fifty per cent. increase in the price of wooden crates. Barnyard manure is used as the principal fertilizer, but the supply is so small and the price so high this year that farmers have been casting about frantically for a substitute. They are using tankage and whale guano, but only in an experimental way. It is claimed that the price of fertilizer, speaking in a general way, has gone up at least 100 per cent. since last season.

When the picking period arrives the labor problem generally is most serious, but the growers have to some extent found a way to solve it by the employment of young women and girls from the city. The plan was tried out last year and the farmers all claim it was 100 per cent. successful. The Chinese will do the rough work, the cultivation and straw packing, but the army of girls must be depended on to gather the crop.

The girls got 35 cents a crate with a five cent bonus last year. The record pick was ten crates in a day during the peak of the season. The girl that did that was getting a \$4 a day wage, which is not too bad. But the growers are convinced that the pickers earned their money last year, and this year they purposed putting up the wages somewhat. The volunteer pickers were registered by the Victoria Y.W.C.A. This year they were marshalled by the Provincial Department of Labor, although the old plan worked out smoothly. After giving them a thorough tryout, most of the growers contend that the average girl is the equal, if not superior, to any Chinaman when it comes to work among the strawberries.

Last year's crop was valued at approximately \$100,000, so production per acre comes close to \$100, on an average basis. To improve conditions, the two associations have got together in an attempt to eliminate brokerage fees by doing all the selling and distributing themselves. To further this object Mr. McNaughton, James Grant, provincial markets commissioner, and R. M. Winslow, former provincial horticulturist, and now connected with the Mutual Growers, of Vancouver, all practical berry experts, made an early visit to the principal market centres in Manitoba and Saskatchewan, and arranged with wholesalers to take the whole crop at \$3.50 per crate delivered.

Alberta is skipped by the Vancouver Island shipments, that market being



Irrigation is transforming vast areas of dry land in Southern Alberta into productive garden and farm land. These tomatoes were grown on the Dominion Experimental Farm at Lethbridge, Alberta, which was visited last summer by an editor of The Canadian Horticulturist, who was most favorably impressed by the splendid crops of fruits and vegetables he found being produced.



This represents the tenth crop grown on a Wealthy apple tree 13 years old, owned by Jay E. Allis, of Medina, N.Y., a speaker at the last convention of the Niagara Peninsula Fruit Growers' Association. Very little pruning was done when the tree was young, and the ground was never seeded. The only fertilizer used was barnyard manure.

left to the British Columbia mainland berry centres. The Island produce is firmer and ships better than the mainland stuff. Creston, in the Crow's Nest Pass district, will ship about 12,000 crates by local express into southern

Alberta, and the Japanese growers of Haney-Hammong have entered the export field for the first time and will probably send 5,000 crates out of the province. Mission, Erickson, Creston and Mission will also ship part of their output.

Orchard Cover Crops

THE main uses of cover crops in orchards are: to hold the snow in winter, and thus afford greater protection to the roots of trees; to prevent the thawing and freezing of the ground; to lessen the depth to which the frost will go in the soil; to furnish vegetable matter in the spring for the purpose of obtaining humus and nitrogen; and to act as a catch-crop in autumn to prevent the leaching of plant food made available during the summer. The cover crop is also a means of reducing the moisture in the soil by transpiration, and thus aid in ripening the wood of fruit trees liable to be injured. Where the soil has been long cultivated, and needs additional plant food, especially nitrogen, leguminous plants, such as clovers and vetches, which will take free nitrogen from the air, and thus add a large quantity of this useful and expensive fertilizer to the soil at slight cost, are usually best; while where the soil has not been long under cultivation and is well supplied with humus and nitrogen, a non-leguminous plant, such as rape or buck-

wheat, may be better, as the holding of snow and the protection of the roots of the trees are then more important than adding fertility to the soil, especially where the snowfall is light.

In the colder parts of Canada, where there is usually plenty of moisture in summer, it is better to sow seed for the cover crop in the first half of July or even in late June, rather than in the second half of July, as it is important to have the wood of trees thoroughly ripened before winter sets in, and by sowing the seed early the growth of the tree should be aided in ripening by the drying of the soil caused by the transpiration of moisture from the growing cover crop. In the dryer and milder parts of Canada it is not necessary to sow seed for the cover crop until about the middle of July, as the early ripening of the wood is not so important as the conserving of moisture in the soil by cultivation through the early part of the summer. No nurse crop is, as a rule, necessary. Some of the desirable characteristics of a good plant for cover crops are,

first that it will germinate quickly and grow rapidly, so that weeds will be checked. It should be a strong grower, as there should be a dense cover to prevent the frost from penetrating deeply into the ground. It should stand fairly erect, so that it will hold the snow well in winter. It should also be a plant which can be easily handled in the orchard. In districts where there is danger of making the soil too dry by late growth, a cover crop should be chosen which will be killed by early frost, such as buckwheat. Some of the best plants for cover crops are: Mammoth red clover, common red clover, crimson clover, hairy vetch, summer vetch, buckwheat and rape. The last has been found very useful on the prairies for holding snow. Where weeds are not liable to spread into adjacent areas and cause extra labor they make a fair cover crop if allowed to grow up after the end of June.

Cucumber Mosaic

The attention of cucumber growers is directed to a disease that seriously affects the yield of cucumbers, by the pathological service of the Dominion Experimental Farms. This service maintains field stations in several districts, so chosen as to afford facilities for the observation of particular crops and for experimental work in combating their special diseases.

The Mosaic disease of cucumbers is not well known in Ontario gardens, but of late it has begun to appear more frequently, and growers should be on the watch for it. Recent investigations indicate that there are three types or kinds of Mosaic to be met with on cucumber, of which one is very damaging. This is the White Pickle Mosaic, which greatly dwarfs the plants and causes the fruit to grow in a lumpy, mis-shapen condition. The distortion in the fruit is due to irregular growth. Certain areas become sickly, assume a light yellow or nearly white color, and grow very poorly. The remainder of the surface is normal, retains its dark green color, and grows much faster, thus producing distorted leaves or lumpy fruit.

In the other two types the leaves are the parts most affected. In one of these types the leaves are mottled with lighter, yellowish green areas and the plant is weakened and dwarfed, thus reducing the yield. The Mottled Leaf Mosaic is not so damaging as the White Pickle type. The third type is known as the Speckled Leaf Mosaic, and while the leaves become spotted with sickly areas, as the name indicates, this form of the disease is not considered to be very damaging.

Apiary Buildings and Their Equipment

By Morley Pettit

(Concluded from June)

I HAVE turned over in my mind many ideas for the efficient routing of supers from the hives to the extractor; but the completion of the building in addition to apiary work was all that spare time in 1917 would allow without permanently installing any machinery. So I think I will postpone the publication of definite plans further than to say that the garage has a door in the end facing the apiary as well as in the front. The hives in the apiary can be arranged so that a motor truck can be backed down the rows and loaded with supers for extracting, as a welcome

the far door, to be taken to the apiary at night, or upstairs for storage, as the case may be. Outapiary supers will, in the spring, be handed down the trap door to the motor truck in the garage.

Extracting Machinery.

With good steam pressure and a long-handled knife and well-built combs, one man can uncapp for an 8-frame extractor, and a helper has too easy a time tending it. Where extractors are allowed to do their work thoroughly I believe there should be 16-frame or 18-frame capacity, with one to attend them and two, or at most three, uncappers.

I am referring to Langstroth combs. This would call for good large capping melter capacity, a battery of four 4-frame or three 6-frame extractors, a pump and plenty of storage. I would heat the knives and melters with steam brought through well insulated pipes from a boiler in another room. That would remove the most

objectionable feature of this part of the extracting, the over-heating and vitiating of the air caused by oil stoves burning in the room, and even steam from knives and melters might be taken care of to advantage by some system of condensation.

I do not know what the daily capacity of such an outfit would be, but would guess at from 7,000 to 10,000 pounds as a conservative estimate. I know that under rather unfavorable conditions, with one 8-frame machine, I uncapped and the helper extracted 3,500 pounds in one day last fall, and he had an easy time. If you say why such haste, I will refer you to the shortness of the time between light and dark honey flows in many sections, the importance of leaving honey on as long as possible for ripening, and the high cost of living.

The knife is a sandwich-knife with straight blade about 10 $\frac{1}{8}$ in. long. A tinsmith added the copper jacket for steam. The handle is straight with the blade, eliminating the tiresome side-pull of the stock knife, and I wound it with tire tape for a better grip. The next

improvement will be some sort of support for the other end to give leverage and save the operator's wrist. A modified bread-cutting machine might answer.

A Revision of Extractor Construction.

While we are installing extractors the stock machine of the manufacturer will stand some scrutiny.

The idea of an extractor or battery of extractors built in, as it were, or permanently installed, has not to my knowledge been published before. If it has I would be obliged to any reader for the reference. All extractors are built for moving about without "taking down" in any way, and have had to suffer in some points on that account. To make them for permanent installation admits of a complete review of extractor construction with a view to revision.

What are the essential parts of an extractor? Among them are baskets for the combs, a reel to whirl them, supports for the reel, a screen to intercept the flying honey and a reservoir to retain it until drained away. For convenience, hand extractors were built in a tin can which combined reel-support, honey-screen and reservoir. Power extractors are built the same way. To overcome vibration caused by uneven loads, the beekeeper nails this can down and wires it down and sometimes braces it from the ceiling, and it continues to be a flimsy tin can which is no proper support for a real machine. The honey collects in the bottom and cannot be fully drained out without tearing the whole machine from its moorings. One would not expect to find a power machine in any other industry so little removed from its hand prototype.

The comb-basket reel might well have its upper and lower bearings fixed in a steel frame on a concrete base, rigid enough to resist all vibration after ordinary care is taken to balance uneven combs. The honey screen and reservoir is an entirely separate matter, and does not need to be a complete can at all; so long as it catches flying honey and conducts it along channels which will drain automatically and completely into the pump chamber. The latter might be built like a wax-honey separator to keep floating wax and honey from the pump.

I would use a battery of small reels in preference to a large one. They have greater centrifugal force, start and stop easier, and while one is stopped, fewer baskets are idle. The force of vibration from an uneven load in a small reel is less. A number of small reels could



Apiary side of central apiary building at the Pettit Apiaries at Georgetown, Ontario. Garage door on this side allows truck to be backed out between rows of hives for bringing in supers. Extracting room downstairs; office and carpenter shop upstairs.

substitute for the old wheelbarrow.

All supers are removed from the hives with bee-escapes, so the loading on the truck will be easy and rapid. Loads of supers from outyards, of course, go immediately into the garage at the front door to be unloaded directly to the extracting room. Here the supers can be moved either in piles on small trucks with castor wheels, as milady moves her dinner-wagon, or hung from trolleys on overhead tracks, as carcasses are moved in an abattoir. It might be practical to run the overhead track out into the apiary and along over the rows of hives. A super-lifter for brood-chamber examinations might possibly be combined with this; but so many have been dreaming of super-lifters that I will shut up for the present.

In any case, routing and machinery must be arranged to avoid back-tracking as much as possible. With this end in view the door from the extracting room to the apiary is at the opposite end from the garage. A super-hoist may also be placed at this end. Supers will then come in from the garage, pass through the extractor and rest near



Apiary at Dominion Experimental Farm, Ste. Anne de la Patatiere, Que.

be placed in one set with only single partitions between them.

The Honey Pump.

I am thankful our building is on level ground so we can pump honey from the extractor to storage with a clear conscience. So many recommend gravity systems, but they all involve stair climbing or lifting combs or supers, which is work for the beekeeper. The pump lets the motor do it, and that is always cheaper. The only effect of the pump is to hasten granulation or if run when not full to cause foam by churning. The latter is easily prevented and the former is an advantage when selling granulated, and does no harm when the honey is to be heated for bottling.

The Honey Room.

Ranged around the wall in the honey room are the store tanks to which the honey is pumped through galvanized iron piping with rubber hose on the end for distribution from tank to tank. The capacity of these tanks suits the day's work so that night will not find one only part full. We have enough for at least three days' extracting, as that is a minimum time for honey to "steal" before skimming and filling. They are on stands about three feet high, so that filling can be done on a table in a comfortable position. Pails as filled are crated uniformly and stacked in the shipping end of the honey room next the garage, where they are convenient to load into the truck for shipment.

Besides having plenty of light and capacity for two cars, the garage has a floor drain and running water for washing and will be equipped with small work bench and proper tools for all ex-

cept the most difficult adjustments and repairs.

Things Every Central Apiary Building Should Have.

There are many points on which beekeepers will differ in the matter of apiary buildings and equipment; but certain things everyone should have are:

1. Cheerful rooms with high ceilings, large windows close together, and plenty of electric lights where the latter are available.

2. A power plant, gasoline or electric, connected by convenient line-shaft to extractors, honey pump, saw, emery wheel and whatever other power machines may be used.

3. Steam for uncapping, wax rendering, liquefying, feed making, cleaning, and perhaps for heating the building to make inside work independent of weather conditions. Question: How about a steam engine for power in view of gasoline shortage and above-mentioned uses for the exhaust?

4. Running water and floors that can be washed down with hose. If necessary, a private water pressure system is a good investment in view of using it in dwelling as well.

5. That the building should be bee-tight goes without saying, and if you build twice as large as you think you will need it may be large enough.

Honey production has become an established business comparable in permanency and profits with any other branch of agriculture. Perhaps no other branch requires so small an outlay of capital for the same return. The best of practical equipment is not expensive, and the best is none too good.

A System of Increase

By J. D. Evans.

MY system of increase starts from the Demaree plan of raising brood, but I use his plan with many variations. It is generally practised from a one-storey hive, but I think this is a mistake. I always put on a second storey, just as soon as the hive is strong enough. The bees need no further attention until clover is in bloom when I raise the brood making a three-storey hive.

The problem here is to leave as many sheets of brood and as few sheets of foundation in the bottom storey, as can safely be done without starting swarms. Most years it is safe to leave three sheets of brood with the Queen in the lower storey, filling up with two sheets of foundation, and the balance with old combs, two frames of brood and three of foundation are much safer, the Queen, of course, always being confined to the lower storey. Queen cells will now appear in abundance in the two upper stories. These must be removed within ten days if no increase is desired. If increase is wanted take a frame of brood with a Queen cell in it (leave only one cell), put it in a new hive, add one or two additional combs with adhering bees; put in an empty comb to act as a division board; close the hive for two days and add frames as needed.

If it is thought undesirable to take away so many combs of brood, thus weakening the hives early in the season, the same results can be obtained by putting newly laid eggs in the tops of three-storey hives later on. The Queen cells will be produced as long as honey is coming in, and the brood taken away, say in the middle of July. This will not cause much loss in the production of honey.

I select a few of my best hives to breed from and leave off the Queen excluders so that the Queen can lay anywhere in the hive, from these I take frames, having newly laid eggs, to put in the top stories, to raise queens from. Another mode of making increase, is to take top stories off the hives, put them on another bottom board on the old stand, after removing the old hive to a new location. Of course, a comb with newly laid eggs must be put in a new hive, or another queen introduced. This can be done after the main crop of honey has been harvested.

At all times during summer and early autumn care should be taken to see that colonies do not starve. So long as they have enough for daily food winter feeding should be delayed until the first half of October.

The Beekeeper's Midsummer War-Time Problems

Wm. A. Weir, Ass't Provincial Apiarist, O.A.C., Guelph

THE month of July may well be regarded as the ending and the beginning of the beekeeper's productive year. With the disposal of the swarm problem and the opening of harvesting operations, the interests of 1919 immediately suggest themselves and plans for greater and more efficient production call for attention.

Harvesting, artificial increase and requeening all come in for their share of consideration, and the judgment used in deciding and executing these apiary manipulations will reflect on the coming year's work. This is particularly true of this year when we are working under wartime difficulties. We are short of labor; uncertain of our sugar supply; subject to unusual delays in transportation, etc., and anxious to do our utmost to place food on the market during this crisis in the world's history.

The harvesting of the honey crop must keep in view Winter Stores, Bee Disease, Quality of Honey and the present honey market. The sugar situation this fall is such that great uncertainty exists. Beekeepers are receiving full consideration from Canada Food Board, but the need for immediate supplies of granulated sugar in quarters where there is no possible substitute available, is so great that beekeepers are asked to patriotically try and care for their own interests. This means that we must fall back on honey to save our apiaries. There is no doubt that strong colonies will winter on full capped combs of light honey more satisfactorily than on dark honey, hence it is advisable for beekeepers to reserve enough combs of capped light honey for feeding in the fall. Fall honey has two common faults, viz., it is much more likely to granulate than the white honey and in unfavorable conditions of weather it often fails to be thoroughly ripened and ferments in the hive. There are, however, sections in Ontario where we often obtain a good flow of pure buckwheat honey. Such honey has been found very satisfactory for wintering, but if honey from asters and golden rod is present in any quantity there is considerable danger of granulation. In the selection of combs for winter stores, it is of the greatest importance that the beekeeper should know that they are derived from colonies which are free from disease. An examination of every brood chamber for disease before taking off the crop is this year an absolute essentiality, and unless care is taken in this respect the disease record next year will show an increased number of diseased colonies. Extracting and feeding back honey does not appeal to the writer. The danger of feeding back disease is increased, and the handling of honey certainly has much to do with its granulation. Our own experience and apparently the experience of a large number of the beekeepers who reported to the Department last spring was that honey fed back granulated in the combs and therefore proved useless as stores. Our policy this year is to hold sufficient capped clover honey which has been taken from colonies known to be free from disease and to leave them in the care of good strong colonies until the end of August. The distribution of stores will then be proceeded with as soon as possible. Requeening in war times is much the same as in times of peace. The shortage of

labor and the miscarriage of the mails are the only two difficulties which are confronting us this year. Breeders are complaining of a shortage of labor and some are about two weeks behind in their deliveries, but all are rapidly catching up and serious delay is not likely to result. Wherever the beekeeper can employ the requisite time and skill, there is no doubt that home reared queens will give the best results, but the average Ontario beekeeper will be too busy to take the time for this work. There is often disappointment in queens received through the mails, so that we consider the best practice is to make up two frame nuclei from the strong colonies we wish to requeen shortly before the new queens are expected. A few extra nuclei are also formed to care for extra queens. Immediately upon receipt of the new queen she is introduced to the nucleus and after we find she is laying satisfactorily, we unite the nucleus to the strong colony. The destruction of the old queen, of course, precedes the uniting manipulation, but not before we are sure we have a good, vigorous young queen to replace her on hand.

One year old queens which have been prolific producers of good workers, gentle workers, and workers of uniform color are left to carry on the colony. A few two-year old queens showing marked ability in the same direction are usually left, but the queen which has been in charge of good, strong colonies for two seasons of brood rearing, is generally not fit to send into winter quarters and the colony is requeened either just before the close of the light honey flow in July or at the opening of the buckwheat flow in August.

Increasing the apiary must be proceeded with special care this year. The shortage of sugar and the need for honey on the food

markets of the world, dictates a conservative policy. With a prospect of securing a good fall flow, we have decided to break up the large colonies at the close of the light flow and form as many five frame nuclei as possible. By five frame nuclei we mean five frames of brood and bees plus another frame of honey and pollen and a young laying queen. If they store sufficient honey of good quality for winter stores, all will be well, otherwise the number will have to be reduced to the limits dictated by the amount of good capped stores on hand for winter feeding.

Bees in the Orchard

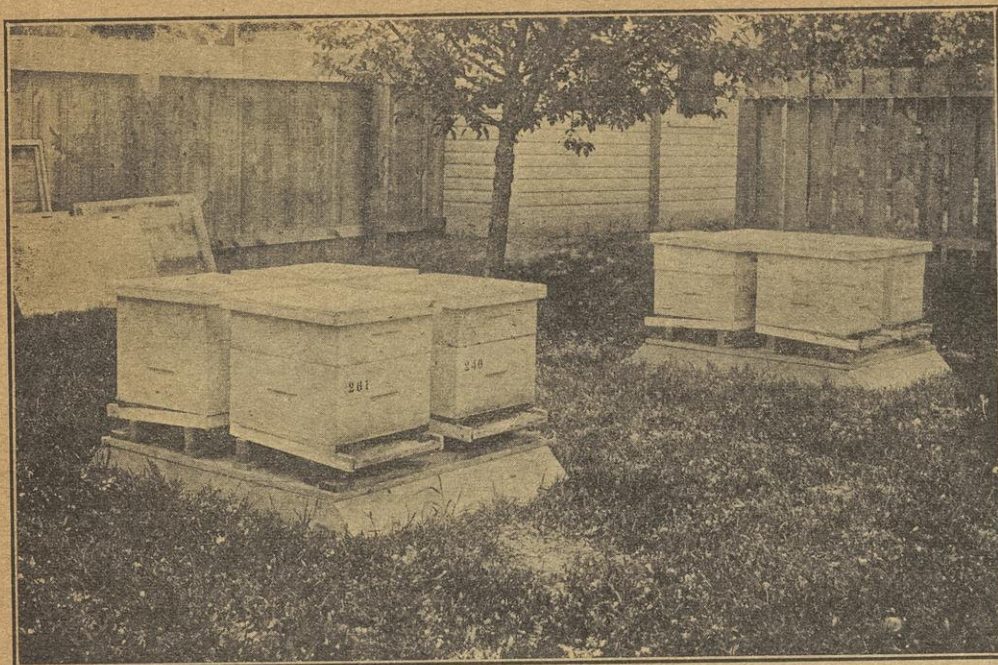
W. H. Collins, Grand Forks, B. C.

Every fruit grower should have two or three hives of bees around his orchard. It has been experimentally proved that the production of most kinds of apples, pears, plums, cherries, raspberries, gooseberries, etc., depends upon the transmission by insects of the fertilizing pollen from blossom to blossom of different trees or varieties. The industrious honey bees are by far the most efficient insect for this work. Unfavorable weather during the blossoming period demands that polonization be accomplished quickly. A few hives of bees in or near the orchard becomes a necessity.

I do not know of any business that will pay better. If properly managed every hive will more than pay for itself the first season. Anyone who is thinking of going into beekeeping should start with one hive. This would not require much capital, nor much time, but the life history and the habits of the bee must be studied. There is no better time for a man or woman to commence beekeeping than now. High cost of living is on the lips of all. A colony of bees in your garden or on your farm will help keep down your sugar bill, your jam, butter and meat bills—and what healthier food is there than honey? It is gathered by the busy bees from every opening flower.



A Field Meet in the West. At the apiary of Wm. McLeod, Norgate, Manitoba.



Apiary at the Experimental Farm, Ottawa.

Reminiscences of a Bee-Man

Opening Hives and Extracting Bee-Stings Not the Only Exciting Incidents in His Career

W. J. Sheppard, Nelson, B.C.

A COMMUNICATION received recently brought to mind many amusing incidents that occur from time to time in connection with imparting information in bee-culture, which give rise to merriment, and act as agreeable offsets and antidotes to "getting stung." The writer stated in his letter that wasps were very troublesome and were robbing his one hive to an alarming extent. On opening it, to make an examination he discovered that the hive contained many drones, and also that the combs were full of drone-brood, and wanted to know "if the bees were raising drones to help them fight the wasps."

One a certain wet day when the frames were being wired in readiness for the foundation, a visitor arrived, who conclusively proved by his first question that he was not a bee expert, for it was, "are the wires for the bees to roost on?"

Visitors often call for the purpose of seeing the bees and obtaining information. The hives stand on a piece of ground about twenty feet square. One day I was asked what the profits had been during the past season, to which I replied about \$250.00. The enquirer then wanted to know, "how much does that work out per acre?"

A lady came one morning and wanted to know how the bees knew their own hive. The explanation started something like this: "Well, you see the hives are all numbered, and ———". Not waiting for the finish of the sentence she immediately exclaimed: "What clever little creatures they must be to know their own number!"

Then there was the boy who started the following dialogue:

Boy.—How many bees are there in a hive?
Bee-man—About 50,000.

Boy.—How much honey does a bee gather in a season?

Bee-man—About half a pound, I should think.

Boy.—Well, according to that, a hive of

bees would gather 25,000 pounds of honey, twelve and a half tons, in one season. Gee, that's going some.

Conversation overheard between two ladies at the Bee Convention.

First Lady—Does your husband ever call you "Honey?"

Second Lady—No. The only time he ever got near it was once when he called me "Old Beeswax."

One day a Celestial, from the land of the Orient, stood watching the hives for some time, then pointing to the bees, he asked: "Where you catch 'em?"

I remember on one occasion I arrived at an apiary just in time to hive a large swarm. Among the spectators was a Kootenay Indian, who sat by himself at a safe distance, and watched the proceedings with evidently great interest, but without moving a muscle. After the bees were in the hive his hitherto immovable features relapsed into a broad grin, and he then gave me, what I can only describe as, a great long wink, that convulsed us all with laughter.

A little white fox terrier, that had never seen a bee hive before, once came along with his owner. He started sniffing round the hives and then poked his nose into the entrance of a very strong colony. It seemed as if the bees were just waiting for him, for they suddenly whizzed out in a great angry cloud, and covered the poor little white dog, so that he was turned into a brown dog, in less than two seconds. Fortunately for him he had the good sense to immediately turn tail and jump right into the stream at the bottom of the field, and by so doing saved his life.

The parson called one day to see the apiary. Just as he approached, and as if on purpose, a bee darted out of one of the hives, straight at him and stung him between the eyes. All he said was "D—— the bees," and then beat it. (This was not in Canada.)

On another occasion a tall, big man arrived, who wanted to see the hives opened. He would not wear a veil as he said he was not afraid of bees, they would not sting him. The hives stand on the top of a bank, with a flower border round. It was a hot day and the bees soon began to buzz round our heads. This was too much for our friend who threw up his hands, to beat them away, and then made a bolt. Unfortunately in his hurry he caught his foot in something and fell, rolled over and over down the bank, leaving a wide trail of destruction through my poor flowers, but arrived on the lawn below, with no greater disaster to himself than a slit in his trousers.

On calling at the apiary of a lady one spring I found the bees all dead. She said: "I did what you told me last fall and gave them all the syrup you said they required." I had made her a feeder out of a five-pound jam pail, by perforating the lid, and showed her how to use it. After I left she procured some more pails and thought she would go one better, and save herself the trouble of lifting the feeders off the hives when they wanted refilling. So she made the holes at the bottoms of the pails, instead of in the lids, placed them in position and poured in the syrup. The poor bees scarcely got a drop as it ran out of the hives, via the entrances, nearly as fast as it was put in, and she did not notice it.

In relating the above incidents I must ask the reader to be indulgent and make his own selection of those that really have happened in the case of yours truly.

Sugar for Fall Feeding of Bees

The sugar needs of Ontario beekeepers were taken up with the Canada Food Board on Friday, July 5th, and thoroughly discussed. The granulated sugar situation has become decidedly tense, and it is impossible at the present time to guarantee a supply for the fall feeding of bees. The vital importance of preserving colonies over the winter of 1918-19 is also clearly recognized and beekeepers are strongly urged to lay aside selected combs of honey for use as winter stores. If the situation eases up later and permits the supplying of granulated sugar, you will be promptly advised and your reserve stores should then be extracted and granulated syrup fed.

Great care must be taken in the selection and storage of combs for winter stores. Carefully examine the brood chamber of every colony in the apiary for American Foul Brood before the close of the light honey flow. Select only fully-capped, well ripened combs of honey from clean colonies. Store the selected combs in a dry, warm place, where they will be out of the reach of robber bees, mice, etc. Reserve 40 lbs. of stores for each colony where outside wintering is practised and 30 lbs. of stores for each colony where cellar wintering is practised. A well filled Langstroth size comb will contain approximately 6 lbs. of stores.

In the event of securing a fall flow of honey, it is generally advisable to remove frames containing dark honey and replace with reserved frames of light honey. Dark honey often granulates in the hive or fails to be properly ripened and capped and poor wintering results.

The Department Bulletin entitled, "Wintering of Bees," gives full particulars of how to prepare the colony for wintering and will be forwarded upon request.

You are urged to report any unusual difficulties so that the Department may be fully alive to the situation.

Beekeeping in Manitoba*

R. M. Muckle, Provincial Apiarist

THE honey crop per colony during 1917 was rather below the average. This also was true in the South and East. Prices for honey were from three to five cents a pound higher than in 1916, which made up to the producer for the reduced yield.

It is a matter for congratulation that the high quality of Manitoba honey is being recognized, many buyers being glad to give a higher price for our home produced product than for the imported.

So far as the nectareal resources of our Province are concerned, there is no more reason why we should import honey than why we should import wheat. The same conditions of soil and climate that produced No. 1 wheat produce a honey that is unsurpassed and rarely equalled.

Few besides the beekeeper take thought of the great harvest of sweetness that yearly falls to the ground through lack of bees to gather it. Perhaps it is valued so lightly because it springs from seed sown by wind and water, beast and bird, and costs us no toil. Nevertheless, neglect to gather it is a great economic waste.

During the past summer many realized the opportunities for beekeeping in Manitoba. More than sixty people began this occupation during the year 1917. Bee-colonies to the number of 147 were procured for beginners and others. It is important that a beginner get good stock free from disease and as near home as possible.

A careful study was made of our honey plants to determine if possible the most suitable localities. A large honey yield is assured in a district where the Fire-weed (*Epilobium angustifolium*), Aster and Goldenrod are plentiful. These valuable plants are found in many parts of our Province, in forest clearings and places recently devastated by fire. It would be advisable to place at least one hive of bees in certain favorable outlying districts and thereby demonstrate to homesteaders and others the profits to be made from this industry.

Bee Diseases.

It is pleasing to know that the number of diseased colonies of bees is on the decrease. In the Dauphin district two years ago many bee yards were affected with the much dreaded American Foul Brood. This summer only slight traces of this disease were discovered in one yard, all other apiaries in the district being free from this scourge.

It is regrettable that European Foul Brood, a contagious disease of the hatching bee, has made its first appearance in Manitoba. Two apiaries were found affected, the germs evidently being brought in by bees purchased from the south, as this disease can not occur spontaneously. Black bees or inbred Italians are the only ones susceptible. The colonies found affected were Italianized with pure bred Italian queen bees, which should check and totally destroy the cause of trouble. It was found necessary to destroy one hive of bees for American Foul Brood at Dominion City. In dealing with American Foul Brood it would be in the best interests of the bee industry to destroy all affected colonies. The destruction of this number, less than

ten, would save the beekeeper many dollars, as certain of our apiarists do not exercise sufficient care in dealing with diseased brood, honey, combs, bees, etc.

Publicity.

A display of honey, bees, wax and honey plants was made at the Brandon Exhibition. Work of this sort is of special benefit in that it creates an interest in beekeeping and demonstrates the quality of Manitoba honey, besides showing that apiculture is a permanent and paying part of agriculture in Manitoba. It is important that beekeeping possibilities be advertised as many do not realize that bees are kept successfully by over 650 people in our province.

Apiary Inspection.

Many apiaries were inspected during the past year and a study was made of the conditions and problems of each beekeeper visited. From time to time articles dealing with these problems were prepared and given to the agricultural papers.

Perhaps the most complex problem is the successful wintering of our bees. In view of this fact, experiments have been carried on for a number of years in outside wintering. This year an experiment is being conducted at the writer's home at Clandeboye, in wintering bees in a well built outside cellar, somewhat similar to cellars used for storing roots. A careful study of wintering by different methods is necessary because many of our beekeepers do not have suitable basements, and consequently the winter mortality is often high.

An experiment was conducted to ascertain, if possible, the exact profits to be made from a single hive of bees in a good locality. The hive was placed on a scales and the following points noted:—Gain or loss each day, temperature at noon and night, amount of sunshine, wind direction and force, rainfall, chief sources of nectar, and honey crop from this hive. The results of the observations follow:—

June—Loss 10½ pounds; gain 10 pounds; rather cool month with considerable rain.

July—Loss 8½ pounds! gain 69½ pounds; extracted 41 pounds.

August—Loss in weight 3 pounds; gain 81 pounds; extracted 43 pounds honey; best day gained 10 pounds in weight.

September—40 pounds of honey taken from hive.

Total honey obtained, 124 pounds, sold at 20 cents, equalling \$24.80. Cost of hive and bees \$16.00. Labor five hours at 60 cents.

This hive did not swarm during the summer.

Instruction.

During the winter months practical instruction on beekeeping was presented to the students at many of the Short Course Schools. A number of illustrated addresses were given, on request, in schools, halls and churches. Lectures on beekeeping were given to the students at the Manitoba Agricultural College during the fall term. In connection with the dissemination of suitable information with regard to the bee industry, the circulating library proved its usefulness.

The high cost of syrups, jams and sugars has made it imperative that every effort be put forth to increase our honey crop. Beekeeping is one of the few occupations open to men and women with small capital or those who are not capable of strenuous manual labor. Beekeeping is an occupation that should strongly appeal to a number of our returned soldiers and every assistance should be afforded them to acquire a knowledge of the industry and to establish apiaries.

Bees Sent by Mail

The parcel-post has just carried a consignment of bees from Mississippi to Mr. J. H. Byer, the "bee king" of Markham. The bees, put up in separate little ventilated boxes, came in one parcel to Mr. Byer, and about twenty of the boxes had the covering knocked off and the queen bees were missing from these.



A view of the apiary of J. F. Dunn, Ridgeway, Ont.

*An extract from the annual report for the year 1917.

Fruit Farmers Who Use Big-Business Tools

By Chilton Gano

SOME years ago the farmers of the Northwest apple-growing States of the Union systematized the production, grading and packing of their fruit, and are to-day commandeering the services of the country's greatest business-building machine to help them sell their fruit at the best prices.

The business-building tool or system referred to is Advertising. Advertising is not often thought of as a machine or system, but nevertheless, the advertising mediums of the world, used on a large scale, constitute nothing else than a huge machine whose wheels may be set turning in the service of any legitimate enterprise which will pay the necessary price.

The first farmers to commandeer the services of advertising on a national scale were the orange growers of Southern California. In the past few years the Sunkist campaign has reached the status of an established success, and has led some other organizations of fruit-growers to follow the lead. It is of the Northwestern Fruit Exchange, which a little more than a year ago began the first national advertising campaign on trade-named apples, that, as the nursery rhyme has it, "I'm a-going for to speak." It is believed the story will interest Canadian apple-growers, who have been to some extent apple advertisers themselves since the Fall of 1914.

Under the heading, "Skookum in 1916-17," Manager W. F. Gwin, of the Northwestern Fruit Exchange, recently wrote a series of letters to the several thousand farmer-members of the Exchange, telling the intimate, detailed story of the first year's experience in advertising Skookum Apples to a hundred million Americans. These letters are much too long and detailed to be reprinted here, but they give a veracious story, being in a sense the official report of a public servant to his constituency. Springing from such a source, what the writer shall say of Skookum advertising may be considered absolutely authentic.

The national campaign on Skookum was not altogether an experiment. It had been preceded by a two-year campaign in a single city, New York. \$15,000 had been spent for advertising the brand in New York, using mainly cards in the street cars. Only the extra-fancy grade of fruit was packed under the Skookum label, and only the eight varieties of apples considered the best were eligible. This first Skookum advertising was highly interesting, because it did more than show attractive pictures of good apples and claim quality. It told people things about apples they had never known before. It told which varieties were best in the different seasons, how certain varieties deteriorate in storage, which varieties are best for different culinary purposes, new ways to serve apples, etc. Long before the two years were completed Skookum Apples brought the highest prices obtainable on the New York market, were known by name to all New York, and were being featured regularly by leading grocery stores, big hotels and restaurants, etc., in their advertising and on their menus.

The national campaign, which was begun in September, 1916, with attractive advertisements in national magazines, became merely an elaboration of the New York policies, as they had proved their merit. Four varieties were added, making twelve Skookum varieties, a new and more elaborate recipe booklet was prepared, showing each variety in color, new incidental pub-

licity items were developed, for instance, Skookum apple balloons, made in Japan. The Skookum trade-mark was also adopted at this time. "Skookum" is a Chinook Indian word meaning "Fine," "Great," "Bully." The trade-mark consists of the face of a smiling Indian Imp. It appears on the tissue-paper wrappers of the fruit, the box labels, and in all publicity matter.

Mr. Gwin's account of the launching of this first national apple campaign is full of human interest, and may well be quoted here, in part:—

"As we got down to the actual engineering of the 1916 campaign in the weeks preceding the actual launching of our plans, I found I had never been so busy in my life. The main steps in these plans were already marked out before the Skookum Packers Association members voted that resolution for a national advertising campaign appropriation for Skookum apples, but the details required the closest attention, and I made up my mind that we would consider every view-point, investigate every suggestion, and finally eliminate until we had left only what was safe and good. I realized that this Skookum fund must make and would make Northwest apples known in every corner of America, to be demanded by millions of consumers, and it must be handled with the utmost care and skill.

"I should tell you that during those weeks of planning the best experts in advertising in the United States called at the Exchange offices, including even special representatives of the great Curtis organization; the discussions with these experts were invaluable. Meanwhile, the tentative advertising ideas were being worked out, and subjected to review and criticism both in ideas for advertising text, the medium of its placing, and the pictorial matter. Before the final trade mark of Skookum, the Indian maiden face of the covetous and merry smile, was accepted, it is no exaggeration to say that fifty sketches by leading artists of New York were submitted, and the trade-mark as it stands to-day is a composite of a number of these sketches, and is acclaimed the equal, if not the superior, of any national or world advertising character or figure.

"Knowing that our advertising would cause a profound demand for Skookum, what to do now to reap all possible profit for the growers? The f.o.b. sales system to wholesalers exactly dovetailed in with an advertising sales campaign. We knew that advertising would sell Skookums by carloads in 1916 where a North-west apple had never been seen in previous years. That meant some big things to the growers. We argued: Skookum will take hold of the progressive wholesaler; he will want it, and he will push it; it is a safe quality, an advertised, splendid apple that he should have—so Skookum in 1916 will have a wide distribution that is the cream. In plain words, Skookum would have the pick of the 1916 demand.

"The Exchange intimated to the growers that everything else being normal, there was a prospect, under our plan, of placing a good part of the crop while the apples were still on the trees. With this in view we prepared a portfolio to show to wholesalers showing sketches of full-page and other advertisements of Skookum which it was proposed to publish in the Saturday Evening Post, Ladies' Home Journal, Good Housekeeping, Literary Digest, Life, Sunset Magazine, etc., etc. The portfolio also showed

sketches of Skookum colored cards to appear in street cars, and the pictures of the Skookum wrappers, the apple novelty balloon, pictures of the Skookum mats to hang in stores, and other helps to retailers to sell their stock of Skookums; also a description of the Skookum recipe book. In fact, this portfolio was a prospectus of the Skookum campaign.

"With this portfolio, then, and with the plans and appeal of the Skookum campaign well in hand, representatives of the Exchange started out early in June to make a personal canvass of a large number of the wholesale and retail dealers. Our representatives in some instances were invited to address the retailers' association as a body. Willingness to co-operate and assist in the marketing of the Skookum crop was freely expressed. In fact it became so that the trade anxiously awaited the appearance of the first advertising and the appearance of the first car of Skookum. A number of merchants carefully formulated their plan in advance, and before this preliminary canvass was completed several hundred cars of Skookum apples had been booked at open prices, which prices were to be agreed upon before the fruit was ready for harvest.

"I don't want to give a too gushing impression of this success. There are always squareheads and soreheads and those who hang back, and there is always opposition anywhere you go and to anything you do. We all know that—at least, those of us who have a gray hair or a furrow or two beginning to show. But nevertheless we met principally with an unstinted welcome."

\$60,000 was expended in the first year's national campaign. For a national campaign this fund was comparatively small, and there is hardly a question that it secured results beyond what might fairly have been expected. It secured the recognition of the new brand by wholesale and retail trade throughout the country, impressed the message of Skookum quality upon the consumer, causing a quite active demand, and easily provided for the ready sale of the Exchange's entire supply of extra-fancy apples.

The Exchange has been actively preparing to increase its output of extra-fancy fruit, to meet a bigger demand this year, and has increased its advertising appropriation. In short, the indications are that Skookum has become a fixture in the fruit markets of the country, and that Skookum advertising, like Sunkist, will show growth with every year.

Good Work by Toronto V.L.C.A.

The superintendent of the Toronto Vacant Lots Cultivation Association, Mr. Geo. Baldwin, F.R.H.S., announced recently that they had approaching 1,750 vacant lots under cultivation. The movement in Toronto started in 1914, when seventy-five vacant lots were put under cultivation. In 1915, there were 120, and, in 1917, 826. The Association prepares the land, and charges the cultivator \$2 for seed. This year 150 soldiers and soldiers' wives, who get everything free, are cultivating lots. According to Mr. Baldwin, the yield of the lots averaged last year about \$40 each, although several had yielded products the actual value of which reached \$130. Many women are cultivating gardens, as are members of church associations and pupils of schools. The staffs of the hospitals are bending their energies to the raising of vegetables for the consumption required at those institutions. Members of the West End Young Men's Christian Association have fifty acres under cultivation.

Annapolis Valley Notes

Eunice Buchanan.

Apple estimates vary from 300,000 to 400,000 barrels. Most of the fruit seems to be of the early varieties. Some orchards have a good set, but in many the yield will be poor. In our vicinity the apple blossoms were good, and much earlier than last year, but on going farther afield we find that blooms were not so abundant. There was not much blossom on the Kings, and this fruit will be scarce. Late varieties, such as Ben Davis and Stark, are very much off. Spys have set well. Gravensteins have a fairly good crop. There are no pears to speak of, and the sweet cherries are thin. Sour cherries will yield better. There are a few peaches on the home trees.

Owing to lack of labor, many people have not sprayed their orchards. Canker worms are doing much damage on Berwick (town) orchards. Spot was noticed on foliage as early as June 16th.

Latterly we have been having some heavy showers and cool weather. This will help the strawberries, which were not injured here by June frost. (Reports of frost come from other districts.) The hay crop will be light. Garden seeds germinated slowly. Winter killing of small branches is quite noticeable in many orchards.

Supplementary.—To-day, June 21st, there was a disastrous frost here. Beans, tomatoes, corn, potatoes, and other tender things have in some fields and gardens been completely destroyed. On high ground the crops escaped. The worst of it is that this frost has come when plants were well grown, and in many instances the season is too far advanced to re-sow seed. Yesterday was cold, with a north wind. At 11.30 a.m. we had a severe hailstorm, which lasted for about twenty minutes, and then finished as rain.

More particulars to follow for next month's notes.

Miscellaneous Notes

From the Note Book of Fruit Inspector
E. H. Wartman, Montreal.

We are about to close our books for the season in apples, as there are only a few barrels and boxes left of the 1917 crop. It will be a season long to be remembered by our fruit men, both growers and dealers. While we hear some say we came out about even, more say we have lost heavily. For instance, I know of apples costing over five dollars laid down here selling around \$1.50 a barrel, which means a very serious loss. However, out of this same storehouse No. 1 "Spy" sold for \$8.00 a barrel. How do we account for this? It was simply this: The No. 1 perfect apples were few compared with the No. 3 grade, which had all the diseased spots and insect cuttings into the tissues of the apples. These kept until the last, and were sold in a wasty state at very low rates. This is June 21. It may be possible to pick up a few barrels in our city of No. 1 "Spy" apples original pack at \$10 to \$12 a barrel. Apples carefully handled and kept at proper temperatures have kept well this year. A few Washington Winesaps are in store here still, and bringing around \$5 a box, or at the rate of \$15 a barrel. This variety is well liked for its pleasant sub-acid juice, and its high red color makes it a fine table apple for this late date.

On my round of inspection work this season I noticed some Ontario Spy apples ticketed at \$1 a dozen, or at the rate of \$15 a bbl. I fancy in war time 75% to 100% is

far too much profit. Thirty-one years ago I picked, packed and laid on dock No. 1 Spy apples at \$1 a bbl., and after freighting them some distance, was glad to sell them at \$1.50 a bbl. The very high prices we see placarded on baskets and boxes of choice apples does not matter to the man who is getting a salary of \$10,000 to \$25,000 a year, but the man who only gets an income of \$1,000 must buy the same article or do without.

The Strawberry Trade.

American strawberries arrived here on the 27th of March from Tennessee in car lots in good order, and sold at high prices. Up to June 14th we had received from various sections of the United States 56 carloads, or 17,152 crates, against last year, commencing 29th March, 99 cars, or approximately 24,000 crates. The reason for so great a shrinkage in one year was the high prices asked at shipping points, which, with freight rates and duty added, made it almost prohibitive to bring such tender fruit in.

Our Ontario berries have been arriving since June 11th, and bringing fabulous prices. For several days 30 cents a 4/5 quart box was the ruling price.

Our own Quebec berries are now arriving and selling at 21 cents by crate in shorts. The berries are large and free from sand, bright in color, and in my opinion, where they were not Winter killed, will produce abundantly.

The weather being cool, and plenty of moisture in the soil since blossoms opened, has caused a good setting. We are living in hopes of a full crop, that many may be made into jam, so that our Canadian boys on the other side may get a plentiful supply. They are fighting hard to gain liberty and freedom for all nations when the cruel war is over.

Victory Bonds

5-year Bonds, due 1st December, 1922.

10-year Bonds, due 1st December, 1927.

20-year Bonds, due 1st December, 1937.

Price: 99½ and Interest

Free from all income or other taxes
imposed by the Parliament of Canada.

Victory Loan Booklet and full information
on Request

A. E. AMES & CO.

UNION BANK BUILDING, TORONTO

Transportation Building - Montreal
74 Broadway - - - - - New York

Investment
Securities

Established
1889

Prepare for Winter—Now!

The winter losses last year were unusually heavy, running from 10 per cent. to 65 per cent., and averaging over 25 per cent. Many apiaries were wiped out altogether. . . . These losses would have been much less if beekeepers had properly packed away their bees. . . . WE HAVE TESTED in our own apiaries the wintering cases we advertise, and not having lost a colony in two apiaries in two years, we have faith and confidence in our cases. Stores and warmth will do the trick. We offer you the warmth—suppose you write us for particulars now. . . .

QUEENS

REQUEEN your apiary in July and insure strong, vigorous bees for the Winter months. Queens we have sold this Spring have been phenomenally good—and we have sold a lot of them. Introduce new blood in your apiary—it will pay big dividends next year. . . .

The Tillson Company, Limited

"Everything for the Bees."

TILLSONBURG, ONTARIO

QUEENS OF QUALITY

Select 3-Band Italians, bred for business.
 Untested, \$1.00 each, six for \$5.00, \$9.00
 per dozen. Circular free.
 Dowelltown, J. I. BANKS, Tenn.

North Carolina Bred Italian Queens

of Dr. C. C. Miller's strain of pure three-band Italian bees, gentle and good honey gatherers. July 1st to Oct. 1st, untested, 85c each, \$9 per dozen; tested, \$1.25 each, \$14 per dozen; selected tested \$1.75 each. Safe arrival and satisfaction guaranteed.
 L. PARKER, R. F. D. No. 22, BENSON, N.C.

Three Banded and Golden Italian Queens

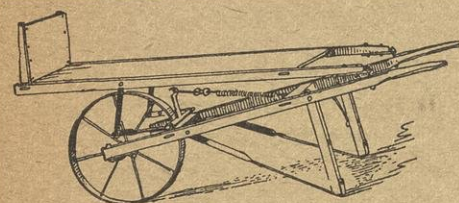
Untested—\$1.00 each; 6 for \$5.00; 12 for \$9.00.

Selected untested—1 for \$1.25; 6 for \$7.00; 12 for \$14.00.

Send for Price List. Cash with Order.

W. R. STIRLING

Queen Breeder RIDGETOWN, ONT.

**Apiary Barrows**

A labor saver. Every beekeeper and small fruit grower should have one. Order early, as number is limited for this season.

W. R. PENNOCK

Manufacturer,

STOUFFVILLE, - - - - - ONTARIO.

British Columbia

Chas. L. Shaw, "The Colonist," Victoria, B.C.

WHEN frost hit the Okanagan Valley during the third week in May it did damage estimated at a million dollars. Even the old-timers shook their heads in wonderment at the breaking of the firmly-fixed tradition that a killing frost never visits the Valley later than May 10. The only precedent to this year's havoc happened about thirteen years ago, when tomato plants were nipped during the close of May. On the basis of injury to crops in dollars and cents, however, last month's frost set a new record.

The frost cut a swath through the Penticton orchards about three miles long, eating its way through the trees and plants situated in the pockets and depressions, and missing those on knolls and high benches. About ten of the best orchards in the Penticton section were almost wiped out, apricots, apples, cherries and vegetables suffering equally.

In the Summerland district, Garnet Valley appears to have fared the worst. A narrow valley with high hillsides and lying just in line with the flow of the chilling northern breeze, the full effect of the frost was felt, and even apples were affected. Tomato growing had been taken up more extensively this year than ever before, and the frost passed over the young plants shortly after they had been set out, killing thousands. This loss has been minimized by the prompt action of the Fruit Union officials. Manager Lawler, who was on a holiday trip, was immediately communicated with at Spokane by President E. R. Simpson, and Mr. Lawler bought up 150,000 plants to take the place of those that had been lost. Further supplies, totalling 63,000 plants, were secured from the Coast and Keremeos. It is estimated that the apple crop will be 10 per cent. less because of the frost.

The loss at Kelowna was considerable, especially with tomato plants. Peachland, Greta, Naramata and Vernon escaped. Kaledon will have a twenty per cent. loss all round.

Girls from the city, the business office and the university are rallying to the aid of the strawberry growers this summer, and

as efficient pickers have put the Chinamen very much in the background. When the season reaches its peak, it is estimated that seven hundred girls will be employed in the berry fields to the almost total exclusion of Oriental labor, which a few short years ago monopolized the farm labor situation in that district.

Continued dry weather and three days of more or less steady wind has reduced the Gordon Head and Saanich strawberry crop to about sixty per cent. its normal size, and the fruit-growers are now contemplating total shipments to the prairies of not more than fifteen carloads, where twenty-two were sent out last year.

So far, British Columbia farmers have not shown eagerness to take advantage of the Soldiers of the Soil movement, and the last report issued by J. H. Beatty, organizer for the Province, states that B.C. has enrolled 1,573 boys for farm labor, and has placed only 540 on the farms. A large number of boys from the Coast sections, however, are being sent to work on the prairies.

At a conference of delegates from the Farmers' Institutes held in Grand Forks a resolution was passed, requesting the Provincial Government to urge the Federal authorities to conscript all Doukhobors of military age and aliens for service in such capacity as deemed fit, at the rate of \$1.10 a day.

News that the Federal embargo on the importation of fruit, among other articles, will include not only strawberries, but will also cover fresh small fruits, apples, cherries, peaches, plums and other tree fruits, was welcomed by British Columbia fruit growers. The competition offered by American produce has been eliminated, and the home market for the articles concerned materially improved as a result. Embargo action on the part of the Dominion was sought by British Columbia growers two years ago, but the application was not pressed on account of the fact that it was deemed undesirable to take any action which might be construed as unfriendly to the United States.

British Columbia apples and soft fruits are for the most part marketed in the prairies, where American competition can be met on a more equal basis than on the coast, where the "dumped" fruit from Seattle and San Francisco has in the past kept out the rail-haul British Columbia products. Year by year, however, the local fruit has been strengthening its hold.

The British Columbia Fruit Growers' Association is organizing a fund for advertising and emergency purposes. All growers are being asked to pay into this fund half a cent a box on apples and pears, half a cent a crate on all berries, quarter cent a box on stone fruits, 15 cents a ton on vegetables, tomatoes, cucumbers and similar produce. All the packing houses in the Okanagan valley have been approached and have promised to give their support on this basis.

The proposed emergency fund, as explained by Prof. Clement, of the University of British Columbia, who is also secretary of the Fruit Growers' Association, is mainly for the purpose of fighting against the practice of "dumping" American fruit on the prairie markets.

W. E. McTaggart, who resigned in 1916 his position with the Province as Prairie Markets Commissioner to resume newspaper

Root's Strain of Italian Queens

Owing to the enormous demand for our queens we have been compelled to advance our prices over last season. In numerous cases this strain has proven itself to be

ALMOST ENTIRELY IMMUNE TO EUROPEAN FOUL BROOD.

The queens are reared by one of the best queen breeders in the whole United States, namely, Mr. M. P. Pritchard and Sons. They are famous for their resistance to European Foul Brood and

FAMOUS FOR HONEY-GATHERING QUALITIES.*Write for Special Terms***The A. I. Root Co.**

MEDINA

OHIO

work, and who has since been in the Canadian Army, has been given an overseas commission with the Y.M.C.A., and will have headquarters in London.

Some quick thinking, coupled with quick action, permitted Harry Tidy, of Keremeos, "tomato king of the Similkameen," to save his crops last month when an unexpected frost visited his big farm. Shortly after midnight he awoke to find the thermometer so low as to paint a disagreeable picture of certain disaster in his mind. However, he got busy, and within a few minutes had his full force of Chinamen on the job, gathering wood for fires at different spots throughout his rows of tomatoes. Over a million tomato plants were to be saved. He ran his tractor between the rows at a speed that would have been called foolhardy under different circumstances, and meantime his men had piled wet hay and manure around the cold frames. Fires were started below the hay, thus creating a heavy smudge that reached almost every corner of the place and saved nearly every plant.

The B.C. Hop Company, of Sardis, has obtained a big contract from the United States Government to supply the American troops with dried vegetables. The company has transferred a quantity of machinery from their plants at Sacramento, California.

The executive of the Provincial Government will shortly concern itself with the proposal to acquire the Coldstream Ranch, of Vernon, involving a purchase price of \$900,000, payable in five per cent. twenty-year Provincial Government Bonds, issuable at par. There are some 12,000 acres, comprising 899 acres of full-bearing orchards, 1,144 acres of other agricultural land actually under cultivation, 400 acres of cultivated meadow land seeded to timothy and clover, 1,321 acres of available

irrigable land requiring no addition to the existing water system to bring it under cultivation, 858 acres of good agricultural land lightly timbered and involving little expense in clearing, 7,976 acres of first-class range, \$50,000 worth of stock, implements and general equipment, and \$70,000 worth of farm buildings.

The value of the 1918 fruit crop has been set at \$4,000,000 by M. S. Middleton, Provincial Horticulturist, who has just completed a tour of the principal farming districts of the Province.

As far as the financial end of it is concerned, Mr. Middleton is confident that this will be a banner year for B.C. growers. He states that most of the fruit has already been contracted for—and at record prices. Last year's total value of the crops amounted to about \$3,000,000.

Raspberries and strawberries will be plentiful and of good quality in the Kootenay section. The strawberry harvest will be a little smaller than last, however, because the plants were unable to develop sufficient crown to carry a heavy yield. Rasps were touched by the frost, but this will have little effect on production.

On the Lower Mainland raspberries and blackberries are reported to be doing particularly well. As regards the Okanagan, Mr. Middleton says the bearing orchards are rather patchy in some places, but, taken as a whole, the apple crop will be considerably larger than last year as a result of increased acreage. Pears will have a big season. Recent frosts have cut down the quantity of stone fruits originally expected. It is reported that apricots have been reduced thirty-five per cent., and other stone fruits to the extent of about twenty-five as a result of the frost. Apricots have been contracted for at the high rate of \$150 a ton (7½ cents

QUEENS

Three Band Italian, Untested, \$1.25; Select Untested, \$1.50; Tested, \$2.00; Select Tested, \$2.25; Breeders, \$5.00 each. All queens sent by return mail.

H. W. FULMER

Box B, POINT PLEASANT, Pa., U.S.A.

BEE SUPPLIES

OF EVERY DESCRIPTION

Root goods made in Canada. Beeswax made into foundation. The highest price paid for beeswax. Bees in combless packages. Get our Canadian price list.

The Root Canadian House
73 JARVIS ST., TORONTO, ONT.

Canadian Queens

Leather-colored 3-banded Italians

Untested, \$1.00 each. Tested \$1.75
Breeding Queens, \$5.00 each.

Satisfaction Guaranteed.

JOHN A. McKINNON

Canadian Queen Breeder,

ST. EUGENE, - - - ONTARIO.

Honey

We are in the market
to buy your Honey in
large or small lots.
Any quantity handled.
Excellent prices offered.

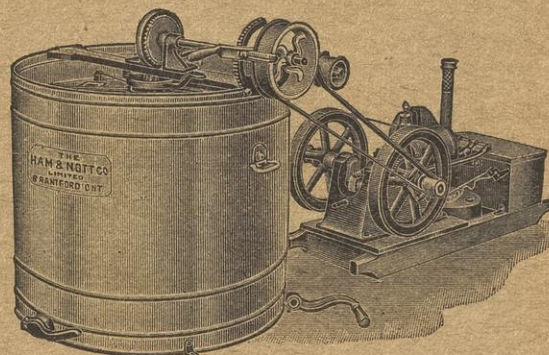


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Hamilton - - - Ontario

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Cut gears or friction drive, with or
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If you are considering a power outfit
this season it will pay you to
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MOTT'S NORTHERN BRED ITALIAN QUEENS

have proved for the last 11 years to the Canadian friends to be the best of E.F.B. resisters. Hardy, hustlers and gentle.

Sel. tested, \$1.50; Unt., \$1.00; 6, \$5.00; 12, \$9.00.

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Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.; 6, \$5.50; 12, \$10.00

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J. P. MOORE

Queen Breeder, Route 1, MORGAN, Ky.

PRACTICAL QUEEN REARING

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

You have this in this new bee book.

Send for your copy now and learn for yourself how to rear queens from your best colonies to advantage. Variations of plans may be of great value also to queen breeders.

Price postpaid, \$1.00, or with the American Bee Journal, one year only, \$1.75.

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per pound), where the price per pound last year was 4½ cents. Apples will be sold at 3½ cents a pound, orchard run, compared with 1¾ cents in 1917. Numerous offers were made to the growers at \$50 a ton (2½ cents a pound) for common run. Two

cents was the price last year.

Whatever damage has been done by frost and other agencies will be offset by the higher prices. This should be one of the most profitable years B.C. growers have ever experienced.

Leading Apple Varieties

AMONG the varieties of commercial apples, Baldwin leads in production, according to a nation-wide survey recently completed by the United States Department of Agriculture. It constitutes one-half of the barreled crop of New England and New York and one-fourth of the crop of western Michigan, all regions of large apple production.

Ben Davis, Gano, and Black Ben have the widest geographic distribution. Prominent centres of Ben Davis production are in the Shenandoah-Cumberland region, including parts of Virginia, West Virginia, Maryland, and Pennsylvania; it leads in Missouri, Illinois, the Ozarks, and the Missouri River and Mississippi River apple regions; and it ranks high in production in the west, particularly in Colorado, Utah, and Washington. Gano and Black Ben are grown more extensively in the west than in the middle west and east.

Commercial Importance of Winesap.

Winesap follows Ben Davis in commercial importance, and this is particularly great in the Yakima and Wenatchee Valleys in Washington. In the Piedmont district of Virginia, Winesap is the leading apple variety, and it has considerable commercial importance in the Arkansas and Missouri River valleys and in parts of Illinois.

The Jonathan is the leading variety in Colorado and Idaho, and is important in Washington, Oregon, Utah, and New Mexico. Its orchards are widespread at the junction of Iowa, Missouri, Nebraska, and Kansas, and are common in Illinois, the Ozarks, and the Ohio River region, and its production is increasing in some parts of the East.

York Imperial is the leading commercial apple of the Shenandoah-Cumberland region, a region that ranks next to New York in the production of barreled apples. The normal apple production of this region is 3,500,000 barrels, of which Yorks are two-fifths. The Ohio River section and Missouri also produce considerable quantities of this variety.

The Northern Spy was regarded as the third apple variety in order of commercial production until recent years, and now it is probably the seventh. The commercial crop comes mostly from Michigan, New York, and Vermont. Close to Northern Spy is Yellow Newtown, or Albermarle Pippin. Its leading district is the Pajaro Valley, Cal.,

where 1,000,000 boxes were produced in 1916 within a radius of 15 miles from Watsonville. Following California in order of production is Oregon, where the Yellow Newtown districts are the Hood River and Rogue River valleys. Washington is third in order and Virginia fourth.

Other Important Varieties.

Apple varieties that are increasing in commercial importance in the United States are Jonathan, Stayman, Delicious, Winesap, Rome Beauty, York Imperial, Duchess, Grimes Golden, McIntosh, Wealthy, Transparent, Black Twig, Williams Early Red, Arkansas Black, and Yates. A stationary production is held by Baldwin, Rhode Island Greening, Yellow Newtown, Gravenstein, White Winter Pearmain, Northwest Greening, Gano, Wagener, Maiden Blush, Benoni, Bonum, Nero, and Starr.

For one reason and another many apple varieties are declining in production. Among them are widely known kinds, such as Ben Davis, Northern Spy, Esopus Spitzenburg, Tompkins King, all kinds of Russet, Hubbardston, Missouri Pippin, Tolman Sweet, Smith Cider, Fameuse or Snow, Yellow Bellflower, Twenty Ounce, Rambo, Swaar, Red Canada, Wolf River, Fall Pippin, and other commercial varieties. To this list could be added many non-commercial ones.

Vegetable Competitions

The Ontario Vegetable Growers' Association is this year conducting two competitions, one for gardens, and the other for field crops. The regulations for the garden competition state that each garden must contain not less than three acres, and that they will be judged twice during the season, the first judging not later than July 10th, and the second judging not later than August 10th. An entry fee of \$1 will be charged. There will be five prizes running from \$30 down. Judges will be supplied free of charge by the Provincial Department of Agriculture.

The field crop competitions will be conducted in onions, celery, tomatoes, cabbage, early potatoes, and musk melons. The cabbage and potatoes will be judged not later than July 10th, and the celery, melons, onions, and tomatoes about August 10th.

The province for both competitions will be divided into four districts, as follows:—

1. Ottawa, Kingston, Belleville.
2. Toronto, Welland, Clinton and Louth.
3. London, St. Thomas, Stratford, Brantford.
4. Blackwell, Sarnia, Tecumseh, Sarnia Independent.

The plots entered for the field crop competition must consist of not less than one-quarter of an acre; there must be ten entries in each class of vegetables named from each district; members can compete in any, or all, of the six crops mentioned; the entrance fee is \$1 for each crop; judges will be supplied by the Provincial Department of Agriculture; the prizes, six in number, range from \$20 down; special prizes will be offered at the Toronto, Ottawa, Kingston,

and London fairs, open to prize winners in the different districts. Express charges on these exhibits will be paid by the Provincial Government. Only vegetables from the plot entered in the competition can contend for the special prizes at the fairs mentioned.

Fruit Marketing Prospects

G. E. McIntosh, Dominion Fruit Division, Ottawa.

PROSPECTS for marketing facilities are more encouraging for the soft fruit producers than for the apple growers, and particularly so for those using express transportation and not dependent upon freight service. I do not wish to discourage the apple men, but it is evident that with the embargo against shipments to Great Britain, Nova Scotia will in 1918-19 have to look to the same markets as they have the past season. That will mean an additional rail traffic of approximately 500 cars, or in other words, 500 cars less for transporting Ontario shipments.

There is no use trying to avoid facts, and with this situation facing the fruit growers, I take this opportunity of urging Ontario apple shippers to get their crop moving just as early in the Fall as possible, thereby having the advantage of using box cars, of which a supply will undoubtedly be made available with the co-operation of the railway companies.

Every effort must be made also to conserve cars this season by loading as heavily as safe carriage to the fruit will warrant; and carload sales should have no restrictions in this regard. Many consignees, even in large centres, insist upon a close adherence to minimum carload weights, the result being an economic waste which reduces the efficiency of the railways. To increase the average loading of apples by one ton would be equivalent to placing nearly 1,000 additional cars in service in Canada, and a car saved is a car gained. It was only by following out suggestions along this line that Nova Scotia was able to move 2,000 carloads, some carrying 338 barrels, or 49,650 pounds, last season. They saved over 450 cars by this excessive loading, but there still remain over 100,000 barrels to be marketed.

It has been my privilege to be more or less associated with the Food Control office, and I say in all sincerity that the absence of foodstuffs has been simply appalling. Lord Rhondda recently made the remark that "food wanted by mankind did not exist." A scarcity of food is a real sacrifice, and a matter of deep concern for each individual. Let each householder, therefore, be his own food controller. There must be no waste of fruits the coming season. The public is using more fruit than in former years, and as an article of food rather than

a luxury. The medical profession advise that a fruit ration is necessary for every individual, therefore, to avoid waste in transporting this commodity, we want to do everything within our power to assist in getting the best possible express or freight service during your marketing season.

With railway conditions as I have outlined as plainly as it is safe to do, it is evident that in marketing the 1918 fruit crop, even with a preference in car supply and service in transit, difficulties are bound to spring up. We cannot promise fruit growers anything, but if certain traffic regulations (probably made effective to facilitate rush movements) threaten waste or loss of your shipments, we want to know it promptly, when everything possible will be done to promote the welfare of the fruit growers. We have assurance of the co-operation of the railways and the express companies for the coming season in moving the fruit crop of each province, and I take this opportunity of asking for the further co-operation of the growers and shippers by making the best possible use of equipment. Avoid as much as possible the half-car shipments, and load every pound you can in your carload sales. Push the sale of patent-covered baskets in preference to leno, especially when a refrigerator car has to be used.

Bulletins and Books

"The Culture and Diseases of The Sweet Pea" is the title of a handsomely bound, well printed book by J. J. Taubenhause, Ph. D., Plant Pathologist and Physiologist in charge of the Experiment Station at the Agricultural College of Texas. The book contains over 200 pages and is well illustrated. It deals with such subjects as: The culture of Sweet Peas under glass, diseases of greenhouse sweet peas, field diseases of sweet peas, insect pests, diseased seeds, spraying and other subjects. The book may be purchased for \$1.50 from The Canadian Horticulturist or the publishers E. P. Dutton and Co., 681 5th Ave., New York.

The 12th annual report of the Horticultural Societies of Ontario and the 13th annual report of the Ontario Vegetable Growers' Association are being distributed by the Ontario Department of Agriculture. Both contain much interesting and helpful information and are well illustrated.



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DOUGLAS GARDENS

Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

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OAKVILLE - ONTARIO

Fabulous
Prices are
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CANADIAN NATIONAL

EXHIBITION

TORONTO, AUG. 26—SEPT. 7.

THE LARGEST PRIZE LIST EVER OFFERED FOR

**Vegetables, Fruit, Horses, Cattle, Sheep,
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New and Better Classifications in All Departments. A win at Toronto places you in the front rank and brings many buyers.

WRITE NOW FOR PRIZE LIST TO

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Alert Breed-
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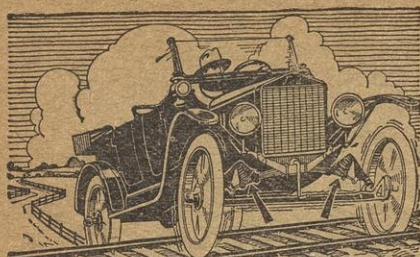
\$30,000 IN PRIZES

\$1,500 Added this Year

Fruit and Flowers receive their share of the increased prize list this year. Plan to attend Western Ontario's popular Exhibition—bigger and better than ever. Big programme daily and nightly, bands, pipers, Pure Food Show, Midway, Fireworks, etc.

Prize Lists, Entry Forms, etc., from the Secretary.

Lt.-Col. W. M. Gartshore, A. M. Hunt,
President. Secretary.



Tires \$500 Apiece!

TIRES are selling at fabulous figures in Europe. War conditions may make them go almost as high here. You owe it to the country and to yourself to make your present set give the greatest possible mileage.



Hassler Shock Absorbers save tires because they support the weight of the car. When the car strikes a rut, they gently compress and absorb the jolt instead of forcing the tires to lift the car. The increased mileage from one set of casings pays for them. Hassler Shock Absorbers make your Ford ride as easily as a \$2,000 limousine. They save gasoline, reduce up-keep cost one-third, and increase the resale value of your car. 300,000 Ford Owners recognize their economic necessity.

10-Day Free Trial Offer

Phone, write or call for FREE TRIAL BLANK and we will have a set of Hasslers put on your Ford without a cent of expense to you. Try them 10 days. Then, if you are willing to do without them, they will be taken off without charge. Don't ride without Hasslers simply because someone discourages you from trying them. Accept this offer and see for yourself. Over 300,000 sets in use. Do it now.

ROBERT H. HASSLER, Limited
Lock Drawer H.C. 25 HAMILTON, ONT., CAN.

CABBAGE PLANTS

Of all leading early and late varieties, 45c per hundred, mail prepaid; \$2.50 per thousand, express collect. Also Brussels Sprouts, Kale, Cauliflower, snowball, Kohlrabi, and onion plants (for large winter onions). Ask for price card. We are shipping successfully to all parts of Canada.

HEROLD'S FARMS
FRUITLAND - - - ONTARIO
Dept. D. Niagara District.

POULTRY YARD

Putting Chickens to Bed

One would naturally suppose that chickens know when to go to bed. But what is a chicken to do if it is suddenly taken from the state of Washington to Alaska, where the nights are only one or two hours long? If it were to go to bed at sunset, which is at about ten or eleven o'clock, and get up at sunrise, which is about two or three o'clock, it would be likely to die of nervous exhaustion from lack of sleep, unless it becomes acclimated.

A woman had some chickens in her Alaska home, at Valdez, and a friend sent her some others from Seattle, Wash. The first evening the chickens from Seattle kept roaming around by the light of the sun until about ten o'clock. They did this for two or three evenings. Finally, their owner had to put them in their coop and shut the door at a very much earlier hour, until they got used to the long days. Later they seemed to like the unusually long, bright evenings, but went to bed with the other chickens at a reasonable hour.

E. T.

July Work in the Poultry Yard

Sweep down the cobwebs and clean up the house generally, for July is a hot month, and heat and filth make a strong combination favorable to disease and vermin. The work should be done thoroughly, and the premises sprayed with a good disinfectant.

If Summer hatching is not done, the male birds should be removed from the flock and placed in separate quarters until after molting. Males that are not to be kept for next season had best be marketed now to save the feed and to prevent fertile eggs, for infertile eggs are better keepers during hot weather.

As soon as the cockerels start to crow they should be separated from the pullets and fed all they will eat up clean. Those that are not to be kept over for breeding should be sold to make room for the others. All surplus stock should be gotten rid of, for there is no profit in feeding birds that are not needed.

July is an excellent month for the sale of roasting fowls and spring chickens. It is the best season to sell spring chickens.

The drinking vessels should be put in the coolest possible place, and the houses should be well ventilated at night.

There is still a good profit in the sale of dressed ducklings.

When all things are equal, Summer hatches can be grown at less cost of money, labor and worry than those brought out during the Winter and early Spring. If chicks are provided with a cool range they will grow with surprising rapidity.

The greatest cost in growing chicks is for the first two pounds weight; after that each additional pound will average about half the cost of the first. This makes it more profitable to grow the youngsters up to roaster size than to sell them as broilers—at least it is so in very many sections where roasters are preferred.

Broilers hatched during June will be marketable about September; July-hatched broilers by October, August-hatched broilers by November, and September-hatched by December. There is but little demand for

broilers until November. It is highest in February.

A soft roaster should not weigh more than four pounds when dressed, and should be finely developed in four to six months. These are usually hatched in early Spring and sold during the Summer. Roasting fowls hatched in Summer are classified as "large roasters," and must weigh from four to six pounds.

Two objections have been raised against summer hatches: First, there is too much danger from depredations of lice; second, the chicks are weakened and die from the effects of the hot sun. These objections apply when no care is given the youngsters, and would apply equally well in early spring when the days and nights are likely to become suddenly cold.

The secret of raising summer chicks is to keep them comfortable and contented, and to see that they do not lack anything that is for their good. Overcrowding must be avoided, and the houses well ventilated so the chicks keep cool at night. Fresh air is a great tonic; along with range and shade, green food and sound grain, it does wonders.

Marketing the Old Hens

Just after the broiler season is over, when Spring chickens are scarce and the Fall run of poultry has not yet begun, is a good time to weed out all the hens you will not want to breed from another season.

APPLE BARRELS

We ship them all over Ontario.
Machine-made, Standard size.
Get our prices.

Contracts made with Fruit Associations.

SARNIA BARREL WORKS,
Sarnia, Ontario.

TREES & SHRUBS
BROWN BROTHERS Co.
NURSERYMEN LIMITED
BROWNS NURSERIES, ONT.

Northern Ontario

A vast new land of promise and freedom now open for settlement at 50c an acre in some districts—in others, Free.

Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

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

H. A. MACDONELL,
Director of Colonization,
Parliament Bldgs., TORONTO, CAN.

G. H. FERGUSON,
Minister of Lands, Forests and Mines.

and put them on the market. They will bring very fair prices at this time, if marketed in first-class condition.

They should be penned in a comparatively small enclosure and fed all they will eat for about two weeks. This fattens them rapidly unless they are over large to start with, and makes feeding profitable even at present high prices of grains.

The pen should be so arranged that the hens will have shelter from the sun during the hot hours of the day, and their sleeping quarters should provide plenty of fresh air at night.

Feed all the hens will eat three times a day, but do not leave any soft food in the troughs between meals. Some scattered grain may be left in the pen, but not enough to prevent them from eating quantities of the soft feed which is more readily assimilated.

In the morning feed a mixture of two parts wheat middlings or "red dog" flour and one part cornmeal. Add a little salt, dissolving it in the water used in the mixture to insure even distribution. If skim-milk is available, use this instead of water in mixing the mash. Mix it into a stiff dough—the stiffer the better. At noon give a light feed of oats, and later in the day give the fowls all the corn they will eat, along with a good feed of beef scraps or cut bone.

Hens so fattened on pure, sweet products come to the table with fat globules deposited among the meat fibers, which simply melt throughout the flesh in cooking. Thus the carcass is tender and sweet, and without the stringiness commonly found in old hens. Good marketing methods often result in a gain in the price hens bring per pound, as well as in the number of pounds.

Poultry raisers who send only high-quality products to market soon find the demand for their goods increasing, and they also get the benefit of top-notch prices. It pays to cater to the many folks who would like to use more poultry on their tables if they could only feel sure of getting the quality commonly associated with goods "fresh from the farm."—R. B. S.

Dry Clover for Poultry

In the Winter we need some food for the hens, and the best we can get, except fresh greens, will be dried clover. Where alfalfa is grown on the farm this is an easy matter to manage, but not all of us have alfalfa. One year I bought a load of alfalfa, and when it was unloaded between the wagon and the stack was a deep layer of fine leaves. Then the hayrack was covered with leaves, which I had the man sweep off for me. I had a couple of tightly packed gunny sacks of splendid poultry greens, needing only stemming to make it fresh and palatable for the hens.

White clover grows quite generally over the country, and it offers a very good opportunity to store a supply of splendid green food for Winter use, as the leaves can be cut and raked and stored after they have cured. As white clover will afford little but leaves, there is practically no waste. In the cities the lawn clippings can be thus utilized, and in the country the scythe or sickle can be used to cut the leaves. As a new crop of leaves will quickly appear, several cuttings can be made during the Summer.

Sweet clover will make as good feed as the white clover or alfalfa, but here the leaves alone should be saved, and it is much more difficult to get them. The young growth is best and the easiest to get, unless we intend to do the work by hand, when the large thickly leaved stalks will give the best chance.

Sending Money to Soldiers



Those who have friends or relatives at the front, may wish to send money, but possibly do not know the best way to do so.

If time permits, the safest and most convenient method of making remittances abroad is the Bank Money Order or Draft, as issued by The Merchants Bank.

If, however, it is necessary to send money without delay, the Bank will arrange this by Cable Transfer.

THE MERCHANTS BANK

Head Office: Montreal, OF CANADA Established 1864.

with its 102 Branches in Ontario, 32 Branches in Quebec, 19 Branches in Manitoba, 21 Branches in Saskatchewan, 53 Branches in Alberta, and 8 Branches in British Columbia serves Rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

DUNLOP
GARDEN HOSE

Settle the garden hose question definitely—first, by purchasing a hose for your own exclusive use; second, by specifying that your preference is unalterably for the Dunlop Brand.

Any Hardware dealer will show you why Dunlop Garden Hose will not kink nor crack, and why it will outlast and outserve any other make.

Also Makers of High-grade Tires for all purposes, Belting, Packing, General Hose, Mechanical Rubber Products of all descriptions, and General Rubber Specialties.

DUNLOP TIRE & RUBBER GOODS COMPANY LIMITED

Head Office and Factories: Toronto

Branches in Leading Cities

Fruit Packages

Have you placed your order for them yet? The fruit season will soon be here when you will need them. In order to get highest prices in the best markets, you require the

BEST STANDARD PACKAGES

Secure these by ordering at once from

The Hantsport Fruit Basket Co.,
LIMITED
Hantsport, : : : N.S.



We have a large stock of all sizes

FLOWER POTS

FERN OR BULB PANS

‡ AZALEA POTS
and Rimless Pans

Orders Filled Promptly.

Send for Prices

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.



HAULING BIGGER LOADS

without extra spanning is easily accomplished when you use

MICA AXLE GREASE

"Use half as much as any other"

Axles are rough and porous, causing friction. The mica flakes fill the pores and the grease keeps them there. Mica Grease prevents locked wheels and hot boxes, gives sure relief for unnecessary strain on horses and harness.

EUREKA HARNESS OIL

"Lengthens leather life"

replaces the natural oils that dry out of the leather and puts new life in old harness. It penetrates the leather leaving it soft and pliable, and overcomes the worst enemies of harness—water and dirt.

Sold in standard sized packages by live dealers everywhere.

IMPERIAL OIL LIMITED

BRANCHES IN
ALL CITIES



PERRY'S SEEDS

Alpine and perennials, unique collection; many new varieties unobtainable from any other source.

Hardy and adapted for Canadian climate.

HARDY PLANT FARM, ENFIELD, ENGLAND

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

Vineland Co-operative Association

W. M. Gayman, Secretary.

In almost every community where twenty-five or more farmers or fruit growers are located, you will find a feed store or a mill, a grocery and hardware store, and a farm implement dealer. These various businesses are, in many cases, handled very efficiently, and in many other cases the opposite could more accurately be said of them. It is surprising, in looking up the financial rating of a vast number of these smaller concerns, to find that credit is poor, and that they have not sufficient capital to enable them to buy any of the commodities they handle in carlots. The farmers in the above particular community are clearly not being served as efficiently as is their privilege. In other cases the dealer may be financially strong. If he is acquainted with the market, he knows the best time to buy. He buys at this time and in large quantities, but instead of giving his customers the benefit of the good bargain, he may sell at the later higher market price, and thus make so much larger profit for himself. Let these same twenty-five men form a stock company. Each man should subscribe for one hundred, two hundred, or five hundred dollars' worth of stock, according to the amount of business it is hoped to handle. This will give three to five thousand dollars capital. The appointment of the directors is the next important item. Seven farmers who have made a success in their individual farming make good directors.

If the business is large enough, it will be necessary to hire a manager. In our company each member is bound to place his order for all supplies through the secretary. This gives him a chance to buy in large quantities. Each member should give the secretary an idea of the approximate amount of goods he will require. If the business will warrant a warehouse along the railroad siding, it will always be a valuable asset, and will be of great assistance in distributing supplies. If the warehouse cannot be built the first year, a temporary building can be rented. In our company last year we purchased supplies to the value of \$62,000. We dealt in coal, feed, sulphur and spray materials, baskets and crates, cedar posts, nursery stock, hay and straw. These were sold to our members at fair market value. Our gross profits exceeded five thousand dollars.

Orchard and Garden Competition

THE Horticultural Branch of the Provincial Department of Agriculture has issued rules and regulations for an Orchard and Truck Competition and also for a City and Farm Garden Competition. The rules and regulations for both competitions provide that all farmers' institutes and other organizations desiring to organize these competitions must notify the Provincial Horticulturist at Victoria. The fields or plots entered for the first-named competition must be clearly defined, and there must not be less than 10 bona fide entries for each kind of crop from any one organization, and no competitor can compete for prizes offered by more than one organization. At least \$30 must be offered in prizes for each kind of crop. The competition is divided into seven classes, one for bearing orchards, another for young orchards, a third for bearing strawberries, a fourth for bearing raspberries, and a fifth, sixth and seventh for tomatoes, onions, and celery.

In the City and Farm Garden Competi-

tions 10 bona fide entries are also required in each competition, but extra prizes can be given if this number is exceeded. Gardens may be not less than 1,000 square feet in area. If required, the Department will supply the services of assistant horticulturists. The judges will visit the gardens three times, or as often as possible, during the season. The Department will supply one judge. There must be at least \$30 offered in prizes for each competition, and, this amount being offered, in each instance will be supplemented by a grant of \$25 from the Department. The score card calls for 20 points for quantity and value of crop, quality of crop, assortment as to range of season, variety and kind, industry, enterprise and skill, and cleanness and neatness. The local Fall exhibition societies have been requested by the Department to offer special prizes for collections of vegetables grown by competitors.

FOR SALE Fenwick Nurseries

This is a good business and a going concern, consisting of eight houses, all in first class condition some being only two years old; are fully stocked. These are the only nurseries undamaged by the recent explosion. The only reason for selling is the winding up of estate. This is an elegant proposition for anyone understanding the business.

Apply G. A. J. BOAK

FENWICK NURSERIES

BOX 1087, HALIFAX, N.S.

The Fruit & Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

Canada Food Board License Nos. 3-018, 3-019 and 7-005.

H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

Shipping stamps furnished on request.
Canada Food Board License Nos. 3-043, 3-044 and 3-517.

DAWSON - ELLIOTT CO.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

Canada Food Board License No. 3-045, Class II., Div. B., and 3-046, Class II., Div. C.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

See advertisement on page v.

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

Standard Containers

All interstate shipments of fruits and vegetables in containers must be in packages that conform to the provisions of the United States Standard Container Act, says an announcement from the Bureau of Markets, United States Department of Agriculture, which is charged with the enforcement of the Standard Container Act. The baskets, crates, hampers, and boxes must be in sizes containing half pints, pints, quarts, or multiples of quarts; slight variations either over or under size may be allowed, provided the average for any shipment conforms to the standards. Climax baskets for grapes can be made only in 2, 4, and 12 quart sizes and of the dimensions specified in the act.

The variations from standard sizes are made, it is stated, because of the nature of the containers, they being usually rough finished. No allowance for products heaped over the edge of the container is made, and the capacity of a container is determined by stricken measure tests.

Although the law applies only to interstate shipments, it is probable, according to the bureau, that inter-state shipments will be generally made in United States standard containers, because many manufacturers have arranged to make no containers except those that comply with the Federal size requirements. Even shippers whose products are usually consumed in their own State are said to favor packages complying with the United States Standard Container Act, because they have no assurance that their produce will not be sent across State boundaries before it is consumed.

The enforcement of the Standard Container Act, it is believed, will tend to eliminate deceptive practices in marketing fruits and vegetables, and give a "square deal" to both the purchasing public and the trade. Over forty food products inspectors already stationed in the large receiving markets are available for enforcing the act.

Every phase of life and industry has been affected by war activities, and it has been necessary to make adjustments in every line of work in order to compensate for the shortage of labor and to meet the new conditions imposed upon us. Apple orcharding is no exception to the rule, and we should endeavor, at all hazards, to keep up the essential work and eliminate those things which are not absolutely vital to our success.—Dr. A. J. Grant, Thedford, Ont.

A strawberry bed in good condition that has fruited but one year may be mowed now and the plants thinned and cultivated to produce a new bed for fruiting next year. Cut out all the old plants and many of the new.

Schools and Colleges



OSHAWA ONTARIO
Visitor: The Lord Bishop of Toronto.

A Residential School for Girls

Young Children also received.
Preparation for the University, Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games. For terms and particulars apply to the Sister-in-Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto. College reopens September 12.

SANDER & SONS
ORCHID GROWERS

The Finest Stock in the World
Catalogue on Application
ST. ALBANS - ENGLAND

ALBERT COLLEGE

It is more than a school
It is a home !

where men and women are educated, trained and prepared to make full use of their talents and fit themselves for successful futures.

Everything that a good college calls for is found in Albert; and added to all is the uplifting and refining influence which comes from co-education.

Full Courses Under Competent Teachers

in Literature, Music, Art, Expression, Theology, Physical Culture, Stenography, and Commercial.

School reopens September 9th, 1918
Write for information or College Calendar to

E. N. BAKER, M.A., D.D., Principal
Albert College, Belleville, Ont.

ONTARIO LADIES' COLLEGE

WHITBY - ONTARIO
Public School to Second Year University, Household Science, Music: Instrumental, Vocal, Commercial, Elocution, Art.
School Re-opens Sept. 11, 1918
Civic and Parliamentary Studies, Gymnasium Work and Swimming.
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OTTAWA LADIES' COLLEGE

FITTED WITH EVERY MODERN CONVENIENCE.
New Fireproof Building
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PANSY
"Canadian Beauties"

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet 50c
A FEW LIVE SEEDSMEN WANTED to handle my Pansy Seeds for Spring of 1919 in original packets. Write for terms.

WM. McSKIMMING, Pansy Specialist
230 ELIZABETH ST., GUELPH, ONT.

PEONIES

A limited number of roots of such choice varieties as Soulangue, Mignon, Primevere, La Lorraine, Sarah Bernhard, Lamartine, Therese and Le Cygne will be supplied while they last. Send for price list if interested.

J. H. BENNETT
BARRIE : : ONT.

Good Prices Always

For Your Fruit and Vegetables

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

Canada Food Board License Nos. 3-007, 3-008 and 3-009.

Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine.

H. PETERS
88 Front St. East, Toronto

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



We Solicit Your
Consignment

Send for
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CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

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SWARTS' GOLDEN QUEENS produce golden bees of the highest qualities. Satisfaction guaranteed. Mated, \$1.00; 6 for \$5.00; Tested, \$2.00. D. L. Swarts, Rte. 2, Lancaster, Ohio.

FOR SALE—3,500 3-Banded Queens, none better. Write for price list. J. F. Diemer, Liberty, Mo.

GET JUNE, JULY and AUGUST prices on 3-banded Queens. J. F. Diemer, Liberty, Mo.

FOR SALE.—Three-band Italian queens from best honey-gathering strain obtainable. Un-tested queens, \$1.00 each; 6, \$5.00; 12, \$9.00. Safe arrival and satisfaction guaranteed. W. T. Perdue, Ft. Deposit, Ala.

HONEY

WANTED—First-class white honey, the coming season's production. Will pay ruling prices and supply tins. Foster & Holtermann, Limited, Brantford, Ontario.

WANTED—A reversible honey extractor with baskets 12-in. x 18-in. Box 30, Lambeth, Ontario.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write, stating requirements. W. B. Calder, Grimsby.

SEEDS, BULBS, PLANTS, SHRUBS

ORDER FALL BULBS NOW and save half. Get Import Bulb Catalogue at once. Morgan Supply House, London, Ontario.



A complete, durable outfit for spraying potatoes and all row crops—easily adjusted to suit the width of your rows and the height of the vines. The

Spramotor

It isn't a SPRAMOTOR unless we made it is the recognized standard of excellence—simple in design, powerful, durable. Made in many styles and sizes, operated by hand, horse and gasoline power. Made in Canada. No duty to pay. Write to-day for FREE illustrated treatise on "Crop Diseases."

SPRAMOTOR WORKS
4017 King St. - London, Canada

Too Many Girls for Fruit Picking

This year there appears to be a surplus of girls for fruit picking and the Women's Farm Department of the Government's Employment Bureau have all the girls needed for fruit picking until September. Miss Hazel Martin, director of the department is desirous, however, that this surplus will work along the lines of food conservation instead, and will take work in canning centres where they will be employed to prepare fruit and vegetables for canning.

There are also a great many girls and women who have sent in applications to pick fruit who have stated that they will only be available for three weeks. "These girls will be likely called on during the rush season to pick raspberries and cherries, and should hold themselves in readiness to accept positions on three days' notice, as we are handicapped by not knowing in advance just when the rush season will commence." Says Miss Martin.

Sugar for Canning

Every effort is being made to provide sufficient supplies of sugar for the canning season. The Canada Food Board says that while restrictions in the consumption of sugar in given ways are necessary and must be strictly enforced, still by the present arrangements there will be plenty of sugar for canning purposes when the season arrives. Every effort should, therefore, be made to preserve fruit and vegetables to the utmost permitted by increased production.

WANTED—APPLES

1500 barrels large No. 3, Winters

500 barrels large No. 3, Falls

1000 barrels small No. 3, Winters

Variety of Winters, Ben Davis, or Baldwins

FOR SALE

1000 New Apple Barrels, cheap

HYSLOP & SONS

Greenville - - - Ontario

Canada Food Board License No. 14-157

SEEDS

Wholesale

IMPROVED FARM ROOT SEEDS

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IMPROVED FLOWER SEEDS

Seedsmen please enquire for our SPECIAL PRICES

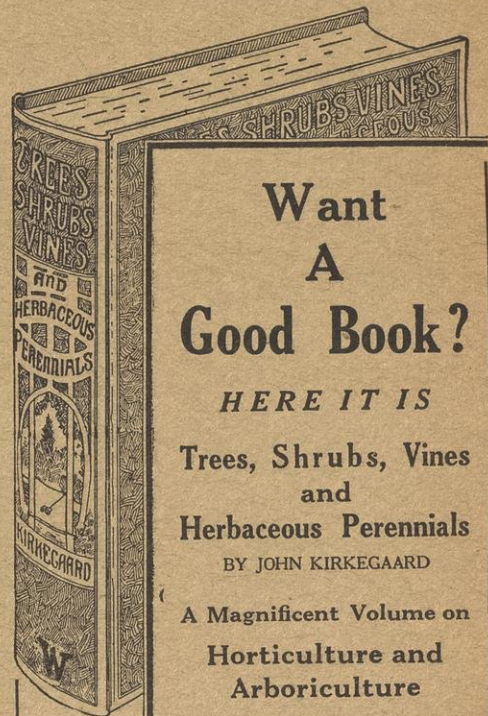
KELWAY & SON, Wholesale Seed Growers
LANGPORT, England

Cable Address: KELWAY, LANGPORT

If tomatoes are tied to stakes, the plants will take up much less room and the fruit will ripen more evenly.

Early celery is best blanched with paper or boards. It is more apt to decay if earth is used. Earth is best to blanch late celery.

Keep the cauliflower leaves tied over the heads if you want clean, white, marketable heads.



Want A Good Book?

HERE IT IS

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and
Herbaceous Perennials**

BY JOHN KIRKEGAARD

**A Magnificent Volume on
Horticulture and
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Of the many garden books few are more useful than

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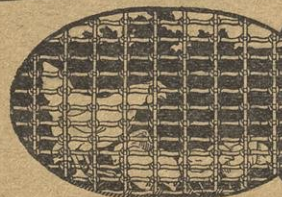
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PETERBORO - ONTARIO

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A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.
The Banwell-Hoxie Wire Fence Company, Ltd.,
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If you are in doubt about the proper lubricant, *ask the Imperial Oil man.* He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

LET US BE RESPONSIBLE

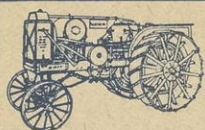
PUT your lubricating troubles up to the Imperial Oil man. It is his job to know the just-right oil for every lubrication need. He will recommend the oil that will end your lubrication troubles.

There is a scientifically correct lubricant for every machine requirement. For high speed motors burning gasoline, for heavy duty tractor motors or stationary motors burning kerosene, for slow-revolving, heavy shafts, for open bearings, for loose bearings, for tight bearings, you require oil that has just the right body, consistency and lubricating qualities.

There is an Imperial Oil manufactured for each particular purpose. You can get it in any part of Canada at any Imperial Oil station. There is one near you.

Imperial Oils are supplied in steel barrels and half-barrels—convenient, economical. No waste. You use every drop you pay for and know that every drop is uniform and clean.

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POLARINE OIL
STANDARD GAS
ENGINE OIL

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POLARINE OIL
HEAVY
IMPERIAL KERO-
SENE TRACTOR
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(Recommended by Inter-
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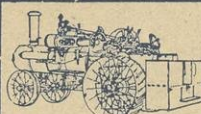
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PRAIRIE
HARVESTER OIL

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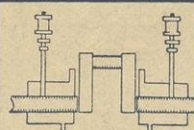
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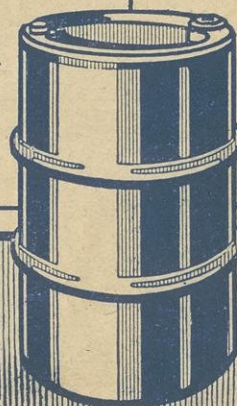
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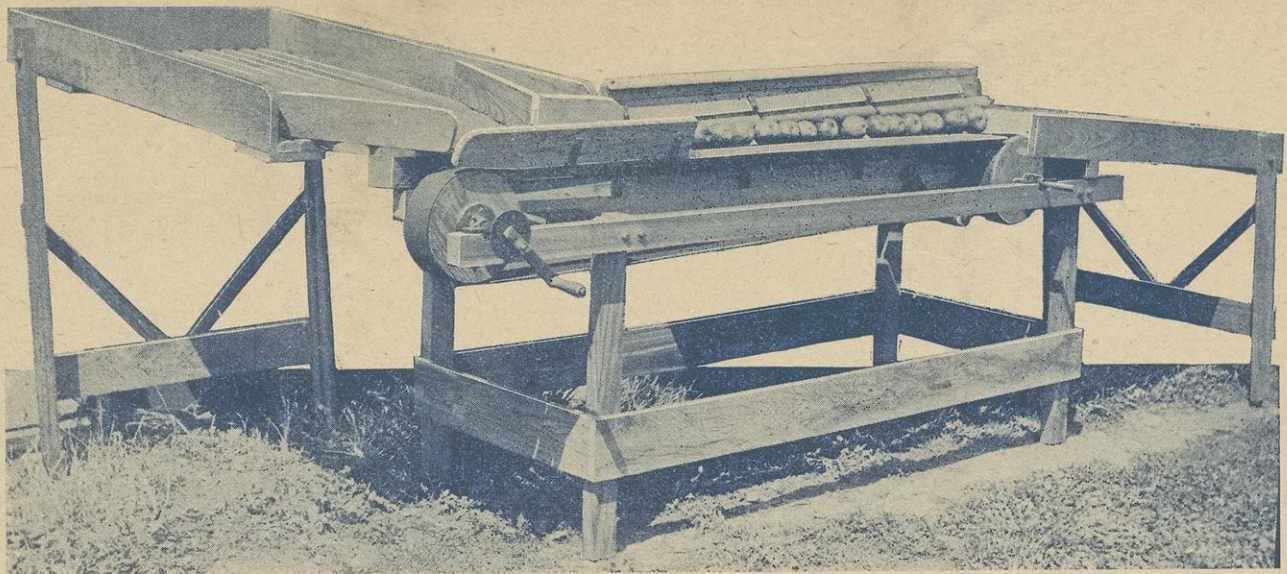
ANNUAL EXHIBITION and FALL PACKING NUMBER

OF

THE CANADIAN HORTICULTURIST

PUBLISHED SEPTEMBER 1st, 1918

The Special Number opens the way for a strong appeal for fall business. Forms close August 25th



Fruit Travelling on Cheek on Conveyor Belt While Sizing.

The Gifford Fruit Sizer

Sizes Perfectly---Apples, Peaches, Pears, Plums---No Bruising

An absolute necessity where help is scarce, costly and inexperienced. Works faster and more accurately than your most experienced packers. Cuts packing costs in half, doubles your capacity, saves valuable time, pays for itself in increased prices.

READ WHAT SATISFIED USERS SAY

The Addison Fruit Farm,
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June 20th, 1918.

Dear Sir:—

I purchased a Gifford Grader last season and used it on peaches and pears, finding it entirely satisfactory and a means of obtaining increased prices and securing an even grade of fruit.

(Sgd.) A. ONSLOW.

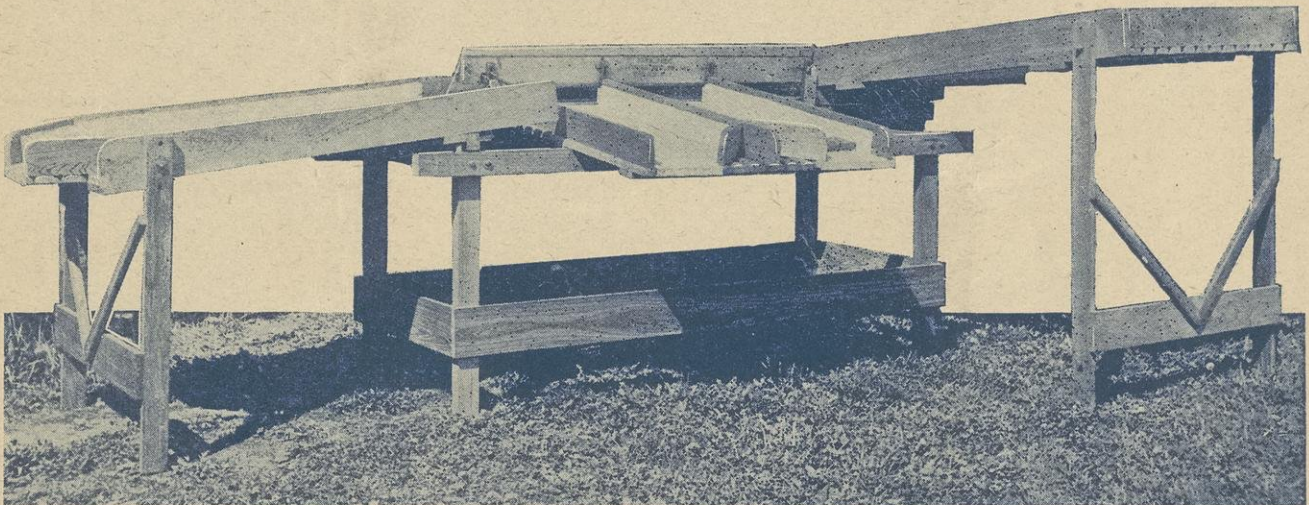
Dulverton Fruit Farm,
Queenston, Ont.
June 20th, 1918.

Dear Sir:—

The Gifford Fruit Grader I purchased from you last year for grading peaches, not only did the work perfectly, but saved the labor of at least six women.

(Sgd.) C. HOWARD FISHER.

Write for list of 50 satisfied users, among apple men in Annapolis Valley, N. S.



Showing Bins For Fruit After Separation.

LIVE WIRE MEN WANTED in every fruit district in Canada to handle the agency for this machine. A splendid proposition to the right men.

Write to-day for catalogue and prices.

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