

The...  
**Canadian Bee Journal**

*Devoted to the Interests of the  
Bee Keepers.*

Published Monthly by  
**The Gould Shapley & Muir Co.**  
(Limited)  
BRANTFORD, CANADA

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# The Canadian Bee Journal

Published Monthly

New Series  
Vol 13, No. 10

BRANTFORD, CAN. OCTOBER, 1905

Whole No  
487

## NOTES AND COMMENTS

By a York County Bee-Keeper

### Size of Hive Entrances for Outdoor Wintering.

In this season of the year anything in the line of wintering is pretty sure to appeal to the average bee-keeper, especially to we chaps who winter outdoors. An editorial in "Gleanings" of September 15th issue advises bee-keepers to contract entrances to all hives early in September to not larger than 6 inches by  $\frac{1}{4}$  inch deep, and adds: "Of course, all entrances should be contracted during cold weather." Where large entrances are used during hot weather—say two inches deep by full width of hive—of course there is no question that contraction is necessary during cold weather, but as to wisdom of contracting to as small dimensions as advised by friend Root, I for one would take issue. After experimenting with different sizes of entrances, am thoroughly convinced that for our latitude, in outdoor wintering, a fair-sized entrance is necessary for best results, and this winter nearly every one of my colonies will go into winter quarters with entrances equivalent to five square inches.

One of the disadvantages of small

entrances, especially for out-yards, is the liability of them getting clogged with dead bees, and when this happens with a strong colony for any length of time, mischief is pretty sure to follow. Aside from this, for reasons I cannot explain, the colonies with large entrances invariably winter best with me, provided, of course, they go into winter quarters strong in numbers.

[Last season we made some experiments with small entrances for outside wintering, and we do not wish to repeat them. In our experience, small winter entrances are regular death-traps to populous colonies. Our best results have been with full width entrances, 12x%, bridged over to meet the outer case. Probably a deeper entrance contracted in width correspondingly, might be better.—Ed.]

### Most Important Things for Association Work.

Among some two dozen answers to Editor York's query in "American Bee Journal," as to most important work for the National Association to undertake, our own Mr. McEvoy is the only one who touches on the idea of instilling into bee-keepers the need of producing a better quality of extracted honey. If one had not been reading some recent articles by extensive apiarists over the line, would be led to think that no unripe honey was produced in "Uncle Sam's" domains, and that they therefore knew nothing of the evil. As intimated in a former issue of the "Cana-

dian Bee Journal," we think that the question is the most formidable that is confronting the bee-keepers of the North American continent, and we may legislate and advertise till we are grey-headed, or bald for that matter, and unless the quality of our honey is uniformly good, sales of same will not be materially increased in the end.

[Our associations cannot advocate too strongly the production of thoroughly ripened honey. Probably more could be done in this way through local Associations than by either the National or the Provincial, but preach it we should. In our opinion, more injury is being done to the honey trade by bee-keepers placing inferior and unripe grades on the market than is being done by adulterations or the much-talked-of newspaper canards.—Ed.]

#### Symptoms and Treatment of Foul Brood.

While we do not wish to be harsh or unjust in criticisms of work of inspectors, must say that it was with a degree of impatience that we read the report of the Illinois inspector of apiarists, given at the Chicago—Northwestern convention. When asked to give a plan so that a person who had never previously seen foul brood would recognize it, the questioner was referred to the sense of smell only. Dear me! Unless foul brood in Illinois is different from the "serpent" here in Ontario, provided most of the beginners' "smellers" are not more highly developed than is that of the writer, their colonies would be rotten before they would be aware of the disease. No question but foul brood has an odor peculiarly its own, but to place "odor" as one of the first signs of the disease is simply (like foul brood) so much "rot."

As to treatment, the McEvoy system is followed with a vengeance. After first shaking on starters, the bees are left for "two weeks or ten days" before being again shaken on full sheets of

foundation. In our locality, if shaking was not done till honey flow was (as it should not be), and then left for two weeks before putting them upon foundation, in a great many cases, as far as utility is concerned, bees had just as well been sulphured at the first shot and end the business.

[Much will be gained toward the total eradication of foul brood when every bee-keeper is trained to recognize the disease when he sees it, and to know its danger. Our Mr. McEvoy has done a good work in this way, at least, in the province of Ontario, and this is, in our mind, half the victory.—Ed.]

#### Wintering on Solid Sealed Stores.

In "American Bee Journal," page 679, in an article entitled "Work in Apiary in October," so practical an apiarist as Mr. C. P. Dedant makes the oft-repeated assertion that "a colony will not winter well on combs that are entirely filled." Begging your pardon, Mr. Dedant, but bees in our cold winters in Ontario will winter outdoors in grand condition on combs entirely filled; in fact, just one factor (labor) restricts me from putting my 300 colonies in just that condition. With good queens prosperous colonies properly protected, wouldn't give two dollars to have them insured against winter losses. Wonder if half the bee-keepers who claim that bees will not winter on solid combs of honey have ever really tried the plan? Some of these days Arthur C. Miller will come butting in and explode this chestnut, as he has some others in the past.

#### Proper Time to Re-queen.

While the fall may be a good time for queen breeders to work off surplus queens, it certainly is the very worst season for bee-keepers to try and introduce fresh stock, if they happen to live in a locality not blessed with a late flow of honey. This fall we had on hand a few stocks of warranted bees

("warranted" to sting with or without provocation), and we decided to destroy the heads of these colonies and introduce some gentler stock. Although there was not much honey coming in, we felt sure that by being careful to work in the mornings only, we could make a success of the job. My! what an awful time to hunt the queens out of those populous, gingery swarms. However, after considerable looking and stings galore, their ladyships were all decapitated, and then the more serious question of introducing the new arrivals was to be considered. Suffice to say, that after using nearly all the "infallible" plans, we were "successful" in losing about one queen out of every five, which meant just two.

The very best time I have found to change stock is during fruit bloom, while the clipping is being done. The time lost that there is no laying queen in the hives amounts to little, as I have had the old queen removed and the fresh one laying inside of 48 hours. The worst difficulty lies in the fact that at this early season queens cannot be got except from the South, and sometimes there is disappointment in not having stock arrive when expected.

York County, Ont.

#### LIFE'S MIRROR.

There are loyal hearts, there are spirits brave

There are souls that are pure and true;

Then give to the world the best you have,

And the best shall come back to you.

Give love, and love to your heart will flow,

A strength in your utmost need;

Have faith and a score of hearts will show

Their faith in your word and deed.

For life is the mirror of king and slave,

'Tis just what you are and do;

Then give to the world the best you have

And the best will come back to you,

—Madeline S. Bridges.

## Work in the Apiary for October

(By C. P. Dadant.)

The honey crop is now entirely over and all supers on the hives should be removed. Those combs that have been run through the extractor and returned to the hives for cleaning and repair would be best be taken off before the end of the month. Cool mornings, when the bees have congregated in the brood-chamber, are best for this end. In warm days we would find those supers full of bees, and there would be quite a task to remove them. But it is better to delay the removal until late in the month, as we avoid the possible development of moth-eggs among the combs that are deprived of bees during the remaining warm days of fall.

The weak colonies must be again examined. If they have been helped during September with combs of brood and honey they will be found quite populous. But such colonies as have not succeeded in getting a sufficient surplus, or those that are queenless or too weak in bees to go well through the winter, should be united either with stronger colonies, or added to one another.

It is sometimes possible to make one good colony out of two or three poor ones; one of them furnishing combs of honey, another bees, another a good queen. But there is always more or less danger of their fighting when united, unless it is done late, and the bees smoked very thoroughly before putting them together. We have often united colonies by bringing them slowly together, moving each hive a few inches every day, so they may not lose their bearings, and then uniting them some very cool morning by transferring the

combs loaded with bees from one hive to the other. It is well to remove all combs but two or three, previous to this uniting, so that the bees may all be gathered in a bunch, and those combs may be removed in one handful and inserted in the other hive.

We always aim to remove from their hives those colonies that are queenless in preference to those that have a queen. A few puffs of smoke and perhaps a little spraying with sweet-scented water, will help them to agree, if we are careful not to overdo this. Drone-laying workers, if there are any, are usually killed by the bees of the colony that has a queen.

At this time also we remove all dry combs from the body of the hives, and examine each colony to make sure of its winter stores. Feeding may be done to supply those that are short, but the very best way of supplying winter stores is by securing heavy combs from fat colonies that have something to spare, and inserting them in hives that are likely to be short. Care must be taken to place those combs where they will be easily accessible for the cluster. A comb heavy with honey, which is placed behind two or three dry combs, and away from the cluster, will be rather a detriment than a help, as outside bees may find it and discover that it is not defended. As a rule, however, it is not advisable to feed and try to winter a colony that is not strong enough to defend its door.

The entrance is, of course, reduced to suit the needs of the colony. Some apiarists seem to consider this a need less precaution, because in a state of nature the bees have the same entrance to their "gum" in hot weather as in cold weather. But the bee-business is a business of details—we can expect more from our bees under domestication than in the natural state simply because we aid them in small things, and if we did not do more for

them than Nature does many colonies would be allowed to starve that would give us good results the following year. Nature provides for all beings in a general way, but she gives us foresight that we may provide that in which she is lacking.

Sometimes, though rarely, hives are found which are so thoroughly filled with honey in the brood-chamber that there is no room for the queen to lay or for the bees to cluster. These hives will gain by the removal of some of their heaviest combs, and the replacing of them by combs that are filled only down to about a half to one-third of their depth with honey, these combs to be inserted in the middle of the cluster.

Although the bees must have honey in easy reach, a colony will not winter well on combs that are entirely filled. A colony in an ideal position has about half of each comb dry (the lower half), and the bees occupy this part. When you open a hive in the later part of October, and the bees come to the entrance at once, but do not show at the tops of the combs, you may be sure that they are in good shape for winter. Yet there are populous colonies that cover every comb from top to bottom, and have a plentiful supply of honey. These are in exceptional circumstances. But a colony that does not occupy at least five spaces between combs may usually be considered as in danger of suffering if the winter is severe. Such colonies, if it is necessary to risk them, would better be wintered in the cellar. Nothing is done, however, towards winter-packing or cellar--wintering before November, in this latitude.—American Bee Journal.

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If thou canst not make thyself such an one as thou wouldst, how canst thou expect to have another in all things to thy liking?—Thomas A'Kempis.

### THE EFFECT ON BEES OF COLD AND MOISTURE.

The question was lately raised in 'The American Bee-Keeper,' "Why is a freezing temperature so much more disastrous to bees confined in a cellar than it is to those wintering upon a summer stand?"

Every bee is a little furnace within which honey is transformed into heat. The bee also gets heat by radiation from substances around it, and also by conduction if it touches any object warmer than itself. This heat is lost by radiation to the air and other things around it, and by conduction to any colder object with which it comes in contact. At any given movement the body temperature of a bee represents the balance between income and loss of heat in the manner desired. Bees can vary their rate of heat production by changing the amount of their food, but there is a limit to the rate at which they can make the transformation of honey into heat; and when it falls short of the rate of loss they must succumb.

The rate of radiation increases with the temperature of the radiating body, and is independent of the temperature of the environment. Accordingly bees do not lose heat in this manner any faster in cold weather than in warm. But the amount of heat they receive by radiation from surrounding matter depends upon its temperature and the amount of heat received in this manner in winter is small. The net result, therefore, of loss and gain through radiation is a larger loss in cold weather than in warm.

The rate of loss of heat by conduction depends upon the nature of the conducting body and upon its temperature. The lower its temperature the faster any conductor will carry away the heat of a warmer body with which it is in contact. There are large differences in conductivity of different

substances. In winter bees are generally in contact only with the combs on which they cluster and the air which surrounds them. Beeswax is a poor conductor of heat, and for that reason makes an excellent resting place for bees in cold weather. If the combs were made of metal it would draw off the body heat of the bees so rapidly that they probably could not withstand low temperature, though well sheltered. Dry air is a relatively poor conductor of heat and as long as the air in the hive is dry and somewhat stagnant, large clusters of bees with plenty of food can withstand very cold weather. The conductivity of dry air, water, and silver are to each other respectively, as 1:25:19571. The conductivity of moist air seems not to have been accurately determined. The only statement the writer can find concerning its value is, that one investigator found that of steam to be higher than that of dry air. It is, however, a matter of common experience that in damp, foggy or rainy winter weather one is colder than on dry days, with the same temperature. This has been explained by excellent scientists as being due to the superior conducting power of water vapor in the air and in one's clothing. This seems reasonable, though it is not a matter of course. Moist air is not necessarily dry air and water. It may be, and more often than otherwise is, dry air and vapor.

Water vapor is one of the several invisible gases of which the atmosphere is composed, and it is always present in the driest weather, and in the most arid regions. Its chief difference of behavior from the other gases is that it becomes liquid at a considerably higher temperature than they do. It is produced by evaporation from water and ice at all temperatures, slowly at low temperatures, faster at high temperatures.

There is a definite amount of water vapor which can exist in the air at any moment, and this amount depends mainly upon the temperature. The higher the temperature the larger the quantity of vapor possible. For example, the maximum amount at 32 degrees Fahr. is 2,113 grains per cubic foot, at 110 degrees is 26,112 grains. When this limit is reached the vapor is said to be saturated, and any further addition of vapor results in changing some of it by condensation into water. If there is less than the maximum amount of vapor that can exist in the air at any moment, the degree of saturation is expressed in percentage, and this is called the relative humidity. For example, a relative humidity of 75 per cent. signifies that there is in the air 3-4 of the total amount that can exist at that temperature. Since the possible amount of vapor decreases with the temperature, any sudden cooling of the air increases its relative humidity. If, for example, the air at 45 degrees with a relative humidity of 75 per cent. were cooled to 37 degrees, the vapor would be more than saturated and some of it turned to water.

If water vapor is a better conductor of heat than dry air, its conductivity must increase with the relative humidity; i.e., the nearer it approaches saturation. When condensed into water it is 25-fold a better conductor of heat than dry air, as we have seen.

Cellars are frequently so damp that at moderate temperatures, the air is nearly saturated and small reductions of temperature bring about condensation. The normal January temperature of Boston, Mass., is 27 degrees, and the normal relative humidity 73.3 per cent. At this time of year in that region the average temperature of a tolerably tight cellar might be 40 degrees with an average relative humidity of 85 per cent. to 90 per cent. (The

writer has just measured the conditions in his house cellar, and finds the temperature to be 41 degrees, the relative humidity 92 per cent., and the dew point 40 degrees. That is to say, if the temperature should fall one degree, dew would form in the cellar.) The humidity, of course, depends upon its ventilation; but in cold locations in order to keep cellars from freezing it is necessary to make them so tight that the ventilation is poor. With an average cellar temperature of 40 degrees and a relative humidity of 85 per cent. to 90 per cent., the air inside the hive, owing to the moisture exhaled by the bees, would likely be 95 per cent. saturated and upwards. The writer has no observations of hive temperatures in winter, but assuming it to be 60 degrees, a reduction of one degree would produce saturation and condensation of some of the vapor within the hive into water if the humidity were 95 per cent. The hive surfaces, the comb and the bodies of the bees would be wetter, and the heat of the bees would be drawn off so rapidly that they might not be able to make it good by a larger consumption of food. Even if they could, this enforced excessive consumption of food without opportunity for evacuation of the waste, might of itself seriously injure the bees if they did not succumb to the cold. The foregoing is based upon the assumption that the air in the cellar remains 90 per cent. saturated. But, as we have seen, a fall of temperature of one degree in the cellar would produce saturation throughout the cellar, and before long the air within the hive would, by diffusion, seem saturated without any reduction of the temperature in the hive. Apparently the bees in a cellar hive live ordinarily in an atmosphere of vapor that is almost saturated, and slight temperature falls within the cellar serve to

completely saturate the hive air and condense the vapor.

Though for want of observations we have been obliged to take assumed values for temperatures within the hives, the relative humidity values are well within the truth. The writer repeatedly saw water and ice inside of a hive in his cellar last winter, and the comb and frames came out mouldy in the spring

Meanwhile what would be the condition of a colony wintering outdoors? We saw that the average January temperature for Boston is 27 degrees and the relative humidity 73 per cent. The temperature would have to fall nearly to 23 degrees before the outdoor air would be so damp as that we have assumed for the cellar: viz., 90 per cent. saturated. The superior dryness of this outside air, assisted by better ventilation of the hive would reduce the humidity within the hive to say 80 per cent. as against 95 per cent. that of the cellar hive. The temperature inside the outdoor hive would probably be a little lower on the average than that of the hive in the cellar. Assume it to be at 55 degrees or even 50 degrees. At 50 degrees the temperature would have to fall below 44 degrees to make the air within the hive as damp as that in the cellar hive at 59 degrees.

It matters not how much these assumed values for the hive interior may be in error. It is the relative values only between the hive in the cellar and the outdoor hive that concerns us here; and these assumed absolute values serve to illustrate what large differences of moisture there is likely to be any time between hives indoors and those outside; and also to show how much more the moisture in the hives is increased by the same temperature fall in the one case than in the other.

The outdoor hive has the further ad-

vantage that it can dry out on warm and dry days.

To sum up: a fall of temperature to the freezing point leaves the outdoor bees much more comfortable and better able to maintain their normal temperature than those in the cellar because (1) the air in the outdoor hives is much drier, and (2) because the bees outside have occasional opportunities for evacuating the waste arising from any excess of food they may have to consume during the cold spells.

It does not follow, however, that bees may not be more comfortable in cellars than out of doors. By suitable ventilation many cellars can be made sufficiently dry, though this may require artificial heating.

The humidity of the air can be readily measured by any one with an inexpensive instrument called a sling psychrometer. It consists of two thermometers mounted side by side on a single frame, with a cord or handle at one end of the frame, so that the instrument can be rotated or slung round and round in the air. The bulb of one of the thermometers is covered with a piece of muslin. When dry both thermometers read alike, but if the muslin be wetted the swinging of the instruments hastens the evaporation of the water on the muslin, and thereby cools the wet bulb, making that thermometer read lower than the other. From the difference of the readings of the two thermometers the percentage of saturation (relative humidity); the temperature at which saturation would occur if the temperature should fall (the dew point), and the number of grains of water vapor in a cubic foot of air (absolute humidity) can readily be obtained by any one, from tables constructed for this purpose.

[Frank W. Proctor, Fairhaven, Mass., in *The American Bee-Keeper*.]

## A TEST OF THE ALEXANDER PLAN OF INCREASE.

### Also a Test of the Nucleus Plan.

Last spring, when I read in an April number of "Gleanings," page 425, the plan of Mr. Alexander for securing both increase and honey at the same time, I was much interested. Here was what I had been looking for, but did not expect to find inside the lines of the bee industry—a double crop of honey and 100 per cent increase of colonies. If not, indeed a short and easy way to fortune, it was at least something approaching it. I selected four colonies of medium strength, having prolific queens, to test the scheme. April 22 the queen and one frame of brood and bees was taken from each of colonies Nos. 7, 9, 12, 13, and then placed in an empty hive under the brood-nest, with a queen-excluder between the two stories. To this one frame of brood and bees had been added nine good combs, some of them having a little honey. On June 1st, in the forenoon, I took the upper stories from the four hives and carried each to a new stand, intending to give them ripe queen-cells in the afternoon. Coming out from dinner about 1 o'clock, I was just in time to see the first swarm of the season. It was from the lower story of No. 12. I was just in time to catch the clipped queen. I examined what had been the upper story of No. 12. It had a lot of queen-cells, some of them almost ready to hatch. Two of the other stories also had queen-cells. Here was 75 per cent of swarming, actual or anticipated, at nine days from preparation of colonies—not very encouraging.

June 7, what had been the upper story of No. 12 sent out a swarm; also No. 7. Here were three swarms before any of the colonies which had not been divided at all had given a single swarm. From this inauspicious beginning, both upper and lower stories, the whole

eight of them, continued to swarm until all but one lost or killed its queen. They did good work, though, gathering honey. To count the original colonies, giving each one credit for what honey its new colony made, the result was as follows: No. 7, 125 lbs.; No. 9, 75 lbs.; No. 12, 110 lbs.; No. 13, 145 lbs., or 455 lbs. in all.

I now wish to compare briefly these results with those obtained from three colonies which I devoted to increase by the nucleus plan. Three colonies were increased to 15, and 425 lbs. of honey obtained. Here was 141 2-3 lbs. per original colony, while the Alexander plan gave only 116¼ lbs. per colony. The nucleus plan gave 300 per cent more increase, and about 22 per cent more honey, than the Alexander plan. Both produced extracted honey; but the latter plan has merit, and I shall try it again.—F. L. Day, Minnesota, in "Gleanings in Bee Culture."

## E. W. ALEXANDER'S PLAN OF CONTROLLING SWARMING.

This summer I have been testing Mr. Alexander's plan of increase; and were I to judge by this season's results alone I would predict that this is the process that is destined to come into general use among practical bee-keepers, replacing natural and "shook" swarming. His article in the April 15th number will be worth to me the subscription price of "Gleanings" for a good many years to come. I have tried the plan with about 30 colonies alongside about an equal number of shaken swarms and perhaps 20 natural swarms.

Those in which Mr. Alexander's plan was used are far ahead of the others, both in the amount of honey stored, to the present time (July 20) and in the success attending manipulation. The shaken swarms come next, and the natural swarms are poorest of all. I never saw colonies so strong, nor saw them work more energetically through

the clover season. Did they swarm later? Well, two or three did, but so also did half a dozen of the natural swarms that came out in May and the early part of June. Even some that were hived on starters are swarming again now.

There are a few things, however, not mentioned by Mr. Alexander, that should be kept in mind. One of these is that the brood, when put up, should be carefully examined and all queen-cells destroyed; otherwise the young queens, hatching before the ten days are up, are liable to squeeze through the zinc and lead off a colony.

Another thing to remember is that, when the brood is put up, queen-cells will usually be started at once in the upper hive, and will be nearly ready to hatch when taken off in ten days. Ali but one of these must be removed or they will swarm. Better still, destroy ail of them and give them a laying queen.

One feature of this plan worth considering is that, if you wish no increase but an exceedingly strong colony, you can destroy the cells in the upper hive and leave it on until ready to extract.

When the brood is put up, the super should be placed on the top, not between the two hives, or the cells will be filled with pollen.

#### Good for Queen-rearing.

Mr. Alexander's plan offers an excellent opportunity for raising queens. When the brood is put up, take a frame with a cell-bar and wooden cups, and graft larvae from your best breeding queen. Place this frame in the upper hive. In ten days, when you take off the top hive these cells will be all right to put in the Titoff cages to hatch. I find it convenient to keep a nursery frame of these cages in some hive where one can dispose of surplus cells, and where queens can be found when needed.

#### How to Look for Queen-cells.

Before manipulating bees in swarm-

ing time it is advisable to look through the apiary to ascertain which colonies are preparing to swarm. If modern hives are used, no special contrivance is necessary in examining for queen-cells. Just puff a little smoke in at the entrance, and with the hive-tool (a good 7-8 inch chisel is best) pry up the hive in front. Then pick up the hive, super and all; set it forward on the bottom-board, and tip back until it stands up on end. If movable frames are used they may now be turned like the leaves of a book, and examined all the way up. With the Hoffman frames it is not quite so easy; but it can be done if the division-board is left out. The rim on the bottom-board prevents mashing bees; the hive bridging over, as it stands on end, prevents the bees from getting out at the back and making trouble; and the super, having a firm support, has no tendency to fall off. The only difficulty comes when the hives get too high and too heavy to handle. An asistsant is then needed. Shove the hive forward one inch to avoid killing bees, and let one man tip back the hive from behind while the other turns the combs. In the swarming season it is necessary to examine as often as once in five days, or some swarms will be sure to escape.—E. S. Miller, Indiana, in "Gleanings in Bee Culture."

#### AUTUMN HOPES.

How will it be when the woods turn brown  
Their golden and crimson all dropped down,  
And crumbled to dust? Oh, then as we lay

Our ears to earth's lips, we shall hear her say,  
"In the dark I am seeking new gems for my crown,"

We will dream of green leaves when the woods turn brown.

—Lucy Larcom.

# THE CANADIAN BEE JOURNAL

Devoted to the Interests of Bee-keepers,

Published Monthly by

**Goold, Shapley & Muir Co., Ltd.**  
Brantford - - - Canada

Editor, W. J. Craig.

Brantford, October, 1905.

## EDITORIAL NOTES.

Plan to attend the meeting of the Ontario Bee-keepers' Association, and the Horticultural and Honey Show. at Toronto, November 15th to 17th.

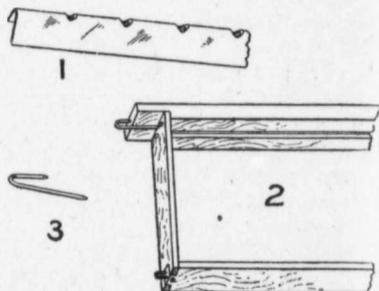
The new honey building of the National Exhibition at Toronto, is still in the future, the old one still unsatisfactory, only a little more so. We really did sympathize with the exhibitors this season in their task, and in their effort to make the place presentable. Only the brave and courageous would venture to fix it up as they did. One intending exhibitor brought his stuff to the railway station, but when he saw the dilapidated condition of the honey building he sold his exhibit to one of the commission men and went home.

We have been favored with a specimen copy of a handsome booklet of 64 pages, entitled "The Honey-Money Stories," published by George W. York & Co., Chicago, and edited by Earl M. Pratt. It is very attractively gotten up, printed on enameled paper and beautifully illustrated. It contains a variety of short stories, interspersed with facts and interesting items about honey and its use. The idea of the booklet is to arouse interest in honey, and increase its consumption. It will make an excellent gift book, Single copies 25c; five copies for \$1.

We have just received the following information in a communication from Secretary Couse :

"Have arranged with the Elliott House, Toronto, for a \$1.50 per day rate for convention visitors, and at the Albion \$1 per day. The usual railway rates will be secured. On the program Prof. Shutt of Ottawa will favor us with 'Notes from the Laboratories of the Experimental Farm, 1905. Prof. Harrison, of the O.A.C., Guelph, will also favor us with an address."

### A SIMPLE SPACING ARRANGEMENT.



The above illustrates an arrangement for spacing frames in hives and supers that practically does away with the necessity of side staple, etc., the invention of Mr. Jacob Alpaugh of Galt. The tin frame rest is notched as in No. 1, a bent wire (No. 3) is driven into the top bar as in No. 2, extending out far enough to give an end space. The wire underneath the extension of the frame drops into the notch in the frame rest. The notch is shallow and does not bind nor hold the wire so that the frame can be easily released by a little side pressure and pushed over to the next notch. This is but one of the many valuable inventions that our friend Alpaugh has given to the bee-keeping fraternity. We are indebted to him for the Alpaugh swarmer, the Al-

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paugh solar wax extractor, with double glass, a four-piece section press, a brood foundation fastener, and a four-piece section foundation fastener that has not been excelled for rapid and perfect attachment, and all free of patents or encumbrances of any kind.



The convention of the National Beekeepers' Association, United States, will be held in Chicago in December, instead of San Antonio, Texas, for the reasons given by the Secretary in our last issue. While we regret the yellow fever, the scare and the disappointment to our Southern friends, we are pleased to announce the intention of a number of Canadian bee-keepers going to Chicago who could not possibly have gone to Texas. Owing to the Fat Stock Show being held on the same dates, very favorable rates will be secured. Might it not be possible for us to arrange a party from Canada and all go together? Let those favoring such write the Editor of The Canadian Bee Journal at as early a date as possible.



#### INVENTIONS AT THE NATIONAL EXHIBITION.

There was the usual variety of apicultural inventions exhibited at the National Exhibition this season, and all of them more or less valuable. The first prize was awarded Mr. H. R. Smith, St. Thomas, for a spacing arrangement for frames. The tin frame rest or rabet is notched as in the Alpaugh invention described elsewhere in this issue, and a bent wire somewhat in the form of a staple driven into the end bar and extending underneath the lug or extension of the top bar of the frame, the wire drops into the notch in the frame rest, holding it in place. There is some minor differences between Mr. Smith's and Mr. Alpaugh's invention in the way of end spacing.

Mr. Arthur Laing was awarded second prize on a model of a portable

honey house for out apiaries. The material is principally canvas or heavy cotton and wire cloth on a framework of wood, and in sections to be easily erected, taken down or moved with other stuff to or from outyards.

Other inventions were: A Form for nailing section crates, by Mr. David Anguish, Scottsville, very useful for any one having a great many section crates to make up; a "Queen Rearing Outfit," by Mr. E. Grainger, Deer Park, Toronto, this illustrating all the simplicity and advantages of the famous Baby Nuclei; a "Case for Wintering" and a case for spring protection, by the Gould, Shapley & Muir Co., Brantford, this latter was made of three-ply roofing felt on a frame-work of wood, and large enough to take two hives side by side, space is left for packing of leaves or chaff, when used as a wintering case. The material is somewhat cheaper than all wood, is warm and perfectly water-proof. The parts are connected with screw nails at the corners, and can be taken apart and laid aside in small space during the summer when they are not needed. Such a case should make an excellent spring protection after the bees are taken out of the cellar.



There is perhaps no more difficult task for the judge at an apicultural exhibition than the awarding of prizes for inventions. Each inventor of course thinks that his invention is the most valuable, while its chances for a prize depends wholly on how it appeals to the judge. We have before suggested in these pages that some definite article, implement or tool to be made or improved upon, be specified for competition. This would simplify the matter exceedingly and would draw forth the inventive genius of our young bee-keepers much better than the present method.

## Influence of Larval Food on the Prosperity of the Colony

Paper by R. Beuhne, Esq., before the  
Victorian Bee-keepers' Association  
Melbourne, Australia.

(Continued from last month)

When, however, we practise feeding during a dearth of pollen, the stimulative effect of feeding causes bees to look for substitutes for pollen, and to use substitutes and kinds of pollen that are possibly deficient, and which they would not use but for the stimulation of feeding. There are, however, other circumstances and cases in which pollen is plentiful but of low grade; this condition appears when the pollen is the product of flowers which have suddenly sprung up after rain, succeeding a period of hot dry weather. Under these conditions plants cannot elaborate the right percentage of protein. You will perhaps wonder where the practical use of all this comes in. In my opinion it comes in in this way.

1. If you feed for brood rearing, when things through dearth are at a standstill you must supply the nitrogen—that is, the flesh and tissue-forming protein—as well as the honey or sugar syrup, which are the heat-producing hydro-carbonates.

2. If you are feeding for stores to prevent starvation, feed all you are going to give in as short a time as possible, to give as little stimulation as possible.

3. When pollen and honey are being gather suddenly, after rain succeeding a drought, from some such annual plant such as native dandelion, shift your bees beyond the reach of it.

On this point our information is as yet very meagre, and the result of further analysis, which we expect to-day, will supplement it.

In conclusion, I should like to draw

your attention to the necessity of being extremely careful in the matter of samples for analysis. Don't jump to the conclusion that because a certain plant is in bloom and pollen is coming in that it is necessarily from that source. Go and see if any one of the bees, on the bloom are gathering pollen, and whether the pellets on their legs are the same as your sample.

In this connection I should like to ask is there any yellow box pollen? Has any bee-keeper seen bees gather it? I have never been able to, and it is a well-known fact that in some districts brood rearing comes to a standstill altogether when there is no bloom but yellow box.

I have only superficially touched this subject of the influence of larval food. There is still the possible inutility of the greater or lesser inversion of the various honeys, percentage of water and protein to be considered, and the report of analysis of honey, also promised for to-day, may open a new line of experiment, but I think I have said enough to show you the importance of investigations and experiment and the necessity for your co-operation.

### ADDRESS BY DR. CHERRY.

Dr. Cherry, in giving his address, said that he wished to address them on two points—first, to recapitulate and to some extent to illustrate what he was speaking about last year, "the relationship of the food of the grub to the activity of the adult insect," and, secondly, "a few points in connection with diseases of insects, and in making it resistant to disease."

### Regarding the Growth of the Grub.

You remember that last year I pointed out that, so far as we know, the whole of the provision for the building up of the active tissue of the insect is made while the insect is in the condition of the grub. It is while the grub is actively growing that it has to lay up a sufficient amount of the active

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flesh-forming material to enable it to carry on the whole of the operations during the active portions of its life. Insects of the crustaceous life differed from other animals in having their shell on the outside instead of on the inside. In addition to that we find that the material that these insects live on during the earlier period very frequently differs in character from that which the adult insect lives on. You all know that in the case of all animals food-stuffs are of two classes—the flesh-former (proteid albumen) and other substances for the active working tissues. Then a large number of our foods consist of substances which do not go to build up the working tissues, which may be contrasted to firewood to a steam engine. That is the way with all animals. They should have two classes of food, one for the working tissues and the other simply to act as material which furnishes the energy for those active working tissues, so that we divide the food into two classes—“flesh-formers” and “heat-producers.” We find that the struggle for life is the struggle for nitrogen; it is the most difficult to obtain. Animals have to get, directly or indirectly, their proteid from the elements or the earth. The food of the grub must contain proteid and nitrogen. An insect soon uses up all his available material if there is no provision made for the supply of new material, and his life is a short one. Dr. Cherry gave several instances of the other smaller insects' life in connection with the struggle for nitrogen for food.

Last season there were six samples of pollen from different trees sent for analysis, and in this case we carefully analysed all the pollen. From these analyses we find out that the smallest amount of nitrogen is 2.9 per cent, and the smallest amount of albumen and proteid you have to multiply by  $6\frac{1}{4}$ , in order to turn them into “flesh-formers”—you simply multiply them by  $6\frac{1}{4}$ . One

contains 2.90 per cent of nitrogen, while another contains 4 per cent, so that there is nearly a difference of 40 per cent in the two lots of pollen. Yellow box contained 3.70 per cent, one lot of bastard box 3.80 per cent, 1 per cent more than the first. The next is bastard box (April, 1905); it contained 3.49 per cent. The next is messmate; that contained 3.55 per cent.

The following are the results of the analysis:

#### Analysis of Pollen.

Sample Number	Nitrogen in water free pollen.
14423 Yellow box collected from Taradale, Jan., 1905.....	3.70%
14424 Bastard box collected from Heathcote, March, 1905..	3.80%
14425 Bastard box collected from Tooborac, April, 1905.....	3.49%
14326 (1) Messmate or swamp gum	3.55%
14427 (2) Yellow box .....	2.90%
14475 Unnamed.....	4.00%

Taking the eucalyptus, we have a variation from 2.90 per cent to 3.80 per cent, one yellow box and the other bastard gum. There is a difference of 30 per cent in the amount of nitrogen which the forest eucalyptus contains, from the largest to the smallest. Some of this food is very rich and some is very poor. A difference of 18 per cent and 25 per cent would have a marked difference in the results as far as building up the tissues is concerned. The two samples of bastard gum coming from slightly different localities, one obtained in March (3.80 per cent) and the other in April (3.50 per cent), are fairly close together. I would like the Association to give us some more samples—some of the eucalyptus and wattles and other plants—to see the difference from pollen obtained. A man going in for bees had, to some extent, a difficulty in rearing his bees. A substitute of 5 per cent of the white of an egg added to the sugar and other food was said to be beneficial in helping to supply the necessary amount of pro-

teid; of course, it does not do to make their food too albuminous. In regard to the albuminous food the suggestion of giving milk to drink instead of water was one of them, although the white of an egg seemed to be the most rational method.

The next point I would like to draw your attention to is the most important relationship there is between the vigor of the grown-up insect and its liability to disease. You know the chief disease that bees are subject to is the different forms of foul brood, which are most destructive. Some 20 years ago it was discovered by Cheshire that the disease was caused by the growth of a micro-organism, which was the sole cause of the disease. Since that time a long-extended series of observations have been made in connection with the cause and conditions under which the disease flourishes. Experimental work made it perfectly clear that in addition to the presence of the micro-organism the condition of the animal is also of equal importance. These micro-organisms vary very much in their virulence from time to time.

Coming to the disease, "Bacillus Alvei," which produces foul brood, it was an organism on the surface of the earth. A few grains of the soil would enable you to obtain a micro-organism which resembles those which come from the bees. Still foul brood depended upon the undermined constitution of the hive. It was precisely similar to some of the most fatal diseases of 100 years ago. They have completely disappeared, because it was found that those people affected were in conditions which undermined their constitution. And while I do not say you will be able to eradicate the disease by feeding, attention to the general constitution and the vigor of the bee is of much more importance than seeking the cause. In regard to the one special

case—foul brood—if we can build up their constitutional vigor we render them immune from the attacks of the disease.

Mr. Russell—In the event of a hive being diseased, would the feeding of albumen to some extent eliminate the disease from that hive?

Dr. Cherry—Of course, in that case you are asking me to give you expert advice, and I came here to give an address. I know very little about bees. What I intended was to give you an outline of the problem of insect physiology from the point of view of the physiology of the higher animals. As to whether it would make a clean sweep of it, I could not say definitely that it would. If it is a mild outbreak, then probably by building up the constitution of the bees you will be able to resist it.

Mr. W. L. Davey—If we have a case of foul brood the spores may live in the hive for a number of years and cause an outbreak at any time?

Dr. Cherry—It might in years if the constitution is run down—if the bees are not vigorous enough to resist it. Once a hive is affected the spores may remain invisible for a long period of time.

Mr. Russell—What is the best remedy for the destruction of spores?

Dr. Cherry—In the case of boxes and frames the best thing is to get the copy full of boiling water, with a mixture of washing soda, the same strength as for washing clothes, and immerse the boxes and frames for a moment or two. This is far better than using boiling water only.

Mr. Sumsion—What is used to prevent honey from candying, and what is the best way to keep honey candied?

Dr. Cherry—I would suggest that you supply the Department with a fair amount of samples of honey in both conditions, and we will carry out ex-

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periments to see and throw some light upon the subject.

Mr. Russell—What is the cheapest nitrogen?

Dr. Cherry—Peas and beans. Plucks and livers boiled I think would be the cheapest. I think eggs would be the best for albumen; they are perfectly soluble in water.

Mr. Pender—Does albumen deteriorate in mixing?

Dr. Cherry—Not unless it decomposes. If it is not mixed it will putrefy in 24 hours. Mixing it with honey or sugar will prevent it from decomposing.

Mr. Beuhne moved a vote of thanks to Dr. Cherry, which was carried by acclamation—Australian Bee Bulletin.

### PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-Keepers' Association will hold its annual convention at the Revere House, corner of Clark and Michigan streets, in Chicago, during the Fat Stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are December 5th, 6th and 7th. Rates at the hotel are 75 cents for a room alone, or 50 cents each where two occupy the same room. Meals are extra, or they may be secured at nearby restaurants. The program is as follows:

#### First Day.

Evening Session (7.30 p.m.)—"Wax-Rendering Methods and Their Faults,"

D. L. Hershiser, Buffalo, N.Y.

"Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-Keeper?" Hildreth & Segelken, New York.

#### Second Day.

Morning Session (9.30 a.m.)—"How Many Bees Shall a Man Keep?" E. D. Townsend, Remus, Mich.

"Short Cuts in Bee-Keeping," M. A. Hill, Longmont, Col.

"Producing Both Comb and Extract-

ed Honey on the Same Colony," J. A. Green, Grand Junction, Col.

Question Box.

Afternoon Session (2.00 p.m.)—"The Control of Increase," L. Stachelhausen, Converse, Tex.

"Migratory Bee-Keeping," R. F. Holtermann, Brantford, Canada.

Question Box.

Evening Session (7.30 p.m.)—"Contagious Diseases Among Bees and How to Distinguish Them," Dr. William R. Howard, Fort Worth, Texas.

"Experimental Apiculture," Dr. E. F. Phillips, Washington, D.C.

#### Third Day.

Morning Session (9.30 a.m.)—"The Honey Producers' League—Can It Help Bee-Keepers?" R. L. Taylor, Lapeer, Mich.

"The Business End of Bee-Keeping," N. E. France, Platteville, Wis.

"Successful Experience in the Making of Honey Vinegar," H. M. Arnd, of Chicago, Ill.

Question Box.

Afternoon Session (2.00 p.m.)—"In What Way Can Bee-Keepers' Secure Their Supplies at Lower Prices?" W. H. Putnam, River Falls, Wis.

"How the Producer and Dealer May Advance Their Mutual Interests," Fred W. Muth, Cincinnati, Ohio.

Question Box.

Evening Session (7.30 p.m.)—"What Have We to Hope for from the Non-Swarming Hive?" L. A. Aspinwall, of Jackson, Mich.

"Poultry-Keeping for the Bee-Keeper," E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Secretary.

Whoever is satisfied with what he does has reached his culminating point—he will progress no more. Man's destiny is to be not dissatisfied, but forever unsatisfied.—F. W. Robertson,

## RECIPE FOR MAKING SOFT CANDY

In making this candy I use an ordinary enameled saucepan or preserving pan, and into this I put 15lbs. of sugar (cane sugar, white crystals), and three quarts of water, hot for preference. This I put over a clear, strong, fire, and stir until the sugar is quite dissolved. When it begins to boil I draw the pan aside for a moment, so that whilst it continues to boil slowly, I may be able to take off the scum and all impurities. The spoon which I used for stirring, being no longer required, is also removed. This done, I return the sugar to the strong fire, and leave it to boil as fast as possible, without stirring for about twenty minutes. Then, to ascertain whether it is finished or not, I take a bowl of cold water in my left hand, dip the forefinger of my right hand first in the cold water, next in the boiling sugar, and then again in the cold water, and with the sugar adhering to my forefinger, I try to make a soft ball like a piece of putty ready for use. More time is required to describe than to carry out these operations. They ought not to take more than two or three seconds. The forefinger must be kept curved whilst dipping it into the boiling sugar and a little skill and courage are required to do it for the first time, although it is not difficult at all. A sugar-boiling thermometer would be a convenient substitute. If with the sugar adhering to my forefinger I have not been able to make the ball mentioned above, the sugar must be boiled a little longer. If, on the contrary, I have been able to make it, no more boiling is necessary. Now I pour in about 5 lbs. of honey (about 5 ozs. per lb. of sugar,) which I had ready at hand. The mixture must be boiled for one or two minutes, but great care must be taken not to let it overflow, as honey is apt to rise quickly like milk. I find that adding a little piece of butter of the size of a hazel

nut, often causes it to settle down, but not always. After boiling for a minute or two, as said, I take the saucepan off the fire and medicate with Naphthol Beta, two tablespoonfuls of the "Guide Book" solution for 20 lbs., mixing it well in. Then to cool the mixture I pour it out into a square tin, 21 by 15 inches, and in one of this size 20 lbs. should cool sufficiently in about an hour, or in less time, if the vessel is placed in cold water. During the cooling process I do not stir; note this well, for if stirred the candy would be sandy and rough in grain. When the sugar has cooled down to such a degree that I can keep my finger in it for half a minute, without scalding, then only do I begin to stir, and I continue to do so, till the candy becomes white and hard. It is now finished, but in order to transfer it to suitable moulds I must warm it again, and I put it all into a milk pan, which fits on to a boiler containing hot water. There the candy gets more or less liquid, like cream, and an occasional stir must be given to dissolve all lumps. When uniformly dissolved and sufficiently hot (say about 204 or 205 degrees F.) I pour it into plates or boxes, and allow it to cool. The candy, if stored in a dry, cool room, will keep soft for years. If, by accident, the sugar has been over-boiled, in which case it breaks when tested instead of rolling up into a soft ball,) I add a little water to it, and boil again to the proper point. As a preventive of overboiling the sugar may be taken off the fire while being tested. Also, to prevent mishap, it is not well to fill saucepan used for making the candy more than half full. Let it be remarked that the honey is to be boiled thoroughly, and not merely mixed with the sugar. I have toiled a good deal in trying to find out this recipe, my intention being to make a bee candy which, while approaching as nearly as possible to the natural food,

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would have the additional advantage of being medicated, and not inducing the bees to rob, as it so frequently happens when fed in autumn or early spring with honey or syrup. Stocks have been fed entirely on this candy during the whole winter, and thanks to it, I have not lost a single colony during all the time I have been in charge of the Abbey apiary. It is also very good for feeding queen and attendants in mailing cages, as I have tested it scores of times for this purpose without a single complaint. Those who would not care to take the trouble to make it may have it from Mr. George Rose, Liverpool, under the name of Devonshire Candy, as advertised in the "Irish Bee Guide."—Brother Columban St. Mary's Abbey, Buskfast, Devon, in Irish Bee Journal.

#### THE UNITED STATES HONEY PRODUCERS' LEAGUE.

##### A Circular.

There is no doubt but that the Honey Producers' League of the United States is doing all in its power to combat the artificial comb honey canards circulated throughout the country. One of the latest efforts is the issuing of the following circular for enclosure in crates of comb honey. These circulars will be supplied free of cost with the empty crates from the supply dealer, or may be purchased at 20c per C. from the Manager of the League, George W. York, Chicago:

##### To the Purchasers of This Honey.

The producer of this comb honey, and also the undersigned, guarantee that the product in these sections, or small frames, was all made by honey-bees.

There is no such thing as manufactured comb honey. It never was made, and never can be, newspaper and magazine articles to the contrary. If any one says there is such a thing as manufactured comb honey on the market, just tell that person that the National Bee-keepers' Association, an or-

ganization of over 2,000 members, through its General Manager, N. E. France, of Platteville, Wisconsin, will pay \$1,000 for proof of machine-made combs filled with glucose or an other cheap syrup, and capped over by machinery without the aid of bees. Also, a corporation capitalized at \$300,000, all paid in, has had for many years a standing offer of a like sum for the same so-called manufactured honey as described, and the offer is still good. In addition to this, the bee expert, a life-long bee-keeper, now in the employ of the Department of Agriculture at Washington, has repeatedly, in government bulletins and in public addresses, denied the existence of any such product. For evidence of this fact refer to the report of the Secretary of Agriculture for 1904, page 83; also to Farmers' Bulletin No. 59, for 1905, pages 32 and 34, also issued by the Department of Agriculture, entitled "Bee-keeping," by Frank Benton.

It may be well to state that the basis of these comb honey canards is possibly due to the fact that the flavor of honey in one locality may be very different from that of another; that when one tastes of a honey quite different in color and flavor from that which he used to eat on the old farm, he concludes that it is adulterated or manufactured, especially if it be of poor quality. As a matter of fact, the comb honey from California is just as different from the article produced in the Central and Eastern States as the fruits of that State are different from those in New England. In the same way, the honey from Texas differs very widely from that produced in Ohio, or honey from Florida from that in Texas. Some honeys, like that from buckwheat, are very dark; others are not only dark, but ill-flavored, and should never be sent to market, but be sold to the baker or fed back to the bees for rearing young bees.

Two-thirds of the States in the Union

have pure-food laws; and one may rest assured that all the States where such laws are in force, both honey in the comb and in the liquid condition, generally called "extracted," is and must be the genuine product of the hive.

The oft-repeated mis-statements about adulterated honey and manufactured comb honey in the newspapers and magazines has made it necessary for The Honey Producers' League to put out this statement, for the reason that the general public has come to believe that a large part of the honey on the market is adulterated or manufactured. If the dealer will join with the bee-keeper in helping correct these monstrosities, it will materially increase his sales of both comb and liquid honey.

#### THE HONEY PRODUCERS' LEAGUE

GEORGE W. YORK, Manager,  
Chicago, Ill.

DR. C. C. MILLER, President,  
Marengo, Ill.

GEORGE C. LEWIS, Vice-Pres.,  
Watertown, Wis.

W. Z. HUTCHINSON, Secretary,  
Flint, Mich.

A. L. BOYDEN, Treasurer,  
Medina, Ohio.

N. B.—Do not store comb honey in a refrigerator, cold storage or cellar. These are the very worst places you can put it. It should always be put in the warmest and driest room you have. It is advisable to keep liquid or extracted honey in the same warm, dry place.

#### WE USUALLY FIND OUR LEVEL.

Do not hypnotize yourself with the idea that you are being kept down. Do not talk such nonsense. Nobody of any sense would believe it. People will only laugh at you. Only one thing is keeping you down, and that is yourself. There is probably some trouble somewhere with you. Of course, there are employers who are unjust to their help; there are instances in which employees are kept back when they should be advanced; but, as a rule, this is only temporary, and they usually find their level somewhere.—"Success Magazine,"

#### OUTDOOR WINTERING OF BEES.

W. Z. Hutchinson is not an enthusiast in out-door wintering but he knows well the conditions necessary for success, one of his editorials in a recent number of the "Review" is devoted to the subject, from which we copy the following:

If bees can enjoy frequent flights, out of doors is the place to winter them. If deprived of these flights, a temperature of about 45 degrees enables them to bear a much longer confinement than does a temperature below freezing. In the South, frequent flights are assured; in the North, no dependence can be placed upon the matter. Some winters are "open," or there are January thaws, allowing the bees to enjoy cleansing flights, while other winters hold them close prisoners for four or five months. It is this element of uncertainty attending the wintering of bees in the open air that has driven so many bee-keepers to the adoption of cellar wintering. Still, there are some bee-keepers who, from some peculiarity of location or management, are able to winter their bees in the open air with quite uniform success; others are compelled, for the present, at least, to winter the bees out of doors; in short, a large portion of the bees, even in the North, are wintered in the open air, and probably will be for a long time to come. While my preference is the cellar, there is much to be said in favor of out-door wintering. Let me give one or two instances of success: Ira D. Bartlett of East Jordan, Michigan, which is away in the northern portion of the lower peninsula, began keeping bees when only 14 years of age—began with one colony—and when 21 years old he had 150 colonies, and had never lost a colony wintering them out of doors. His method of protection was very thorough. He packed four colonies

one box, putting packing not only at the sides, and on top, but also below the hives. The packing was fine, dry sawdust, and the roof was raised up a short distance above the box for ventilation, yet the snow would not get in to any great extent. There was a sort of vestibule in front of the entrances, and this vestibule was kept closed by means of a board, it being removed only when there came a day warm enough for the bees to fly—something that rarely occurred in the winter. So warm and comfortable were the bees when so snugly housed that they even brought the dead bees out and dropped them in the vestibule. I suspect that the thorough protection, combined with the perfect ventilation, allowing no accumulation of moisture, is the secret of this wonderful success.

Another instance was that of two ladies who began bee-keeping in Northern Michigan before the iron horse had invaded that region, and who were uniformly successful, for a long series of years, in wintering their bees out of doors, packed in chaff. Like Mr. Bartlett, they furnished abundant upward ventilation, above the packing. An opening a foot square was cut in the top of the box containing the chaff that was placed over the colony, and this opening was covered with wire cloth to keep out mice; and then, over all, to keep out the storms, was a large roof. So successful were these ladies, that, from first to last, I have paid them nearly \$1,000 for bees.

It does not seem as though the question of whether bees should be protected here in the North, need receive any consideration whatever, yet it has been objected to on the grounds that the packing becomes damp, that it deprives the bees of the warmth of the sun, and that they sometimes fail to fly in the winter, because the outside warmth is so slow in reaching them,

when bees in single-wall hives may be in full flight. There is occasionally a still, mild day in winter, upon which the sun shines out bright and strong for an hour or two, and bees in single-wall hives enjoy a real cleansing flight, while the momentary rise in the temperature passes away ere it has penetrated the thick walls of a chaff hive. On the other hand, there are days and weeks, and sometimes months, unbroken by these rises in temperature; and the bees must depend for their existence upon the heat generated by themselves; and the more perfect the non-conductor by which they are surrounded, the less will be the loss of heat. When bees are well-protected, there is less necessity for flight than when the protection is slight. If a bee-keeper thinks, however, that bees in a chaff hive ought to fly on a warm day, and they don't fly, he has only to remove the covering from over the bees, and allow them to fly from the tops of the hives.

For several winters I left a few colonies unprotected; and I discontinued the practice only when thoroughly convinced that, in this locality, the losses were lessened by protection. In severe winters the bees in the outside spaces, or ranges of combs, died first; the cluster became smaller, the bees in more ranges died; and by spring, all were dead, or the colony so reduced in numbers, and the survivors so lacking in vitality, as to be practically worthless.

(To be Continued.)

Just where the rising tide of resentment and hostility to what are known now as the "captains of industry" will end is not clear. There are mutterings at hand on all sides, and it behooves every one to get down to first principles and to be honest both with reference to oneself and one's neighbors.

## QUERIES and ANSWERS

[Department conducted by Mr. R. H. Smith St. Thomas, Ontario. Queries may be sent direct to Mr. R. H. Smith or to the office of the Canadian Bee Journal.]

1. Is a midwinter flight necessary for outdoor wintered bees ?
2. What is the best way to fix the bees in the fall when done extracting ?
3. If spring forage is scarce can any substitute be provided ?
4. How long should honey be left in large tanks ?
5. What is the best race of bees ?
6. Will a queenless hive of bees live to a greater age than one with a queen ?
7. Would you advise full sheets or starters for swarms and supers ?
8. How much honey will insure the wintering of an average colony in cellar ?
9. When would you put on supers ?
10. How would you keep swarms from uniting ?
11. How prevent robbing ?
12. What is the best extractor ?
13. What is the best way to winter bees on their summer stands to prevent spring dwindling ?
14. How would it answer to place queen in super, when put on, then run her into brood chamber at first or second extracting ?

Victoria Co. Bee-Keepers' Asso.

### Answers to Questions.

1. Not absolutely necessary if the conditions as to quality of stores and protection from the extreme cold are right.
2. If it is later than October 1st, in this locality I would remove the supers, see that they have a good queen and not less than 25 lbs. of well ripened

stores. If they did not have enough stores I would supply them with combs of honey saved for the purpose or feed the best granulated sugar syrup until they had the required amount.

3. If the colony is short of stores slip in a comb of honey that had been saved for the purpose or feed them sugar syrup. A substitute for pollen may be supplied by placing rye flour or oatmeal in a shallow tray in a warm sunny corner of the apiary that is sheltered from high winds.

4. If it has been well strained, no longer than can be avoided; better to run it into pails, 60-lb cans or barrels and close up at once.

5. In my experience, taken all round, the leather-colored Italians.

6. Not to my knowledge.

7. Full sheets for swarms and all, full sheets in super, but one or two with starters to catch any wax that may be secreted.

8. About 20 pounds.

9. Strong colonies in an average season will require a super about the time the fruit trees come into blossom. Weaker colonies may not require a super until the clover blooms.

10. Do not try very much, have all queens clipped, and if they will not return to the hive and are too many to put in one hive divide them by shak-part in front of one hive and part to another.

11. Keep the entrance narrow in time of scarcity and do not let them become queenless.

12. If it is a honey extractor that is meant, say the "Goold Reversible." If a wax extractor, I do not know which is best.

13. See that the colony is provided with a good young laying queen, in the fall, so as to insure plenty of young bees, give plenty of stores and protection from the extreme cold with a little upward ventilation.

14. We usually put a super with a full set of worker combs on all colonies that have plenty of bees, and allow the queen full range, then remove the super and confine the queen below with a perforated metal board at the commencement of the clover honey flow.

R. H. Smith, St. Thomas, Ont.

**COME, LITTLE LEAVES**

"Come, little leaves," said the wind one day,  
 "Over the meadows with me and play,  
 Put on your dresses of red and gold,  
 For the summer is gone and the days grow cold."

Soon as the leaves heard the wind's low call,

Down they came fluttering one and all.  
 Over the fields they danced and flew,  
 Singing the soft little songs they knew.

Dancing and whirling, the little leaves went;

Winter had called them and they were content;

Soon fast asleep in their earthly beds,  
 The snow laid a coverlet over their heads

—Selected.

**NORFOLK COUNTY BEE-KEEPERS' ASSOCIATION.**

The annual meeting of the Norfolk County Bee-keepers' Association will be held in the Norfolk House, Simcoe, on Saturday, November 4, at 2 p.m.

**ED. TRINDER,**  
 President.  
**R. B. EMRICK,**  
 Secretary.

**VICTORIA COUNTY BEE-KEEPERS' ASSOCIATION.**

The Victoria County Bee-keepers' Association will meet at Little Britain on October 19th. We extend an invitation to any who can attend.

**R. F. WHITESIDE,**  
 President.  
**A. H. NOBLE,**  
 Secretary.

**BRANT COUNTY BEE-KEEPERS' ASSOCIATION.**

This Association will hold its annual meeting in the Court House, Brantford, on Saturday afternoon, October 28th, at 2 o'clock. Visiting friends will be welcomed.

**C. EDMONDSON,**  
 President.  
**W. J. CRAIG,**  
 Secretary.

**MIDDLESEX COUNTY ASSOCIATION.**

The annual meeting of the Middlesex County Bee-keepers' Association will be held in the City Hall, London, on Saturday, November 4th, at 10 a.m. and 1.30 p.m. A good program is being arranged.

**E. T. BRAINARD,**  
 Secretary.

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W. H. LAWS, BEEVILLE TEXAS.

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