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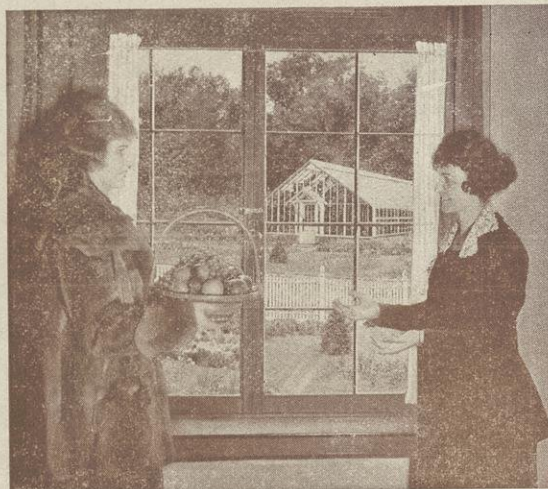
# THE CANADIAN HORTICULTURIST & BEEKEEPER

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Vol. 528, No. 4, April, 1920  
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# The Canadian Horticulturist

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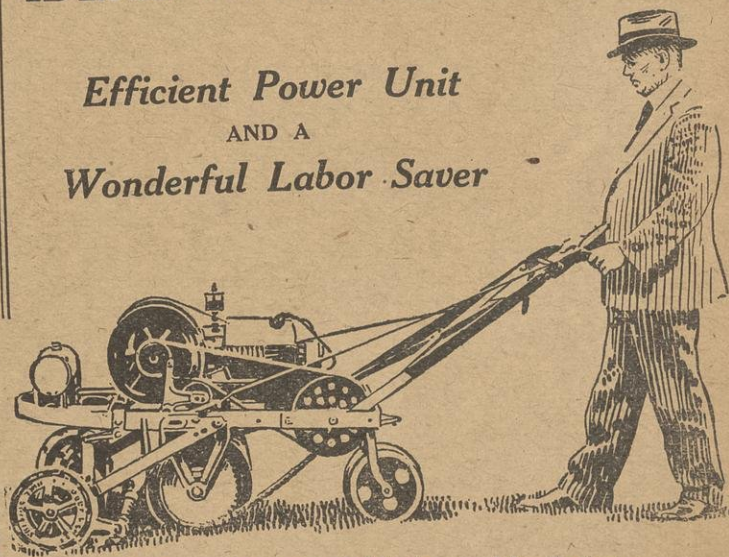
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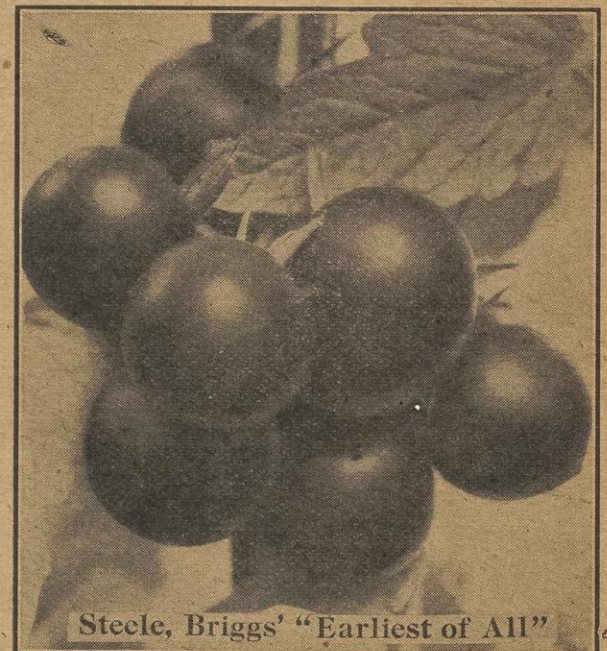
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# The Canadian Horticulturist and Beekeeper

(See Pages 97-102)

(See Pages 97-102)

Vol. 29

TORONTO, APRIL, 1920

No. 4

## Ontario Fruit Industry Criticised

POSSIBLY never before in the history of fruit growing in Ontario has the industry been so sternly handled, so scathingly criticised, so strongly indicted without mercy as at the convention of the Niagara Peninsula Fruit Growers' Association at Grimsby and St. Catharines last month. There was no hesitation in laying bare to public gaze its sins of omission and of commission. Without gloves, blows were delivered in scientific fashion that would lay low forever an industry less virile, less hopeful, less essential. Indeed, if the fruit industry survives those days of its trial at the hands of its friends, it will prove itself at once and for all time the paragon of pursuits. Here are a few, only a few, of the many pertinent pronouncements:

"The fruit industry in Ontario is in a deplorable state."

"In the past five years, apple growing in Ontario has gone back 25 years."

"Sixty per cent of the peach orchards in the Niagara district are no good."

"Outside of spraying, there has been no improvement in orchard methods over those of 25 years ago."

"Unless some move is made soon to brace up apple growing, the province will have to depend upon outside sources for its supply."

"Western growers are capturing our local markets because we do not grow a good enough grade of apples to box."

"The equipment for horticultural work (which includes fruit growing) at the O.A.C., Guelph, is a disgrace."

"The Vineland Horticultural Experiment Station has not been five cents' worth of benefit to the district."

"The work at Vineland is a farce, and of no benefit to fruit growers."

"The Ontario government does not think the work done or pos-

sible at Vineland worth the money invested."

"The fruit growers of Canada are a selfish, envious, grasping, shortsighted bunch."

"Failures in co-operative associations have been due solely to the members themselves."

But there was a "method in this madness," however, a purpose in this pessimism. Out of this aura of anger and anguish there emerged a satisfaction great and serene. The speaking out without fear or favor was, the members thought, a real need of the times. The growers found "where they were at" and decided right there to plan and work for rapid progress and permanent prosperity. "We must start new orchards," said President F. J. A. Sheppard, of the Association,

### Canadian Horticulturist Official Organ of N.P.F.G.A.

THE following resolution appointing The Canadian Horticulturist the official organ of the Niagara Peninsula Fruit Growers' Association was carried unanimously by the members at the recent convention, including both meetings—Grimsby and St. Catharines:

Whereas, The Canadian Horticulturist, in conjunction with the press committee of this association, is now paying particular attention to the fruit industry of the Niagara Peninsula, and

Whereas, the work of Professor Caesar, in contributing to The Canadian Horticulturist monthly spraying articles of special value to this district, and the assistance of various practical Niagara Peninsula growers in answering questions through the columns of that magazine, are making The Canadian Horticulturist constantly of more interest and value to the members of this association;

Therefore, be it resolved, that The Canadian Horticulturist be appointed the official organ of the Niagara Peninsula Fruit Growers' Association, not necessarily to be given this year with membership, but to be used as a medium for exchanging ideas and information of direct interest to this association and to the entire fruit industry of the district.

"and put new life into the business." "There should be a wholesale fruit market in Hamilton," said E. J. Mahoney, ex-warden of Wentworth Co., "so that the growers would have two large competing markets within easy reach." "The time will come," said Prof. J. W. Crow, O.A.C., Guelph, "when 50 per cent. or more of the fruit grown in the Niagara district will be distributed by co-operative agencies." "There should be a large central co-operative fruit association organized, with branches, to market the fruit of the entire peninsula," said H. K. Clemens, secretary of the Niagara District Grape Growers' Association. Many other constructive opinions were expressed in respect to the needs and future of the industry. The association, as a whole, also took steps to lay before the government plans for extending and improving the work done in their interests at Vineland and at Guelph. Read the resolutions on page 101.

### The Vineland Station.

The Vineland Horticultural Experiment Station was dealt with at both meetings, the discussion at St. Catharines being particularly warm. The rumor that this station was to be transferred from the Ontario government to the Dominion government met a divergence of opinion, with the majority strongly in favor of having the station remain an Ontario institution.

In addresses on the fruit growing situation and the outlook, at both Grimsby and St. Catharines, Professor Crow expressed the opinion that the transfer would be a mistake. The station had possibilities that would not be improved by the proposed change. The teaching of horticulture at Guelph needed close contact with a station of this nature. If the latter were in the hands of the Dominion, this would not be practicable. "If you take away this experimental opportunity," he said, "you will kill the teaching work. The equipment at Guelph is a disgrace to the province. Only by keeping this

(Continued on page 101.)

# Sweepstakes Apples From Georgian Bay

"FINEST box of apples ever packed in Canada." Such was the statement of more than one prominent Ontario grower who attended the Ontario Horticultural Exhibition last November. They were referring to the fine box of Northern Spys shown by Mr. W. L. Hamilton, of Collingwood, in the "Sweepstakes" class for best box of any variety on exhibit, in any section, and which took first place.

## Every Apple Perfect.

Every apple in the box was of the same size, the color could not be beaten, the pack was absolutely solid and every specimen unblemished. In more respects than one, it was the best box of apples in the show. But, when one considers that Mr. W. L. Hamilton took 13 firsts, eight seconds and two thirds, besides capturing the "Sweepstakes," he may be led to ask, "Who is Hamilton?"

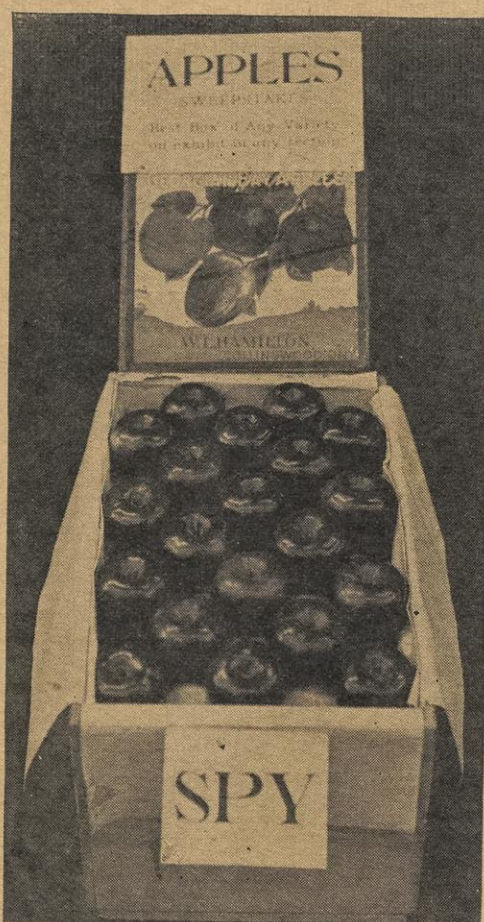
Anticipating such a question from our readers, The Canadian Horticulturist made inquiries about "This man Hamilton," whom Prof. J. W. Crow, of the O. A. C., Guelph, Canada, called "the feature of the 1919 Ontario Horticultural Exhibition." Others who know Mr. Hamilton said: "He deserved to win all the prizes he got. He worked conscientiously for them."

## Up-to-date Methods Practised.

Mr. Hamilton's farm is in Nottawasaga Township, Simcoe County, a few miles from Collingwood. The holding, which comprises 33 acres in all, is level and composed of light sand with some clay. As Mr. Hamilton keeps a man drawing manure from Collingwood practically all of the time, the presence of the light sand is not noted by many visitors to his orchard.

The time of this successful fruit grower is entirely devoted to caring for his orchard, which is composed of a great number of different varieties of apple trees. The more prominent varieties to be found on his place are, Northern Spy, Talman Sweet, McIntosh, Mann, Baldwin, Ben Davis, King and Ribston. Although more Northern Spys are planted out than any other single variety, the Spy acreage is not in the majority in the whole orchard.

The trees are set 40 feet each way and plums and Duchess apples are used as fillers every 20 feet. Cultivation is done thoroughly and enough pruning is carried on to keep the orchard in good shape. Although many



This box of Northern Spy apples won the "Sweepstakes" prize at the last Ontario Horticultural Exhibition. It was declared by prominent fruit growers to be the finest box of apples ever grown in Eastern Canada, and was shown by Mr. W. L. Hamilton, of Simcoe County. Thorough spraying was an important factor in its production.

people advise only three spray applications a year, Mr. Hamilton commonly sprays four or five times, or just as often as it is needed.

## Best Apples All Box Packed.

All apples of any variety that grade number one are box packed, as well as all fancy apples grown on the farm. At the show, he received an order for six boxes of apples to be taken to Ontario's Government House, at which the Duke of Devonshire was then staying.

That Mr. Hamilton does not neglect his barrel packing for his boxes is evidenced by the fine showing he made also in barrelled apples at the exhibition.

Three times have the boxed apples that captured the "Sweepstakes" prize at the annual apple shows held at Rochester, N. Y., been grown in the Nottawasaga orchard. These boxes have been composed respectively of Spys, McIntosh and Snows. In Mr. Hamilton's own opinion, however, he never

grew and packed such a perfect box of apples as that with which he won the "Sweepstakes" at the Ontario Horticultural Exhibition.

## Stands By Ben Davis

While speaking to The Canadian Horticulturist recently about the effects of the severe winter of 1917-1918 on his apple orchard, Mr. W. H. Gibson, of Newcastle, said that perhaps three per cent. of his trees had been killed outright, but a much larger percentage had been more or less injured. He placed the number of injured trees at anywhere from 10 to 15 per cent. of his total number, and believed that this average would hold good in all orchards that have been given proper care. "The trees hardest hit in my orchard," Mr. Gibson said, "were the Ontarios, although my Starks and Gravensteins were not let off lightly. To look at my Baldwin trees you would think they were untouched, but last fall, after the apples began to mature, the limbs started to fall and I found that most of them were rotten at the heart, which made me prop all my Baldwin limbs."

Although the eating qualities of the Ben Davis have made it unpopular with many, Mr. Gibson, upon being asked what varieties he would now recommend for planting, replied that in his estimation Ben Davis stood first. In support of this view he pointed out that Ben Davis were not hard hit during the winter of 1917-1918, and claimed that for the first 25 years of any apple tree's life, in his estimation, the Ben Davis makes the most profit. "They are the best all-round apples grown," he said, "and are suitable for both the home and export market. The name Ben Davis is widely and favorably known, and in my opinion it is the best all round apple grown in Canada."

In 1918 Mr. Gibson had 2,000 barrels of Ben Davis and in 1919, 1,500. His commendation of the Ben Davis as an export apple is interesting in view of the fact that the quality of this variety as it is grown in the Ozark section of the United States is much better than that of our Canadian Bens, and its long keeping qualities make it an excellent export apple. It is possible that the Canadian Ben Davis profits in Europe from the superior qualities of its United States namesake.

If a tree is sprayed when it is wet it dilutes the spray and it does not do as effective work as it otherwise would.

# Should Only Red Apples Be Planted?

AT the annual convention of the Ontario Fruit Growers' Association last November, Prof. F. C. Sears, of Amherst, Mass., and formerly of Nova Scotia, advised the planting of only red apple varieties in future, claiming that green and yellow ones were a thing of the past, as the consumer to-day wanted red apples and no others. Professor Sears also advocated the planting of fewer varieties—only four or five—and championed McIntosh Red, as did many other speakers, as the best and most profitable apple grown here or anywhere.

In an effort to learn the opinions of Canadian fruit men on these questions The Canadian Horticulturist wrote to many authorities on the growing and marketing of apples. Nearly all the replies show that red apples are the more popular varieties, but the majority do not advise the planting of only red varieties.

## Best Green Sorts Worth Planting.

Thus, Stone and Wellington, Toronto, one of Ontario's leading nursery firms, wrote:

"While it is true that the demand in our large cities is for the big red apple, and appearance is evidently of more importance than quality, we think it would be a great mistake for apple growers to entirely drop the best green and yellow varieties.

"The best of these are the Greenings, Talman Sweet, Russett and Stark. These varieties are still held in great esteem throughout the country generally, where their excellence is fully known and appreciated. There is, however, still a demand in our cities for them.

"We were told recently by a large apple grower in Northumberland County that he had found a big market in Toronto for Talman Sweets which he packed in boxes and sold at top notch prices, and he considered this one of the most profitable sorts he grows. Stark is also a variety which might be classed as a green sort, although it has a dull red cheek. This variety is regarded by leading apple growers in Durham County as one of their best commercial varieties and they find a big market in Great Britain for it.

"The most important advice we can give apple growers at the present time is to plant heavily of our long keeping winter varieties, such as Baldwin, Spy, Stark and Wagener, wherever it is possible to grow these. The tendency in recent years was, and still is, to plant heavily of fall and early winter varieties which are off the market before Christmas. While there is no danger of the planting of these

varieties being over done, it would be a calamity if these grand old winter sorts, which should be the backbone of any orchard, were dropped, as there never was a time when there was a larger demand for both home consumption and export. With old orchards everywhere out of business, they should be planted in large proportion."

## Public Taste Favors Red.

"The public taste has been running to red apples for the last three or four years," wrote Mr. C. H. K. Baillie, of E. D. Smith & Son, Winona, Ont., "Our main sales at the present time are McIntosh, Fameuse, Wealthy and Duchess. I would hardly class Duchess as a red apple, but the demand for it is very pronounced, as it is used extensively for fillers.

"Strange to say, the demand for Spy has dropped off immensely during the last four or five years. We are somewhat at a loss to understand this. Believing that the demand for this excellent variety would be maintained, we have always propagated it rather extensively and still have absolute faith in it. We are going to stick to our guns and continue to propagate it almost as extensively as we have for the last eight or ten years.

"The biggest demand is for McIntosh, and this variety, of course, is being used most extensively in Quebec. The demand for Baldwin has fallen off altogether. On looking up our records, we find that we sold in 1912, 15 trees of

this variety to every tree of Baldwin we are selling to today. The demand for Spy has apparently dropped down to about one-fifth to what it used to be in 1912."

## A Quebec Opinion.

Mr. E. B. Luke, of the well-known Montreal nursery firm, Luke Brothers, Limited, wrote: "For commercial purposes there is no question but that red apples, other things being equal, will sell more readily, or, in other words, are more popular, but I do not believe that the public will ever be satisfied with four or five varieties no matter how good, any more than that the public would be satisfied to limit itself to four or five dishes the year around.

"No one would welcome a shortening up of the apple lists for planting purposes more than the nurserymen. For commercial orchards, I always advise a very limited list, depending on the locality, soil, the market conditions, etc. For the most favorable sections of this province, this list comprises, roughly speaking, Yellow Transparent, Duchess, Wealthy, Fameuse and McIntosh for large commercial orchards.

"An entirely different condition, however, comes up when considering the 25 or 50-tree orchard for home or local use. In such an orchard, varieties are called for according to the individual's taste and it is up to us to supply them in so far as they are adaptable or hardy. In such an orchard, varieties are wanted from the



Transporting nursery stock by motor truck at the Northern Ontario Plant Breeding Station, Fort William. The stock was grown at the station, where valuable work is being done and planned in the interests of the horticulture of the north. Photo by courtesy of Mr. W. R. Leslie, plant specialist at this station.

earliest to the latest keeping and not of a standard or stereotyped list either, for I don't think any man with an orchard of this kind would be satisfied to eat one or two varieties of winter apples all winter, no matter how good. And right here I am one of those to believe, contrary to the general expression of opinion, that the small orchard is going to have its place and its use in the future as well as the large orchard, and I believe it is going to be better cared for.

"The McIntosh is undoubtedly a great apple. It ranks as an early winter apple with the Spy as a late winter apple, but I doubt if it would be advisable to plant one apple for every part of the country. In Quebec there are fruit growers who claim that the Fameuse is and has been a more profitable variety for them.

"My experience is, however, that while it is advisable to shorten up our lists, and while it is advisable in planting large orchards to have a preponderance of the best kinds, nevertheless,

a considerable range of varieties must be planted, some being best for one locality, some for another, and having regard also for individual tastes and preferences."

#### Greenings Very Profitable.

"If I were planting myself," wrote Mr. Jas. E. Johnson, of Simcoe, Ont., "and, looking at the present market, I would plant red varieties, but in 10 or 15 years from now I expect Rhode Island Greenings to be one of the best to plant for early winter use. In an orchard which we recently sold there were 10 acres of Greenings and, taken as a whole for the past 10 years, this block paid us more money than any other 10-acre block in the orchard. However, I would not recommend the promiscuous planting of green apples. The market will take a certain amount at a good figure."

Letters were received also from a number of commission firms and from Prof. J. W. Crow, Guelph, and Mr. W. T. Macoun, Dominion Horticulturist.

## Best Apple Varieties For Ontario

P. J. Carey, Chief Fruit Instructor, Toronto

IN discussing the best commercial varieties of apples at the convention of the O. F. G. A. at Toronto, Prof. F. C. Sears, of Amherst, Mass., advocated the planting of only red varieties in future, and claimed that the yellow and green varieties were a thing of the past. He also advocated the planting of fewer varieties.

That we have far too many varieties goes without saying, and I fully agree with Prof. Sears that the number of varieties should be reduced to a minimum. It is surprising how few really good kinds we have. The good ones

done along this line, but the process is a slow one, and the results will be for future generations. The Spy is not being planted on account of being slow in coming into bearing. The planting of Baldwins is being largely discontinued owing to the tree not being hardy enough to withstand our winters, and now, if the Rhode Island Greening is cut out, because it is not a red variety, what have we left for standard winter varieties? Practically nothing but the Ben Davis and Stark, as leaders, varieties that need no comment.

The apples that figured in making the Canadian apples famous the world

five years. The bearing period of the Spy could be brought about much earlier if nursery men took the trouble to secure scions from bearing wood, or top grafting. The Spy with all its faults is the first choice of 95 per cent. of the consumers of apples, and Spys should appear on the top of the list when ordering trees for planting.

The Baldwin I consider one of the best all-round winter varieties. The trees bear early, are vigorous growers, and good croppers. The winter of 1917-18 wiped out many Baldwin trees, but the ones that were killed as a general rule were old, and had borne heavy crops for years. If I were a grower I would take a chance on planting Baldwin, and hope for milder winters, because there is nothing in sight to take its place.

#### Champion Greenings.

But when it comes to the Rhode Island Greening, I will have to differ with Prof. Sears. I consider this variety one of the best domestic apples we have. The Greening always has good color for the variety, which cannot be said of our red ones.

The King does well in Nova Scotia, but in Ontario is a shy bearer. It does better top grafted on other stock.

The Golden Russett is also a shy producer, but in certain locations does very well. This kind is very seldom planted now and the supply is small. In all European markets this season the Golden Russets have topped the market for price.

The Rome Beauty is now bearing in some orchards in the Newcastle district and promises well. The fruit is of good color, shapely and attractive, quality fair to good, and a ready seller in all markets.

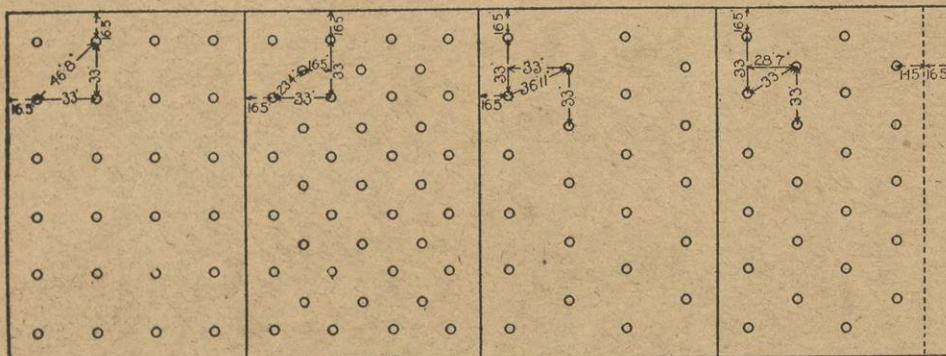
#### Fall Varieties.

Speaking of fall varieties, it is generally conceded that the McIntosh leads, but the Snow is a close second, some say an equal.

The Wealthy is one of the best commercial apples for domestic use. In two particulars at least it should please our selfish and get-rich-quick growers, namely, it bears early and produces heavy crops.

The Scarlet Pippin has not been generally tried out, but does very well in Norfolk County, its fruit is attractive and quality fair to good. This variety should be considered, while the Hubbardson is also a good fall variety.

Owing to the many set-backs to our fruit industry, there is grave danger of its losing its place unless the growers get busy. The encouraging of the planting of good varieties that can meet competition in world markets I would consider the first step on the road to success of our fruit trade.



Four basic plans of planting an orchard — square, quincunx, alternate and hexagonal, respectively.

of half a century ago are the ones sought after to-day. A few, and very few have been added. It would appear that we have not made much progress in the way of securing good new kinds. A great deal of good work has been

over were the Spy, Baldwin, King, Golden Russet and Greening.

It is true the Spy is not an early bearer, and this is the secret of its long life, Spy trees having been known to bear good crops at the age of seventy-

# Plums and Peaches For Twenty Acres

FOR setting out a peach or plum orchard, only the best varieties suitable to local conditions in the chosen locality should be selected. A subscriber to The Canadian Horticulturist, living at Winona, in the Niagara peninsula, who is thinking of setting out a 20-acre orchard of peaches and plums, and who is desirous of getting the opinions of leading fruit men of the Niagara district as to the best varieties to plant, sent the following question to The Canadian Horticulturist:

"In planting an orchard of peaches and plums—10 acres of each—will you kindly assist me by naming the best varieties to plant and the proportion of the acreage to be given to each variety? I would, of course, like to have a sufficient number of varieties maturing at different dates to cover the plum and peach season, but want to plant only such varieties as have been tested out and proven to be best adapted to this section, and profitable for market."

## Recommendations from Grimsby.

The Canadian Horticulturist sent this query to several of the most experienced and progressive growers of peaches and plums in the Niagara district. Mr. Hamilton Fleming, of Grimsby, answered as follows:

"Peaches—Dewey, one acre; St. John, two acres; Early Crawford, two acres; Garfield, two acres; Smithson, one acre, and Elberta, two acres.

"Plums—Burbank, one acre; Shropshire Damson, one acre; Lombard, one acre; Monarch, two acres; Grand Duke, two acres, and Reine Claude, three acres."

Mr. H. K. Griffith, of Grimsby, includes in his recommendation a special reference to varieties for canning:

"Peaches — Alexander, half acre; Greensboro, half acre; Dewey, one acre; St. John, one acre; Early Crawford, two acres; Fitzgerald, two acres; Elberta, two acres, and Smock, one acre. If the peach season is supposed to start with the peach canning season, I would cut off the first three varieties and replace with Elberta.

"Plums—Burbank, two acres; Bradshaw, one acre; Yellow Egg, one acre; Lombard, one acre; Shipper's Pride, one acre; Monarch, one acre; German Prune, one acre; Reine Claude, one acre, and Shropshire Damson, one acre.

"Unless the land is very rich, I would plant Burbank or Lombard in place of German Prune. The varieties named are standard canning ones, but if earlier kinds are desired I would recommend Emerald, Ogon, Climax and Shiro."

The number of trees of each variety, rather than the acreage, was given in the recommendation of Mr. Jas. Marlow, of Grimsby East:

"Planting 20 acres of peaches and plums, 18x18 feet, would require 134 trees per acre. I would recommend the following, which would cover the

would plant," writes Mr. Howard Smith, of J. W. Smith & Sons, Winona:

"Plums—Shiro, quarter acre; Burbank, one and a half acres; Bradshaw, quarter acre; Prince's Gage or Imperial Gage, (we would prefer Prince's Gage), half acre; Lombard, two and a half acres; Monarch, half acre; Grand Duke, three-quarters acre; Black Diamond, half acre; Reine Claude, three acres; German Prune, quarter acre.

"Peaches—Mayflower, quarter acre; Admiral Dewey, quarter acre; St. John, one and a quarter acres; Early Crawford or Garfield, one and three-quarters acres; Cline Seedling, quarter acre; Elberta, five acres; Lemon Tree, one acre; Smock, quarter acre."

Mr. E. M. Smith, of Winona, also states the number of trees in his suggestions, as follows:



The peach plantings in Ontario are not nearly enough to satisfy future home needs. Here is a promising peach orchard near Forest on the Lake Huron front.

—Photo courtesy The Farmers' Magazine.

season fairly well:

"Peaches—Alexander, 10; Early River, 10; Admiral Dewey, 50; Greensboro, 10; Hales Early, 10; St. John, 200; Early Crawford, 400; Fitzgerald, 100; Garfield, 100; Elberta, 200; Niagara, 50; New Prolific, 50; Late Crawford, 50; Lemon Free, 50; Smock, 50.

"Plums—Red June, 25; Abundance, 25; Shiro, 50; Burbank, 100; Bradshaw, 100; Green Gage, 100; Niagara, 100; Yellow Egg, 100; Reine Claude, 200; Grand Duke, 200; Monarch, 200; Shropshire Damson, 100; Lombard, 40. These are all tested varieties which have given satisfaction and proved profitable."

## What Winona Growers Say.

"In planting an orchard of peaches and plums, 10 acres each, maturing at different dates to cover the season, the following are the varieties that we

"Peach trees, set 20x20 feet for 10 acres—Alexander, 50; Admiral Dewey, 100; Hales Early, 50; St. John, 200; Early Crawford, 150; Garfield, 200; Fitzgerald, 150; Elberta, 150; Smock, 50.

"Plum trees, set 14 feet in row, 18 feet apart between rows, for 10 acres.—Shiro, 100; Burbank, 100; Bradshaw, 100; Washington, 50; Imperial Gage, 100; Lombard, 200; Yellow Egg, 100; Black Diamond, 100; Grand Duke, 100; German Prune, 150; Monarch, 100; Reine Claude, 280; Shropshire Damson, 250."

"I will give you an idea of what I would plant were I planting such orchards myself," writes Mr. J. P. Bridgeman, of Winona:

"Ten acres each of peaches and plums would take say, 1,200 trees of each, perhaps more of plums, say 1,300. I have put these varieties in order of

ripening. They will cover the season from the earliest to the latest:

"Peaches — Mayflower, 50; Alexander, 50; Admiral Dewey, 100; St. John, 200; Crawford, 200; Garfield, 100; New Prolific, 100; Elberta, 300;

Lemon Free, 100.

"Plums—Shiro, 100; Burbank, 100; Bradshaw, 100; Guerr, 100; Lombard, 200; Yellow Egg, 100; Shropshire Damson, 200; Grand Duke, 100; Reine Claude, 200; Monarch, 100."

## Apple Varieties For Quebec\*

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

THE orchard at Macdonald College consists of but 25 acres, mostly of apples, but with some plums, cherries and a few pears. There are a large number of varieties with a comparatively small number of trees of the commercial apples, although there are 200 trees each of McIntosh and Fameuse.

In handling an orchard of so many varieties, many difficulties have been experienced in marketing the fruit. The market requirements are for a large output of uniform fruit of known value. Good fruit of known value will sell readily, but unknown varieties of good quality are more difficult to sell, and will not bring such good prices, while little known varieties of mediocre merit should be discarded from the commercial plantings. The local adaptability of the district to different fruits as well as market requirements should be carefully studied in determining the varieties that should be planted. Too many varieties is a mistake except probably for local markets; however, it is well to have five or six varieties which will aid in distributing the work of picking, packing and marketing over a longer season, and also aid in ensuring some crop in off-seasons for some varieties.

### McIntosh and Fameuse.

The McIntosh and Fameuse are the two leading varieties in Quebec, and are similar in many respects, but the marked differences in other respects should be noted and studied by the intending planter. The McIntosh will fall readily as it nears maturity, and in cases of high wind many apples may go to the ground. The Fameuse hangs to the trees well, and may be left until after the McIntosh are harvested.

The Fameuse has been very seriously injured as the result of the winter of 1917-18, and thousands of old and young trees have been killed throughout the province of Quebec. But we are not discouraged, for the Fameuse has stood the test and has been our leading variety for a hundred years.

Our best and most profitable varie-

ties are Duchess, Wealthy, Alexander, McIntosh and Fameuse (Snow). We can grow these to perfection and have an unlimited market for them. Of winter apples we have so few of sufficient hardiness and merit that it is questionable whether any of them should be recommended for extensive commercial plantings in Quebec.

One of the most difficult factors to contend with in Quebec orchards is the prevalence of canker. The Fameuse is subject to it, while the McIntosh is more resistant. Probably we will have to check the tree growth earlier in June to allow of better ripening of the wood before severe weather sets in, for it is largely through frost splits, or cracks on the trunks of larger limbs, especially in the crotches, that the disease gains entrance.

### Better Methods Needed.

Speaking from my experience and observation in Quebec, as well as in Ontario, I am very hopeful and opti-

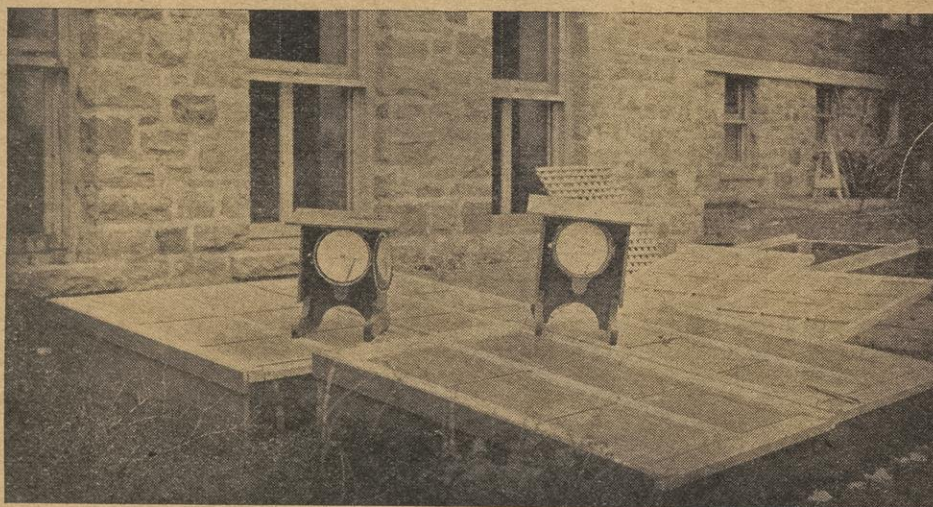
fruit. The fruit grower of the east must become a better grower than in the past, and will probably have to specialize and extend his orchards to regain his home markets, and capture new ones. Success in fruit growing is dependent largely on the following factors, and I would emphasize them in the following order:—(1) varieties, (2) suitability of soil conditions, (3) cultural methods, (4) pruning, (5) spraying, and (6) attention to those other details such as thinning, picking, packing and storage, all of which help to make the difference between good crops of high class fruit, and poor crops of indifferent fruit.

## Double Glass For Hotbeds

E. M. Straight, Morden, Man.

A few years ago there was much talk in the agricultural press concerning the advantages derived from sash for hotbeds with double glass, with a one-inch air space between. The writer carried on a set of experiments covering this point to test whether the advantages really existed. For this purpose, two small hotbeds exactly the same size were constructed, one covered with single glass and the other covered with double. A standard thermograph was placed in each and records kept for three weeks.

It was found that the hotbed with



Hotbeds used for comparing the relative values of single and double glass in sashes. The thermographs used for registering the temperatures are shown.

mistic of the fruit industry. However, we have not been making the progress that conditions would justify. The British Columbia fruit grower is sending in his fruit to our home markets, and taking the cream of the prices. They openly say they prefer to handle the western fruit on account of its uniformity, good size, high quality and splendid pack, and to-day the buying public are demanding this type of

the double glass was warmer on an average by two degrees but, as temperatures warmed up outside, double-glassed hotbeds were slower in feeling the effect than those with single glass.

Double-glassed hotbeds are not destined to become popular. The sashes are heavier and are more expensive, while the extra two degrees of heat may be more easily obtained by bur-lap or other kinds of sash cover.

\*Extract from Prof. Bunting's address, "Lessons from the Orchard at Macdonald College," delivered at the last convention of Ontario Fruit Growers' Association.

# The Oyster-Shell Scale

Prof. L. Caesar, Ontario Agricultural College, Guelph

**T**HE oyster-shell scale is one of the most common orchard insects and, unlike the San Jose scale, which is limited to some of the south-western counties of the province, occurs in every county, and, I am probably safe in saying, in every orchard.

Apple trees are not the only ones attacked, for the insect may be found on most of the other kinds of orchard trees and also on currants, dogwood, hawthorn, mountain ash and a considerable number of other shade trees and shrubs. Apple trees, however, usually suffer most, or at least the injury to them is the most important.

## Some Localities Specially Favorable.

Some localities seem specially favorable to the development of this insect; for instance, uncared for orchards in the western suburbs of Toronto are worse infested than those in any other locality I have visited, except that there is one neglected, fairly large orchard between Cobourg and Port Hope that is about as severely attacked. In all these orchards the majority of the trees are so thickly covered with the scale that the bark is almost entirely concealed. In consequence many of the trees are dying or dead.

Taking the province as a whole, there are a considerable number of somewhat badly infested orchards, but not nearly so many as about eight or 10 years ago. By far the majority of the orchards are not at all badly attacked and may be said not to be suffering in any way from this scale. Many growers, of course, exaggerate the danger from the insect and, because they find a score or two of oyster-shell scale on a single tree, think it is seriously infested; whereas, the fact is that it would require many hundreds, or even several thousands to do any appreciable damage to a moderate sized tree.

## Life History.

As it is always of some interest and value to know the life history of an insect, we may briefly state that the winter is passed in the egg stage beneath the scales on the bark of the tree. There is an average of about 40 eggs to each scale. The eggs are white and oval. Many scales have no eggs under them, sometimes because they are old scales, two or three years of age, whose eggs have hatched in a previous year; and sometimes because there are various enemies that get

underneath the scale and destroy the eggs.

Mr. Tothill, of the Dominion Entomological Branch, has discovered that a certain species of mite is a great factor in controlling this scale. There is also the larva of a little four-winged fly that helps considerably and that is found in every orchard.

## Eggs Hatch When Apples Bloom.

The eggs begin to hatch, as a rule, about the time the apples are in full

after the eggs are laid, the female dies and is then a mere speck. There is only one brood a year in all temperate or northern climates but in warmer countries, such as Australia, there are two broods a year and there they consider this an exceedingly destructive insect.

## Methods of Control.

There are several methods that have been used for control, but the simplest, and as satisfactory as any, is the lime-sulphur wash. This should be used



A young orchard managed under the clean culture followed by cover crop system. Proper care in all things is necessary for best results.

bloom and hatching continues for a week. The young larvae are white and run about over the surface of the bark for about a day and then settle down and insert their slender, sharp, piercing mouth parts into the bark and remain there the rest of their lives feeding upon the juices of the bark. It is this sucking of the juice, by sometimes as many as millions of little mouths, that drains the life out of the tree and sometimes kills it. After settling down the insects gradually cover themselves over with the protecting scale. One must remember that what we see is only this protecting scale and that the real insect is a soft-bodied, pale brownish white creature beneath, which before laying eggs fills the whole of the cavity under the scale.

About the middle of August or sometimes a little later, the females begin to lay their eggs beneath the scale covering and as they do so they shrivel up to the smaller end. Soon

at the strength of one gallon to seven or eight gallons of water. The best time to spray is just as the buds are about to burst or are actually bursting. Earlier spraying sometimes gives good results but as a rule is not so satisfactory. This is because in most cases the spray does not bring about control by actually killing the eggs, but by remaining on the bark and killing the young scales when they hatch from the eggs about the first of June and try to settle down and insert their sucking mouth parts. Therefore, the later the spray is put on, the better it will be protected by the presence of leaves against being washed off before the young hatch out, and thus the more good it will do. I have observed also, that where lime-sulphur is used with arsenate of lead for the codling moth spray just after the blossoms fall, it destroys many of the young scales before they can protect themselves by a waxy covering.

Fruit growers sometimes think that because they see the scale hanging on the tree they have, therefore, done a poor job, but the fact is that scales will remain on two or three years or longer after they are killed. One can easily lift them up with a knife or needle and see whether there are any eggs beneath; if not, the scale is harmless and dead.

A tree that has once been badly infested will show the effects for several years after the scale has been killed, by the presence of a scurfy, very rough appearance of the bark, due to the injuries produced by the sucking of the insects in the years previous to treatment.

## YOUR QUESTIONS ANSWERED

By Niagara District Growers and Others

### Mildew on Indoor Grapes.

F. G. Stewart, St. Catharines, Ont.

What is the best preventive of mildew on grapes grown under glass?—L. G. B., Leamington, Ont.

The best preventive is lime of sulphur, that is, finely ground sulphur. It should be sifted first to break up the little lumps. It is applied by dusting on to the foliage, but if it should happen to fall on the ground it will have the same effect. It forms a sulphur gas, which rises and permeates throughout the building, killing the fungi.

### English Gooseberries.

W. F. W. Fisher, Burlington, Ont.

Are the English varieties of gooseberries profitable for culture in Ontario? I have grown Whitesmith with little success. Does it need treatment different from that given the American varieties?—J. E. W., Clarkson, Ont.

English varieties of gooseberries have not proven commercially successful in the Burlington district. They require frequent spraying to prevent mildew, and do not maintain their size in dry seasons.

### Cherry Orchard's Life.

Geo. A. Robertson, St. Catharines, Ont.

What is the life of a cherry orchard looked after with good care? How old are the trees before they commence to bear?—R. V. P., Homer, Ont.

This is a very difficult question to answer. I have seen many orchards which had had good care, commence to go back when they should have been coming into full bearing. This is sometimes due to the unsuitable land they were planted on. Then I have seen too many sweet cherries die because the root stock on which the buds were started in the nursery was not quick enough growing to make a good union with the top of

the tree, and fungous growths, mostly shelf fungi, attacked the part where the union at the surface of the ground should be. Then close planting and the absence of air and sunlight has weakened and destroyed trees, by fungous diseases, such as brown rot, that could not be controlled with the ordinary methods.

Should ideal soil, proper root stock and common sense methods be employed, I do not see why the trees should not do well for 50 years or over, but they will not stand a wet subsoil.

Sweet cherry trees bear very little before they are eight years old, but sour varieties bear sooner. Even when young the trees may be loaded, but the trees are too small to have much of a crop.

### Apples For Peel County.

H. T. Foster, Burlington, Ont.

Are Sutton Beauty, York Imperial, Grimes Golden and Jonathan apples as hardy as Spy? Would they do well in Peel County?—J. L. McK., Port Credit, Ont.

Have not grown any of the above-mentioned varieties, so cannot write from experience, but on enquiry I find that there are some Sutton Beauty growing in this county (Halton); also some Grimes Golden. I am told that this last named variety is grown in the Guelph district, also at Ottawa.

Do not know of any Jonathan being grown in the nearby districts, but since it originated in New York state I would expect it to do fairly well here. The York Imperial originated in York County, Pa., and it would no doubt grow in this district. It is quite probable that these varieties would be as hardy as the Spy in Peel County.

### Robins and Cherries.

Geo. A. Robertson, St. Catharines, Ont.

Do robins, in your opinion, do more harm to the cherry grower than good?—R. J. O., Hamilton, Ont.

Robins are the sworn enemy of the sweet cherry grower. They will completely strip single trees of the fruit before it is in a stage to pick, and it is just as necessary to take a rifle and pick off every robin that comes into the orchard, as it is to spray for the insect pests. I know that the robins are defended by many. They destroy many insects, beneficial as well as injurious. Robins will eat nothing that they do not like, and they certainly have likes and dislikes, and, therefore, when weighed in the balance, they will be found to be so destructive that they should be classed with the sparrows, when found in a wheat field.

They are worst on the sweet cherries, then on the berries, and they also

have spoiled tons of grapes by picking the grapes on the trellised vines. My advice is that these harbingers of spring should be first attacked before the nesting time with lead—not arsenate of lead. The gun is the thing for them.

Last year I was unable to get a sound cherry from tree after tree of the early varieties. Unless there is some persistent and determined effort to shoot them on sight, one might just as well go out of the business. I am very sorry to condemn these birds, but this is as I find them. I know they have many defenders, and they are sincere in what they say.

### Varieties of Currants.

W. F. W. Fisher, Burlington, Ont.

Are the Raby Castle and the Victoria currant the same? If not, what is the difference? Is the Victoria the largest variety grown, as some persons claim?—E. M. W., Bowmanville, Ont.

Raby Castle, as known here, is smaller, and darker in color, than Victoria. Victoria does not grow as large a berry here as either Fay or Cherry. The Wilder is preferred to either Raby Castle or Victoria.

### Top-Grafting Pears.

Lt.-Col. H. L. Roberts, Grimsby, Ont.

Do you think the Lawrence pear would succeed here, top grafted on the Flemish Beauty? I find the latter variety inclined to scab, and, as I have more trees of this variety than I want, I would like to graft them with Lawrence if you think they would endure this somewhat hyperborean climate.—L. J. J., Stratford, Ont.

The Lawrence pear is as hardy and regular a cropper in this district as any we grow. I see no reason why it should not do all right in the Stratford district. I have no experience of Lawrence grafted on Flemish Beauty.

### Setting Out Peach Trees.

S. H. Rittenhouse, Jordan Harbor, Ont.

When setting out peach trees should they be set exactly perpendicularly or at an angle, for an orchard under the mountain, near Grimsby?—J. M. E., Grimsby, Ont.

On the deep soils suitable for growing peaches, there is little danger of strong winds giving trees a permanent slant. During early spring, while the soil is very soft, our strongest gales usually come from the southwest. We have noticed trouble from these gales, especially in pear trees. To overcome this danger some growers practice the leaning of trees sharply to the southwest. The peach tree, however, seems to be capable of taking care of itself in standing up against strong gales.

When planting, set fairly deep on suitable, deep, well-drained soil, and little trouble will be met with along this line.

# The Production of Extracted Honey\*

R. F. Holterman, Brantford, Ont.

I WAS in a dentist's chair a couple of years ago and the dentist, who was a good friend of mine said to me, "You know, some day I am going to keep bees. I am not going to be inside of four walls all my life. I want to get out and I am going to keep bees." So I said to him, "Well, what do you know about beekeeping?" and he replied, "Well, I don't know anything about it." I looked into his face and said, "If you have found an occupation that a man can make a success of without knowing anything about it, you have found a business suitable for a fool." He looked at me for a moment quite seriously and said, "That is true." Beekeeping is an occupation and honey production is an occupation which calls for the very best efforts that a man can put forth. Looking back thirty-five or forty years, the first part of that time being connected with a bee supply business, a great number of failures can be found in the beekeeping industry among those who have attempted to follow it.

Beekeeping is a business which requires certain characteristics. There are those who are inclined to do things long after they ought to have been done. Such a trait is dangerous in beekeeping. In order to be successful in the production of honey, a person wants to be thorough. They want to have a disposition which will do things at the earliest possible moment rather than after they ought to have been done. In other words, that it is far better to be chasing your work than to have your work chasing you.

The amount of practical knowledge that a person requires for beekeeping, varies very much. There are men who can undertake a certain work, know practically nothing about it, but they have the **keenness of perception** and they have the **observation** and practical sense enough to take some person who has been a success in that particular business and they will follow his footsteps without question and make a success of that, and then as knowledge and experience increases; then and not until then,

would they venture to launch out along lines of their own. That is one way to make a success of beekeeping, and let me say, in all kindness, that as a general rule a young man hasn't got the practical knowledge of life to realize that necessity and he is apt, much more apt, to launch out along his own lines of thought than one who has seen more of life. After all, there is one way to learn and that is by practical experience. The best way I know of to begin is to start with one or two hives, read all the standard works possible on this subject and try to get a little help from a local beekeeper, who generally is willing to help, not always. Another way is to spend one or two seasons with a practical beekeeper and learn the business in that way.



Another egg laid—queen emerging from worker cell at lower right centre of picture.

## Locality.

After a man or a woman has decided to keep bees, if it is their intention to make a life's occupation of it, the question arises immediately of locality. There is a tremendous difference in localities. I know localities where men could be successful in producing bees and I know other localities where it is a good deal more difficult to get bees up to the numerical strength and there it is desirable to produce a crop of honey. As a rule soil that is light and where you have variations in the ground,—hills and dales—yields a greater variety of bloom, but you do not get the requirements for producing a surplus honey growth as well as you do in localities having heavier soil. I remember an address, I once heard on the production

of honey, and that gentleman said that in his estimation bees produced on light soil did not have the same percentage of sugar in them as those produced on heavier soil. Putting that statement in connection with what I had observed, I came to the conclusion that the ideal soil for surplus honey production was a heavy soil rather than a light soil. If I want to produce many queens and rear bees, I would prefer going on the light soil.

## Good Stock.

As to bees, the black bee has no business in the beekeeping world where European foul-brood can be found. There is a great difference in the strains of Italian bees. There have been times when I thought I knew where to buy bees and queens, but to-day I am totally at sea to know where to get the best bees. It makes a great difference the kind of bees we have and after visiting New York State and making a study of European foul-brood, I have come to this conclusion at least, that we have no business—with what is called the "Golden Italian" bee and we would be better off with a darker strain of Italian bees.

## The Best Hive.

At one time I had the eight-frame Langstroth hive. Now we have the ten-frame Langstroth hive and the twelve-frame Langstroth hive, and we have a hive even larger than that. I am in favor of a large hive and have been for fifteen years or more. It is the general conclusion to-day that a ten-frame Langstroth hive is too small for a beekeeper to use. The queen is able to occupy much more room than many beekeepers are willing to give her credit for. In speaking of this matter of the amount of room that a queen can occupy, let me say that the very best queens that I have seen came from Texas and from Missouri and they were kept in twelve-frame brood chambers, in such a way that there wasn't three pounds of honey in each whole set of twelve-frames. At Cornell University last winter (1919), I confess, I was almost ashamed to admit that I had only twelve-frame hives. I want to assure you of one thing, that I never would

\*Extract from speech given at Ontario Beekeepers' Association convention, Nov., 1919.

think of using a hive that had a capacity of less than twelve Langstroth frames now. There are various arguments used against these twelve-frame hives, and one is in connection with the brood chamber. You all know perfectly well that it is a great deal more difficult to get a queen to go from one chamber into the other than it is to get her to go sideways, and I do not think that the least expenditure of labor and the best results can be obtained by having a double brood chamber. Now, when it comes to the Jumbo frame, which is practically the Langstroth frame, only deeper, I have an objection to using a frame in the brood chamber which is of a different size to the combs used in the rest of the hive, because you are perfectly well aware that time and time again there are reasons why you would like to take the comb from the brood chamber and put it into the upper story or vice versa, and I believe you can get the least expenditure of labor and the best results by using the one-sized frame in the brood chamber and in the super. After using this hive for years, let me say this, that in seasons where your flow is very short and where your bees have not built up as well as usual, the twelve-frame Langstroth hive will give you less honey above the brood chamber than a smaller hive. It is only rare seasons where that is the case.

### Swarm Control Principles.

Considering now, the numerical strength of the colony, the great aim in keeping bees together is not simply to force them to remain in a certain hive, but the aim is to keep bees from swarming; keeping them together contentedly and in that way producing the largest crop of surplus honey. I have tried to keep bees together by breaking down queen cells, and do it now for that matter—week after week breaking down queen cells, feeling that the next time I go there they will not have the swarming impulse. That kind of management, however, always results in a smaller crop of honey from that colony. The way to keep bees from swarming is to have proper combs. There are a great many combs in hives that have no business to be there. I think it is an objectionable feature to have the bees tearing down drone cells because there are too many in the hives. The beekeeper should do that for them.

### Supering.

Now, in order to keep down swarming as much as possible, the supers should be put on in plenty of time?

When we go back to the literature of the past we read that when the bees clean out the combs, i.e., the cells in the brood chambers, for honey, it is time to put the upper storeys on, but that is now considered too late. It should be done before that time and when I put an upper storey on before the clover season opens I always do that and leave out the queen excluder. The room the bees should have, it should be given them ahead of their requirements. Should it be given above or below the first super? Well, we know that bees do a certain amount of cleaning and fixing up of comb when that comb is first put upon the hive. I don't like to put these combs on top because it makes a change in the hives that I don't like, so I take off the combs in that first storey and put some of them in the new super so as to come under the combs of the now upper storey. So, on one side of the hive you have combs which the bees have already had in the hive, and on the other side you have the new combs. In that way I think that added room can be given with the least disturbance to the colony. There are a great many beekeepers who are not careful enough in this connection to see when their combs go into the hives that they are in the same position they were in before. They put them back and it doesn't make one particle of difference where these combs were before. That is poor management and it tends to anger the bees and may even create a disposition to leave that hive, swarm and go somewhere else. You may as well take a good housekeeper, clean her house from cellar to attic and then put the kitchen stove in the parlor and the piano in the kitchen as to expect that bees are going to be content with that sort of thing. What we should aim to do is to put the combs in the same position as they were in the hive before, and by doing that you have less trouble from your bees.

The less time that we spend on each individual hive, the less will be the time lost by that colony until it goes to work again. This is a point that we should all look after. It is detrimental to spend a long time over any hive. Get through as quickly as possible and go on to another hive, and if two can work on a hive together it is far better than only one.

(Continued in next issue.)

If one wants to make a success of the bees then keep them healthy; that's half the battle, and it isn't hard if you don't mix up the honey and combs; also clean them up when they should be and don't put it off.

## Central Extracting Plant

A. J. Knox, Orono, Ont.

Having been asked to contribute something on the bee business in its larger ramifications, and more especially on the central extracting plan that is now coming into favor in big business, I might say, that after ten years' experience with the out-yard plan, having an extracting house and complete equipment at each yard, I was suddenly plunged into another outfit on the central extracting plan, and have thereby gained some experience.

### Building Arrangements.

In the latter business we have a central plant in a village. The building is about 48 ft. square, 15 ft. high at the front and 12 ft. at the back, well supported inside with posts. Under the south third of the building is a cellar containing a small boiler. Over this cellar are workshop, wax room and extracting platform, the latter three feet above the ground floor of the building. At each end of this platform and level with it, is a warming closet of about 75 supers capacity. This platform is on the same height as the 1½ ton truck, which is driven into the building alongside of the platform so that no extra lifting of supers is required.

Steam pipes fed from the boiler run in under the warming closets, through the capping boxes, steam knives, into the wax room to be used for melting purposes and heating water for mixing feed, also through the partition on to the extracting platform to clean up with, &c. The remainder of the big building is used for storing purposes and here all the supers are piled. It has a sawdust floor which we find beats everything yet tried, as it absorbs the moisture and keeps the combs dry.

### The Equipment for Extracting.

On the extracting platform are two six-frame extractors which are so coupled that they can be driven singly or together as desired. The power is derived from a 1½ horsepower gasoline engine, located about a yard behind the extractors, which are driven by the one belt. The exhaust pipe from the engine runs up through the roof to a yard or so above. A capping box is situated at each end of the platform immediately adjoining the extractors. These capping boxes are fitted with steam radiators and pan. When extracting work is on the cappings melt at once and honey and wax uncapping knives also get their supply of steam from the same source, which

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## Notes and Comments

J. L. Byer, Markham, Ont.

ON Thursday, March 11th., the bees in our locality here in York Co., had a partial flight—that is, all those that were not snowed in, for at least one of our yards was pretty well covered with snow on that date. The snow was cleared away that evening and as bees flew for about an hour on the 12th. possibly this apiary had a flight also. Not being there I can only guess. Whether bees flew up at the Coldwater yards or not, I do not know as I am not sure that entrances were cleared of snow. I understand from reports received that the bees all over southern Ontario and most parts west of Toronto had a general flight on March 11th.

### General Condition of Bees.

As to the condition of bees, wherever sugar syrup was fed in our apiaries last fall, the bees seem all right, but in many cases where natural stores formed the bulk of the winter food, much dysentery is in evidence.

### Effect of Snow on Entrances.

Writing of entrances being covered with snow, reminds me of the different ideas prevalent as to the effect of snow over entrances for any length of time. Last week I was visiting an extensive producer with five large apiaries, all wintering outdoors, and he assured me that he had always kept entrances clear of snow, making regular visits all winter long. In fact he would fear heavy losses if he did not keep entrances clear. In view of our opposite experiences. I could not help but wonder why such a difference of opinion. For five years now in succession we have never visited the bees near Coldwater from fall till next spring and that locality has heavy snow falls. Yet our best wintering has been at this place and not a minute's work is ever given them all winter. How they will fare this season is still a guess as I do not expect to go up there till some time in April. They were covered over with snow early in December, and were still in that condition on March 10th—the majority of the winter cases being entirely out of sight all that time. This is a pretty severe test and I hope by next issue I can report how they have fared. My friend who keeps the snow cleared away all winter, uses a very small entrance, about one half inch by three in width if I remember correctly. We use an entrance about the same depth but five or six inches in width. Whether the difference in outlet has any bearing on results or not I

cannot say. Both of us use quilts over frames, allowing slow upward ventilation and both have air space between packing and roof of packing case. I guess we will have to fall back on our old friend "locality" in the absence of any other reason to explain our differences on this question.

That article by my friend, Bainard, in the February Beekeeper, was read with much interest as we know the writer to be thoroughly practical in every way. He says "it is an easy matter for any person handy with tools to make a trailer." Really such a statement makes me almost green with envy, as such an undertaking on my part is about as likely as my chances of making an electric dynamo. Needless to say this is a confession that I am not handy with tools. As nearly all beekeepers are handy with tools, the writer of these notes often feels as though he had missed his calling whatever that might have been, as handiness with tools is no virtue of his, sorry to say. Just what his real calling should have been, he is at a loss to know and seemingly if he ever finds out, it will be when he is too old to make much use of it.

But to return to the trailers. In our experience with one for three years, we got to think less of the trailer each year we had it in use. Some of our yards are rather difficult to reach and a trailer meant so much work in the way of backing by hand, as you cannot back with a trailer with the same attached to the car. Then the difficulty friend Bainard mentions of always having a fear that tires might be punctured and the driver not know it, was always present. Seemingly Mr. Bainard solved that by doubling up tires, but then again his "handiness" helped him out here. It is all that "yours truly" can do to keep the wheels equipped with one tire on each rim let alone doubling them up. A Ford ton truck has been purchased lately and we turned the trailer in on the deal. After reading friend Bainard's article we have been wondering if we had not better have kept it, especially for moving bees.

### Modern Extracting Plant

(Continued from page 98.)

is under perfect control by means of tap valves.

A honey pump is also located between the extractors, and as fast as the work goes on, the honey is

pumped up overhead, and conveyed in long pipes to the big 3,000-lb. tanks which stand in a row along one side of the building on a platform high enough so that the honey can be run off into containers. If care is taken to see that the pump pulley is large enough to just balance the quantity of honey being extracted, it will do a good job and run smoothly without churning the honey. If the pulley is too small it pumps too fast and is consequently running at half capacity most of the time. This churns the honey and jams it full of air bubbles, thus having to remain longer in the tanks to clarify.

The other alternative is to put your tanks down cellar and run the honey from the extractors into them by gravity. To accomplish this plan you must either dig a long, inclined plane from your cellar and put in a track and car, or go to the labor of lugging all of your crop out of the cellar by hand. My advice is, keep your tanks above ground and use a honey pump. If properly arranged the pump will do good work and save a lot of hard work.

The outyards, originally seven, now twelve, lie in a radius of ten or twelve miles in every direction from this central plant. The supers are drawn to and from the yards in a covered truck. For rushing through a big amount of work in a short time the central extracting plan has an undoubted advantage; but if you are looking for an easy-going gentleman's job, such as the "complete yard system" makes possible, you will get left.

### Manitoba Wintering

R. M. Muckle, Provincial Apiarist,  
Manitoba.

I have wintered outdoors in Saskatchewan, but it takes a better insulating material than chaff to withstand the rigors of this western climate. Can you tell me if I can procure Jumbo 10-frame hives and frames in Winnipeg, or give me any information relating thereto?—Inwood, Man.

Dry sawdust has proven very satisfactory for packing bees in Manitoba. Jumbo 10-frame hives can be procured from Andrews & Sons, corner Portage and Victor Sts., Winnipeg, Manitoba.

Are you keeping watch for that foul brood? It is no disgrace to get it, but it is a disgrace, and worse than a disgrace, to fail to make all possible effort to clean it up without contaminating your neighbor's bees.

The Beekeeper is the best and biggest little paper I know.—J. Spencer, Chatham, Ont.

Read the classified bee advertisements on page X.

## Stimulative Feeding\*

Harry W. Jones, Bedford, Que.

The reason for spring feeding for stores is generally because an insufficient amount was given in the preceding fall or because the spring weather has been prolonged to such a length that the stores which are otherwise sufficient have been used up. In spring feeding for shortage of stores one can use the candy method to good advantage if it is early in the spring before bees are flying freely. A two to one syrup can be used if the bees get an occasional chance to fly. Later on as warm weather comes this syrup can be reduced to an even proportion and used for stimulative feeding. It is by far the best plan, however, to feed the bees sufficient in the fall to give them enough to insure that they will have plenty to last until the middle of May at the least when one can rely with some assurance upon a honey flow from some source, such as apple blossoms or dandelions to keep them going. Fall stores are by all means the best way of providing for the spring demands of brood rearing and for food.

Several years ago stimulative feeding in the spring was a very prominent topic for discussion in the journals, and like a great many other things which come before us from time to time, it was widely talked over and then made way for the next idea that cropped up. Speaking in a general way, bees that are well fed in the fall and are in a locality where there is an early flow from some minor source that gets the queen well started at brood rearing and supplies the bees steadily with honey to keep brood rearing from slackening, there is not very much to be gained by practising stimulative feeding. There is no object in having the bees over full strength before the main honey flow begins as they will only waste themselves in swarming and be in a disorganized condition when they should be at their best. On the other hand there are some locations where there is practically no preliminary honey flow a month or so before the principal source of honey develops and in circumstances like this, stimulative feeding is certainly a profitable operation. A regular steady flow each day encourages the queen to enlarge the brood nest and the uninterrupted supply insures an evenly increasing supply of eggs as the main honey flow approaches.

To obtain the best results from stimulative feeding, in the fall as well as in the spring, the hive should be made as warm as possible. In the spring, especially when cold nights are inclined to linger on, the hive should be protected, and it is at this time of the year that the double-walled hive is especially valuable as it keeps the cold out and retains the warmth of the cluster when it is especially needed. For stimulating use as described any of the standard feeders with a small capacity are to be preferred, something along the lines of the Alexander feeder or any of the various types of entrance feeders made of glass jars. The division board feeder can be used to very good advantage also. It is a big saving in time to use some type of feeder which can be quickly filled without disturbing the bees and which easily shows the amount of syrup which it contains. The principle underlying stimulative feeding is, of course, to supply a small quantity of feed daily, not a large quantity all at once at intervals of several days.

For this reason the feeders with large capacity which are used in the fall are not so handy to use in the spring.

I have just been speaking of stimulative feeding from the point of view of what we might call inside feeding, that is, supplying syrup from feeders inside the hive. There is another way of getting feed to the bees and that is by supplying in pails in the open air and letting the bees come and get it. This method or way as we might call it cannot be practised as early as the inside method as the bees, of course, have to carry the syrup from the pails to their hives, and it is not advisable to encourage too much flying about in chilly weather when there is a likelihood of the bees becoming chilled and not getting back to their hive. For this reason it is better to wait until we see that the bees are beginning to gather pollen before we start outdoor feeding. In our own yard, when the season is inclined to be late, we use this open-air method to stimulate—we aim to feed enough and to spare in the fall so that spring feeding for stores will not be necessary. It is a pretty well known fact, however, that the queen will not speed up egg laying until a well defined source of honey has opened up, and it is with this idea in mind that we practise stimulative feeding. We aim to get enough syrup taken up by each colony daily to induce the queen to expand the brood nest as if a regular honey flow were on. In making up the quantity of feed daily we base our estimate on a pound of syrup per colony, and in the early part of the season we make an even mixture, part for part, of sugar and water. In open-air feeding each colony benefits in proportion to its strength, the stronger colony getting its proportion of feed in a corresponding manner as the smaller one. It will be found that a pound of syrup per day is not altogether enough to keep them supplied, and for what they lack they will draw on the stores which they already have in the hive. This small quantity of feed serves the purpose of speeding up the queen and induces the bees to use up a portion of their winter stores, and consequently enlarges the brood nest at the same time. In feeding in this way we wait until we notice that they are beginning to bring in pollen before we start, and for the first two or three days we give a much richer mixture of feed than we do after the bees have got well used to getting syrup in this manner.

For spring feeding we have always used white sugar of the same quality as we use in the fall, there is no reason, however, why a cheaper grade of sweet can not be used and get as good results. A year or two ago, a lot of beekeepers were obliged to try sugar crystals as a substitute for white sugar (unobtainable at that time), and I think that these crystals would be all right to use in the spring, even if they were not all right to use as winter stores. I know of one instance where a farmer makes an annual practice of feeding a diluted mixture of maple syrup and water and seems to get some measure of success and while I do not recommend using maple syrup for this purpose I believe that a low grade sweet can be used to good advantage.

As I have remarked before it is our practice to feed for stimulation when the spring is late, and in actual practice we do it in this way. We have a sufficient number of pails holding about fifteen pounds of syrup each to distribute through a yard which we wish to feed. These pails have circular floats in them to prevent the bees from drowning; these floats are of wood and have a number of small-sized holes

bored through them. The pails are set out two or three to a row—our hives are arranged in rows facing east and west—and we fill them with syrup each morning. None of the hive entrances are distant more than twelve or fifteen feet from the nearest pail and the bees are not obliged to fly any distance to get the feed. These pails are filled about the middle of the forenoon, after the sun is well up, and by the latter part of the afternoon the bees have emptied them and flying is about over with by the time the cool of the evening is commencing. In a backward season we have had very good results from feeding in this way.

A source of difficulty is sometimes provided by the neighbors' bees who may be within less than three-quarters or half a mile distance. When there is another yard as near by as this, it would be only fair if the owner of these were to bear a small proportion of the cost of the sugar used in making the syrup. Bees will come from a greater distance than this, of course, in search of sweets, but the amount of syrup which they will take away when their hives are a mile or more away is very small in relation to the total quantity.

## QUESTION BOX

Conducted by H. G. Sibbald, Toronto, Ont.

### Handling Pound Packages.

What is the best method of handling pound packages received May 1st, so as to build them up into strong colonies?—R. V. P., Petrolia, Ont.

If they could be hived on full-drawn combs they would come on much faster than if foundation were used. A Mason feeder with syrup placed over the cluster would also stimulate breeding, and assist comb building if foundation had been used. Packing around and over the hive would also be a benefit. It would also help to feed in the above mentioned way after fruit bloom and before the clover flow.

### Artificial Pollen.

Is it profitable to use artificial pollen for spring stimulation?

What is the best substitute for pollen and how would you feed it?—J. McP. N., Welland, Ont.

As a rule, I think, it would not pay to bother, as colonies wintered on combs occupied the season before have on hand a supply of pollen, and very early a supply is obtained from willows and maples, and later from dandelion and fruit bloom.

Rye flour or pea flour has been recommended as probably the best substitute for pollen. To feed it, place it in shallow boxes near the yard in an open shed, or at any rate under cover, so that it would be protected from rain and dampness.

## Queen Prices Advanced

Owing to the advanced cost of labor and material, the price of queen bees sent out by the division of bee culture, University Farm, St. Paul, for the season of 1920, has been raised to \$1 for untested queen bees and \$1.50 for tested. The number of queen bees allowed one beekeeper will be limited to five untested and one tested. Francis Jager, chief of the division, and G. C. Matthews will be personally in charge of queen bee raising at the University Farm.

\*Extract from paper read at Ontario Beekeepers' Association Convention, Nov., 1919.

## WHO'S WHO IN CANADIAN BEEKEEPING?

### Canada's Dominion Apiarist, F. W. L. Sladen

Mr. Sladen was born in 1876 at Shooter's Hill, near London, England, and raised on a farm—Ripple Court, near Dover. He was educated privately, and started beekeeping at the age of thirteen. He also became intensely interested in bumble-bees and solitary bees, and became intimately acquainted with them, spending

breeding in their scientific aspects were thoroughly studied and analysed, and "Queen Rearing in England" was published in 1904, second edition, 1913.

In March, 1901, he discovered that Nasanoff's organ in the abdomen of the honey bee produces an alluring scent enabling the bees to find the entrance of their hives in unfavorable weather and preventing the individuals of a swarm from straying. The intimate study of bumble-bees was resumed in all spare time from 1910 to 1912, resulting in the production of a mature work on them published by Macmillan & Co. in 1912, which was very favorably received by all sections of the British and American press as a direct-from-nature monograph.

This bumble-bee study led him to investigate the pollen collecting apparatus on the posterior legs of the bumble-bee and honey-bee, and to make original discoveries of the manner in which the pollen of the posterior legs of the bumble-bee and honey-bee, and to make original discoveries of the manner in which the pollen basket is loaded. His careful drawing of the posterior legs of the honey-bee with ten numbered parts, each of which he found performs a particular function, was published in The Canadian Bee Journal in 1912.

In 1912 he joined the staff of the Experimental Farm at Ottawa as Assistant Entomologist for Apiculture, and in 1914 he rose to his present position as Apiarist in charge of the Bee Division.

Almost his first work in Canada was to make a study of the honey plants occurring from coast to coast, and of the conditions under which they secrete nectar. Some of the results of this study were the discovery that the region of profitable honey production from alsike and white clover extends very far north, some of the largest yields in Canada having been obtained on the shores of Lake St. John, 400 miles further north than Toronto. Also that certain species of goldenrod (*Solidago squarrosa* and *S. puberula*) yield heavily a light colored honey in September under certain conditions. Also that the northern margin of the prairie contains a special honey flora including anise hyssop (*Agastache foeniculum*), etc., and freweed is here of paramount importance, the bees building up in spring on the Lake Superior bluebell (*Mertensia paniculata*).

Bee breeding experiments have remained a leading consideration with Mr. Sladen. They have been carried on annually by him in different places in Canada, and island mating, which has produced some rather unexpected results recently reported in The Beekeeper, was undertaken in 1919. He has given much study to the prevention of swarming and to wintering, which he considers the two principal bee problems of Canada. The very favorable spring conditions in some parts of Canada have induced him to devise a system of management in which two queens are wintered in a hive, and experiments at Ottawa indicate that in that locality a greatly increased number of bees can be raised to work on the clover in average years by this means. A system of co-operative experiments in promising and little known localities has been inaugurated by Mr. Sladen. Private beekeepers, who keep hives on scales, report the daily gain and loss, daily temperature, rainfall and sunshine and other details, giving, over a series of years, a very accurate view of the local conditions.

In 1916 Mr. Sladen's department pub-

lished his bulletin, "Bees and how to keep them," a comprehensive account of beekeeping written from the standpoint of Canadian conditions. Much of his time is now devoted to experimental work, studying conditions in different parts of Canada, visiting the Experimental Farms, of which fifteen now keep bees, reporting on special phases of beekeeping, conferring and co-operating with the Provincial Apiarists and Inspectors, answering correspondents, etc., and the routine work inseparable from his position in the Civil Service.

### Dr. Hewitt and Beekeeping

Dr. R. C. Gordon Hewitt, D.Sc., Dominion Entomologist and Consulting Zoologist, died at Ottawa on February 29, at the early age of 35, after a few days illness from pneumonia. He was born and educated at Macclesfield, England, and, after a distinguished career at Manchester University, accepted, in 1909, the position of Entomologist in the Experimental Farms Branch, which had been rendered vacant by the death of the late Dr. James Fletcher.

The beekeeping work of the Experimental Farms was placed under Dr. Hewitt's supervision, and he immediately recognized its importance. He wrote the first Dominion bulletin on beekeeping, "The Honey Bee," which was published in 1912. He worked patiently to have an officer appointed especially for apiculture, and he provided in his estimates for the erection of a bee building, both of which efforts were successful. Although the bee work passed from under his administration in 1914, he continued to take an interest in it and gave valued advice on administrative matters whenever consulted.

Members of the Ontario Beekeepers' Association will remember his taking part in their convention at Toronto a few years ago.—F.W.L.S.

### Ontario Fruit Industry

(Continued from Page 89.)

station under provincial control can the work at Guelph be carried on successfully." The professor thought that the station might arrange to do more work among the growers.

"The fruit industry is in a deplorable state," he said. "The orchards are in a regrettable condition. Unless a change is made, this province will have to depend upon outside sources for its supply of fruit. The industry can be revived only by the growers themselves. In the past five years, apple growing has been set back 25 years." But the future was bright, if the growers rose to their opportunities. Ten times as much fruit could be grown. The time was coming when 50 per cent. of the fruit would be sold co-operatively.

To aid in improving conditions and methods, the professor advocated the extension service already mentioned. Excepting in the matter of orchard pest control, Ontario orchard methods were the same prac-

(Continued on Page 113.)

The condition of the clover crop on March 20th was reported good. A British Columbia beekeeper reports bees gathering pollen on February 21st, but this condition is by no means general. We hope to have a more complete report for the May number of The Beekeeper.



nearly all his spare time at his hives and in the woods and fields.

At sixteen he wrote "The Humble Bee, its life history and how to domesticate it," a 40-page booklet of original observations. Another early work was "Our Wild Bees," a series of articles appearing in the British Bee Journal. In 1896 he visited India to study *Apis dorsata*, *A. florea* and the domesticated varieties of *A. indica*, and brought a queen of the latter alive to England.

His early beekeeping work rapidly developed. He established an out-apiary to keep pace with the growing demands for his bottled and comb honey trade, and having been for some time attracted by the practical nature of American beekeeping, he visited prominent beekeepers in the United States and Canada in 1901.

All this time Mr. Sladen was specializing in queen-rearing and bee-breeding, and distributing imported queens. These lines of activity, which were much more to his taste than dealing in honey, gradually developed into an extensive and profitable business both in the British Isles and to distant countries, India, South Africa, etc. His specialty was breeding a hardy golden bee in the trying climate of the South-east Coast of England, and he developed a system of pure mating, in which were utilized colour differences and cool, windy weather restricting the flight of queens and drones. The subjects of queen-rearing and bee-

## Producing Good Combs

Jno. T. Wilson, Petrolia, Ont.

During past years I have used the orthodox method of wiring with four horizontal wires, in a Langstroth frame. The wires were spaced as shown in the top frame in Fig. 1. The foundation was fastened to the top-bar by the melted wax and resin method. The foundation stretched at the top, usually, if put in the brood chamber of a big colony. If the weather was very warm they also settled down considerably, when filled with honey, in the supers. I had some stretch and buckle so badly last summer that the mid-rib was cut away entirely between the third and bottom wires, when uncapping for extracting. These combs were built down to the bottom bar in the supers and when the weight came onto them they simply had to buckle.

To overcome this I evolved a method of wiring which I use and produce some perfect combs. The second frame in Fig. 1

does not stretch near the bottom, but if the hive is not perfectly level the foundation would have a tendency to swing to one side.

I slip the sheet of foundation between the horizontal and diagonal wires and embed the wires on both sides. This holds the foundation securely, and perfect combs are the result if given to colonies, during a honey flow.

The imbedding is done by means of the hot copper tool brought out by Prof. Gates. The tool is heated over an ordinary oil-stove or lamp and drawn along the wires, which heats them sufficiently to melt the wax and therefore cements them in the foundation.

If we use foundation in the brood-chamber, we give an abundance of supers above and put brood in the top story. This will entice the bees above and decrease the weight on the foundation, and also the heat of the brood-chamber. I have often had to use nine sheets of foundation and one drawn comb, with brood, in the brood-chamber, when using the Demaree method of swarm control. The results were not very satisfactory in some cases, when I used the old method of wiring. I have not seen an imperfect comb yet, built on the new wiring, although I have not tried it very extensively.

The prevention of stretching of foundation in the brood-chamber combs increases the brood capacity of the hive, because the cells are all worker size clear to the top-bar and the queen can occupy them for brood rearing. Another result is that the queen is much more inclined to enter the second storey, in the spring, and swarming will therefore be much more easily controlled.

## Crop Publicity

E. T. Bainard, Lambeth, Ont.

The article by Mr. F. Salden in the February Beekeeper gives some very interesting reading, and experiments along this line appeal to me very much when they appear in the bee journals. This report, however, was given in one of our daily newspapers having a large circulation throughout Western Ontario about a week before it appeared in The Beekeeper.

The general public in reading the article in question would pay little attention to the management features; in fact the big yield is the predominating part of this article. Just think of it, in 1917, on a sandy plain, an average of 109 pounds per colony; in 1918 an average of 239 pounds per colony and in 1919, a poor season for Western Ontario, an average of 331 pounds per colony and a big increase.

I know experienced beekeepers will bear me out, that we wouldn't expect the same big returns per colony when handling several out-apiaries with about 100 colonies in each apiary. The public do not understand this, but estimate 200 pounds at 30 cents per pound and 200 colonies would be so much per year income, deriving a very inflated idea of beekeeping profits.

## Tires For Trailers

J. L. Byer, Markham, Ont.

While visiting the beekeeper referred to on page 99 of this issue, I found him using a Ford ton truck with solid rear tires and no shock absorbers, and also having a trailer for his touring car, the trailer having solid tires also. He hauls all combs home for extracting, and in answer to my query as to breaking of combs he said that only a very

few frames got end lugs broken off. But he has clay roads for the most part while we have gravel roads with many rolling cobble stones. Clay roads may explain his light breakage of combs. Other things being equal, tires that are solid have advantages over pneumatic ones, but the general verdict of late seems to say that the air filled tires give longer life to car and more efficient service. The truck we bought lately has pneumatic tires all round, the rear ones being 34 by 34½, and the front ones also over-size. The large tires in rear make easier riding and give more speed on level roads, but are not nearly as good for hill climbing as the small solid tires. This is the verdict of men near me who haul stock to the city, and who have tested out both styles of tires on the same roads. One truck owner near me, has this past summer and fall hauled milk to the city in the morning and loads of stock for farmers in the afternoon, making a mileage of over 20,000 for the season and his rear solid tires are still in fair shape. So it appears that solid tires cost less than the pneumatic, but others will answer that the car carried over the pneumatic tires will be in enough better shape to more than pay for the extra cost of tires.

## Bees, Crops and Market

The following items appeared in "The Farmers' Sun," February 4th issue:

"When honey is quoted by the daily press at 25c. to 27c. at country points, the quotation is above what the Toronto produce dealers will pay."

"Honey is about the cheapest food going we would imagine from a comparison of prices."

These observations are much to the point. White honey has been bought in Toronto during the past two or three months at prices ranging from 20c. to 25c. f.o.b. Toronto. There is undoubtedly a great need for more correct market reports. Dark honey has been hard to dispose of at any price. Sales of dark honey have been between 14c. and 20c. Two large shipments of buckwheat honey in barrels came to our attention which went at 14c. and 15c. respectively, f.o.b. Montreal.

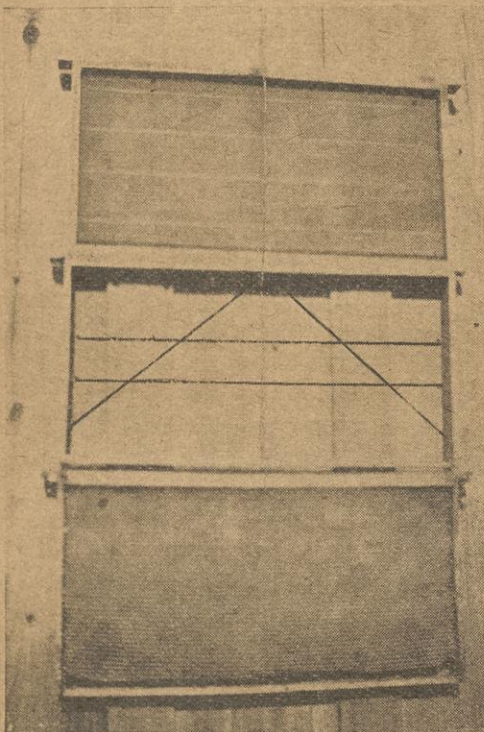
The phenomenal rise in the price of sugar is concerning the beekeeper at the present time. Indications are that the price will go even higher. It still remains to be seen whether the high price of sugar will stimulate the market for dark honey. Very little white honey is left in the hands of the producers.

Word has come to hand from Mr. R. E. L. Harkness, an Eastern Ontario beekeeper, that bees in the cellar are wintering in splendid shape. We have no definite reports on the outside wintering, but the heavy mantle of snow is reassuring.

After reciting the value of beekeeping to the country and the important part that pound packages are playing in the developing of the industry, a resolution forwarded by the Toronto Beekeepers' Association to the Post Office Departments at Toronto, Ottawa and Washington, D.C., reads as follows:

"Therefore, be it resolved, the Toronto Beekeepers' Association, in Convention assembled, do hereby recommend to the Post Office Departments of the Dominion of Canada, and the United States of America, the extension of the limits in weight of Parcel Post between the two countries so that live bees in packages of up to 11 lbs. weight may be received into this country.

"And further be it resolved that we recommend to the Departments of the respective countries that all shipments of live bees, by Parcel Post be handled by "outside mail," so that there would be no chance of the bees being smothered."



Top: Old Method of Wiring.  
Centre: New Method of Wiring.  
Bottom: A Good Comb Commenced.

shows the method of wiring, and the third frame a sheet of foundation partly drawn out. The end bars are punched with the usual number of holes; the top one being only half inch below the top bar. In future I intend to put the second and third wire nearer to the top bar. The wire is threaded through the lower hole in the right end bar, then diagonally up to the hook or staple in the underside of the top bar, and diagonally down to the lower hole in the left end bar. I then pass it up the left end bar to the next hole and thread horizontally across to the right end bar, and repeat the process until three horizontal wires are stretched across the frame. The top wire is passed through the hook or staple in the top bar when threading, and ends at the upper right-hand hole, where it is fastened with a ¾-inch nail. The wires are then drawn taut and fastened at the lower right-hand side. It will be noticed that there are only three horizontal wires; I think that I shall put in the bottom wire in the future, however. The foundation

## B.C. Growers Co-operate

Representatives of all berry growers' co-operative associations on the lower mainland and on Vancouver Island met at Vancouver recently and decided to form a central executive of all associations, which will act for the growers of the lower mainland and Island, as a unit. Large questions, such as freight rates, sugar stringencies, labor troubles and in general all matters affecting all growers more or less, will be dealt with by this executive.

R. M. Winslow is chairman of a committee which has been delegated to visit Ottawa at an early date and discuss with the department of trade and commerce the pros and cons of the sugar situation and its effect on the berry business this year; also see what relief can be had.

One of the directors pointed out that with sugar at 16 or 18 cents a pound, and berries retailing at 25 cents or near that, there will be few housewives who will preserve berries this year. This leaves the market to the jam companies and as a consequence the factories will demand large shipments of sugar to prevent the berries spoiling.

The new executive of the berry growers' association will be expected to form the selling agency next year for all berry crops on the lower mainland and Vancouver Island.

From reports reaching The Canadian Horticulturist it seems that many persons living in Halifax and the larger towns of Nova Scotia are thinking of taking up fruit growing in the Annapolis Valley, owing to the present high cost of living in the towns.



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3542 Pennsylvania .....	.25	2.15
3544 King Humbert .....	.25	2.15

## GRAND BEDDING CANNAS

	Ea.	10
3545 Firebird .....	.25	2.15
3546 Mrs. Alfred F. Conard .....	.25	2.15
3547 Florence Vaughan .....	.25	2.15
3549 Yellow King Humbert .....	.25	2.15
3551 Wabash .....	.25	2.15
3552 Rosea Gigantea .....	.25	2.15

## PAEONY DAHLIAS

	Ea.	10
3553 Geisha .....	.75	6.25
3554 John Wannamaker .....	1.00	9.00
3555 Sir R. L. Borden .....	.50	4.50
3556 Queen Emma .....	.50	4.25
3557 Queen Wilhelmina .....	.50	4.25
3558 Sherlock Holmes .....	.75	6.25
3559 Dr. Peary .....	.75	6.25
3560 Caecilia .....	.75	6.25

## GRAND SHOW DAHLIAS

	Ea.	10
3561 Crowhurst .....	.35	3.00
3562 Cuban Giant .....	.35	3.00
3565 Dreer's White .....	.35	3.00
3567 Pink Livoni .....	.35	3.00
3568 Queen of the Belgians .....	.35	3.00
3569 Red Hussar .....	.35	3.00
3570 Ruby Queen .....	.35	3.00
3572 Storm King .....	.35	3.00
3574 Yellow Livoni .....	.35	3.00

## DECORATIVE DAHLIAS

	Ea.	10
3575 American Beauty .....	.50	4.50
3576 Delice .....	.50	4.50
3577 Dorothy Peacock .....	.60	5.25
3578 Flamingo .....	.75	6.75
3579 Grand Manitou .....	.50	4.50
3582 Princess Pat .....	.40	3.50
3584 Jack Rose .....	.40	3.50
3585 Mrs. Hartong .....	.40	3.50
3586 Jumbo .....	.40	3.50
3588 Mauve Queen .....	.40	3.50
3590 Mrs. J. G. Cassatt .....	.50	4.50
3591 Mrs. Roosevelt .....	.40	3.50
3593 Orange King .....	.40	3.50
3595 Queen Mary .....	.50	4.50
3598 Souvenir Doazon .....	.40	3.50
3602 Colossal Yellow Duke .....	.40	3.50

## GIANT CACTUS DAHLIAS

	Ea.	10
3609 Amos Perry .....	.50	4.50
3610 Crystal .....	.75	..
3611 Countess of Lonsdale .....	.40	3.50
3615 Ernest Drury .....	.40	3.50
3620 Golden Eagle .....	.75	6.25
3624 Kriemhilde .....	.40	3.50
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3632 Sweetbriar .....	.50	4.50
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	Ea.	10	100
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	Ea.	10	100
3657 Dawn .....	.25	2.15	..
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3684 Niagara .....	.30	2.50	..
3685 Panama .....	.25	2.15	..
3686 Peace .....	.25	2.25	..
3688 Princeps .....	.20	1.50	..
3694 War .....	.25	2.15	..
3695 Wilbrink .....	.25	2.15	..
3699 Yellow King (Swabia) .....	.25	2.15	..

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	Ea.	10	100
3700 Gold Medal Mixtures .....	..	.85	7.25
3701 Superb Mixture .....	..	.60	5.25
3702 Groff's Mixed Hybrids .....	..	.75	6.50
3704 Childs' Giant Mixed .....	..	.75	6.50
3706 Fine Mixed .....	..	.35	3.25

## HYACINTHUS CANDICANS

	Ea.	10	100
3715 Summer Hyacinth .....	.15	1.00	7.50

## MONTBRETIA

	Ea.	10	100
3716 Mixed Colors .....	..	.75	5.50

## OXALIS

	Ea.	10	100
3718 Summer Flowering .....	..	.25	1.50

## TUBEROSES

	Ea.	10	100
3720 Excelsior Double Pearl .....	.20	1.75	15.00

## TIGRIDIAS

	Ea.	10	100
3722 Shell Flower..Mixed. ....	..	.75	3.50

## HYBRID TEA ROSES

Pink and Rose Colored Shades.

	Ea.	Per 10
5500 Caroline Testout .....	.90	7.50
5502 Dean Hole .....	.90	7.50
5509 Killarney .....	.90	7.50
5512 La France .....	.90	7.50
5513 Lyon Rose .....	.90	7.50
5515 Mme. Abel Chatenay .....	.90	7.50
5521 My Maryland .....	.90	7.50
5524 Viscountess Folkestone .....	.90	7.50

Red, Scarlet and Crimson Shades.

	Ea.	Per 10
5530 American Beauty .....	.90	7.50
5535 Edward Mawley .....	.90	7.50
5536 Etoile de France .....	.90	7.50
5537 Gen. McArthur .....	.90	7.50
5540 Geo. Dickson .....	.90	7.50
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5544 King George V. ....	.90	7.50
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	Ea.	Per 10
5560 Bessie Brown .....	.90	7.50
5561 British Queen .....	.90	7.50
5563 Ethel Malcolm .....	.90	7.50
5565 K. Augusta Victoria .....	.90	7.50
5566 Mildred Grant .....	.90	7.50
5569 White Killarney .....	.90	7.50

## Orange, Salmon and Yellow Shades.

	Ea.	10	100
5580 Betty .....	.90	7.50	..
5582 Lady Hillingdon .....	.90	7.50	..
5589 Mde. Ravary .....	.90	7.50	..
5590 Mrs. Aaron Ward .....	.90	7.50	..
5592 Rayon d'Or .....	.90	7.50	..
5594 Sunburst .....	.90	7.50	..

## HARDY PERPETUAL ROSES.

	Ea.	10	100
5600 Alfred Colomb .....	.75	6.00	..
5606 White Druschki .....	.75	6.00	..
5607 Gen. Jacqueminot .....	.75	6.00	..
5608 Pink Druschki .....	.75	6.00	..
5610 Hugh Dickson .....	.75	6.00	..
5612 Mme. Plantier .....	.75	6.00	..
5613 Magna Charta .....	.75	6.00	..
5616 Mrs. John Laing .....	.75	6.00	..
5618 Paul Neyron .....	.75	6.00	..
5620 Prince Camille Rohan .....	.75	6.00	..
5621 Ulrich Brunner .....	.75	6.00	..

## CEMETERY ROSES.

	Ea.	10	100
5630 Caroline Marniesse .....	.75	6.00	..
5631 Double White Memorial .....	.75	6.00	..

## VARIOUS ROSES

	Ea.	10	100
5634 Irish Elegance—3-year old .....	.75	6.00	..
5636 Mde. Georges Bruant 3-year old .....	.75	6.00	..
5637 Soleil d'Or — 3-year old .....	.75	6.00	..
5639 Persian Yellow Rose—3-year old .....	.75	6.00	..
5640 Harrison Yellow .....	.75	6.00	..

## ROSA RUGOSA

	Ea.	10	100
5645 Red—3-year old .....	.60	5.00	..
5646 White—3-year old .....	.60	5.00	..

## ENGLISH SWEET BRIAR

	Ea.	10	100
5650 True Sweet Briar .....	.75	6.00	..

## MOSS ROSES

	Ea.	10	100
5655 Blanche Moreau .....	.75	6.00	..
5656 Crimson Globe .....	.75	6.00	..
5658 Glory Mosses .....	.75	6.00	..

## HARDY CLIMBING ROSES

3-Year-Old.

	Ea.	10	100
5660 American Pillar .....	.75	6.00	..
5661 Baltimore Belle .....	.75	6.00	..
5662 Crimson Rambler .....	.75	6.00	..
5663 Dorothy Perkins .....	.75	6.00	..
5664 Flower of Fairfield .....	.75	6.00	..
5665 Hiawatha .....	.75	6.00	..
5666 Red Dorothy (Excelsa) .....	.75	6.00	..
5669 White Dorothy .....	.75	6.00	..
5671 Yellow Rambler .....	.75	6.00	..

## BABY RAMBLER ROSES

3-Year-Old.

	Ea.	10	100
5681 Baby Dorothy .....	.75	6.00	..
5683 Erna Teschendorf .....	.75	6.00	..
5685 Jessie .....	.75	6.00	..
5686 White Baby Rambler .....	.75	6.00	..
5687 Mme. Jules Gouchault .....	.75	6.00	..
5688 Crimson Baby Rambler .....	.75	6.00	..
5689 Orleans .....	.75	6.00	..

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5882	Officinalis Alba .....	.35	3.00	
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5904	Beranger .....	.30	2.50	
5905	Bridesmaid .....	.30	2.50	
5906	Coquelicot .....	.30	2.50	
5910	Iris .....	.30	2.50	
5911	Jeanne d'A. ....	.30	2.50	
5915	Lumineaux .....	.30	2.50	
5916	Mme. Bezanson .....	.30	2.50	
5918	Pecheur d'Island .....	.30	2.50	
5920	Rynstroom .....	.30	2.50	
5921	Sunset .....	.30	2.50	
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5924	Mixed Roots .....	.25	2.00	

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		Ea	10	100
5951	Boston Ivy — 3-year old .....	\$0.60	\$5.00	\$...

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5955	3-year old .....	.75	6.25	..
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5956	3-year old .....	.50	4.00	..
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5960	Dutchman's Pipe—Extra Strong Plants 4-year old .....	.90	7.50	..
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5961	Trumpet Vine—Grandiflora—4-year old ..	.75	6.00	..
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5962	Cinnamon Vine .....	.15	1.10	8.50
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5963	Japanese Star Clematis — 3-year-old ..	.60	5.25	..
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5964	Jackmanii .....	.75	6.25	..
5965	Duchess of Edinburgh ..	.75	6.25	..
5966	Bangholm Belle .....	.75	6.25	..
5967	Mme. Baron Veillard .....	.75	6.25	..
5968	Sieboldi .....	.75	6.25	..
5969	Ville de Lyon .....	.75	6.25	..

#### MADEIRA VINE

5972	Mignonette Vine ...	.10	.60	..
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5973	Halliana — 4-year old ..	.75	6.00	..
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5975	Scarlet Trumpet — 4-year old .....	.75	6.00	..

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5977	Magnific Blue .....	.75	6.25	..
5978	Chinensis Alba .....	.75	6.25	..

#### TUBEROUS WISTARIA

5979	Apios Tuberosa ....	.15	1.25	..
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6012	Double Pink .....	\$0.50	\$4.25	\$...
6013	Double Red .....	.50	4.25	..
6014	Double White .....	.50	4.25	..

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6016	Double Pink .....	.60	5.25	..
6017	Double Red .....	.60	5.25	..
6018	Double White .....	.60	5.25	..

#### BERBERIS THUNBERGIA

6021	Japan Barberry ...	.50	4.00	35.00
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#### BERBERIS VULGARIS

6024	Common Barberry—2 to 2½ ft. ....	.50	4.00	..
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#### BERBERIS PURPUREA

6027	Purple Barberry — 2 to 2½ ft. ....	\$0.50	\$4.00	..
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#### BUDDLEIA

6029	Variabilis — Summer Lilac .....	.75	6.75	..
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#### CARAGANA ARBORESCENS

6032	3 ft. ....	.50	4.25	..
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#### HAWTHORN

6034	Paul's Double Scarlet Thorn .....	.75	6.25	..
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#### DEUTZIA

6038	Crenata Rosea ....	.50	4.25	..
6040	Gracilis .....	.50	4.25	..
6042	Lemoine .....	.50	4.25	..
6044	Pride of Rochester ..	.50	4.25	..

#### FORSYTHIA

6046	Viridissima — Golden Bells .....	.60	5.25	..
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#### CORNUS (DOGWOODS)

6052	Red Siberian — 2 to 3 ft. ....	.45	3.75	..
6053	Elegantissima Variegata—3 to 4 ft. ....	.50	4.25	..

### HYDRANGEA

Ea. 10 100

6054	Arborescens Grandiflora .....	.75	6.00	..
6057	Paniculata — Strong Bushes .....	.75	6.00	..
6058	Paniculata — Tree Shaped .....	1.00	9.00	..

#### KERRIA

6061	Japonica — White Japanese Kerria ..	.50	4.25	..
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#### BUSH HONEYSUCKLE LONIGERA

6063	Japanese Morrowi ..	.50	4.00	..
6065	Tartarica Grandiflora Rubra .....	.50	4.00	..

#### CHOICE LILACS

Single varieties marked "S." Double "D."

6067	Aline Mocquery (S) ..	.90	7.50	..
6068	Charles X (S) ....	.90	7.50	..
6069	Dr. Masters (D) ....	.90	7.50	..
6071	Lilarosa (S) .....	.90	7.50	..
6072	Maria Legraye (S) ..	.90	7.50	..
6073	Michael Buchner (D) ..	.90	7.50	..
6074	Mme. Lemoine (D) ..	.90	7.50	..
6075	President Grevy (D) ..	.90	7.50	..
6076	Souvenir de Louis Spath (S) .....	.90	7.50	..

#### SYRINGA PHILADELPHUS

6085	Fragrant Mock Orange .....	\$0.60	\$5.25	\$...
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#### LIGUSTRUM PRIVET

6088	Vulgar Eng. Privet — 3 ft. ....	2.00	15.00	..
6089	Vulgar Eng. Privet — 4 ft. ....	2.50	20.00	..
6091	Japanese Privet — 3 ft. ....	3.00	25.00	..

#### PYRUS JAPONICA

6092	Japan Quince .....	.50	4.25	..
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#### PRUNUS (PLUM)

6093	Persian Purple Leaved .....	.75	6.25	..
6095	Double Flowering ..	.50	4.25	..

#### RHUS COTINUS

6097	Smoke Tree .....	.60	5.25	..
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#### RIBES

6099	Golden Currant ....	.50	4.25	..
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#### SAMBUCUS AUREUS

6105	Golden Elder .....	.50	4.25	..
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#### SPIREA

6107	Anthony Waterer ..	.50	4.25	..
6113	Bridal Wreath .....	.50	4.25	..
6115	Thunbergii .....	.50	4.25	..
6118	Van Houttei—Large Bushes .....	.75	6.00	..

#### SNOWBERRY

6121	Symphocarpos Racemosus .....	.50	4.25	..
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#### TAMARIX

6125	Odessana .....	.60	5.25	..
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#### SNOWBALL—VIBURNUM

6127	Guelder Rose .....	.60	5.25	..
6131	Japanese Snowball ..	.75	6.00	..

#### WEIGELIA

6135	Rosea Variegata ...	.60	5.00	..
6137	Eva Rathke .....	.60	5.00	..
6139	Rosea .....	.60	5.00	..

AL.

A copy of our Tool Catalogue will give you full particulars on Garden Tools, Fertilizers, etc. Write for one to-day.

# NY, Limited

## TORONTO

## Also at Montreal, Winnipeg, Vancouver

**MOTT'S Northern Bred Italian Queens**

I have breeding mothers in the south for April and May queens. Plans "How to Introduce Queens: Increase," 25c.  
For summer and winter laying birds, try a setting of my Golden Campines.

E. E. MOTT.

Glenwood

::

Mich.

# STOP

Write and get my prices on bee supplies for 1920. Hives and racks a specialty.

**F. W. KROUSE**

Box 436

GUELPH, ONTARIO

## American Honey Plants

By Frank C. Pellett

Is a new book just out, written by the Associate Editor of the American Bee Journal. It is the result of years of personal investigation in all parts of the country and includes honey plants valuable for pollen as well as for nectar.

It is splendidly illustrated with 156 original photographs and is printed on fine quality coated paper, hand stitched, cloth bound, 300 pages.

Every beekeeper should be well acquainted with the flora, not only of his immediate section, but of those surrounding him. This book was gotten up for that purpose.

Price \$2.50 or can be obtained with a year's subscription to the American Bee Journal, monthly publication, for only \$3.40. Write to-day.

**AMERICAN BEE JOURNAL**

Hamilton

-

Illinois

## Cost of Growing Tomatoes

For some time tomato growers of the Okanagan Valley, British Columbia, have felt that the price of \$17 a ton, which the canneries were paying them for their stock did not even meet the cost of production, to say nothing of netting them a profit. In an effort to get at the actual cost of production a committee was appointed to make careful enquiries and report the result. The report handed in by this committee and reproduced herewith, was considered at a meeting of the growers about Kelowna, and the decision reached was that at \$17 a ton there was no profit in the crop.

The report on a one-acre basis is:

Interest on investment, at \$400 an acre, at 8 per cent. .... \$ 32.00  
Preparation of land:

Plowing ..... \$5.25  
Harrowing ..... 1.40  
Discing ..... 2.00  
Floating ..... .50

\$9.15

Cost of plants, including hauling, 3,000 plants per acre, at \$7.00 per 1,000 ..... 21.00  
Provision for loss, 500 per acre .... 3.50  
Planting per day, average 4 acres:  
Team and man, \$7.50; planter, \$2.50; four men, \$14.00; total, \$24 Per acre ..... 6.00  
Poisoning: Bran, paris green, etc. 2.50  
Filling in plants ..... 1.75  
Irrigation water ..... 3.90  
Labor, irrigating furrows, 3 times .. 5.25  
Cultivating, five acres per day, five cultivations ..... 5.00  
Hoeing twice, two acres per day at \$4.00 per day ..... 4.00  
Pruning, three times at \$4.00 per day, doing an acre a day ..... 12.00  
Picking, average crop, 12 tons, or 600 boxes an acre ..... 42.00  
Hauling and loading, \$2 per ton .... 24.00  
Cleaning up land, per acre ..... 4.00  
Taxes (school and land) ..... 3.00  
Manure ..... 20.00

Total cost per acre ..... \$198.15

Continuing the estimate at the rate of 12 tons, or 600 boxes, to the acre, which is a high average, and taking the price received for the 1919 crop, \$17.00 a ton, the receipts from the acre worked out at \$204.00, leaving a balance of \$5.85 over cost. This amount, it is believed, is lost by waiting for boxes

and by incidentals, so that the price of \$17.00 only pays the cost and leaves no profit. Acting on this belief the meeting passed a resolution that the growers should not and would not grow tomatoes for sale at less than \$25.00 a ton.

They also passed a resolution in favor of

## DO YOU WANT TO BUY OR SELL AN APIARY?

CONSULT US — WE INSPECT AND GIVE FULL BENEFIT OF EXPERIENCE

We sell

**BEES—QUEENS—SUPPLIES****WANTED**

**BEESWAX:** Highest prices paid. Comb rendered at low cost.

**BEES:** Full Colonies, Swarms. Give full particulars.

**WEIR BROS.** 60 CHESTER AVE. TORONTO, ONT.

## PREPAREDNESS

Beekeepers prepare for next season's big crop. Order supplies now and obtain **EARLY ORDER DISCOUNT**. Everything for beekeeping. Write for catalogue before ordering.

**The Canadian Bee Supply & Honey Co., Ltd.**  
73 Jarvis St., TORONTO, ONT. Factory: Stouffville, Ont.

## North Carolina Bred Italian Queens

of the Dr. C. C. Miller strain of three-band Italian bees. Gentle and good honey gatherers. From May 1st until July 1st. Untested—\$1.50 each; \$15.00 per doz. Tested—\$2.25 each. Sel. Tested—\$3.00 each. Safe arrival and satisfaction guaranteed. **L. PARKER.**

R. F. D. No. 2.

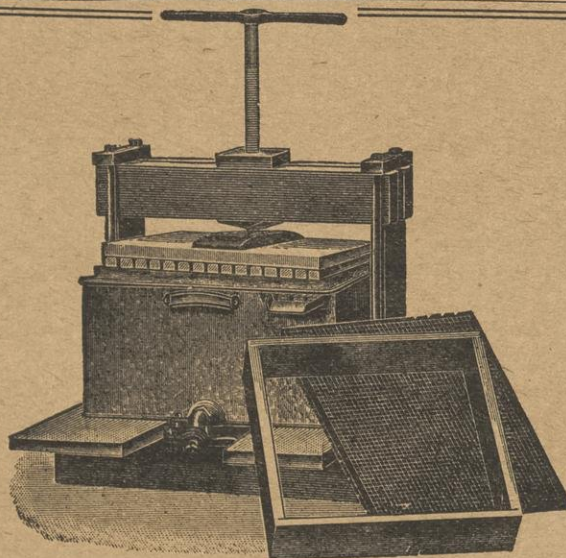
Benson, N.C.

## The Sibbald Wax Press

Get the most out of your old unrendered combs by using a **SIBBALD PRESS**. Beeswax taken in exchange or for cash or we will make it into Comb Foundation for you by Weed Patent Process. Early cash order discounts and prompt service **NOW**.

**The Ham & Nott Co.**

LIMITED

BRANTFORD  
ONTARIO

## Why You Should Join the Ontario Beekeepers' Association

Because your \$1.50 membership entitles you to:

1. Membership in both the Provincial and County Beekeepers' Association.
2. THE BEEKEEPER for one year.
3. The Association Annual Honey Crop Report
4. The Annual Provincial Convention and Report.
5. Italian Queens at Co-operative Prices.
6. Free Service and Advice on Any Matters Pertaining to Beekeeping.

Send your \$1.50 dues to the Secretary-Treasurer of the Ontario Beekeepers' Association, O.A.C., Guelph, Ontario.

F. ERIC MILLEN.

asking Ontario growers to ascertain the cost of production of tomatoes in Ontario and to acquaint the British Columbia farmers of the figures.

## Spraying Vegetables

A. H. McLennan, Vegetable Specialist.

The growing season of 1919 was ideal weather for insect growth in Ontario and the injury was exceptionally heavy. A considerable amount of work was done in the spring on cabbage maggot, control being started four days after the plants were set out and continuing for three applications. It was again very clearly shown that corro-

sive sublimate, at the rate of one oz. to ten gals. of water, would give perfect results.

Black heart in celery was a much more serious problem than before, owing to the very large numbers of tarnished plant bugs attacking the fields. Black Leaf 40 was applied at the rate of one pint to 50 gallons of water, with two pounds of soap added as a sticker. Where the attack of the insect was very severe, we used as concentrated as one pint to four gallons, using a knapsack sprayer, and found that we could check them successfully. Much more work will need to be done in the future on this insect and also to get the growers to remove weed patches from near the celery beds, more especially if they contain the common red root, or pig weed, on which the insect also lives.

Celery blight was not very prevalent in 1919, owing to the excessive dry weather, although the celery that was thoroughly sprayed with Bordeaux mixture showed better growth. We tried out a test dust on celery made up of 15 pounds of Bordeaux dust: 50 pounds of sulphur and 35 pounds of hydrated lime or talc. The results from this were so marked that it will be tried to a larger extent in 1920. We also tried it out on early potatoes with fair results.

Onion thrip was very bad and cut the crop down more than 50 per cent. The hot, dry weather was the best condition for its spreading and the injury was done in many cases before being noted. However, in some cases an application of nitrate of soda, from 50 to 100 pounds per acre, helped considerably to bring the crop through. We tried out Black Leaf 40 and kerosene emulsion but, owing to the lateness of application, the results were not very satisfactory. This is another insect that will require a large amount of work for a couple of years.



## Rideau Gardens

Dr. Tevis

Distributors of the WASHBURN strains of EXHIBITION DAHLIAS and GLADIOLI

To flower lovers interested in

**Better than Ordinary Varieties**

We will be glad to send the only GLASSY List of DAHLIAS and GLADIOLI ever issued in Canada.

A post card will bring it.

A. S. WASHBURN

Portland - - - Ontario

## FRUIT GROWERS

Here's the advice of the Ontario Department of Agriculture as given in recent advertisements on Spraying:

*"Stick to commercial lime sulphur and arsenate of lead (paste or powder) for right results in Ontario Spraying."*

## IT PAYS TO FOLLOW GOOD ADVICE

GRASSELLI—Lime Sulphur Solution—Arsenate of Lead (paste and powder) are the tried and proven sprays of the province.

GRASSELLI SPRAYS ARE AS GOOD AS CAN BE MADE

**The Grasselli Chemical Company,**  
HAMILTON TORONTO MONTREAL LIMITED

## BEESWAX WANTED

TO MAKE INTO

**Chrysler's Weed Process Foundation**

**HIGHEST PRICE PAID**

We will make your wax into foundation at lowest prices.

Write also for prices on Double and Single Walled Hives, Supers, Frames, etc.

**W. A. CHRYSLER & SON**

CHATHAM

ONTARIO

## Beekeepers' Supplies

of all kinds, including

**Improved Model Hives**

**Jones-Weed Process Comb Foundation, Bingham Patent Smokers, Etc., Etc.**

Best quality *Italian Queen Bees*, also *Bees in Pound Packages*. Customers desiring early delivery of either, should place their order in good season.

Highest price paid for BEESWAX. If you have any, be sure to write us.

Price List upon request.

**F. W. JONES & SON**

Bedford

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## Spray the Perfect Way

BE SURE OF

**BIGGER CROPS and BETTER QUALITY**

WITH THE NEW

## PERFECTION SPRAYER

THE SPRAYER, WITH A REPUTATION



Thousands in use among farmers, orchardists, gardeners and Experiment Stations. For trees, field crops, vines, greenhouses, flowers, poultry houses, stables, etc.

Made in Canada by Canadian workmen for 20 years. Capacity four gallons. Made in galvanized steel and

sheet brass. Fitted with our improved simplex spray nozzle. Throws all kinds of sprays wonderfully fast.

ASK YOUR DEALER OR WRITE DIRECT TO US FOR PRICE LIST

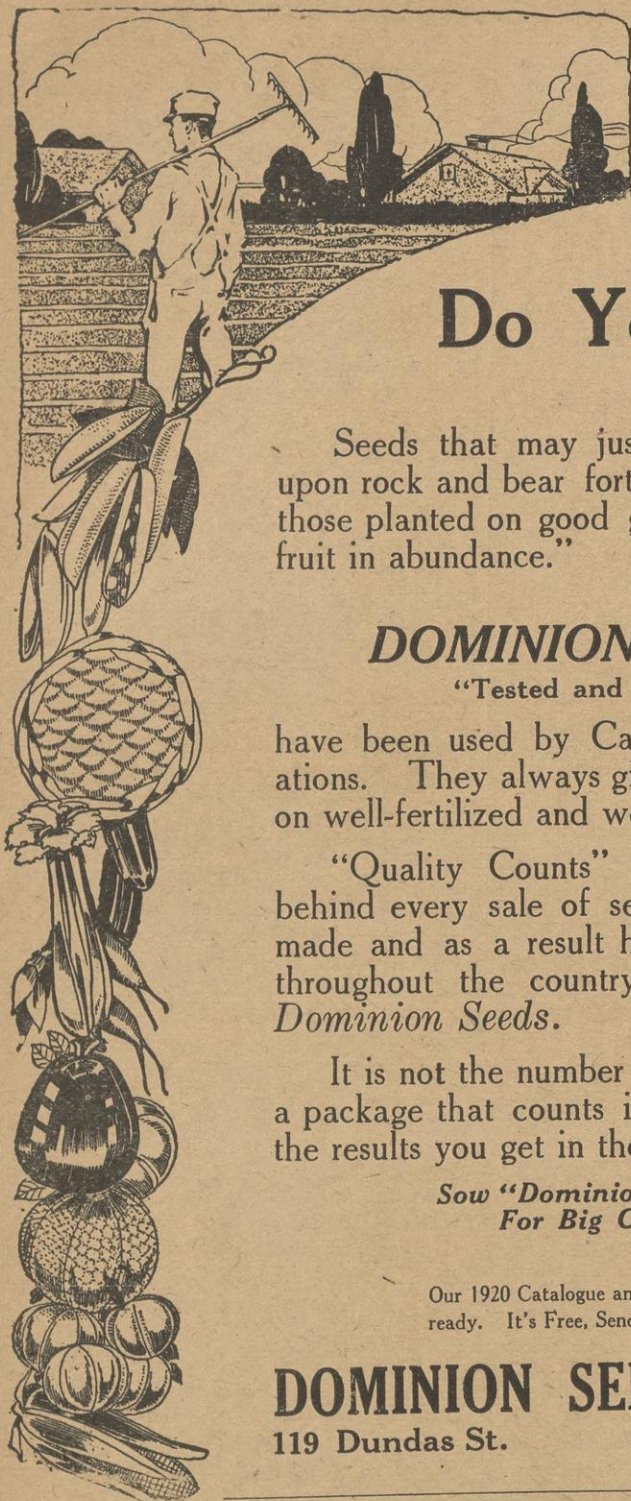
**THE NEW PERFECTION SPRAYER CO.**

Manufacturers of Compressed Air Sprayers and Spraying Accessories

GALT

ONTARIO

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



## What Kind of Seeds Do You Sow?

Seeds that may just as well be "Cast upon rock and bear forth no fruit" or like those planted on good ground "Bear forth fruit in abundance."

### DOMINION SEEDS

"Tested and Fertile"

have been used by Canadians for generations. They always give the best of crops on well-fertilized and well-tilled land.

"Quality Counts" has been thought behind every sale of seeds we have ever made and as a result hundreds of farmers throughout the country use nothing but *Dominion Seeds*.

It is not the number of seeds you get in a package that counts in production; it is the results you get in the harvest.

Sow "*Dominion Seeds*"  
For Big Crops

Our 1920 Catalogue and Price List is ready. It's Free, Send for it To-day.

**DOMINION SEEDS Limited**  
119 Dundas St. LONDON

At the Burlington station, where we had a man working with Prof. L. Caesar, it was found that Black Leaf 40 at 1-500 with three pounds of soap, if put on with a fine nozzle, held close to the plant, gave excellent results, but should be repeated twice to get all hatching from the eggs already laid.

The control of radish and onion maggot by the use of corrosive sublimate was also tested out and the results are very promising, although not yet tried out on a commercial scale. The radishes are larger and a greater percentage are suitable for market. The only trouble at the present time is the method of application on a commercial scale.

Aphids were very troublesome on late cabbage and cauliflower, but were controlled by the use of black leaf 40, one pint to ten gallons of water with half pound of soap as a sticker, using the Vermorel knapsack sprayer. It is necessary to have the spray strike the insect in order to get satisfactory results, but, where this is done carefully and thoroughly, one application is all that is necessary to destroy the insect.

The green worm in cabbage was also controlled, using one and a quarter ounces of Keating's powder to a three gallon knapsack sprayer. (Pyrethrum powder, if fresh, is just as good.) This amount would do about 1,500 to 2,000 cabbages and, where carefully done and the liquid hitting the worm, satisfactory results were obtained. If carefully done before the heads are formed this insect on cabbage or cauliflower may be controlled easily, using one part of arsenate of lead to ten parts of hydrated lime. After the heads have formed, use one pound Paris green to six gallons middings. Mix thoroughly and apply with a twirling motion of thumb and first two fingers. An acre a day can easily be done and rain does not affect it. Do not use the latter mixture on cauliflower.

### St. Catharines Branch, O.V.G.A.

The St. Catharines branch of the Ontario Vegetable Growers' Association has received from France a large consignment of seeds, including onions, beets, carrots, parsnips, cauliflower and cabbage. These seeds were purchased at a time when the exchange rates were most favorable.

Tobacco has been grown in a small way through here, but at Virgil, a grower yearly plants about 20 acres of the narrow Leaf Virginia. A. S. Maynard, of Chatham, speaking at the regular meeting of this branch of the O.V.G.A., last month, went fully into the cultural methods, drying and curing processes. He assured those present that millions could not be made by growing the crop, although there is now, and for some time to come there will be, a large demand for tobacco.

Vegetable growers have experienced great difficulty in securing manure and are being forced to use commercial fertilizers and to plow under green crops.—Geo. Wilson, Agricultural Representative, Lincoln County, Ont.

The annual meeting of the shareholders of the Dominion Cannery, Ltd., was held in Hamilton in March, when an increase of \$75,000 in profits over last year was shown. The sales were about \$2,000,000 greater than during the previous year. A dividend of 1½ per cent. on preferred was declared, but no dividend on common, although there was enough to pay something like 18 or 19 per cent. on the common stock. The company now has 52 factories. It is reported that a syndicate is trying to procure a controlling interest, in order to force dividend action.

## Deafness



Perfect hearing is now being restored in every condition of deafness or defective hearing from causes such as Catarrhal Deafness, Relaxed or Sunken Drums, Thickened Drums, Roaring and Hissing Sounds, Perforated, Wholly or Partially Destroyed Drums, Discharge from Ears, etc.

### Wilson Common-Sense Ear Drums

"Little Wireless Phones for the Ears" require no medicine but effectively replace what is lacking or defective in the natural ear drums. They are simple devices, which the wearer easily fits into the ears where they are invisible. Soft, safe and comfortable. Write today for our 168 page FREE book on DEAFNESS, giving you full particulars and testimonials.

WILSON EAR DRUM CO., Incorporated  
695 Inter-Southern Bldg. LOUISVILLE, KY.

### STRAWBERRY PLANTS

All leading varieties, stocky and well rooted. Securely packed in moss. Send for prices.

S. H. RITTENHOUSE

JORDAN HARBOR - - - ONTARIO

### SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$21.50. Send for new Bulletin.

THE SKINNER IRRIGATION CO.  
217 Water Street - Troy, Ohio.

## Annapolis Valley Notes

Eunice Buchanan, Berwick, N.S.

Men are expecting higher wages, but the Canadian Government and the Overseas Settlement Committee have granted ex-service men easy terms for emigrating. 18,000 persons have already applied. Early in March 11,000 to 12,000 had already sailed, or were about to. Although the best of Old Country men need teaching, how to adapt themselves to a new country with different conditions, and for this reason usually receive less pay than a 'native,' it is expected that they will make a difference in labor conditions and wages.

Turnips are selling locally for 60c a bushel. Potatoes \$2 a bushel, or \$5 a barrel. At the end of February 4,000 barrels of potatoes were sent from N.S. to Havana.

The weather has been too cold and stormy to stay long at pruning, and the snow has been very deep. On March 11 the weather became suddenly mild, and sunny enough to tap the maples, when the sap ran freely. This mild day was followed by two of terrific rains, floods and winds, which carried away much of the snow, also some railway bridges. On March 7 the weather again became freezing, with a driving snowstorm all day.

The large greenhouse of the Berwick Nurseries crashed in from the accumulation of snow, causing a loss of about \$3,000.

Those who secured their fertilizers early are fortunate. Much nitrate of soda has been lost in fires, and at sea. A letter from the Ohio State Horticultural Society of March 1, 1920, states that nitrate of soda is soaring toward \$100 a ton, and that sulphate of ammonia is being quoted as high as \$125.

# BRUCE'S

## Summer Flowering Bulbs

### GLADIOLUS

Unequalled for beauty of bloom. Plant in May and June, blooms in August and September. Easily grown and bulbs good for several seasons.

**Bruce's Choice Mixed.** A good mixture. 10 for 50c., 25 for \$1.00, 100 for \$3.50, postpaid.

**Bruce's Superb Mixed.** A grand mixture of all sorts. 10 for 80c., 25 for \$1.80, 100 for \$6.50, postpaid.

**Separate Colors.** Whites, Yellows, Pinks, Scarlets. 10 for 75c., 25 for \$1.50, 100 for \$5.50, postpaid.

**Named Varieties.** Each separate and distinct. 12 for \$1.12, postpaid.

### DAHLIAS

Very handsome flowers. Plant in May, bloom in September. Easily grown and tubers good for several seasons.

**Named, Show, Decorative, Cactus, Collarette, and Single Varieties.** 30c. each, \$2.90 dozen, postpaid.

**Mixed Varieties,** 20c. each, \$2.00 dozen, postpaid. Also Callas and other Lilies, Tuberoses, etc.

### FREE!

Our 128-page Catalogue of Seeds, Plants, Bulbs, Garden Implements and Poultry Supplies. Send a card for it to-day.

**JOHN A. BRUCE & CO., LIMITED** 225

HAMILTON

Established 70 Years

ONTARIO

### Strawberry Plants For Sale

Senator Dunlap only. Good, healthy plants, guaranteed \$7.00 per thousand; \$4.00 for 500, or \$1.00 per hundred.

### THE LEAVENS ORCHARDS

BLOOMFIELD :: ONTARIO  
Howard Leavens

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

: See Our Special Premium Offer on Page IX. :

# KELWAY'S

## TREMENDOUS

## BEANS

Huge pods, up to 18 inches long, borne in large clusters. Early, exceedingly productive, and the largest Runner Bean of fine edible quality. Package, 15c.

### Kelway's Choice Dwarf Dark or Crimson Gem Beet

Good shape, medium size, short top rich colored crimson flesh (not black) and of splendid flavor; altogether excellent. Foliage, bronze at first and rich deep red later. This variety has a world-wide reputation. It is the finest type of dark half-long Beet for general and Market Garden use and for Exhibition. Package, 15c.

### Kelway's Prolific Exhibition Brussels Sprouts

A very superior selection which can always be relied upon; very fine even-shaped sprouts of good size and flavor; not a coarse sprout, and not too small; most prolific; splendid for exhibition. Package, 15c.

The three packets will be mailed for 40 cents with a copy of our 1920 catalogue describing other specialties of Seeds, Bulbs and Requisites.

## "HARRY'S" SEED STORE

360 Dorchester Street West - MONTREAL

## Marketing the Crop

is a problem many growers of fruit and vegetables have. Splendid markets are available where good prices can be obtained. To get the best returns, one, however, needs a good connection.

### THE TORONTO MARKET

is one of the best in Canada. For many years we have been working up a good connection among the very best buyers. Ours is a large organization, with the best of facilities and an expert sales force.

We can, and will obtain for you the highest market prices for your

### Fruit and Vegetables.

Let us urge you to make arrangements with us early this season. Shipping stamps will be sent on request.

If you don't know us ask your Banker. He can tell you.

### White & Company

Front & Church Sts. - Toronto, Ont.

Wholesale Fruit Importers  
and Commission Merchants

## Cabbage Plants

Charleston, Wakefield  
Copenhagen Market  
Early Spring  
Succession

Good strong seedlings at \$5.00 per M.  
Transplanted, extra strong, at \$15.00 per M.

## Tomato Plants

Will have all the leading varieties to offer.

Strong seedlings, \$5.00 per M.

Transplanted, \$15.00 per M.

If smaller quantities are required—75c per 100 for seedlings, and \$2.00 per 100 for transplanted stock.

Will also have a full line of all annuals, including those two great asters—Heart of France and Silvery Rose.

Owing to the extreme shortage last season of large flowering Clematis, I have imported some extra fine plants of both Jackamani (blue) and Henryi (white). These are extra good value at 75c each.

Owing to the advanced cost of all packing material and labor, we are not accepting any order of less than one dollar. When remitting kindly use Post Office or Express Money Order.

Write for price list. All goods are sent by Express.

**ALF. MURDOCK**

Mt. Pleasant Ave. - West London, Ont.  
Established 1874.

## Raspberry Canes

Cuthbert Raspberry Canes from strong, hardy stock, free from disease—\$1.00 per dozen, postpaid. \$4.50 per 100, \$40.00 per 1,000 by express at purchaser's expense.

W. J. DOWNING.

Lakeview Berry Gardens  
COLBORNE :: ONTARIO.

## Causes of Failure in Co-operation

C. W. Baxter, Dominion Fruit Commissioner

WE read and hear a great deal about the successes of co-operative organizations, and of the advantages to be gained from co-operation, but very little do we hear of the causes or instances of failure.

So far as co-operative methods and principles apply to the marketing of fruit, the major causes of failure are, first, lack of a keen realization by the members of the need of organization; second, disloyalty to the association; and third, the absence of salesmanship ability in the management.

A few years ago, in one of our neighboring states to the south, a Bureau was established in the Department of Agriculture, to assist in the formation of fruit growers' co-operative societies. The executive head of the Bureau was fully seized with the importance of the duties assigned to him, and worked hard for one year, during which he succeeded in organizing a large number of associations. Subsequently he appeared before a large convention and confessed that he was the "dead head of a dead Bureau." He pointed out that while it was a comparatively simple matter to organize associations, he had been unable to compel the members to co-operate. He clearly demonstrated that the movement had been unsuccessful either because the members of the newly formed societies had previously been receiving satisfactory returns, or because for other reasons they did not fully realize the need for the adoption of co-operative methods.

There are on record statistics which show that many industries, which had been almost complete failures where individual efforts had been followed, have been re-established by co-operation and by the stick-to-itiveness of their members and to-day are in a most flourishing condition. In many of these instances the members have been impelled by the feeling that it was a life or death struggle for their industry. So long as there is a lack of appreciation of the need for co-operative operations, there is not likely to be any great measure of success, if any.

The loyalty of members towards their association is a most important factor. Cases are not infrequent where organizations have

failed because of the disloyalty of one member. This has been demonstrated very recently in one of the western states. The members of a co-operative organization had obtained accurate estimates of the crop in which they were specializing; they agreed as to what would be a fair market value; they agreed to sell their total production at a specific price. One of the members was induced by outside interests to sell for a lower price, apart from his fellow members. The result was unprofitable returns for their product, the disruption of marketing conditions and the disorganization of the co-operative body.

Production and marketing are two dis-

### STRAWBERRY PLANTS

Wm. Belt and Early Premier are strong, deep rooted plants. Heavy bearers of large, fine flavored berries.

50—\$1.25; 75—\$1.65; 100—\$2.00; 200—\$2.75; 500—\$5.00; 1,000—\$10.00.

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### SMALL FRUIT PLANTS

Herbert! Herbert!! Herbert!!!  
Red Raspberry, Plum Farmer!  
Plum Farmer!! Black Raspberry,  
Lawtonberry (Black),  
Asparagus Roots, Rhubarb  
Roots, etc. Send for price list.

WILLIAM FLEMING

Owen Sound Ontario



We have a large stock of all sizes

### FLOWER POTS

FERN OR BULB PANS

AZALEA POTS  
and Rimless Pans

Orders Filled Promptly.

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

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SPRAYING  
or  
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## BUY THE BEST SPRAY DUST SPRAY — LIQUID SPRAY — THE FAMOUS NIAGARA

FIRST AND BEST — ALWAYS GIVES RESULTS

NIAGARA  
PRODUCTS

Cost no more than the imitations.

Our quality is the result of twelve years experience.

Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Calcium Arsenate  
Bordeaux, Dusting Mixtures, Dusting Sulphur, Raw Sulphur  
Dusting and Spraying Machines (Hand or Power)  
Spray Guns, High Pressure Hose, Accessories.

Our Book on Dusting, our Catalogues, our Spraying and Dusting Calendars are FREE.

Our instructions are up to date and reliable.

**NIAGARA BRAND SPRAY COMPANY, LIMITED**  
BURLINGTON - - - - - ONTARIO

tinct phases of the fruit industry. One may be most proficient in the production of fruit but still lack in salesmanship ability. The very fact that a grower has been most successful in growing fruit is frequently the reason why he is not proficient in marketing. The demand upon his time will not permit him keeping in very close touch with varying market conditions and he is placed at a disadvantage when marketing his product. Neither production nor marketing can be learned out of books nor in a brief period of practical experience. To be successful in marketing requires an experience of several years and too frequently the sales manager of a co-operative association is selected from among its members. A high standard of quality may be maintained, but the disposal of the crop at unsatisfactory prices has often caused the abandonment of co-operative methods.

Salesmen who have proven most efficient cannot be obtained for small salaries and unless the tonnage handled by an association is sufficient to meet this expense, it is impossible to secure an efficient officer. It might at first glance appear to be hopeless for individual organizations to successfully market their fruit. This, however, is not always the case, as many small associations have been most successful. But the best results may be obtained by the formation of a central selling organization, through which sufficient tonnage can be marketed to warrant the payment of a salary large enough to secure an efficient salesman and manager.

## Soldier Fruit Growers

Students of fruit-farming under the Soldiers' Civil Re-establishment scheme at the Ontario Agricultural College, Guelph, are asking the Minister of the Interior for important alterations in the scheme of locating veterans on fruit farms.

The students, who number about 60, passed a resolution, to be presented to the Minister, and are endeavoring to secure the recommendation of the Soldier Settlement Board. The resolution asks that the soldier fruit-farmers be placed on the same footing as general farmers, and that they be allowed to purchase high-priced land near cities, with small acreage, in preference to large acreage and cheaper land in more remote districts.

They point out that too large an acreage and long distances from markets would be likely to be discouraging. The resolution also draws attention to the fact that many of the men are physically incapable of farming large farms. The board allows up to \$300 an acre, and insists on a free title. Suitable fruit land, however, would cost up to \$1,000 an acre.

## Royal Winter Fair

The proposed Royal Agricultural Winter Fair, to be held annually at Toronto, has been fully organized and is in process of completion in the matter of details and plans. All agricultural interests, including horticulture in all its branches, are to be included in the scope of the show.

Among the officers are: Pres., W. A. Dryden, Brooklin, Ont.; vice-pres., H. C. Cox, Oakville, Ont.; manager, C. F. Bailey, late Commissioner of Agriculture, Toronto. Directors—Fruits and vegetables (3): W. F. W. Fisher, Burlington; Jas. E. Johnston, Simcoe; J. J. Davis, London. Ontario Horticultural Association (3): G. H. M. Baker, Lindsay; J. H. Ross, Winchester; T. D. Dockray, Toronto. Bees (1): C. H. G. Sibbald, Toronto.



Test by Mr. Richard Reutter, Valley City, Ohio.  
Average Yield per Tree:  
Sulphate of Ammonia,  
4 lbs. per tree - 17 bu.  
Unfertilized - 11 bu.  
Northern Spy variety.



## TOP DRESSING TALKS, No. 2

FEED YOUR TREES—GET MORE  
AND BIGGER FRUIT!

The plant-food most needed by orchards is ammonia. Because of its high analysis, ready availability, its fine, dry condition which make it easy to spread, and because it does not leach from the soil, **ARCADIAN SULPHATE OF AMMONIA** is the best and most economical carrier of ammonia for orchard fertilization.

Write for these instructive and interesting free bulletins and we will send them. Order by number. Address **THE BARRETT COMPANY**, Agricultural Department:

No. 1—"Important Facts About Arcadian Sulphate of Ammonia."

No. 59—"Sulphate of Ammonia by Those Who Know."

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No. 85—"Fertilizing the Apple Orchard."

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## ARCADIAN Sulphate of Ammonia

*Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past.*

*Arcadian is the kiln-dried and screened grade, made fine and dry for top-dressing purposes. Ammonia 25 1/4% guaranteed.*

For information  
as to application  
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The **Barrett** Company  
AGRICULTURAL DEPARTMENT

New York,  
Medina, O.

## PANSY Canadian Beauties

(Award of Merit, Guelph Horticultural Society, 1918)

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  
Pansy, "Royal City," mixture, Packet..... 25c  
Aquilegia, lovely long spurred Columbines, Packet 25c  
Iceland Poppies, "Pearls of Dawn" (Perennials) beautiful bright shades, very choice, Packet... 25c  
Delphinium—"Majestic Giants"—from a choice collection of named varieties, Packet..... 25c  
Pansy plants, August sown, from "Royal City" mixture. Ready about April 15th. \$2.00 per 100  
\$15.00 per 1,000  
Long Spurred Columbines..... \$1.50 doz  
Delphiniums, mixed varieties..... 1.50 doz  
" " Belladonna..... 1.75 doz  
Perennial Phlox, named varieties, our selection 2-year-old clumps..... \$2.50 doz.

By EXPRESS AT CUSTOMER'S EXPENSE.

**WM. McSKIMMING, Pansy Specialist**  
233 ELIZABETH ST. - - GUELPH, Ont.

## DOUGLAS GARDENS

Oakville - Ontario

1920 Catalogue now ready

Contains list of new paeonies and perennial plants. Largest collection of paeonies in Canada from 30c to \$10.00 each.

New and beautiful Iris and Phlox. Have you tried the Gold Medal Delphiniums?

Pansies for immediate flowering. Try our fine shades of Foxgloves for shady corners.

Roses should be ordered at once. Landscape gardening and all kinds of planting carried out by experts. Consult us on your alterations and avoid disappointment by planting unsuitable stock.

**Erick Erickson**

**STRAWBERRY PLANTS**

Before placing your order for Spring Planting, get our 1920 list of standard and everbearing varieties.

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**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

**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.

**H. J. ASH**

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT AND  
VEGETABLES SOLICITED.

Shipping Stamps furnished on request.

**DAWSON-ELLIOTT CO.**

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce Consignments Solicited.

**PETERS, DUNCAN Limited**

88 Front St. E., Toronto, Ont.

See advertisement on another page.

**POULTRY YARD****Important Hatching Points**

During the hatching season the poultry house, and particularly the nest, should be kept clean. Clean water and a supply of whole grain should be accessible to the sitters and a dust bath should also be provided. If more than one hatch is being taken off, clean out and disinfect the nest after each hatch and put in new sod, straw or fresh litter. Dust the hen with insect powder before putting her in the nest, and again a day or two before leaving the nests with the chickens. It is a good plan to put into the dust bath a little dry sulphur or ground tobacco.

Be sure also that the house is free from mites. These little pests get into the cracks and corners of the building, and, at night, as the hens are resting, they come out of their hiding places, get on the hen's body and it does not take very many of them to make a hen so uneasy that she cannot sit. In some cases the mites become so troublesome that they actually worry the hens to death.

**Fresh Eggs for Hatching**

Eggs up to one week old hatch well. The hatch decreases gradually for each day the eggs are held over a week and up to the 12th day; after that the falling off is rapid. The percentage of 20-day old eggs hatching in a recent experiment was 33% as compared with 65% of the eggs held over a week and for five day old eggs. These results were secured at the Maryland Experiment Station.

In this same experiment it was found that chicks from fresh eggs hatched several hours earlier than those from older eggs; that there was a difference of 12 to

28 hours in the time of hatching fresh eggs and those 21 days old. This is good neither for the chicks that are hatched early and kept in, nor for the later ones just coming out of the shell, as the later ones are often injured by the early chicks climbing over them.

**April Hatchings**

For most poultry keepers, April should be the month for hatching, though care must be taken that chicks are not hatched before they can be looked after, because of cold weather or lack of proper appliances.

If the mating were not done last month it had better be seen to now. Mate with the hens a good vigorous cockerel, and if there are more hens in one pen than one male can look after, use two or more males; allowing in the general purpose breeds about 10 females to a male; in the lighter breeds, 15 to 20 females may be used. It is a good plan where the flock is larger than this, to alternate the males; that is, put one male in the flock each day and have coops for the other male or males.

Should it be necessary to breed from the pullets, select them with care, taking those that laid the earliest last fall; but be sure that they show plenty of vigor and are well matured. With the pullets, a year-old cock bird can be used or, if this is not available, a good well matured cockerel.

If less than 100 chicks are desired, and the natural methods of incubating and brooding have given good results, it may be best to continue them. Should more or earlier chicks be required, the incubator is better. There are a number of good makes of small machines sold in Canada, most of which will give good results. If any person in the neighborhood does "custom hatching" give it a trial.

**Feeding Young Chickens**

It is important that feed be given to the young chicks often and in small quantities during the first few days. At no time should there be an over-supply given, as it may become foul.

One of the best combinations for the first few days is prepared by using infertile eggs, boiled hard about 20 minutes, and then crushed or ground together with toasted bread crumbs. This should be given about five times a day at the start. At the end of three or four days the gradual feeding of cracked, prepared chick feed may be substituted. Chicks will also make good use of bran when it is fed to them in open hoppers.

Cut clover or alfalfa should be used for litter in which the chicks may be made to scratch for the cracked grains, and thus get exercise. Sour skim milk or buttermilk will be found very satisfactory, but the dishes in which it is fed should be scalded often and exposed to sunlight. Green feed in the form of apples, onions or raw potatoes, cut fine, makes a splendid addition to the ration.

The chicks should be allowed to get out on the ground as soon as possible, but should always be returned to covered quarters at night, and kept enclosed during cold and stormy days.—G. W. H.

**PEERLESS PERFECTION****The Fence That's Locked Together**

It's close enough to keep small fowl in and strong enough to keep large animals out. Securely locked together at each intersection of the wires. It's many times heavier and stronger than poultry netting, and being well galvanized, will last many years longer. Top and bottom wires are extra heavy. No top and bottom boards required. PEERLESS Poultry Fence is built so strong and heavy, that but half the ordinary number of posts are required. It gives you real fence service.

**MADE IN CANADA**

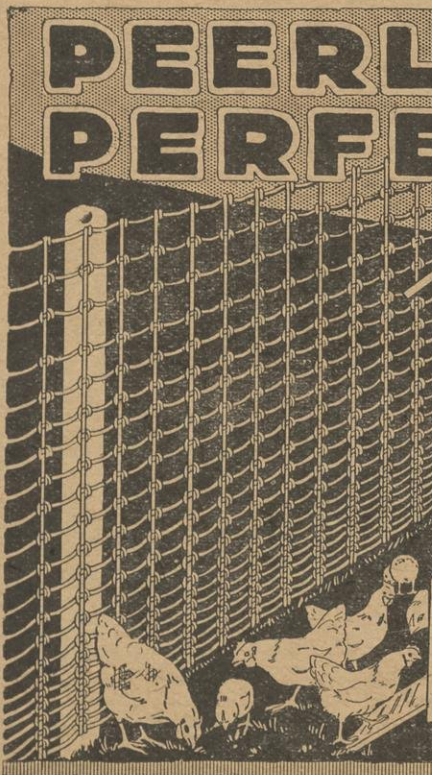
Note the extra close spacing at bottom, no base boards required. Turns the small chicks, keeps small animals in or out.

The Peerless Lock holds the intersecting wires in a firm grip that is non-slippable. Compare it with any other poultry fence. The Peerless fence is built to stand any test.

It is durable.  
Send for our catalog—it's free.

THE BANWELL-HOXIE WIRE  
FENCE CO., Limited

Winnipeg, Man. Hamilton, Ont.



## Ontario Fruit Industry

(Continued from page 101—Fruit Edition)

tically as they were 25 years ago. "What do we know about the use of fertilizers in orchards that we did not know 25 years ago?" asked the speaker. One reason was that adequate provision had not been made for experiments. The stations themselves had not sufficient land for work with fertilizers. It would take three acres for one experiment with one variety of peaches, for instance. When it is considered that we have about 50 types of soil and about 25 varieties of peaches, as well as countless varieties of other fruits, the difficulties in conducting only one experiment with one variety of each class, to say nothing of duplication and repetition, might be partially appreciated.

The same lack of new information existed in relation to all orchard practices. We know no more about pruning than we did 20 years ago, according to the professor. In the past three or four years, however, new light had appeared as a result of work done in the United States. "This information is coming from the scientific investigators, not from practical growers," he pointed out, "and it can come only from them. We must have more government assistance for scientific investigations along these lines in Ontario." We know little about correcting alternat bearing, nothing about making shy bearing varieties produce higher yields and nothing about how to produce good crops continuously year after year, "and we are not learning." The Niagara district had had only one peach crop failure (1914) in 25 years, "but," asked the speaker, "how many growers had gone on for even 10 years without having a failure in their particular

## Business as Usual

### THE ST. CATHARINES COLD STG. & FDG. CO. LIMITED

The Old Reliable Headquarters for Spray Materials, Pumps  
and All Fruit Growers' Supplies

Our supply of Sulphur has arrived. Can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

**Order NOW from the Firm that always has the Goods on Tap**

### ST. CATHARINES COLD STORAGE & FORWARDING CO. LIMITED

ST. CATHARINES

ONTARIO

### APPLE BARRELS

New standard-machine made, best quality. Delivered anywhere in Ontario and Quebec. Write for prices.  
Contracts made with Fruit Associations and others.

JOHN HAYNE

SARNIA

ONTARIO.

### VAN'T HOF & BLOKKER

#### BULB GROWERS AND EXPORTERS

#### AKERSLOOT, HOLLAND

Import orders from Horticultural Societies, Park Commissions, Schools, School Boards, etc., solicited. Orders for fall delivery of tulips, hyacinths, etc., accepted up to July. Order lists ready in April.

Write—Canadian Office—

41 ALBANY AVE., TORONTO.

## Strawberry Plants

OUR aim and chief object is to grow and list only those varieties which we can fully recommend to our customers. We have grown a magnificent stock for spring delivery of strong healthy plants—true to name and all perfect flowering:—

### WESTNEY (New)

This grand new variety originated with Mr. Henry Westney, West Hill, Ont., and the fruit growers in this district who have thoroughly tested it have proclaimed it to be the very best yet produced. It is a cross between a Williams and Glen Mary, and has all the best qualities combined found in these two well-known varieties. The plant is a superb grower with large dark green foliage, a most prolific bearer. Berries enormous size, dark, of the most delicious flavor. Ripens early, no green tips. For both market and garden this berry has no equal. Every grower should have it.

### BRANDYWINE

This is a favorite variety with leading growers of berries. Deep crimson, quite large, splendid keeper and shipper. Excellent quality, vigorous grower, very prolific. One of the best for canning, and has given immense satisfaction wherever grown.

### WILLIAM

Very productive, large handsome berries. Good keeper and shipper. One of the best for general use.

### GLEN MARY

The merits of this berry are already well-known and therefore need no introduction. It is especially recommended for its vigor and productiveness. Berries large and excellent flavor.

### WILLIAMS BELT

This variety should be in every fruit garden. Large round, bright red berries, with most delicious flavor. One of the best for table use.

Our plants are freshly dug each day and shipped to our Customers in the best possible condition. Any of the above—Per 100, \$2.50 prepaid; 500, \$6.50; 1000, \$12.00 by express at purchasers expense.

**The Steele, Briggs Seed Company Limited**  
137 King St. East - TORONTO Phone Adel. 1020

## STOCKS We recommend these sorts Don't fail to try them.

### MAMMOTH COLUMN TEN-WEEKS

Splendid variety; earliest flowering of the Ten-Weeks' Stocks; produces just one giant spike lined with mammoth flowers, height, 3 feet. Excellent for cutting. Pkt.

Dark Blue.....	15c.	Gloria—Blood red ;	Pkt.
Light Blue.....	15c.	extra.....	15c.
Rose Pink.....	15c.	Snow White.....	15c.

One packet each of the above five colors—60 cents.

### SWEET PEAS

Ferguson's "1919 Exposition" Collection

FOURTEEN OF THE FINEST GIANT EXHIBITION SORTS IN ONE GRAND COLLECTION, \$1.50.

New Buttercup.—Fine deep cream. The nearest approach to a yellow.	Margaret Madison.—Finest azure blue.
Rosabella.—Best light rose colored.	Margaret Atlee.—Giant rosy pink on cream.
Edward Cowdy.—Best orange-scarlet.	New Miriam Beaver.—1916 novelty and best light cream pink.
Elfrida Pearson.—Extra large shell-pink.	Warrior.—Rich chocolate maroon.
Illuminator.—Beautiful salmon orange.	R. F. Felton.—Best lavender.
Hercules.—Mammoth rosy pink.	Royal Purple.—Best purple.
Constance Hinton.—Largest black seeds, white variety.	Fiery Cross.—Beautiful orange cerise.

### ASTER

AMERICAN BEAUTY—A splendid new Aster. In habit of plant and type of flower it is similar to the late branching, but is characterized by much longer and stronger stems, two feet in length. The flowers are beautiful bright, carmine-rose, almost the shade of the rose of the same name. They are very double and freely produced. Pkt., 15 cts.

### SWEET CORN

FERGUSON'S GOLDEN GIANT—The most desirable sweet corn on the market to-day. Awarded a Medal by the Massachusetts Horticultural Society. Golden Giant is the result of eleven years' selection from the product of Howling Mob crossed with Golden Bantam. It is delicious eating.

A second early variety producing twelve to sixteen rowed ears twice the size of Golden Bantam and deep golden yellow kernels, gives nearly four times the yield per acre that the Golden Bantam does. In flavor it is equal to the Golden Bantam. Pkt., 15 cts.; ½ lb., 30 cts.; ¼ lb., 50 cts.; 1 lb., 90 cts. (postpaid, ½ lb., 35 cts.; ¼ lb., 55 cts.; 1 lb., \$1.00).

## DUPUY & FERGUSON

"The House of Quality"

38-42 Jacques Cartier Sq. - Montreal, Que.

## FARMING AND FRUIT GROWING

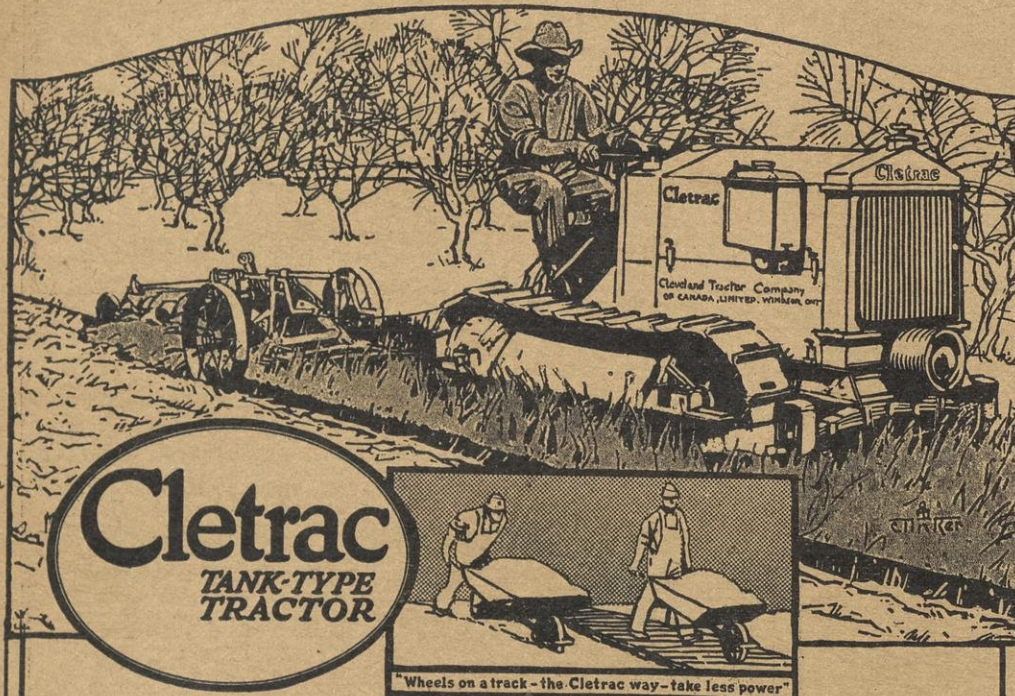
These two industries will be big factors in the solution of the food problem of Europe. It will pay you to increase your crops.

If you require a loan to do so, consult the manager of any of the following branches.

NIAGARA FALLS  
ST. CATHARINES  
WELLAND

J. B. A. O'NEILL, Manager  
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W. D. S. FRASER, Manager

## THE DOMINION BANK



### Indispensable in the Orchard

Put a Cletrac to work in your orchard. Cultivating, and spraying means healthier trees, better fruit and more of it. The Cletrac is in a class by itself when it comes to orchard work.

The Cletrac is low-hung and compact. It is handy and easy to operate. It

#### Performs Every Operation Needed

We used the tractors (two Cletracs) almost entirely in our orchards, where owing to their low height and freedom from moving parts injurious to the trees, we are enabled to perform every operation needed for proper orchard tillage, and yet attained economy in harvesting, through the low heading of our trees. This makes the Cletracs almost an indispensable part of our orchard equipment.

LYNNDALE FARMS,  
G. S. L. Carpenter, Mgr.  
Simcoe, Ont.

turns short in small space and weaves in and out among the trees without injury to bark or branches. Its weight is evenly distributed over its wide tracks—800 square inches—so it glides over the surface without packing the soil. It goes at the proper speed for good work.

The Cletrac can plow, harrow, seed, thresh, haul loads and furnish belt power for all farm jobs. The Cletrac operates on coal oil (kerosene) perfectly.

The Improved Cletrac has more power, yet no added weight. Its track is one-third wider, which gives it a lighter tread and a stronger grip on the ground. A new water clarifier takes out all dust that would grind your pistons and over-heat your motor.

There is a Cletrac dealer in your community. Order your Cletrac now. Write for that interesting booklet, "Selecting your Tractor."

## The Cleveland Tractor Company of Canada Limited

Head Office  
WINDSOR, ONTARIO

Western Sales Office  
REGINA, SASK.

orchards?" Want of knowledge of the best methods was to blame partly for these conditions. It was up to the growers to demand from the government the wherewithal for experiment and investigation.

Various growers present supported Professor Crow's statement that conditions in Ontario were not what they should be. President Sheppard declared that 60% of the peach orchards were no good, and never would be profitable. These should be cleaned out and a new start made on new lines of orchard practice.

#### Cooperation and Marketing.

An interesting address on cooperation and marketing was given at the Grimsby meeting by Charles R. White, Director, Bureau of Cooperative Associations, Albany, N.Y. The speaker alluded to agricultural conditions in the United States and Canada, and to the competition the farmer has to contend with in labor circles due to the enormous prices being paid for non-essentials, while the consumer is demanding a lower cost of living. The farmer was under obligation to feed the people and, in order to do this, was also under obligation to demand proper prices for his products so that he could go into the labor market and compete for labor.

Reference was made to the competition eastern fruit growers and associations had to contend with from other cooperative associations of a similar nature, such as the California Fruit Growers' Exchange and the northwestern apple people, who are properly organized and who are advertising their fruits in all eastern markets. On the other hand, eastern fruits were not advertised, and should be. Peach, grape and other growers had organized in New York State successfully.

"Cooperation performs for the farmer," said Mr. White, "those things that it is impossible for him to perform as an individual, the expense, for one thing, being too great. A cooperative association is dependent upon the support of its members for its existence. It does business for them alone. In taking in members, be careful not to admit the constitutional kickers. The members must be given to understand what is expected of them, and they must live up to it. Loyalty to the association must be assured by clearly defined contracts creating the association the agent of the grower."

#### Miscellaneous Addresses.

Two important papers on conditions and cooperation in the Chautauqua Grape belt of New York State, sent by D. K. Falvey, President, Chautauqua and Lake Erie Fruit Growers' Association, and Fred Johnson, Westfield, N.Y., were read to the meetings by H. K. Clemens, St. Catharines. These papers will be published separately. In presenting these papers, Mr. Clemens declared that there should be a big cooperative central fruit association organized to handle all the fruit of the Niagara district.

That there should be a wholesale fruit market in Hamilton was the contention of E. J. Mahoney. A good hard surface road throughout the Niagara district would aid in the profitable transportation of fruit to such a market. This was offered as one reason why the Niagara growers should urge the government to include the Hamilton-Queenston road in its permanent highway scheme. This was done by resolution.

District Representative George Wilson, for Lincoln County, briefly outlined the nature of his duties and work, saying that it was his desire to do all in his power for the benefit of the fruit industry. He asked the growers to call on him for any assistance that it was

See Our Special Premium Offer on Page IX.

possible for him to give. He cautioned the growers, in the matter of spraying, to know what was proper to do, and to do it thoroughly.

Vaccination regulations at the border prevented a number of American speakers from appearing at the meetings as advertised. Practical addresses were given by Prof. L. Caesar, O. A. C., Guelph, on "Spraying," by Henry G. Bell, Toronto, on "Fertilizers," by H. L. McConnell, Port Burwell, on "Strawberries," and by George E. McIntosh, Ottawa, on "Transportation." These addresses will be reported separately.—A. B. C.

## Government Interviewed

A strong delegation representing the Ontario and the Niagara Peninsula Fruit Growers' Associations waited on the Minister of Agriculture at Toronto, soon after the Niagara convention, to discuss decisions that had been reached at previous meetings of these associations. The main object of the delegation was to impress upon the Government the need for retaining Vineland Station as a Provincial institution.

Hon. Manning Doherty promised that the needs of the Vineland Station would be given careful consideration. Lack of space forbids a full report of this conference being given in this issue. Complete details will be published in the May number.

The Norfolk County Apple Growers' Association has not only proven itself to be the right medium through which the local growers may do their business, but it has done more to advertise Norfolk County to outsiders than any agency in the county.

## A New Strawberry The "St. Martin"

Awarded Silver Medal and 9 cash prizes by Massachusetts Horticultural Society. Delicious flavor, rich, deep red, clear to centre. Holds large size to last picking. 14 St. Martin's heaped a pint basket at the 24th picking of the season. Undoubtedly the finest all-round strawberry in existence.

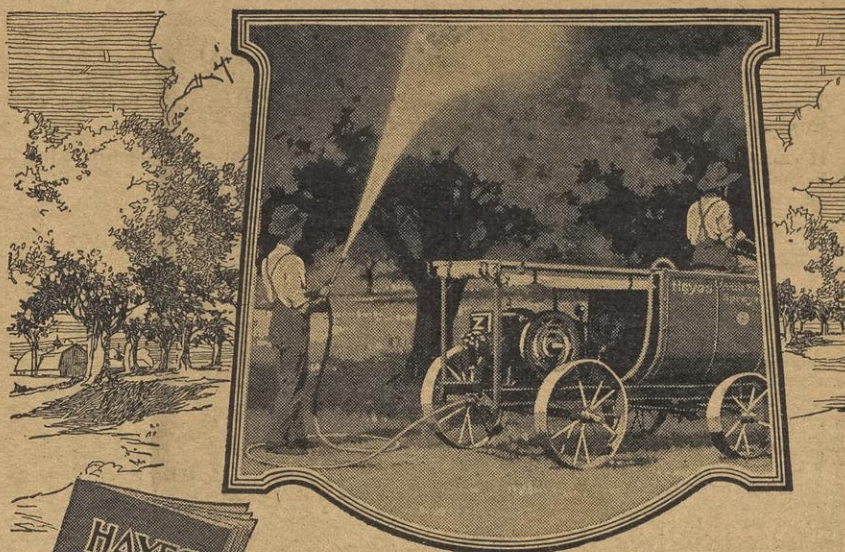
After eleven years faithful proving, plants of this remarkable strawberry now for sale.

For Free Descriptive Circular, write to

**LOUIS GRATON**

Originator and Sole Owner

Whitman - - Mass, U.S.A.



### Hayes Fruit-Fog Gun

World's fastest spraying apparatus. Simple twist gives long spray for tall trees, or wide spray for closeup work. Does better work and saves solution. Book gives full details.



## FREE—Astounding Facts on "Fruit-Fog" Spraying!

Send the coupon. Read why Fruit-Fog—the fog-like, super-spray—is the ONLY spray of vapory enough fineness to work into the microscopic niches in bark, buds and foliage, where no coarse spray can reach. Convince yourself that only by *killing* these millions of *hidden* pests are big yields possible. Then you'll understand why Fruit-Fogged Orchards produce *amazing crops*—make fortunes for their owners each year.

## HAYES FRUIT-FOG SPRAYERS

Fruit-Fog is produced by Hayes 300 lb. high pressure and the famous Hayes nozzle. The spray envelopes everything like a mist, and has wonderful *adhering* power. No drops form—no solution wasted—no buds or leaves knocked off—as with coarse, heavy, low pressure sprays. Fruit-Fog Sprayers are skillfully made to give enduring service and greatest efficiency under high pressure. Service stations in all parts of the U. S. assure new parts within 24 hours in case of accident. Famous Fairbanks-Morse "Z" Engine means reliable engine service.

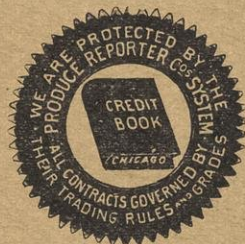
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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay,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

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**References :** The  
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"DOMINION" & "PRINCE OF WALES." are the leaders of the trade varieties. "Crimson Glow" claimed to be the best of reds. "Goliath," large, the darkest of reds. Mrs. Watt, exact shade in "American Beauty" rose.

There is a large demand for planting size, 1/2 inch, the cheapest way to get a collection. We offer 40 standard varieties—30 varieties, 2 each \$1.30 postpaid.

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Paeonies—Prof. Saunders writes—"No one can go by 'Philomele' without smiling. 'Albatre' unsurpassed by any other white. Iris Pallida Dalmatra, the best of the Iris.

H. P. VAN WAGNER

R. R. No. 5.

HAMILTON, ONT.

## Fruit Market Conditions

Furnished by Dominion Fruit Branch, Ottawa

**D**OMINION fruit inspectors in the big market centres of Canada report conditions for March as follows, exclusive to *The Canadian Horticulturist*:

St. John.

Good barreled apples are scarce. No. 1 Spys have been selling at \$6.50. Domestic and No. 3's have been very plentiful and have had a tendency to keep prices down. Oregon and B. C. boxed apples have been in good demand and prices have advanced from \$5 to \$5.50. In the majority of cases

boxed apples for export have been in a more or less frosted condition. The supply of local vegetables has not been equal to the demand, necessitating the importation of these from other provinces.—W. S. Potts.

Montreal.

Notwithstanding the comparatively heavy receipts of apples, the stock in storage on the 1st of March was unusually low. Best Spys, Golden Russets, Fameuse and McIntosh are retailed at \$1.25 per peck. The apples arriving from Nova Scotia are largely of No. 3 and Domestic grade and are in poor condition, resulting in low prices.

Florida strawberries in full quart boxes and of fine quality are selling (23rd) to the trade at \$1. Hot house rhubarb is being offered in quantities and meeting with ready sale.

The potato market has remained very firm throughout the month. The general feeling is that the market for old potatoes will continue strong until the end of the season. Onions are ruling firm, best cured reds leading at \$10 per cwt.—E. H. Wartman.

Ottawa.

During the past month this market has been fairly well supplied with shipments from Ontario and Nova Scotia. The best packs, No. 1 Spys from Ontario, are now selling at from \$9.50 to \$11 per barrel, others from \$1 to \$1.50 less, according to quality and appearance. The general quality of the Nova Scotia shipments to this market has not been as satisfactory as in other seasons, excessive frost injury in transit being apparently the principal cause; but an unusual amount of decay and waste have resulted from the severe freezing on the trees, which caused the cells to break down after the apples were packed. Much of this

## It's a Fact-You Know Every Farm Needs Fertilizers

Try as you will, you cannot get bumper crops from your soil if you don't fertilize it. There is no mystery about this. It simply means that, as soil gets worn out, Fertilizers must replace the elements that have been used up.

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Best-by-Test Fertilizers have full analysis strength—guaranteed. Write us for particulars and we will advise the kind of Fertilizer to order. We are exclusive Fertilizer experts and can supply all and every chemical required. Farmers can club together and buy in car-load lots. Prices on application.

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Kills Rot and Scab  
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**T**HIS All-Canadian spraying machine has been on the market over 25 years, and proven best for Canadian use. In that time it has repeatedly met the world's best in competition and captured over 100 Gold Medals and First Awards, including the coveted Canadian Government spraying contest award.

A Spramotor will double and treble your yield of apples, pears, peaches, grapes, plums, etc., and get you better fruit. It will do the same with potatoes and row crops, kill mustard in the growing grain, spray paint, whitewash and disinfectant on barns, stables, pens, etc., six times as quick as by hand. All styles and sizes, \$7. to \$400.

**FREE!** Crop Disease Booklet containing Government Reports and Information. Write for your copy to-day.

SPRAMOTOR CO., 14 KING STREET, LONDON, CANADA.

fruit is still unsold. The best grade of Nova Scotia Spys, in fairly good condition, is selling from \$7 to \$8 per barrel, and Baldwin, Stark, Russet and Nonpareil from \$3.50 to \$6.50, according to grade and condition. The vegetable market is good and the prices firm. Prices also rule firm for imported cabbage, new potatoes, radishes and Boston head lettuce.—C. H. Snow.

#### Toronto.

The market for good sound stock of fruits and vegetables continue firm with a strong demand. Best packs of No. 1 Spys are selling at from \$9 to \$10, with good Domestics at \$8 and No. 3's at \$7. Ontario apples in boxes are being offered by the trade at from \$4 to \$4.25, with No. 2's at 75c less per box. No. 1 Delicious from B. C. are bringing \$4.50, No. 2 from \$3.75 to \$4. The quality and condition of apples arriving from Nova Scotia have not been at all satisfactory. In fact, much of it has been worthless. The very best packs of Domestic Spys have been bringing \$7.50 per barrel, with less desirable packs at \$5.50.

Potato receipts have been light and the market is very strong. Prices advanced today (22nd) 25c. per bag. Other vegetables in good demand. Large quantities of imported vegetables are now being received.—H. W. McQuoid.

#### Winnipeg.

Fruit travellers who have visited country points report that merchants there are fairly well supplied with apples and onions, as they have not been able to dispose of all their stock bought last fall. City sales are reported exceptionally good. B. C. is practically cleaned up of apples, so that stocks are now arriving from storage in the U. S. Apples which have been held in local storages have been showing considerable waste and are being jobbed at low prices. The price of first class sound fruit is still firm,

## Big Crop of Berries

Big crops of big berries are procured only from strong, healthy plants. For profitable and pleasing results use Mallory's vigorous, healthy, Northern-grown plants.

Send For Price List.

**N. E. MALLORY**

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## Reaches the Hidden Spots

The O-K-Spra gets the solution for killing bugs and vermin to every part of a plant and to every obscure corner of a building.

See  
That  
Curve



## O-K-SPRA

has the non-clog nozzle that strains the fine spray, the air-tight locking device that gives strength to the stream, and the curved lance that directs it to points not reached without stooping in ordinary spraying.

## The O-K Canadian Two-Row Sprayer



is built for small acreages, to be operated like a wheelbarrow between rows. It does the work as fast as you can walk.

The machine may be used for spraying trees, whitewashing barns, cleaning motor cars and buggies, fumigating farm buildings or applying fly wash to stock. It is an all-purpose sprayer.

We have just bought the manufacturing rights of the Aylmer Barrel Sprayer, which, added to our line, makes it more complete. If interested write for more particulars.

Valuable spraying calendar, suitable for Canadian conditions, supplied with each sprayer. Write for literature.

**CANADIAN POTATO  
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55 Stone Road, Galt, Ontario

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The War is over, but you know that prices are still high, and food is scarce. It will be to your interest to have a garden again, and help beat the high cost of living.

Save money, by raising your own vegetables. Have the satisfaction of watching them grow, and of eating the fresh produce of your garden instead of stale stuff from the stores.

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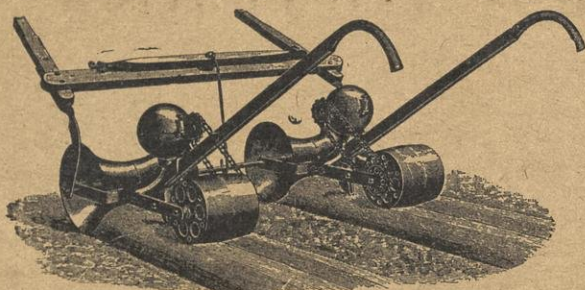
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The Massey-Harris Seed Sower sows a large variety of various kinds of Seed, but is especially popular for sowing Turnip seed. Front Rollers can be had either concave shape or flat, and are of good weight. To assure the plant of a good supply of moisture, the rear Rollers are convex in shape, and bear on the seed in the drill, forming a valley into which all moisture will run.

To meet the need of returning to the soil the plant food which has been taken out of it, a combined Seed and Fertilizer Sower is made. This outfit enables the Fertilizer to be sown at the same time as the crop, and assures the best possible yield from the seed.

*Made in One or Two Row Style*

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## New Strawberry

"OLGA PETROVA"

After twelve years of thorough trial, this new strawberry stands first as a commercial variety. It has tested alongside of all the standard kinds and beat them all in healthfulness of plant productiveness, color, quality, shape, etc. A limited quantity of plants will be offered for sale at \$2.50 per 100.

Also all the standard varieties of strawberry plants and 2 and 3-year-old asparagus plants for sale by

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## New Fruits of Merit

We are introducers of the following new fruits.



too numerous to mention. We can ship strawberry plants, vegetable and herbaceous perennials into Canada by parcel post. All other things by express. We are on the border and near you. Beautifully illustrated catalogue free.

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Box 96, Pulaski, N.Y.

"Erskine Park" ever-bearing red raspberry. "Neverfail" everbearing strawberry. Price, \$3.00 per doz., \$20.00 per 100. Also "The Best" strawberry, Idaho, Plum Farmer and Royal Purple raspberries, Doolittle gooseberry, Oswego apple, Mrs. Dimon potato and other things

with a tendency to go higher, as imported stock will cost more from now on, having made considerable advance this month, and the lots held in storage showing waste are pretty well cleared up.

Canadian onions are practically off the market and Spanish onions, which are arriving, are in poor condition. Australians were expected before this date, but owing to labor troubles did not arrive and the jobbers are now negotiating for Egyptian stock. Prices are expected to be firm.

The market is fairly well supplied with local potatoes brought in by farmers who have had them stored in basements and cellars. The present supply is well up to the demand.

Green vegetables, such as cauliflower, and celery from California, are now on the market and meeting with slow sale owing to the very high prices. It is customary for this market to receive a car of Florida tomatoes by this date, but this did not arrive on account of being frozen in transit. A fair supply of rather indifferent stock has been arriving by express. A car of Mexican tomatoes is due this week. Florida strawberries in small quantities are arriving daily. This month to date (20th), 10 cars of apples have been received—mostly imported—and all showing some waste.—F. H. Steele.

### Calgary.

The demand for apples is fairly active. Most of the stock is cleaned up at fair prices. As there are very few apples left in B. C., jobbers are looking to Washington for their supplies. The more recent arrivals from B. C. show some shrinkage, apparently from frost damage.

Potatoes are scarce. It is understood that there are very few cars left in Alberta. The supply is scarcely equal to the demand. Fresh vegetables from California have been arriving and are in good demand even though prices are high. Two cars of Mexican tomatoes were received this week (19th). The stock was in fair condition but the demand is not yet very brisk, no doubt owing to unseasonable weather.—M. P. McNeill.

## Refrigerator Car Charges

G. E. McIntosh, Fruit Branch, Ottawa.

General Order No. 284 of the Railway Board, signed by S. J. McLean, Assistant Chief Railway Commissioner and dated March 9, 1920, allows increases in heated refrigerator car charges as follows:

(a) Between points west of and including Port Arthur, Ont.; also between points east of and including Westfort, Ont., from one per cent. per car per mile, subject to a minimum total of \$2 per car, to not more than 1½ cents per car per mile subject to a minimum total charge of not more than \$2 per car.

(b) From points east of Port Arthur to points west of Westfort, and from points west of Westfort to points east of Port Arthur the minimum charges authorized by the said General Order No. 173, when increased not more than 50 per cent. to apply.

### An Error

occurred in the February advertisement of Harry Koolbergen, Boskoop, Holland.

Prices were quoted at \$2.00, \$3.00, \$5.00, and \$1.00 per 1,000, and should have read \$200, \$300, \$500 and \$100 respectively.

# MAKE YOUR INVESTMENT YIELD LARGER RETURNS

IT has been proven that your greenhouse, orchard, vineyard or fruit farm can be made to produce far greater returns by the liberal application of commercial fertilizers. Experiments in apple orchard rejuvenation, conducted in Southern Ohio sections, show a gain of 80 barrels per acre as an average during a 5-year period when commercial fertilizers were used.

What has been done *there* can also be done *here*. There is a suitable brand of

## Swift's "Red Steer" Fertilizer

for every soil and crop requirement. The "Red Steer" on the bag is your guarantee of quality. Write for prices and literature.

*Order NOW to Insure Prompt Delivery*

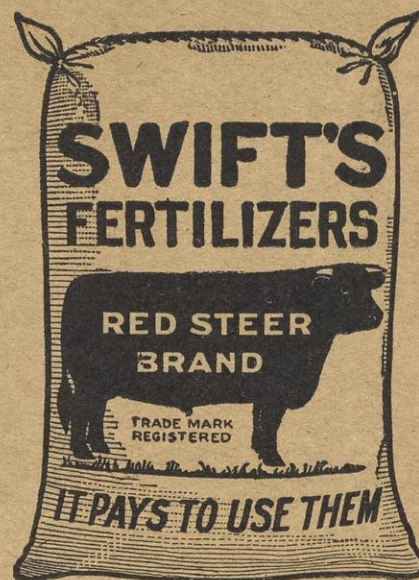
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## Trees Roses Shrubs Vines AND Perennials

ARTISTIC PLANT-  
ING will help to  
make your home  
beautiful. We  
grow the stock,

and will cheerfully give you the benefit of our experience.

**Our 1920 Catalogue Is Now Ready**

**JOHN CONNOR CO., Limited**

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## Apple Trees

If you intend planting Apple Trees this season, be sure they are grown right and are healthy and are backed up by a reliable dependable Company. Plant E. D. Smith & Son's trees. They cost no more than inferior, poorly grown stock. If you are not familiar with the best varieties for your section, we will be glad to assist you in your selection. When you want trees, plant E. D. Smith & Son's Government inspected stock.

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**The Sheridan Nurseries**

Growers of  
Roses.  
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## Bigger and Better Fruits and Vegetables

Are reported  
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**Gunns SHUR-GAIN  
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Experiments show that commercial plant food is an absolute necessity as well as a money maker. This has caused the enormous increase in the demand for fertilizer.

Do you realize what the scarcity of fertilizer means to the farmer?

Do you know that returns of \$4 for every \$1 invested have been made by using fertilizer?

Why go to the trouble of putting in a crop without a small application of fertilizer, when a good increase may be realized without extra labor?

### Proven Results from Field Tests

Indications are that prices for produce will continue high in 1920. Fertilizers should pay better than ever. Use high-grade **SHUR-GAIN** judiciously, and you will cash in on bumper crops at high prices.

There is a carefully prepared fertilizer for your every need. Users of **SHUR-GAIN** fertilizer won ten out of fourteen prizes awarded at the Dufferin County Field Crop Competition last year.

What has been done in the field can be repeated in your orchard and garden

Our Booklets would interest you. Send for **FREE** copies.



Making two blades grow where only one blade grew before.

Representatives wanted in un-  
allotted territory.

**Gunns**  
LIMITED  
WEST  
TORONTO

## Niagara District Notes

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

During the past month the severe weather continued till about March 10, but since then, with a few fluctuations, it has been quite mild. The snow has disappeared very quickly, the birds are here, and fruit growers are getting ready for spraying and spring work. The past winter in the Niagara District easily holds the record for many years, for continued, steady cold. During the period, December 10 to March 10, there was only one day in which the thermometer did not register below the freezing point. There was, however, an abundance of snow to protect the roots of trees and vines, and the general consensus of opinion amongst experienced growers is that the winter has done little or no harm to either trees or buds.

Men seem fairly plentiful in the district this spring. High wages however, are being paid. Experienced married men are receiving \$60 to \$75 a month by the year, with house, garden plot, fruit and other privileges.

### Potato Growers Meet.

During the last week of February a potato institute was held in Hamilton, which was attended by a number of growers and gardeners from Saltfleet township. Excellent addresses were given by A. H. McLennan and Mr. Partridge of the C.E.F., Ottawa, who strongly advised the importation of seed from either northern Ontario or New Brunswick, in order to avoid curl leaf and other diseases.

D. Maynard, an experienced grower from Chatham, gave a splendid practical address. He strongly advised the use of machinery for both planting and digging, also the liberal use of commercial fertilizers, early potatoes should not be planted deeper than three inches, and should be lightly hilled. His own practice was to harrow them four or five times before they came through the ground. For the flea beetle he advised spraying quite early in the season with arsenate of lead.

Although the peach crop has come well through the winter here, reports from Maryland, Connecticut and New York states tell of severe injury done by extreme cold during the past winter.

### High Vegetable Prices.

That higher prices will probably prevail in this district for vegetables next summer is the prediction of a well-known Wentworth county grower. No agreements have been made between producers and canners up to date, but when it is considered that in counties just across the line very much larger prices were paid last year than our local producers received, and that the growers over there are already refusing to produce at last year's prices, it is only reasonable to look for an advance here. Last year growers in northern New York received prices from 10 to 20 per cent. higher than vegetable growers on this side, and are now asking increases of about 25 per cent. on last year's rates.

### Hamilton Wholesale Fruit Market.

There is apparently a strong likelihood of a wholesale fruit market being established in Hamilton in the near future. This would be of inestimable benefits to the growers of the whole Niagara district. It only needs the promised improvement of the highway from Niagara Falls to Hamilton to enable an enormous development of the already large truck service to Hamilton. This market would compete with Toronto and pre-

vent gluts on the wholesale market there, which would result in better and more uniform prices.

Hamilton is splendidly situated as a distributing point, for it has more provincial roads running into it than Toronto and London combined. These points were ably presented by T. J. Mahony, Reeve of Saltfleet, in his address on "Good Roads" at the Niagara Peninsula Fruit Growers' meeting at Grimsby on March 10th.

Great efforts are being made by the fruit growers to finish up their pruning before the rush of spraying and other spring work commences. Experienced pruners are consequently in great demand at present.

W. J. Smith, manager of the Hamilton branch of the Ontario Employment Bureau, says that requests for help are particularly numerous at present from the Niagara peninsula, where the indications are for a good peach top this year. The greatest difficulty of the bureau is to fill these applications, however, the men in nearly all cases wishing employment in the city only. The same

## Protection and Profit



8

When money is in a Savings Account in The Merchants Bank, it is absolutely safe from loss, as far as you are concerned. All the time it is here, it is earning interest—so that the bank actually pays you to let it take care of your money. Don't carry unneeded sums on your person or hide them at home. Protect them against loss, theft and fire by opening a savings account.

## THE MERCHANTS BANK

Head Office: Montreal. OF CANADA Established 1864.

With its 138 Branches in Ontario, 44 Branches in Quebec, 1 Branch in New Brunswick, 2 Branches in Nova Scotia, 36 Branches in Manitoba, 46 Branches in Saskatchewan, 86 Branches in Alberta, and 12 Branches in British Columbia, serves rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

# INSECTICIDES

## Declare War on the Bugs

THE INSECT MENACE is serious! Remember that crop protection means increased profits for you.

The most effective ammunition to fight these enemies of the farmer and fruit grower is CANADA PAINT INSECTICIDES. C. P. PARIS GREEN for potato bugs is the safe and sure spray. SPRAYIDE, the universal garden spray, is a combination insecticide, fungicide and plant tonic for the garden and orchard. C. P. ARSENATE OF LEAD (dry and paste), C. P. DRY LIME SULPHUR and KALCIKILL (arsenate of lime) are all particularly successful insecticides.

Look for the dealer who sells the CANADA PAINT line and insist on getting C. P. INSECTICIDES. They are the most efficient.

Write for our booklet on fruit and vegetable spraying.  
It is sent free on request.

### The Canada Paint Co., Limited

Makers of the famous "Elephant Brand" White Lead.

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# Carhartt Overalls



**I** FIGURE that when the man on the farm wears overalls he wants to be able to bend, twist or stoop freely without being conscious of them. So I purposely make my Carhartt's extra roomy, and double stitch every seam. The suspender buttons stick as if they were imbedded in concrete. Interlacing suspenders give you shoulder ease you never knew before—and they stay together in the wash, while the first-grade denim cloth I use has a staunch durability that ensures a surprising length of service.

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Manufacturers of Men's Overalls and Work Gloves and Carhartt Allovers for Men and Boys



situation practically prevails all over Ontario, and yet city people wonder at the increased prices of fruit and farm products.

From Stamford and Queenston districts come very favorable reports as to the outlook for the coming season's fruit crop, also from Niagara Falls. All these places emphasize the good condition of the peach trees for a crop.

#### Very Few Contracts Yet.

A report from St. Catharines of March 18 says, "Thus far few or no contracts have been made by the growers of the Niagara fruit belt for the disposal of the coming season's fruit crop. Representatives of the looking for contracts, but, in view of the uncertainty as to prices, so far, not many canners have been through the district growers have signed up for tomatoes, cherries, strawberries, peaches, etc."

There will be a large demand for the Niagara belt yield by United States canneries and fruit concerns, but the growers here say they will not make any contracts with United States firms until they have held a meeting to decide what this year's prices will be.

A report from Grimsby says that the growers in that district are actively engaged in pruning fruit trees. All report that the trees have stood the severe winter remarkably well and prospects for a crop are good. In some places the frost went nearly four feet deep, although the average is about 40 inches.

#### Basket and Sugar Situation.

Because the growers cannot worry about the prospects of a short fruit crop, they are now worrying about the likelihood of a shortage of both baskets and sugar. Without baskets to deliver the fruit in, and with no sugar for the housewives to do their preserving with, what good is a big crop.

The disposition of the grape crop across the line is being seriously considered. Housewives who are particularly anxious to have Canadian fruit for canning, may have to provide their own baskets. Second-hand baskets are in great demand. In view of the sugar shortage the Niagara Fruit Growers, at their annual meeting, decided to ask the Government to retain the embargo on sugar until the housewives have an opportunity to stock up.

A report from Old Niagara says that a number of farmers in that vicinity, who pitted most of their potatoes in the spring, have lost most of them owing to the severity of the winter.

Considerable damage has been done to young trees in Wentworth county by the depredations of field mice, which have been very plentiful this winter.

The Fruit Branch, Ottawa, warns packers and shippers against neglecting to mark fruit sold in open packages with a number or other mark which will designate the original packer of the fruit.

## To Seedsmen—Wholesale Only

The House of Kelway & Son has a reputation of over 70 years behind it as a guarantee. For three generations we have been growers and selectors of pedigree stocks of

## BRITISH SEEDS

Get our prices for booking forward orders (delivery after 1920 harvest), not tomorrow, but NOW!

State your requirements, we do the rest.

Efficient and prompt attention given to all enquiries.

Specialities: Garden Seeds and Farm Root Seeds.

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### Honey Making Money Making Italian Queens

Untested, \$1.50 each,	25 or more \$1.35
Tested, \$2.50	" 25 or more 2.25
Select Tested,	" - - 3.00

Write for my Free Circular.

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# FLOWER and VEGETABLE SEEDS

## *Dahlias and Gladioli*

— IN —

### Best New and Standard Varieties, FREE

WITH a view to securing a large number of NEW SUBSCRIBERS during the next two months, The Canadian Horticulturist is offering herewith some exceptionally fine collections of Flower and Vegetable Seeds, Dahlias and Gladioli. Note the following:—

#### COLLECTION "A"

Dahlia tubers, one each of the following 5 named varieties :

Delice—One of the finest pinks.

Jack Rose—Rich, velvety crimson, large blooms.

Clifford W. Bruton—Canary yellow, very large flower.

Lyndhurst—Bright scarlet, large flowers.

Henry Patrick—Large pure white flowers.

#### COLLECTION "B"

12 Gladioli bulbs—2 each of the following new and standard named varieties. These are imported direct from Holland:

Mrs. Frank Pendleton—Dark blotch pink

Niagara—Cream yellow.

Lily Lehmann—Clear white.

Peace—White, pale lilac feathered.

Princes—Scarlet with light blotch.

Czar Peter—Fine wine red.

#### COLLECTION "C"

12 Gladioli—your choice of 12 of any one of the six new and standard named varieties given in collection "B."

#### COLLECTION "D"

Five standard flowers in quantities stated:

Sweet Peas—Hybrid Spencer, mixed,  $\frac{1}{2}$  oz.

Nasturtium—(climbing), mixed,  $\frac{1}{2}$  oz.

Zinnia—Giant-flowered, (improved strain), 1 pkt.

Mignonette—Large-flowered, sweet, 1 pkt.

Stocks—Double Ten Weeks, (large-flowering), 1 pkt.

#### COLLECTION "E"

Three little known varieties of vegetables:

Charlevoix Sweet Corn—Better than Golden Bantam in length and size of ear; unsurpassed in quality,  $\frac{1}{2}$  lb.

Thos. Laxton Garden Peas—Excellent quality, for home gardens, very early, wrinkled,  $\frac{1}{2}$  lb.

Chinese Cabbage—Known also as Pe-Tsai; a novelty worth trying;  $\frac{1}{2}$  oz.

### How to Get These Offers

#### TO PROSPECTIVE SUBSCRIBERS

Send \$1.00 as a NEW three year subscription to THE CANADIAN HORTICULTURIST (Fruit or Floral Edition) and you can have your choice of one of the five collections—"A," "B," "C," "D," or "E," given above. These will be sent you free and postpaid.

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Send \$1.00 as a NEW three year subscription to THE CANADIAN HORTICULTURIST (Fruit or Floral Edition) for a friend, or \$1.00 secured from any person for a NEW three year subscription, and you can have your choice of collection "A," "B," "C," "D," or "E," free and postpaid.

THESE OFFERS GOOD ONLY TILL MAY 30th, 1920.

In Sending Your Order, State:—

1. What edition (Fruit or Floral) you wish.
2. Which collection—"A," "B," "C," "D," or "E."
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## The Canadian Horticulturist

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ONTARIO



## FOR SALE and WANT ADS

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### BEES FOR SALE

**HARDY ITALIAN QUEENS**, no bees. W. G. Lauver, Middletown, Pa.

**FOR SALE**—Apiary at Petrolia, Ont., containing about 40 colonies of bees, mostly Italians, and cottage with brick foundation, workshop and honey house, extractor and all necessary equipment, in first class working order. Apply, Box 252, Petrolia, Ont.

**FOR SALE**—Up to 125 colonies Italian bees in painted Richardson hives (16½ in. x 15½ in. x 11 in.) All headed by vigorous queens. Complete with Queen excluder and one super of nine Hoffman spaced drawn combs. \$25.00 each f.o.b. Waterloo, Ont. Weir Bros., 60 Chester Ave., Toronto, Ontario.

**EARLY QUEENS FROM THE SOUTH**—I can supply untested or tested Italian queens from best breeders and purely mated for early spring and summer shipment. Write for prices. Edwin V. Tillson, Tillsonburg, Ontario.

**"SHE SUITS ME"**—Italian queens—May 15th, \$1.50 each. After June 15th, \$1.30. Save exchange by remitting Canadian money by registered mail. Allen Latham, Norwichtown, Conn., U.S.A.

**BEES FOR SALE**—Italians, of Dr. Miller's strain. Write for price and particulars. D. E. McDonald, Rutland, B.C.

**FOR SALE**—Three band Italian Queens. W. T. Perdue, Rte. No. 1, Fort Deposit, Ala.

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**FOR SALE**—75 hives bees in good condition, free from disease. For particulars write, A. J. McNaughton & Son, Martintown, Ont., R.R. No. 1.

**ITALIAN QUEENS**—Northern bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, 1, \$1.00, 12, \$11.00; 50, \$45.00. Send for circular. J. H. Haughey, Berrien Springs, Mich.

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**WANTED**—20 colonies bees in ten frame hives, with Langstroth or Hoffman frames, delivered about May 15th. F. H. Anson, Jr., Iroquois Falls, Ontario.

**BEES WANTED FOR CASH**—Any quantity. How many have you? Describe hive frames and if diseased. H. D. McIntyre, Durham, Ontario.

**BEES WANTED**—Full colonies free from disease. State price, kind of hives, etc. H. A. Robinson, 297 Durocher St., Montreal, Que.

**WANTED**—Full colonies of bees or small apiary. State particulars. Thomas Woodhouse, 40 Woodbine Crescent, Hamilton, Ont.

**BEES**—Italian bees wanted, free from disease, in Langstroth hives for spring delivery. Send particulars to James McKay, Box 1, R. 2, Tavistock, Ontario.

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