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# THE Canadian Horticulturist AND Beekeeper

VOL. XXVIII.

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NO. 11.

ADDRESS CORRESPONDENCE TO PETERBORO. ONTARIO.

## Insulating Materials

R. R. Graham, B.A., B.S.A., O.A.C., Guelph, Ont.

**I**N writing this article I have three main purposes in view: (1) To give a brief summary of the results I obtained in certain laboratory experiments to test the heat conductivity of several substances used more or less for wall "fillers"; (2) to explain what constitutes a good insulating material; (3) to show why the bees need an adequate protection when wintered outside, such as a good insulation provides.

In respect to the tests on insulation, I think it will be quite sufficient if I confine my remarks solely to the results. The method of securing them is not interesting or valuable to the practical men and women who may read the article. To be brief, I give the results in tabulated form as follows:

Names of substances tested.	Relative non-conductivity of heat values, 100 being the standard for test insulation.
1. Very fine black regranulated cork (dust form) .....	100
2. Chopped straw ...	86
3. Coarse black regranulated cork ..	85
4. Forest leaves (well dried) .....	84
5. Granulated cork, light or natural color. This is the grade usually used as packing about imported Malaga grapes for instance	84
6. 8-20 grade granulated cork (natural color). It looks similar to preceding one, but it is a little coarser in grain and lighter in weight .....	80

7. Sawdust, very dry and from well seasoned and clean lumber .....	68
8. Excelsior—grade used in packing boxes .....	60
9. Planer shavings .....	60

To put the lesson of this table in a few words, it is to say that the fine black cork dust is the poorest conductor of heat or the best insulator, as far as the resistance of the passage of heat is concerned. Planer shavings is the best conductor of heat, and therefore the poorest insulator of the nine substances tested.

Before proceeding to define insulation I would like to emphasize the fact that these results do not tell us

anything about the substances except their power to conduct heat. It may be that if they were tried out as insulation for bee-hives we would arrange them differently than in the table above. There are other properties besides conductivity of heat that figure in practice, and a consideration of these is my second purpose, as announced at the beginning.

### Should not absorb moisture.

A good insulating material necessarily is a poor conductor of heat, but all non-conductors are not necessarily good insulators in practice. The other essential properties I will deal with

now. Next to non-conductivity I would put low moisture absorption, or the ability to keep comparatively dry in moist weather conditions. Experts in bee-keeping tell me that high moisture content in the hive is fatal to the bees, since it causes dysentery among them. Let us assume that the air in a hive is very moist and at a normal temperature. Let the temperature go down several degrees, owing to inadequate protection or insulation about them, and see what happens. You know the result. It is exactly the same condition we have often observed on the outside of a water jug filled with cold water and set in warm air. Moisture congeals on the outside of the jug,



The outapiary of McClellan Bros., commercial beekeepers at St. Andrew's, Ont. The average yield at this yard was 100 lbs. per colony.



and it becomes cold and clammy. The water drips from it, and makes everything else it touches wet. Likewise the dew is formed. The physical reason for these phenomena is the fact that cold air cannot hold, in the invisible or vapor form, as much moisture as warm air. Therefore some of the moisture held at high temperature must appear as drops of water at the lower temperature. In other words, there is a rain, and rain in a bee-hive is a serious matter; but it can be prevented by controlling the temperature inside the hive. Herein exists one of the most important uses of the insulation about the hive.

Other reasons why an insulation should not absorb moisture are that moisture increases the conductivity of the insulation for heat, and also makes it more liable to deterioration and decay. A good old maxim regarding success says, "Keep your powder dry." With equal emphasis I would say, keep your insulation dry if you would protect your bees well and give them a fair chance to succeed. Of the substances listed in the foregoing table granulated cork, forest leaves (if dried for one year ahead) and planer shavings are the poorest absorbers of moisture. Sawdust usually is too green and dirty to be very dry at the best, and decay sets in rapidly. Chopped straw, unless well ripened and cured, may be objectionable in the same way as sawdust. Then, too, rats and mice are apt to bother it seriously.

#### Insulation must be Odorless.

The insulation must be odorless, else the bees may leave the hives. It must be readily available and reasonably cheap. In these particulars forest leaves, chopped straw and planer shavings are foremost. It also should be very easy and agreeable to handle and pack in position, and not subject to spontaneous combustion. Any substance which possesses all these properties in a large degree is a good insulator, and a knowledge of them ought to aid greatly in making a wise selection of an insulating material for any particular purpose.

The third part of my theme, why the bees need good protection, has been already covered in a degree. Perhaps a repetition is warranted by its importance. At any rate, it cannot be emphasized too much. The main reason for insulating the hives, especially in the winter season under outside conditions, is to conserve the bees' own warmth, so that they can live comfortably and not have to eat an extraordinary amount of food to maintain a normal temperature.

The bees get their warmth and en-

ergy from the food eaten, and it is the function of the hive and the extra insulation to keep this heat from being wasted in cold weather in the surrounding atmosphere. A second reason is to maintain an even temperature, which pertains both to summer and winter. The insulation assists in preventing extremes of temperature in the hive, as a large body of water does to the adjacent land areas. Another reason, and not the least, is that a good insulation material around the hives provides a drier

—and, therefore, a healthier and better—atmosphere for the bees than could be possible otherwise. Surely these are sufficiently good reasons why a hive should be protected by an efficient insulation.

In conclusion, I might say that just recently I have come across two other materials that may prove good insulations for bee-hives. These are a very fine grade excelsior known as wood wool and flax chaff. It is my purpose to test both of these materials at the first opportunity.

## Co-operative Honey Sales

A. Brown, O.A.C., Guelph.

**B**EEKEEPING, in common with most other pursuits, is rapidly becoming commercialized. The hitherto small beekeeper is enlarging his apiary and starting out yards, while the extensive beekeeper is going farther afield in his quest of new territory. Many are numbering their colonies by the hundreds, and some by the thousands.

There are several reasons why this should be so. The increasing demand for honey caused by the shortage of sugar during the war, and the fact that honey, which was once considered a luxury, is now looked on as a necessity, is perhaps the prime reason. The main reason is, perhaps, the advent into general use of the motor truck, which allows of rapid transportation from yard to yard, and without which extensive beekeeping would be impossible.

The outstanding fact, however, is that production of honey is rapidly increasing, and the question arises: "How is it to be disposed of?" The small beekeeper, who disposed of his entire crop in his own neighborhood or local town, will find, as his production increases, the perplexing problem of markets confronting him. The tendency too often is to dump the surplus on the large market centres, or accept the first price that is offered, thereby damaging other beekeepers' prospects.

At this point the question of co-operation crops up. The writer was present at the Beekeepers' Convention some years ago, when co-operation was the subject of a rather heated special session, in which several leading bee-men declared emphatically against it. The subject has received little prominence since, but changing times demand that it again be brought into consideration.

It often happens that one part of the province experiences a bumper crop of honey, while in another part

there may be a great scarcity. The result is that while the one locality is flooded, so to speak, there is not nearly enough to satisfy the demand in the other. In the same way the cities are usually over-supplied, while remoter parts of the country receive no attention from beekeepers.

Surely some system can be worked out which will ensure an equitable distribution of honey over the province, which will supply the demand, stabilize prices, and result beneficially to the beekeepers, and without injuring those whose market is already established. This is an era of cooperation, and it is giving satisfactory results where tried. The United Farmers have succeeded; the Ontario wool growers are co-operating successfully. Why not the Ontario beekeepers? We have just as efficient business men in our organization as either of the above-mentioned organizations.

Co-operative sale of honey would necessitate the establishment of a warehouse, with experts in charge to handle the shipping and grading. It would be important that all honey be properly graded, and sold according to grade. This would stimulate the beekeeper to produce the best grade possible, and the different grades could be marketed to best advantage. The writer noticed several instances this autumn of inferior grades of honey coming on the market in competition with the finest clover honey. Honey is honey to many people, and the off grades should be sent where they belong, namely, the biscuit factories.

Another beneficial effect of co-operation which otherwise could not be carried on is advertising. Honey is one of the few commodities which has not been systematically advertised. It is safe to say that the consumption of honey could be increased five fold by an educational campaign of advertising. Such a campaign could only be carried on by a central



organization, as no individual beekeeper desires to advertise for the industry in general. The advertising of "Sunkist" oranges by the California Orange Growers is an example of

what systematic advertising can accomplish.

It is to be hoped that the Association will give this idea careful consideration at an early date.

## The Back Lot Beekeeper

Maurice Grimby, President Toronto Beekeepers' Association, Toronto, Ontario.

CITY beekeepers are of two classes—one, older, retired men; and the other, men who work at some occupation and make bees a side line. The latter class is relieved of the necessity of making the bees pay, and beekeeping with them is purely a hobby. It is the class to which I belong.

I live on the outskirts of the city of Toronto, and have seven hives, which are wintered out of doors, four in a quadruple winter case, two in cork-filled, double-walled hives, and one on the Demuth method. I keep them this way for the pleasure of observing the effect of different wintering methods.

### City Pasture.

I find that my district is favorable to raising bees. There are many large gardens and park areas near by, in which is a great variety of flowers, some of which (such as crocuses) bloom early. Within a mile of my bees I have counted fifteen large honey locust trees, forty basswood trees in three or more varieties, that bloom at different times. Close by there was, at one time, a large orchard through which streets and solid rows of houses have been built. Many of the trees have been left and are now in the small gardens. Some are on the north and some on the south side of the streets. Those on the south side bloom a full two weeks before those on the north. This spreads the honey flow over a longer period. The bees get a longer time to collect the nectar, and this makes for a gentle flow which stimulates the queen to lay and is better for raising bees than gathering large crops of honey.

On the city streets are rows of trees. Some are maple, and in the ravines are many golden willows. For our main honey flow we depend on the vacant lots, where all varieties of clover grow, most of it being left to flower. Whilst the acreage of these lots is small compared with farms, we get some honey nearly every year.

### Quiet Bees Necessary.

Our neighbors are one of our chief anxieties. I had a real time of it last year. In some way one hive of red-hot, sworded soldiers caused a lot of trouble. I had never seen or heard of such cross bees before. They made a

target of my good neighbor's bald head, and stung the red nose of another neighbor's washwoman. They broke up a garden party, and finally nearly discontinued the earthly career of a friendly dog, who was wont to visit our yard. Every time I touched them I had to be armor-plated. One day a passer-by saw me thus attired, and stopped to tell me the old yarn about how, when a boy, he and his father kept bees. "They never had a veil; the bees knew them." At that moment some of my little friends who had followed me saw the newcomer, and our conversation ceased abruptly. The visitor evidently had more experience at running than beekeeping. I have said all this to explain how necessary it is for a city man to have good-tempered bees.

Being away from home so much, we city men clip our queens to avoid losing swarms. We exercise care not to place the bees in a hot place, where a winter sun might draw them out too early in the year, to get chilled before they get back to the hive.

### Association Work.

In the winter we have our bee meetings nearly every month in Toronto. We have had as many as 150 at one meeting. Large numbers give our secretaries courage to ask the best

men to come and speak to us. These make the meetings interesting and instructive. As a wind-up to the programme the association holds a Spring meeting at a large apiary in the nearby county. There one forgets the cold winter, and wonders why we don't all live in a beautiful country place, keep bees and get rich.

### Disease Problem.

The question of disease is quite important with us. There are so many small apiaries in a small area that one does not know but what there may be foul brood a few lots away. We have often talked about organized registration and inspection of hives, but this seems impractical without Provincial authority.

## To Winter Bees Successfully

(1) Have strong colonies, bees covering not less than five frames when clustered.

(2) Have at least forty pounds of good stores, either honey or sugar syrup, two of sugar to one of water.

(3) Locate the colonies in some wind sheltered location.

(4) Pack at least 4 inches below and on all sides and 10 inches on top.

(5) Do not use oat straw or chaff or any other material which absorbs moisture easily. Dry leaves, dry shavings make excellent packing.

(6) Provide a tunnel inside of the hive to the outside of the packing case, so that bees can fly when weather is suitable.

(7) Have the packing case waterproof and the entrance to the outside packing case reduced to not more than two inches long and three-eighths inches deep.



A backyard apiary belonging to G. C. Morrison, Moore Park, Toronto. Mr. Morrison uses the 8-frame Langstroth hive.



## Notes on Winter Cellaring

**R**ESULTS from wintering bees in a cellar are such as to keep the bees from wearing themselves out by excessive activity. Cellar wintering is practicable where the average outdoor temperature during the winter months is as low as 25 degrees Fahr.

The cellar should be arranged so that the ceiling is below the frost line, and so that the ceiling and side walls are kept thoroughly protected at all points. The cellar should be kept so that the lowest temperature within the hives is at least 52 degrees Fahr. At this temperature there will be little need of special ventilating arrangements. There should be no condensation of moisture within the hives, and the cellar should be well drained.

"Some of the best bee cellars are those under the residences of beekeepers, and in general such a cellar is better than one built especially for cellar wintering. This is because the temperature of such a cellar usually is quite a little higher than that in a specially constructed repository. The best results in cellar wintering have been obtained in cellars under residences which are heated by furnaces, thus having a higher cellar temperature. In such a cellar provision must be made for partitioning off a space where the bees will be located so that there is no light or other disturbing factor during the time of their confinement. Since a cellar temperature of about 50 degrees Fahr. is desirable, it is well to choose a part of the cellar through which some of the furnace pipes run, and if this results in too high a temperature these pipes may be insulated somewhat. It is best to choose a part of the cellar where there are no windows, and where the outside walls are thoroughly protected to the top, either by a bank of soil or in some other fashion. This will result in a more equable temperature than is possible in a cellar exposed to sudden changes of temperature on the outside walls, for even a stone wall 18 inches thick will allow a considerable amount of heat to escape. In a cellar under a residence there will be abundant ventilation without any special provision being made for this."—Dr. E. F. Phillips, Apiculturist, U.S. Department of Agriculture.

The bees should be brought into the cellar as soon as possible after the last good flight that they are likely to get. This is usually some time in November. It is advantageous to contract the entrances and give light protection for two or three weeks previously. During transportation to the cel-

lar the entrances to the hives should be temporarily closed with, for instance, soft paper or burlap. Inside the cellar the size of the entrances should be large enough to allow sufficient ventilation and to facilitate the ejection of dead bees. The hives may be raised behind slightly, to allow the dead bees to roll out. It is good practice to replace the cover of the hive with three or four empty sacks.

While the cellar should be kept dark at all times, if a candle is held at the entrance of a hive at the end of January it should be several seconds before any of the bees break cluster. Frequently the cellar doors may be opened in March without disturbing the bees.

If the bees are in good condition in the fall, and winter well, the loss during the winter will never be more than one-sixth of the total population of the hive. Such a loss is excessive, however, and in a well-wintered colony it may be as low as a hundred bees. This probably depends to a great extent on the age of the bees which go into winter, and if the temperature is right and the stores good there will be almost no loss of vigorous bees.

## Annual Convention of Ont. Beekeepers

The annual convention of the Ontario Beekeepers' Association will be held in the new Apiculture Building at the Ontario Agricultural College, Guelph, Ontario, on December 1, 2 and 3. A particularly strong program has been prepared replete with notable speakers and topics of timely interest. All beekeepers, both ladies and gentlemen are invited to attend. Hotel accommodation and other information may be obtained by writing the secretary, F. Eric Millen, O. A. C., Guelph. The program is as follows:

### Wednesday, December 1st.

10.00 a.m.

- Address of Welcome .....  
J. B. Reynolds, M.A., President Ont. Agr. College.
- Formal Opening of Apiculture Building...  
Hon. E. C. Drury, Premier of Ontario.
- President's Address .....  
W. W. Webster.
- Vice-President's Address .....  
A. McTavish.
- 2nd Vice-President's Address .....  
R. E. L. Harkness.
- Report of Secretary-Treasurer .....  
E. Eric Millen.

2.00 o'clock.

- Appointment of Committees .....  
Practical Economics .....  
J. J. Morrison, Sec.-Treas. United Farmers of Ontario.
- Marketing Honey .....  
Wm. A. Weir.
- Question Drawer .....  
F. W. Krouse.

8.00 o'clock.

- Nectar Producing Flora of Ontario (Illustrated Lecture) .....  
Prof. J. E. Howitt.

### Thursday, December 2nd.

9.00 a.m.

- European Experiences—Beekeeping and Otherwise .....  
Rev. S. C. Graeb and Wm. Couse.
- Colony Morale .....  
Geo. S. Demuth, formerly U.S. Assistant Apiculturist, Medina, Ohio.
- The Growth of Apiculture, Investigation and Instruction in Ontario .....  
Morley Pettit, formerly Provincial Apiarist.
- Question Drawer .....  
F. W. Krouse.

2 o'clock.

- Factors Influencing the Spread of European Foul-brood .....  
Dr. E. F. Phillips, U.S. Apiculturist, Washington, D.C.
- Diagnosis of American and European Foul-brood .....  
Russell H. Kelty, Deputy Apiarist, Michigan Agr. College, East Lansing, Mich.
- Reports of Officers and Committees .....  
Election of Officers .....

6.45 o'clock.

- Annual Banquet ....Royal Canadian Cafe

### Friday, December 3rd.

9.00 a.m.

- Swarm Prevention and Queen-Rearing on Duck Island .....  
F. W. L. Sladen, Dominion Apiarist, Ottawa.
- The Drone .....  
C. P. Dadant, Editor American Bee Journal, Hamilton, Ill.
- Swarming .....  
Geo. S. Demuth.
- Beekeeping Costs .....  
John A. Eyre.
- 2 o'clock.
- Wintering .....  
Dr. E. F. Phillips.
- Licensing Beekeepers .....  
Wm. Agar.
- Report of Provincial Apiarist .....  
F. Eric Millen.
- Question Drawer .....  
F. W. Krouse.

## Improving the Bee

F. W. L. Sladen, Dominion Apiarist.

Nearly every domesticated animal and cultivated plant has been improved by selective breeding. With bees, however, not much progress has yet been made, because of the great difficulty in isolating them. They mate in the air at some distance from the hive, and it is known that the drone bee will fly for miles in search of the queen bee.

It might be thought that the busy bee could hardly be improved, but Canada contains varieties of solitary bees whose tireless industry make the honey bee appear dilatory in comparison. Besides, we know that great improvements await the bee breeder, because some colonies store much more honey and are less inclined to swarm than others. Any bee-keeper would



give much to have his apiary composed of such superior bees.

The Experimental Farms Branch of the Dominion Government has for some time been conducting experiments to overcome the difficulty of the isolated mating of bees. The first attempt was made on a large, sandy plain near Kazubazua, about forty miles north of Ottawa, at a spot where no colonies of bees could be found within three miles; but the young bees produced were dark colored, showing that the queens had been mated by the local black drones. Attempts were then made to mate the queens late in the day, when the undesirable drones had ceased flying, and also late in the season when these drones had died. The results gave valuable information, but they did not solve the problem.

Next, a part of the north country that bees have not yet reached was tried, the Experimental Farm at Kapuskasing, in Northern Ontario, being selected; but here the little colonies were made restless by the great and sudden changes in temperature, and swarmed out when the queens flew.

In 1919 the experiments were started on Duck Island, which is situated near the eastern end of Lake Ontario and is eight miles from the nearest island and over eleven miles from the mainland. Duck Island covers only about two square miles, and no bees exist upon it. The Duck Island experiments were continued in 1920, and have proven successful, twenty-seven Italian queens of selected parentage having been mated by the drones that were brought with them.

By continuing the work it is hoped to develop a strain of Italian bees that will be heavy honey producers and disinclined to swarm. Meanwhile, plans are advanced to distribute to Canadian bee-keepers a limited number of daughters of the best of the queens mated on Duck Island, and a system has been worked out by which a bee-keeper will be able to mate a proportion of the queens he gets with drones of the same strain.

## THE EDITOR'S DESK

### The Ontario Beekeepers' Convention

As this issue of The Beekeeper goes to press the Annual Convention of the Ontario Beekeepers' Association is opening at the Ontario Agricultural College, Guelph, Ontario. A full copy

of the programme appears in this issue. Ontario can now boast of having the finest building equipped to serve its apiculture interests on the American continent, and the opening of this building is to be a feature of the Convention proceedings. Secretary F. E. Millen has arranged a rare treat in the contributors he has secured for the programme. We hope to be able to give our readers the cream of the information gleaned at the Convention in later issues.

### Back-Lot Beekeeping

In this issue we have a short article on this subject from Mr. Maurice Grimbly, President of the Toronto Beekeepers' Association, which gives the smaller city beekeepers' viewpoint. We would like to emphasize the great need for **good, gentle, Italian stock** where beekeeping is to be attempted in densely settled rural or in urban centres. Two cases have come before the courts just recently in York County, where beekeepers have been charged with maintaining a nuisance. A conviction was registered in both cases by the local magistrate. In the first case an order to remove was given, and in the second case \$100.00 damages were allowed to the complainant as well as the removal order. One case has been appealed, and the conviction quashed. The second case has not, to our knowledge, been appealed as yet. So far as we can learn both of these cases could have been avoided by using **gentle Italian stock**. The course of expediency is to exercise great care in the selection of stock, remove all questionable (black or hybrid) stock, and dispel the often senseless fear shown by many of our neighbors.

### The Luxury Tax

In the July issue of The Beekeeper we published the letters received from the Assistant Deputy Minister of Inland Revenue, outlining the application of this tax to our products. We have, under date of Oct. 13th, 1920, another letter, which informs us that queens and bees are exempt, so that the only product of the apiary affected by this tax regulation is beeswax.

### The Prospects for 1921

Conditions in the business world are changing very rapidly, and just at the present time beekeepers are finding themselves confronted by a rising cost of wooden apiary appliances (hives, etc.) and a falling honey market. The sensational drop of sugar from \$24.00 per cwt. in August to \$11.50 per cwt.

has had an effect on the honey market, chiefly felt by the cheaper grades of honey, viz., Amber and Buckwheat. So far as we can learn the prospects are that sugar will remain at the present level for some time. The cost of feeding in 1921 will, therefore, be from 30 per cent. to 50 per cent. cheaper than during this past year. On the other hand, the new price list of supply manufacturers shows an advance of approximately 50 per cent. on wood-ware. This will prove a serious check to the extensive plans of large beekeepers and the beginners. So far honey pail manufacturers have not reduced the price of containers for honey. We believe, however, that labor costs will gradually tend to pre-war standards, and the cost of raw material, such as lumber and tinplate, will recede during the coming year.

Clover is reported to be in splendid condition throughout Ontario, and the colony conditions fair to good. We have had an ideal fall in which to prepare colonies for winter and if the work has been carefully done very little winter loss should occur.

The Honey market prospect points to lower prices in 1921. In sympathy with all other products of farm and factory, we must expect a gradual recession of honey prices. This Fall we are competing with preserves, jams and jellies put up with **high priced** sugar, but next year it will likely be quite different. White honey is moving quite freely now and stocks on hand will likely be well cleaned up before the new crop comes in. There is more question about the darker grades.

Uniting of bees should all be done before the close of brood rearing.

Think of next year's requirements now. Winter is the time for planning and preparing.

Get together. Every County Beekeepers' Association can do good work by holding at least one meeting this Winter.

County and Provincial Beekeepers' Associations will be meeting all over Canada this fall. It will pay you to get in touch with your local secretary.

### Leary

Mrs. A.—“Now, Mrs. B., will you come and see our apiary?”

Mrs. B. (who has been putting it off all the afternoon)—“Well, Mrs. A., the truth is, you know, I—I'm rather afraid of monkeys.”—Christian Intelligencer.



## The Canadian Horticulturist

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### FLORAL EDITION.

Devoted to the interests of amateur horticulture—landscape gardening, floriculture, fruit and vegetable gardening—and to the work and progress of Horticultural Societies.

Subscription Rates.—60 cents a year; \$1.00 for two years.

### BEEKEEPING EDITION.

Known as The Canadian Horticulturist & Beekeeper, and devoted to the interests of the beekeepers of Canada. Official organ of the Ontario Beekeepers' Association and of the New Brunswick Beekeepers' Association.

Subscription Rate.—\$1.00 a year.

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## Explain Before, Not After

INTENDING exhibitors of fruit at exhibitions should be told in advance the rules and requirements rather than be penalized and perhaps disqualified after they have made entries in good faith and to the best of their ability. Professor Crow's "Suggestions for Fruit Shows" in the September issue of The Canadian Horticulturist are right to the point. "The only way to avoid misunderstandings," he says, "is for the show management to take the responsibility of printing in their prize lists definite rulings." This need for rules and regulations in prize lists has been repeatedly advocated by The Canadian Horticulturist.

It is only natural, for instance, for an exhibitor, who wants his apples to show to best advantage, to polish each specimen before sending it to the show and perhaps again before placing on the plates or in other position. He does it with the best of intention—to win. And then along comes a judge who objects to polishing and the entry is scored on that point, if not turned down altogether. Another judge might have boosted it a point or two for its bright appearance. Even if the exhibitor thinks of chances beforehand, he does not know what kind of judge will pass upon his fruit and, using his own judgment, polishes or not, as he sees fit. The exhibition management that does not tell this exhibitor, through its prize list, whether or not he will lose by polishing, is not playing fair. Definite published rulings on this point should be printed—and followed by both exhibitors and judges.

Rulings on riff-raff pack (a lawful pack), on the cutting of stems of fruits, on blemishes and on various other controversial points should also be settled before the show by publication in the prize list. It is a high-handed procedure for any fruit show to solicit and accept entries of high-class fruit and then permit same to be disqualified because the stems were cut, because packed riff-raff or because one judge thinks one way and one another, without first letting the exhibitor know what he may be up against. And such advance rulings are as necessary for judges as for exhibitors.

## Organize All Growers

THE success of the Niagara District Grape Growers, Limited, indicates the need for and the feasibility of district-wide organization for the marketing of all kinds of fruits. This one season's achievement with the grape crop shows what could be done with the fruit industry in the Niagara District completely organized. There never was a time when organization on a large scale was more needed or more likely to succeed. The entire district seems to be ready for such a movement.

Here and there, some men have been heard to remark on the failure of the Ontario and Western and of other past attempts at organization and to cite such cases as proof of the impracticability of

need to be considered but it would be a mistake apparently to organize a new company altogether, as has been proposed by some growers, and thereby have two big companies to a certain extent in competition. That would complicate matters and would kill at the beginning the purpose of the scheme—the complete control under one management of fruit marketing for the district.

## Horticultural Science

AT one of the botanic garden conferences in Toronto last spring, one of the speakers made the statement that the agricultural and horticultural sciences "were not keeping pace with the science of medicine." Had he said that practise in agriculture was not keeping pace with practise in medicine he would have been nearer the mark. Science in horticulture is holding its own with science in medicine and in all other fields of research and opportunity, but its application to practise is decidedly lacking in comparison.

The difference in practise is due to the fact that in medicine the discoveries of science are forced on the people, while in horticulture the discoveries of science reach the people only at their pleasure. Discoveries in medicine are applied immediately for the good of the people; discoveries in horticulture are years in reaching the people, if they reach them at all. The scientist is not to blame for this slowness in application. The middlemen in the instructional market—the departments of agriculture, directors of experiment stations, and so forth—are responsible to a certain extent. It is himself, however, that the horticulturist must blame most for not keeping pace with practise in other professions.

## Publicity Needed

THE Niagara District Grape Growers, Limited, would be well advised to consider the appointment at once of a publicity man—say, an assistant secretary in charge of information. Especially necessary would be such an appointment should the company decide to undertake the organization of the district for the purpose of handling under one management the entire crop of all kinds of fruit.

The Niagara District has long needed intelligent and persistent publicity. Judicious advertising in the daily and periodical press would make the name "Niagara" synonymous with "California" or "Sunkist" for reliability and uniformity of product and pack. A campaign of publicity should be conducted from coast to coast and in some of the states across the line. The fact that Niagara District fruit is high quality fruit should be emphasized in article and story constantly.

The public in town and city needs education respecting the aims of organization in the district, respecting the plans of the company for seeing that the consumer is not fleeced by the retailer, respecting the comparative values of varieties for certain purposes and respecting many other things the knowing of which would benefit both grower and consumer. A publicity man might prepare also pamphlets of recipes on using fruits in the fresh state, on preserving, canning, etc.; these could be distributed by the retailers that handle the company's fruit, and would tend to increase the demand. A publicity man could be of great value to the members themselves by disseminating information respecting the activities of the company and on the latest thought and practice in fruit culture. There are many ways in which publicity would prove profitable.

## An Announcement By the Publishers

This issue of The Canadian Horticulturist is the smallest that we have published in many years. It is likely that the December and January issues also will be curtailed. The late winter and early spring issues will be, we expect, much larger and more like our usual issues.

As the public now is well aware, the abnormal increases that have taken place during recent years in printing and paper costs have forced hundreds of papers to suspend publication. The Canadian Horticulturist has felt these conditions. For instance, the grade of paper which we have used on our covers cost us a few years ago six cents a pound. To-day it costs 24 cents a pound, and even more—when we can get it. That is why we have been forced to discontinue its use for the present.

The Canadian Horticulturist has been published for 43 years. We expect that it will continue to be published for years to come. There are signs now that conditions are beginning to right themselves. Until they do, however we will have to ask our subscribers to be patient with us should we find it necessary to curtail the size of our issues for a few months as we have this month. As soon as possible the old standard will be re-established and, we trust, improved upon.

## The Horticultural Publishing Co., Limited.

such schemes. Such men might well look into the cause of such failures—and perhaps they would find that they themselves were largely to blame. Because this or that organization failed in the past is no reason why there should be failure today with a new attempt, properly organized and properly managed.

As the Grape Growers, Limited, has proven its worth and is incorporated with a large capitalization, it might be expanded into an organization big enough and broad enough to market the entire fruit crop of the district. By changing its name from "Grape" to "Fruit," and by redrafting its aims and bylaws to meet the larger need, it could be made adequate in all particulars. There are objections to this proposal which



## Ontario Government to Crush British Fruit Combine

The Ontario Government, it is announced, may take action to smash the so-called British fruit combine. This combine of fruit dealers in England is maintaining exorbitant prices on small fruits, and preventing the importation on a large scale of Canadian fruits, of which large quantities have rotted on the trees and ground because of the lack of a market.

Hon. M. W. Doherty, Minister of Agriculture for Ontario, is in England looking after the Canadian campaign and negotiating with British officials. He has stated that "We are determined that Canadian goods shall reach the English market. If the various trade associations will not take action the Ontario government will take

its own course. I am sailing for home on Tuesday and will immediately call a conference of fruit growers which I hope will result in early shipments of fruit to England. The Government will undertake the shipment if necessary. As to general Canadian produce, I will suggest that the Government create depots in London, Manchester and other centres. I am making a vigorous protest to have the meat embargo raised and have enlisted the support of public men here."

### Niagara Fruit Men Talk Selling Organization

Niagara fruit growers are determined next season to avoid a repetition of the severe losses sustained this year through the great wastage of fruit. A conference of representative fruit growers of the district, held at Winona, has decided that it would be to the advantage of all if the growers formed themselves into one selling organization, instead of selling their crop through dealers and co-operative societies.

**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.**  
11 Water Street - Troy, Ohio



### Do You Like to Dig Post Holes?

No farmer likes the job of digging post holes. It is a hard, laborious, back-breaking, slow operation. It is a waster of time and energy.

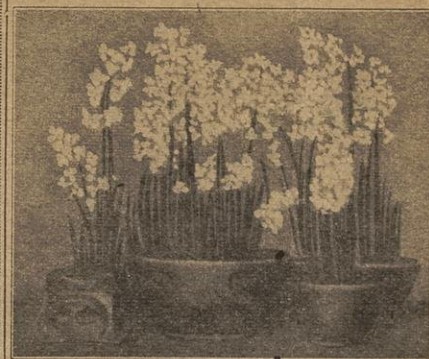
### BURLINGTON STEEL FENCE POSTS

offer an easy solution. They can be driven in a fraction of the time. There are no holes to dig or fill up. They anchor permanently. They will not sag nor bend. They resist rust, decay and fire. No staples to drive as clips are used. They hold the wire solidly.

For sale by all good hardware, fence and implement dealers or we will supply you direct. Immediate shipment.

A new book is just off the press. It tells all about these posts. Write for it. IT'S FREE.

**BURLINGTON PRODUCTS LIMITED**  
307 SHERMAN AVE. N.  
HAMILTON, . . CANADA



## SPRING FLOWERING BULBS

### Hyacinths

Mammoth Bulbs. Crimson, Pink, White, Light Blue, Dark Blue, Yellow. 15c each, \$1.50 per dozen; 25c each, \$2.00 per dozen, postpaid.

### Second Size Hyacinths

For pots or beds. Same colors as above. 10c each, \$1.00 per dozen; 15c each, \$1.50 per dozen, postpaid.

### Choice Mixed Single Early Tulips

45c dozen, \$2.75 per 100, postpaid.

### Darwin Tulips

#### Named Varieties

60c dozen, \$4.25 per 100, postpaid.

#### Choice Mixed

50c dozen, \$3.25 per 100, postpaid.

### Daffodils

70c dozen, \$4.40 per 100, postpaid.

### Chinese Sacred Lilies

20c each, \$2.00 per dozen, postpaid.

### Paper White Narcissus

60c dozen, \$4.75 per 100, postpaid.

### Prepared Fibre

for growing bulbs in bowls,  
15c per lb., postpaid.

**Geo. Keith & Sons**

124 King Street East  
TORONTO



W. B. Roadhouse, Deputy Minister of Agriculture, deplored the losses sustained this year, and urged the forming of the

## BEEKEEPERS' SUPPLIES

Winter cases of all kinds. Double-walled packed hives, Standard hives, Frames, Extractors, Honey Tins.

Everything for the Beekeeper.  
Put in your order before the prices advance.

**THE CANADIAN BEE SUPPLY AND HONEY CO., LIMITED**

73 JARVIS ST. - TORONTO, Ont.

## HONEY

White, Amber, Dark

BOUGHT AND SOLD

Get our quotation on your crop or let us supply your shortage.

**Are you Buying or Selling an Apiary?**

We quote on complete outfit. Our estimates for 1921 Spring delivery will interest you.

**WEIR BROS.**

60 Chester Ave.

TORONTO, ONTARIO

entire Niagara district into one marketing organization. Others pointed out that better transportation facilities could be secured through such an organization.

A committee to formulate plans was appointed, consisting of Major Roberts, Grimsby; T. J. Mahoney, President of the Niagara Fruit Growers' Association; Major Carpenter, Fruitland; Mr. Usher, Queens-ton; A. J. Shepard, St. Catharines; and Mr. Gamin, Vineland.

## Fruit Market Reports

Furnished by Dominion Fruit Branch,  
Winnipeg, Manitoba.

The first two weeks in October finished the shipments of Ontario soft fruits, which had been a glut on the market. Taking all the shipments into account, it has been fairly well demonstrated that Ontario peaches and plums are only fairly good shippers, unless they are picked on the firm side. Many shipments, especially of plums which were packed slightly immature, did not ripen, but withered or rotted. It has also been demonstrated that a package carrying more weight than is contained in an eleven-quart basket is not satisfactory.

Ontario grapes arrived in various conditions, having many broken stems and moulded berries.

Ontario onions have arrived in first-class condition, but those from British Columbia were moist and slightly mouldy.

## BEESWAX WANTED

We are open to buy Beeswax in any quantity, large lots or small. Write us what you have to sell or get our rates for making up your foundation by the "JONES WEED PROCESS."

If you need special sized hives or frames or other bee fixtures now is a good time to place your order and secure better prices.

**F. W. JONES & SON**

Manufacturers of Bee-keepers' Supplies,  
BEDFORD. QUE.

The movement of apples has been slow. Apples in crates from British Columbia have been practically unsaleable on account of the bulk shipments coming from Ontario being offered at lower prices. The barrelled apples from Ontario so far are of high quality, and meet with a ready sale. British Columbia McIntosh Reds are moving steadily.

The Winnipeg market has been glutted with potatoes from Alberta and Minnesota. The quality in most cases is good, but there have been some immature lots.

Montreal, Quebec.

The city markets have been well supplied with choice vegetables, many growers having motor trucks to carry their produce, in some cases a distance of forty miles. The same applies to the fruit grown within this area. Onions grown on the Island of Montreal have done very well this season, have cured nicely and should store well.

That there is considerable rot in potatoes

## Notice to Our Customers

All previous prices on Beekeepers' Supplies cancelled September 1st. Please write for prices, or send for new list, which will be subject to our usual early cash order discounts.

**The Ham Brothers Company**  
Limited

Manufacturers of Beekeepers' Supplies

Brantford - Ontario

## Bees in Packages For Sale

Am booking orders now for 1921, late April, May and early June delivery. Safe arrival and satisfaction guaranteed. Parcel postage paid.

1 lb. package with untested Italian Queen	\$5.25
2 lb. package with untested Italian Queen	7.00
3 lb. package with untested Italian Queen	8.25

Send your order now to make sure of the early packages. One quarter down, balance time of shipping.

**Hector Inch**

PORT HOPE

ONTARIO

## Eleventh Annual Beekeepers' Short Course

at the

**Ontario Agricultural College, Guelph**

January 11th to 22nd, 1920

This course will be of special benefit to beekeepers who have kept bees and wish to learn the most profitable systems of management.

The lectures and demonstrations will include the season's management of the apiary and the diseases of bees.

There are no fees, the only cost will be personal expenses.

Mail applications to

**J. B. REYNOLDS,**  
President.

## How To Get More Eggs and Save Feed!

How to tell slackers and poor layers; how to feed to double egg yield; how to keep flock healthy; ventilate houses in winter; get good hatches, strong chicks - 1,000 poultry secrets made plain in 38 lessons. Recommended by 25,000 students. Guaranteed to double profits. **FREE BOOK**, "Dollars and Sense," gives all the facts. Write today. **AMERICAN POULTRY SCHOOL**  
Dept. 676 Kansas City, Missouri.





# Scotland Wants Large Supplies Best Class Apples

GLASGOW'S RELIABLE FRUIT SALESMEN

## ALEXANDER CAMPBELL & CO.

Receivers and Distributors of All Class Fruits

111 ALBION ST. BAZAAR, GLASGOW.

Cable Address—APRICOT

Established 1873.

Codes used—A.B.C. 5th Edition and Marconi code.

## T. J. POUPART

REGISTERED T.J.P. TRADE MARK

COVENT GARDEN

— AND —

SPITALFIELDS MARKETS

## LONDON

The Largest Firm  
of Fruit Salesmen  
in Great Britain

*SHIP YOUR*

# APPLES

*TO*

## W. S. BUCKOLL

*Fruit Importer and Merchant*

NOTTINGHAM, ENGLAND

**I** SOLICIT your consignments. Write  
NOW for particulars  
of the Buckoll Service

*Highest References Given*

Telegraphic Address: "Buckoll, Nottingham, England"



## Prompt Returns From Shipments



When you ship Grain, Butter, Cheese or Fruit, put through The Merchants Bank a Draft on the buyer. This is the business way of securing prompt and satisfactory settlement.

It saves time and possible loss.

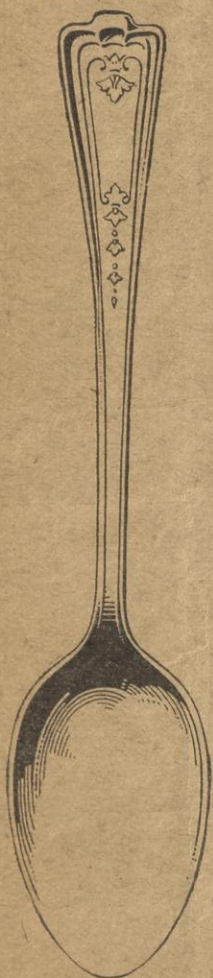
## THE MERCHANTS BANK

Head Office: Montreal. **OF CANADA** Established 1864.

With its 149 branches in Ontario, 47 branches in Quebec, 1 branch in New Brunswick, 3 branches in Nova Scotia, 44 branches in Manitoba, 44 branches in Saskatchewan, 87 branches in Alberta and 14 branches in British Columbia, serves rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

Louvain Pattern



## Tomorrow's Silverplate

WHEN plans are made for new homes, for gift giving and for additions to the family's silverplate service, all consider silverplate of finest quality—for nothing but the best in silverplated ware is a good investment these days.

If you would have silverplate that lasts long, that merits admiration, that is always a good investment, then choose the best known kind. But ask for it by full name—"1847 Rogers Bros." Then you can be sure you will get exactly what you want.

# 1847 ROGERS BROS.

## SILVERWARE

*The Family Plate for Seventy Years*

MERIDEN BRITANNIA COMPANY, Ltd., Hamilton, Ont.

Made in Canada by Canadians and sold by leading Canadian dealers throughout the Dominion.

in many districts in the province is evidenced by the number of cars which have been showing large percentages of waste. In fact, a number of these have been sent to the incinerators, being unfit for food.

A bountiful supply of Ontario fruits has arrived—plums, peaches and grapes, largely of poor quality. Those of the best quality, properly graded and packed, met with quick sale at comparatively good prices. Winter apples, arriving in car lots, have met with fair demand.

Ottawa, Ontario.

The peaches and plums for this season are a thing of the past. Many shipments of plums arrived in poor condition, showing a great amount of waste, and had to be sacrificed at 15c to 20c per basket. Those in good condition sold from 45c to 75c per eleven-quart basket, and from 35c to 50c for a six-quart basket. The quality of the peaches on the whole was not good, at least 50 per cent. lacking in size and color, some green and immature.

Many shipments arrived in a wasty condition, especially those with leno covers. It is evidently unsafe to ship peaches in this way, unless crated. Car lot shipments of flats to these markets arrived in better condition. No matter how carefully the leno-covered baskets are loaded a large percentage of the fruit is badly bruised and will not hold up.

Several shipments of peaches were made in peach boxes and arrived in good condition. There appears a demand for a limited quantity of these, provided the quality is of the best, so as to be sold for dessert purposes. The demand for the best, at comparatively good prices, was maintained throughout the season, but those of poor quality were difficult to move at any price.

Apples of all varieties have been arriving freely, and in various kinds of packages, due to the acute shortage of the regular containers. McIntosh Reds of the best quality have been selling as high as \$12.00, and No. 2's at from \$1.00 to \$2.00 per barrel less, the average price for No. 1's being

## TO TRAPPERS FREE



Write for our Trappers' Guide—absolutely free. As different from other Trappers' Guides as an Aeroplane is from a Stage Coach. Seven Books in one. Partial list of contents: Memorandum Book, weather chart, calendar, game laws of each state, pointers on trapping, foot prints of fur-bearing animals, science of trapping, medical department, 86 different recipes for various diseases, first aid to the injured; showing how you can get your trappers' supplies at manufacturer's prices or less. We pay postage. Write us for a FREE Trappers' Guide today.

Established 1871.  
WEIL BROS. & CO., INC.

"The Old Square Deal House"

193 Weil Block,

FORT WAYNE, IND., U. S. A.

## 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

193 Inter-Southern Bldg.

LOUISVILLE, KY.



from \$9.50 to \$10.00 per barrel. Carefully picked McIntosh apples, in bushel hampers, sell at \$2.75 to \$3.00. Fameuse and Wealthies have been offered at \$1.00 per barrel less than McIntosh Reds, and choice R.I. Greenings at \$8.00 for No. 1's and late fall cooking varieties at \$7.00 per barrel. These are wholesale prices.

Some bulk apples sold on track to retailers and consumers at \$3.50 to \$4.50 per barrel, the purchaser supplying the containers. What effect the sale of large quantities of bulk apples will have on the future prices remains to be seen, but owing to the shortage of barrels and boxes the quantity stored for winter sale will be considerably reduced, and the price for these is expected to continue firm.

Potatoes have been selling at from \$1.40 to \$1.75 per bag, according to quality and freedom from disease.

### Dominion Conference of Fruit Men

It was intended to hold an Apple Show in conjunction with the National Live Stock Exhibit in Toronto. Owing to the Exhibition Association being unable to complete a large building within the show grounds, the matter of a National Apple Show and the Dominion Conference has been abandoned for this year. Further consideration will no doubt be given this matter at the next Annual Meeting of the various Provincial Fruit Growers' Organizations.

### Shipments of Apples Heavy

The apple shipments from Nova Scotia to date almost equal those for all last season. Counting two shipments which have been

made this month, a total of over 320,000 barrels have been shipped from Halifax this season, principally to the United Kingdom, compared with last year's total of 432,000 barrels. The season commenced in August, and so far October has been the biggest month, but according to the present schedules November promises to surpass it.

A cable message from Glasgow, dated Nov. 4th, quotes Nova Scotia apples selling at following prices:

## GLASS

At Less Than Half Price For

Greenhouse or hot bed sash  
Double Diamond 21 oz.

Sizes 8 x 16" to 15 x 16" inclusive.  
Also 12 x 15".

\$8.00 per 100 sq. feet.

**DALE ESTATE**

BRAMPTON

ONTARIO



We have a large  
stock of all sizes  
**FLOWER POTS**  
FERN OR BULB PANS

**AZALEA POTS**  
and Rimless Pans

Orders Filled Promptly.

Send for Prices

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

### 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 below.

## To Fruit Growers and Farmers—

The Dominion Bank is prepared to give special attention to the accounts of fruit growers and farmers.

If you need money to improve your orchard or farm, consult the local manager of any of the following branches:

NIAGARA FALLS  
ST. CATHARINES  
WELLAND

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

**THE DOMINION BANK**  
HEAD OFFICE TORONTO

## POLYANTHA ROSES—EXTRA STRONG BUSHES

Roses H. T. and H. P.

Paeonies, strong roots, my selection and named varieties.

Hydrangea Paniculata and standards.

Buxus, all shapes and sizes.

Rhododendrons, (Hardy Parsons) and Conifers.

These goods are ready for immediate delivery.

**HARRY KOOLBERGEN**

BOSKOOP

NURSERYMAN

HOLLAND

Please get prices from my Canadian representative, MR. ARCH. P. MARSHALL, Niagara Falls, Ont., Canadian Sales Manager.

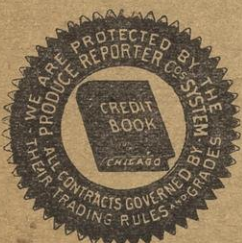
# Fruit and Vegetables Solicited

We Get Best Prices

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt 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.



References: The Bank of Nova Scotia, King and Victoria Branch, and Commercial Agencies.



We Solicit Your  
Consignment

Send for  
Shipping Stamp

Branch Warehouses:  
Sudbury, North Bay,  
Cobalt and Timmins.

**PETERS, DUNCAN LIMITED**  
88 Front St. East, Toronto



# GOMBAULT'S CAUSTIC BALSAM

THE STANDARD REMEDY  
HUMAN and VETERINARY



It is generally true that an external remedy that is good for the animal is also good for the human body, and Gombault's Caustic Balsam is no exception to this rule. The many testimonials received from physicians and veterinarians are convincing proof of its merits. Rheumatism, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Throat, Stiff Joints, in fact any ailment requiring an external application can be treated with absolute safety and the beneficial results produced are all that could be desired.

## Soothing and Healing--A Perfect Antiseptic

As a veterinary remedy its curative qualities have been acknowledged for many years in cases of Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Spavin, Ringbone and other bony tumors. A trial will convince anyone that here is a remedy without an equal. Write for any information desired. \$1.75 per bottle at druggists or sent by parcel post on receipt of price.



The Lawrence-Williams Co., - - - Toronto, Ont.

### PERRY'S SEEDS

Alpine and perennials, unique collection; many new varieties obtainable from any other source. Hardy and adapted for Canadian climate. HARDY PLANT FARM, ENFIELD, ENGLAND

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

## Cyclamen Giganteum Seeds

*Kelway's Perfect Model, a pedigree strain. All newcrop Seed available for immediate delivery.*

	per 1,000 Seeds.	per oz.		per 1,000 Seeds.	per oz.
Salmon King .....	\$6.50	\$19.00	Dark Crimson .....	\$6.50	\$19.00
Crimson .....	5.00	15.00	Rose .....	5.00	15.00
Salmon .....	6.50	19.00	White with eye .....	5.00	15.00
Charming Bride .....	5.50	15.50	Pure White .....	5.00	15.00
Mixed .....	4.40	13.50			

SECURE YOUR REQUIREMENTS NOW.

## KELWAY & SON

Wholesale Seed Growers. - - - LANGPORT, ENG.

Kings, No. 1's and 2's, 48s. to 54s.; No. 3's and domestics, 39s. to 42s.; Ribstons and Blenheims, No. 1's and 2's, 38s. to 42s.; No. 3's and domestics, 34s. to 38s.; Manns and Fallawaters, No. 1's and 2's, 40s. to 45s. No. 3's and domestics, 30s. to 40s.; various No. 1's and 2's, 39s. to 43s.; No. 3's and domestics, 35s. to 37s.

The end of the coal strike in Britain is expected to further stimulate prices.

## Vegetable Growers Elect Officers

The St. Catharines' Vegetable Growers' Association held their annual election of officers on November 8, resulting as follows:

Hon. President—Henry Knight.

President—F. L. Furringer.

Vice-President—Alex. Mitchell.

Secretary—George Wilson.

## Missing Potato Hills

Potato growers, generally, appear to take it for granted that the effect of missing hills or "skips" in potato fields is to lower the yield. Accordingly, efforts are made to obtain as nearly a full stand of plants as may be possible. Concerning the amount of the loss, opinions differ widely. Some assume that a missing hill is a total loss. Others hold that a large part of the loss is made up by the increased yield of the adjacent plants. Probably, the amount of the loss varies considerably with the variety, the distance between hills, and the cultural, soil and weather conditions; but there seems to be little experimental data upon which to base an opinion.

An experiment was, therefore, conducted by the New York Agricultural Experiment Station, Geneva, an experimental plot being planted to potatoes of the variety Sir Walter Raleigh. It was found that a stand of say, 80 per cent. will give more than 80 per cent. of a full stand.

This, and many other results from the experiment, are summarized in Bulletin 459, "Missing Hills in Potato Fields; Their Effect Upon the Yield."

## SOX

Quickly kills all kinds of insects. One tablet is sufficient for 2 gallons of water.

Each 25c.

## FERTABS

(PILLS FOR PLANTS)

The most highly concentrated fertilizer obtainable. 1 pill is sufficient for one plant for one month.

## Harry's Seed Store

360 Dorchester St. W. Montreal, Que.



# Short Courses in Horticulture

- - - at the - - -

Ontario Agricultural College, Guelph

- |   |       |                               |
|---|-------|-------------------------------|
| 1. Fruit Growing—two weeks              | - - - | January 24th to February 6th  |
| 2. Vegetable Growing—two weeks          | - - - | February 7th to February 19th |
| 3. Floriculture and Landscape Gardening |       |                               |
| —two weeks                              | - - - | February 21st to March 4th    |

The Fruit Short Course—Concise, reliable information on practical methods for large and small growers. Fruit is a necessary article of diet and offers excellent opportunities for profit just now.

The Vegetable Short Course.—The first week will be for commercial growers and the second for the amateur with a back-yard garden.

Floriculture and Landscape Gardening.—“Home” means even more now than it did before the war. Every home—city or country—should be a place of beauty—attractive and pleasant.

The College Staff will be assisted by some of the best commercial growers (practical fruit men and gardeners) of the Province.

There are no fees, the only cost being personal expenses.

J. B. REYNOLDS,  
*President*

## There is No Better Market in ENGLAND FOR CANADIAN APPLES THAN BRISTOL

and there is no firm in Bristol that has better facilities for handling your apples,  
or is more anxious to build up a large business in Canadian Apples than

H. C. WILLIAMS  
FRUIT SALESMAN

Nicholas Market

BRISTOL

SALESROOMS:

45-47 Baldwin Street, Bristol  
31 Custom House Street, Cardiff  
2 New Street, Bath

CABLE

“Apple, Bristol”

Established 26 Years

There is a frequent service of boats for the Bristol Channel from Montreal, Que. Halifax, N.S., St. John, N.B. and Portland, Maine

For information apply any C.P.R. Agent, or Manager, Dominion Line, Notre Dame Street, Montreal





**Cletrac**  
TANK-TYPE  
TRACTOR



Wheels on a track—the  
Cletrac way—take less power

### Cletrac for the Fruit-Grower

Cletrac is the ideal tractor for the fruit grower. It works in and out amongst the trees, doing every job of cultivation. It is low set, and easily slips under the out-hanging branches without damage. It works close up to trees without barking. It turns short and gets at the out-of-the-way corners. Cletrac's speed is adjustable to the job in hand.

Cletrac travels on its own self-laid tracks. Works perfectly on coal oil, (kerosene), and has always an abundance of power. Cletrac does more in a day than three men and three teams. Saves continually on cost and keep.

Out of the orchard Cletrac does every job of hauling and belt work there is to be done.

Cletrac has proved itself the certain way to bigger yields and better quality fruit to thousands of owners.

Write for booklet, "Selecting Your Tractor."

**The Cleveland Tractor Company  
of Canada Limited**

Head Office  
21 Ottawa Street  
MONTREAL, QUE.

Western Sales Office  
REGINA, SASK.

### Oriental in Okanagan

F. A. Williams, Summerland, B.C.

An Oriental problem is rapidly taking shape in the Okanagan, and there is great danger of the valley suffering the same fate as the Hood River district in Oregon, where 50 per cent of the apple crop in that banner section is in the hands of Japanese. In the northern end of the Okanagan, Chinese have already a stranglehold on the fine vegetable lands of Armstrong and district, to the south. Japanese have penetrated into every district, excepting Peachland and Naramata, perhaps.

They lease in many cases, taking hold of properties that their owners have allowed to get into poor condition. They never lack money, and soon are out to purchase. The famous Coldstream Ranch, for a long time the property of the Earl of Aberdeen, attracted the attention of Japanese financiers, and it is probable that only the great outcry of public opinion prevented the negotiations taking definite shape. The same thing occurred at Kelowna, where a Japanese orchard worker offered to put up half a million dollars for the purchase of some company property, the manager having named the price, never thinking how the Jap would jump at it.

Public opinion is strongly against the Orientals, but they are growing in influence and numbers, principally through the apathy of the few people in the valley who are not awake to the seriousness of the situation.

### Okanagan United Growers

The fruit industry in British Columbia has received a great impetus through the work of co-operative societies. The fact cannot be gainsaid that it was through the efforts of the Okanagan United Growers' salesmen that the apple market on the prairies was for the first time really established in 1917 and the following year. It is likewise a fact beyond dispute that it was almost entirely owing to their successful efforts in opening new avenues of distribution last year that a glut on the market was averted and the Okanagan crop disposed of at profitable figures.

Individual shipping concerns, as well as every individual grower in the valley, owe more to the Okanagan United Growers than many of them realize. We regard this organization as one of the greatest assets that the district possesses.—*Vernon News*.

Watch for the work of rabbits and mice on newly set fruit trees.

The **BRISTOL FRUIT BROKERS, Ltd.**  
21-22 Welsh Back BRISTOL, ENGLAND

**Fruit and General Produce Brokers**  
Fruit auctions held weekly. Apples our Speciality

Telegrams: "EMPRESA," BRISTOL.

Correspondence Invited



**FOR SALE and WANT ADS**

Advertisements in this department inserted at the rate of 5 cents per word. Each word, initial or group of figures counts as one word. Minimum 50 cents cash, strictly in advance.

**BEEES AND BEE SUPPLIES**

**HARDY ITALIAN QUEENS**—\$1.00 each. W. G. Lauver, Middletown, Pa.

**GOLDEN QUEENS** that produce golden bees, selected untested \$2.00, tested \$2.50. Safe arrival and satisfaction guaranteed. Clinton Bradway, Monson, Mass.

**FOR SALE, CHEAP**—A quantity of 9 and 10 frame Langstroth hives and supers in A1 condition. Some new. Apply J. J. Charlton, 47 George St., Brantford, Ont.

**WE HAVE A FULL LINE OF SUPPLIES** for the beekeeper. 8, 10 or 12-frame hives, etc. Let us figure on your wants. Send for price list. The Ontario Beekeepers' Supply Co., Guelph, Ontario.

**BEEES WANTED**

**BEEES WANTED**—From 60 to 100 Colonies Italian Bees with supers of drawn comb and other up-to-date apary equipment. Standard ten-frame Langstroth equipment preferred. Give full particulars to Wehr Bros., 60, Chester Ave., Toronto, Ont.

**BEEESWAX AND HONEY**

**WANTED**—Large Quantity White Clover and Buckwheat Honey. State how much and lowest price. Rosebrugh Bros., 427 Ave. D South, Saskatoon, Sask.

**MISCELLANEOUS**

**ALL KINDS OF BOOKS** on Poultry, Pigeons, Pheasants, Birds, Dogs, Cats, Rabbits, Ferrets, Pets, Bees, Farm Animals, Dairying, Fruit Farming, Vegetables and Flowers. Catalogue of books free. Morgan's, Limited, London, Ont.

**FERRETS**—We Buy and Sell. Write for Catalogue of Dog, Rabbit and Ferret Supplies. Morgan's, Limited, London, Ontario.

**CANARIES AND POULTRY**

**CAGE BIRDS, CANARIES, PARROTS, etc.**—Exclusive Canadian Agency for Max Stein's full note rollers. Shipped safely anywhere. Circular free. Giles' Aviary, London, Ontario.

**SINGING CANARIES, BIRD MEDICINES, BOOKS, etc.**—Write for catalogue. The largest reliable bird supply house in Canada. Morgan's, Limited, London, Ontario.

**FOR SALE**—Mammoth Bronze Turkeys: Gobblers, \$10.00 each; hens, \$6.00; parent birds weigh 28 and 35 pounds; also pure Plymouth Rock roosters, \$3.00 each. Mrs. Hobetzeder, Gravesend, Dysart, Sask.

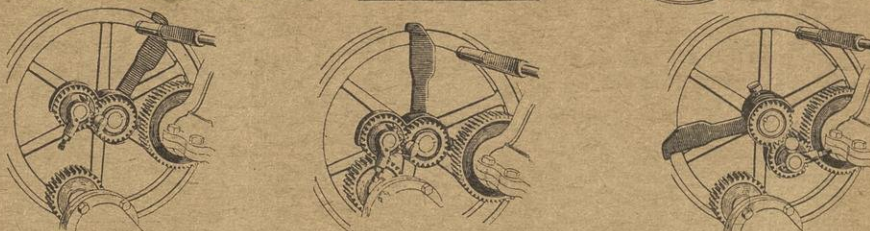
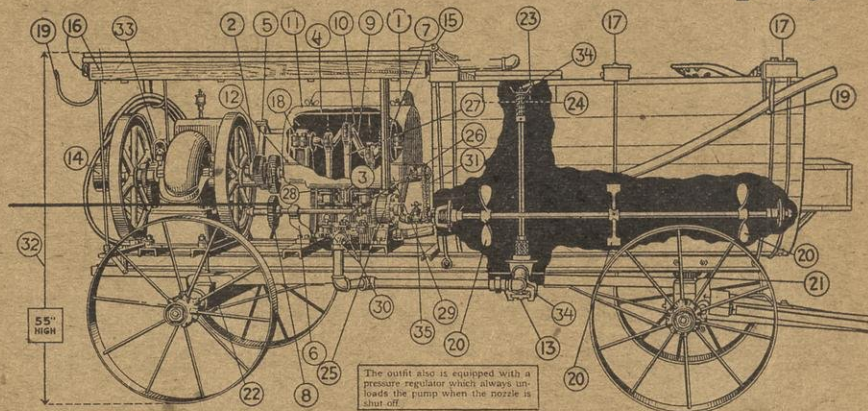
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**ALL KINDS OF FARMS**—Fruit farms a specialty. Write, stating requirements, W. B. Calder, Grimsby.

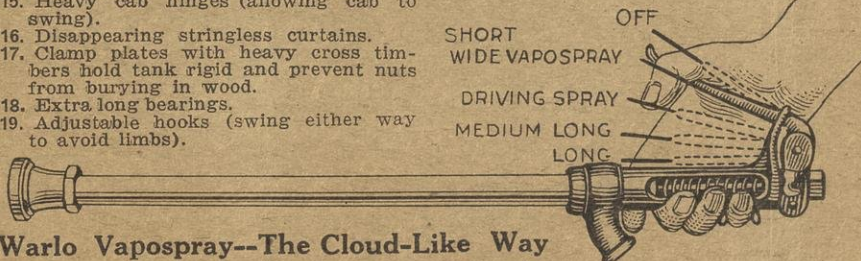
**SEEDS, BULBS, PLANTS, SHRUBS**

**BULBS OF ALL DESCRIPTIONS**—Write for prices. C. Keur & Sons, Hillegom, Holland. New York Branch, 82-84 Broad St.; also 10418-113th St., Richmond Hill, L.L., N.Y.

**VAN'T HOF & BLOKKER, AKERSLOOT, HOLLAND.** Bulb growers and exporters of roses, etc. Fall and Spring import orders solicited from Societies, Schools and individuals. Canadian Office, 430 Brunswick Ave., Toronto.

**35 Reasons Why You Should Buy a Warlo Sprayer****Locked in Neutral To Drive Filler Pump To Drive Spray Pump**

1. Large steel air chamber located above valves assures an even pressure.
2. Patented Flexible Gear Drive makes certain uniform mesh of gears regardless of torsional strain on frame. Quickly changes to neutral or to filler pump drive.
3. Positive driven oil pump forces flow of oil to all working parts.
4. Distributing oil pipe.
5. Neutral lock for flexible gear.
6. Bracket to support filler pump shaft.
7. Oversize gear on crank shaft.
8. Drive gear for filler pump.
9. Extra heavy drop forged steel crank shaft; bearings, and pins 1 1/4 inches diameter. (replaced.)
10. White metal bearings, die cast, easily.
11. Dust proof steel hood protects all working parts.
12. Felt gasket to make perfect dust seat.
13. Drain for tank easily accessible.
14. Engine pulley can be used to saw wood, pump water or run churn by simply placing flexible gear in neutral.
15. Heavy cab hinges (allowing cab to swing).
16. Disappearing stringless curtains.
17. Clamp plates with heavy cross timbers hold tank rigid and prevent nuts from burying in wood.
18. Extra long bearings.
19. Adjustable hooks (swing either way to avoid limbs).
20. Positive three blade agitator (means perfect agitation of solution).
21. Rocking bolster (maintains level of tank and engine on uneven ground).
22. Steel plate support (for rear axle).
23. Tank strainer (prevents foreign substance from entering tank).
24. Spring equalizer (makes allowance for shrinkage or swelling of tank).
25. Rotary filler pump (assures fast filling of tank).
26. Cylinders cast in block with base, reduces number of working parts.
27. Drop forged connecting rods. (guide).
28. Removable brass bushings for plunger.
29. Deep oil pan assures oil reserve, and at the same time is part of main pump casting which increases rigidity. (seats).
30. Quickly removable valves and valve.
31. Agitator driven from pinion shaft.
32. Built low (55" high).
33. Bosch magneto.
34. Well and strainer (shut-off valve).
35. Hand relief valve (relieves all pressure from outfit).

**Warlo Vaporspray--The Cloud-Like Way**

This spray gun is always under complete control—one hand only being required for its operation. Equipped with automatic shut-off valve, allowing cleaning of the discs without shutting off line at the pump.

**SPRAY INFORMATION**—Write for profitable information on spraying with the Invincible—free on request.

**Ward-Love Pump CORPORATION**

706 RACE ST. PUMPS FOR ALL PURPOSES. ROCKFORD, ILL.





# NATIONAL TRUCKS

*Ready To Move*  
**NATION'S**  
*Produce*



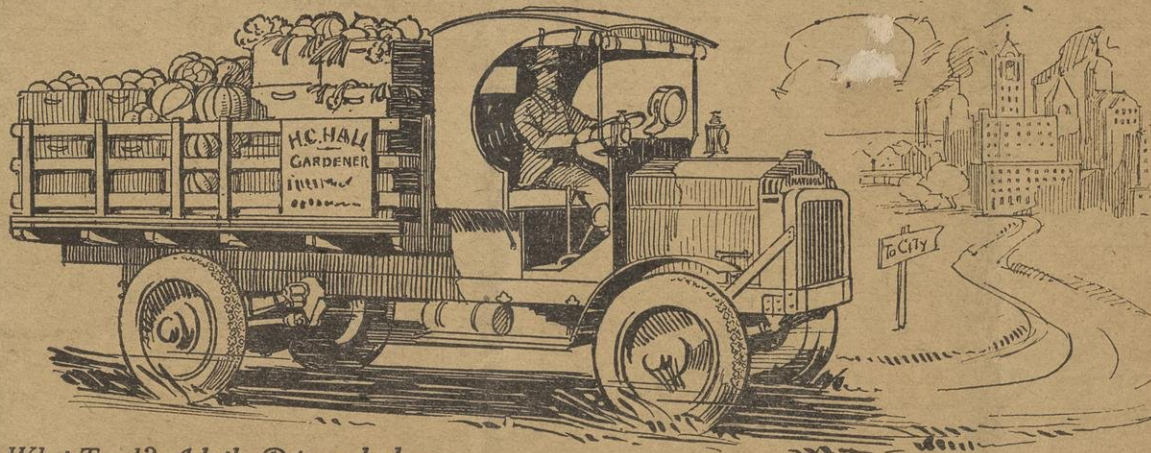
For the truck farmer and market gardener marketing means increased toil. It means a daily or nightly trip to market. Ripened crops cannot wait. They must be gathered, stored and marketed.

Far-sighted farmers are finding in the **National** Truck an answer to this problem. With a **National**, a night's rest can be had before starting. Wagons that headed for town hours before are overtaken and left behind. One **National** suited to the farm, will carry as much as three old fashioned wagons. Six horses are thus kept fresh for a day's work. A night's labor for three men is saved.

A **National** Truck means more money, more time and less work on the farm. It means fresher vegetables for the city.

Horses must rest 12 hours a day at least. When idle they must be fed and attended. A **National** Truck can be worked 24 hours a day if need be. It never needs a rest, and when idle it costs nothing but the interest on the investment.

1-1½-2-3½ and 5 ton capacity



*What Truck? Ask the Driver--he knows*

**NATIONAL STEEL CAR CORPORATION LIMITED**  
 HAMILTON CANADA

*"Write for Illustrated Catalogue and name of the nearest National Dealer."*