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# CANADIAN BEE JOURNAL

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NEW SERIES  
Vol. II, No. 10.

BRANTFORD, ONT., APRIL 1895.

WHOLE NO.  
362.

On page 464 of the last number of the CANADIAN BEE JOURNAL will be found an interesting article on the Comb Honey. "Production of Comb

Honey." It is written by that well known apicultural writer, Doctor C. C. Miller. The doctor is an advocate of the T super, and he wants us to explain about the super we advocate. The best way to understand the editorial references is to read Doctor Miller's article first. As to nailing of separators, I would nail neither tin or wood. I used to think it necessary to nail tin, because with the section supporter and the sections slotted as many were slotted, the straight tin separators would not hold their place. Now we rather incline to having the section slotted out sufficiently to give a straight separator to the full depth of the section. We see a great advantage in the nailing of wooden separators, and unless done as Doctor Miller says with a single nail, it may be a great disadvantage. After testing the sliced separators and comparing them with the sawed, I prefer the sawed; they keep their shape much better. As far as I know sliced and sawed separators are sold at the same price. I think the sliced separators I used were whitewood. To be candid, I disliked taking comb honey until we took the section holder; as you say it was not invented in Canada. We took the one from A. I. Root. Now the bulk of our comb honey and it is generally of a very good finish. We do not find it as easy to manipulate the T super as the section holder. Those pieces and those separators

when the sections are out of it fall into all shapes and have to be adjusted. They with my temperament drive me wild. The section holders are put in place also the separators. As the sections are prepared they can be put in place and all they require is keying. The doctor does not wager we do not wager, but I would just like to try this race. The doctor in the fall of the year gets his supers as nearly ready as he can. I do the same, and three months after we start to fill our supers. I will fill ten before he does; if he took my supers and I his, I believe he would come out ahead. As to section cleaning, I like to have a section kept so it never soils. When once the wood has been stained it has lost all its perfect appearance. Were it not for the difficulty in removing and pulling in the sections, I should like it protected all around. When I speak of difficulty in removing sections, it is not only inconvenience after filling, but sometimes the foundation in a section gives way. With the section supporter it can be removed more readily than with the frame. In my estimation the section holder goes as near perfect protection to all parts of the wood as we dare go. The sides, bottom and edges of the sides are protected, only the top bar exposed. I do not think there is practically any difference in added distance from brood chamber. The distance is only the width of the bottom of the section holder one quarter inch. I think the bottom bars hold things level just as rigidly as the T tins. I have some in use three seasons, there is no sag to them. The claim that outer sec-

tions can be jumped into the middle looks well; it might be all right for a man to do this who is not very busy providing he does so before the bees begin to cap any sections, but I am too busy for such tinkering or too lazy, and I think this advantage is imaginary rather than real. Now to get the full benefit of the section holders everything must be snug, well fitting and tight. When I say thousands in Canada are using this super I take as evidence the orders of supply dealers.

\* \*

A man away over in Michigan who publishes the *Dowagiac Times*, is kind enough to

criticise a remark made by

Cover for the editor of the CANADIAN BEE JOURNAL re the production of comb honey at

the St. Joseph convention. He is very much surprised that we made the admission that we did not know before the importance of a bee space above the sections for comb honey, and that such sections were cleaner and making a space above for the bees to pass would likely make the bees fill the sections more completely. The person in question thinks everybody knows that because he told people so fifteen years ago. Perhaps he did say so. We are only about fifteen years in the business, but in that case there must be lots of people who do not consider said editor's statements quite reliable. We know many in the business longer than that who did not know it to be the case. We would advise our critic when next he stumbles across such pearls of truth to let some one expound them who has the confidence of the people to a greater extent.

\* \*

The report of the test with comb foundation made at the Dominion Experimental Farm, Ottawa, as given

Tests With by Mr. Fletcher at the annual meeting of the Foundation.

Ontario Bee - Keepers Association, Stratford, and found in another column of the CANADIAN BEE JOURNAL, is one of very great import-

ance. And could the comb be examined as we had the pleasure of examining it, the benefit to be derived from the experiment would be even greater. The report has already given us to understand that it will be desirable to make further tests with the foundation, and bee-keepers will watch with interest the results from year to year. The report after receiving careful study will reveal many things not pointed out otherwise than the table. Bearing in mind the "primary object" of the experiment as set forth in the report certain conclusions have been come to, but our readers will also be anxious to know to what extent if any the various bases of the comb foundation have been thinned out, and they will be pleased to know that as soon as time can be found Mr. Fletcher and Mr. Shutt intend having an accurate measurement made of these. Now turning to the actual figures given to members of the association at Stratford. Let us look at A and B as compared with C and D, the former were milled at 89° F. and were 2 inches sq., and weighed 1.4010 grammes. Milled at 120° the higher temperature, the same size dipped the same way, and the setting of the mill never disturbed 1.2040 grammes. Some may be inclined to think that the machine may have sprung, but with a sheet of section foundation and a mill only six inches wide this seems hardly probable, but the further tests which are to be made will throw some light upon this question. When we come to examine the amount of wax added to the same size of foundation, we find in the low temperature 1.5290 and the average final weight of the 89° comb 2.9587 and the warm foundation comb after completion 2.7330. Of course these are close figures, yet they may prove of interest. The same quality of wax—in fact dipped from the same tank—is found in all the choice wax, the same with the Inferior but what is called the *Patent Process* was manufactured in the United States and is of different wax; from the description in the report our readers will notice that it is not as light a color as the choice wax. We

were not able to give the temperature when sending to the Experimental Farm. In this respect it stands upon a somewhat less distinct and different basis to the others. In this process, of which we can speak a little more definitely now, the process of sheeting is such as to cool the wax very slowly and the idea of the inventor was to follow out more the process of cooling as we find it in nature a gradual cooling, and the idea was that a better foundation would be produced. There is no doubt when pliability is tested there is a marked difference between this and any other foundation we have ever seen; when examined by those having no experience it could readily be detected every time. This new process foundation was also late in reaching the Farm and was drawn out by the bees at a different time (later). It was unfortunate that the party sending the foundation did not send samples true to name. By examining the list it will be seen that what should have been 15 sq. ft. to the lb. was only 11.5 and 12 sq. feet to the lb. was 12.5. When we come to examine the list the foundation 12.5 sq. ft. to the lb. gives us a comb 2.7665 grammes to 2 sq. inches, it ranking eighth in lightness of comb. Foundation in general use, 8.9 sq. ft. to the ranking first 2.4805 grammes to 2 sq. inches. When it comes to the amount of wax added by the bees to the foundation the new Process 12.5 sq. ft. stands first and the New Process 11.5 sq. ft. second. The majority at present will be inclined to claim that providing the completed comb is not too heavy, the full sheet foundation to which the bees add the wax is likely to prove the most economical. We have gained a straight comb and an evenness of cells not likely to be secured by starter, but here the vexed question crops up. Is wax at its present market price sold at profit or loss to the producer, how much money does it take to produce a pound of wax. Is the secretion of wax voluntary, and are there practically any difference between the comb as added by the bees or in its form when more is taken from the foundation. Of course it would not be safe to argue that the credit is due to the new process for

heading the list for greatest amount of wax added. By examining the table it will be seen that there was no other foundation supplied which ran as many square feet to the pound, and it is but natural to suppose that the thinner foundation would have more wax added to it by the bees. Again 1 lb. of foundation 8.9 ft to the lb. will fill 89 sections, while 12.5 ft the pound will fill 125 sections, a very great difference in the price of filling per section. When we come to the Given Foundation we find a still greater difference were one sample per 2 sq. inches weighs 3.0090 the other 3.0568. These and some other samples could be detected in stamping out the comb as being built on heavy foundation owing to the resistance they offered when cutting. So far as this experiment goes we think they are out of the range of being able to produce a first-class comb for table use. The base of the comb would give the impression of being something foreign and would not crumble up in eating. There is a great deal to study in this table, it must of course be taken as one of a series of experiments and to that extent gives valuable information.

The following table we have picked out from the report :

Weight in Grammes of Empty honey comb 2 in. square	Order of wax, taking the least quantity first;
F—2,4805.....	1
J—2,5050.....	5
I—2,5340.....	7
K—2,5410.....	4
E—2,5650.....	2
C—2,7025.....	8
H—2,6750.....	6
N—2,7665.....	15
L—2,8060.....	12
G—2,8165.....	11
A—2,8335.....	10
D—2,8635.....	14
O—2,9115.....	16
P—3,009.....	9
M—3,056.....	3
B—4,0804.....	13

When so far as we know no well known producer of comb honey is attempting to take comb honey without a full sheet of foundation in the sections, and so many of our best thinkers are also using full sheets of foundation in the brood frames, this question becomes one of deep importance

and we hope many search lights will be thrown upon the question during the present year.

### President Pickett's Address at the Stratford Convention.

LADIES AND GENTLEMEN,—Another year having passed since we last met in Lindsay, where, by your unanimous vote, you made me your president, it now becomes my duty to give an account of my stewardship. Since last we met we have had a year during which have been some changes and a year in some ways adverse to bee-keepers. During the year of 1893-94 the temperature was high and there were but few changes. The spring opened somewhat earlier than usual, the bees coming out strong in numbers with but few losses, and the prospect to my mind seemed better than for many years. But, alas! we are doomed to disappointment. Bees gathered some nectar from the willow and soft maple after which they did but little more than live on what was left of their winter stores. The rain and cold weather kept them in till many colonies had eaten all the stores that were left from winter and they died from starvation before they could get nectar to gather. Those living through were so lessened in numbers that but little clover honey was taken and they were not ready to do good work until the Lynden bloom, and because of the drought it only remained in bloom a few days, the season ending with not more than half a crop and in many places scarcely enough to winter on. The increase of colonies in many places was very small.

Then there have been changes in our ranks. You will doubtless remember that on the seventh of April last we were called to mourn the death of our worthy secretary S. Corniel. How while carrying out his bees and placing them on their summer stands, he suddenly expired.

On hearing of his sudden death I hastened to write a few words of sympathy and condolence to the bereaved family, which expression was acknowledged by his son. I shall ask this association to pass a resolution of sympathy to the bereaved family, and should it take a practical shape I shall be much pleased, as I understand it is much needed by them.

I am pleased to note that our annual meetings are improving year by year, in

the number that attend and the interest manifested, also in the desire to know more about this our chosen pursuit.

I also note a more earnest desire on the part of members to attract outsiders, by preparing entertainments seeking in every proper way to interest them and advance the art of bee-culture.

I take pleasure in assuring you that both the Provincial and Dominion Governments are interested in apiculture as shown by them giving us a Foul Brood law and what is known as the "Spraying Bill." I have been informed that the Dominion Parliament passed the bill known as the "Pure Honey Bill" which was thrown out of the Senate. This fact is greatly to be deplored after spending so much of the funds of the association on committees in trying to secure its passage.

As regards the prizes awarded at Chicago on honey and implements used in the apiary, I am not aware that they have yet reached those who were successful in earning them.

The number of affiliated associations is about the same as last year, with the prospect of a large increase in numbers if we had the means to encourage them to affiliate. Being short of funds we cannot offer sufficient inducements to others to organize these associations.

I hope in the near future the Provincial Government through the Minister of Agriculture, may see fit to place an amount at our disposal sufficient to meet our necessities in this particular.

I also bring before your notice the prize list of the Toronto Industrial Exhibition. As it reads at present the judges will have a task which they cannot perform with any degree of satisfaction to themselves or to those exhibiting honey or articles in which it is used.

In referring to the matter of Foul Brood it is my earnest wish that the work which the inspector is doing shall be pushed forward until the disease cannot be found anywhere in this province of ours. The inspector has had a busy year in trying to clear out the scourge, and had an amount of success which it is pleasing to note. Many who had the disease in their apiaries in the early summer are now free from its ravages, and we rejoice in the fact that we have one who can deal with it so successfully.

In closing allow me to thank you for choosing me to fill the responsible position of president, and to assure you that I have endeavoured carefully to perform the duties devolving upon me during the past year. After all the difficulties we have had to

contend with, there is much to encourage us for the future, and we may fairly hope that with perseverance and attention we may place this industry on a good financial basis and reap more largely the sweets of our labours.

TO BE CONTINUED.

## California.

Jacob Alpaugh.

DEAR EDITOR AND READERS OF THE CANADIAN BEE JOURNAL,—I am now enjoying the land of sunshine and sage brush, Southern California. I left Galt, Ontario, Canada, on the 17th of January, and came by the C.P.R., as already mentioned in the CANADIAN BEE JOURNAL. I must say there is some very fine scenery on the C.P.R. through the mountains. Some places you would think the train and passengers were all going to be dashed into eternity. There is one spot in the mountains which they call the Glacier. It is simply a solid heap of ice one mile wide and 200 feet deep, which you can see quite plainly from where the train stops at the Glacier House. Further on through the mountains, about the Selkirks, we passed through snow ten feet deep on the level.

I came all the way down the coast by rail. There is also some very fine scenery in North California, and where they have lots of snow. We passed through snow one place in the north of this State twelve feet deep on the level. I stayed a few days at Seattle, Washington Territory. I called on a few beekeepers there and found that they had a good section for bees. Even last season they got a very good crop. Seattle would be a good place for anyone to go into the berry business. They say that they have as good a section for berries as there is in the world, and I believe it. I saw a 2-year-old black-berry bush, from which two new canes grew up last season, each measuring 30 feet. They were trained in opposite directions, making a total of 60 feet. Those two canes covered with one season's growth of this bush. This season the owner expects to get several bushels of berries. I think I hear some one saying: "Oh, he is just like all the rest that go west, he is stretching it a little." But you all know that a berry bush will not stretch without breaking, and I expect this article will be long enough without stretching it. I stayed a few days in San Francisco, and saw the remains of the midwinter fair. I

also visited the seal rock, where you can see dozens, and I do not know but hundreds, of wild seals climbing around on the rocks. I also stayed a few days at a place called Salimar City. I arrived in Los Angeles just in time for the California beekeepers' meeting, at which I had a very good time and made the acquaintance of a lot of California beekeepers, and they seem to be a very nice jolly crowd. After the meeting (having purchased a bicycle) I started to wheel through the country, calling on beekeepers in different places. When I would get tired wheeling I would stop some place, get a gun and go out into the sage brush and hunt rabbits. I stayed awhile with Rambler, took his gun and knocked over a few rabbits while he was busy doing something else. But you ought to have seen me eat his back hall pancakes. They were just as good as anyone could wish. As far as house keeping is concerned, I do not see that Rambler needs a wife, but I should think it a very lonesome life, but probably he will surprise us one of these days.

I have been wheeling for this last three weeks, and have called on upwards of thirty-five or forty beekeepers, and have seen about as many apiaries. While I have met some very good beekeepers who have their hives and yards in good shape, I have seen lots of yards that nothing in the East could compare with them as far as being in a slipshod condition is concerned. In some of the yards I found it difficult to get behind a hive, as the bees could come out anywhere—front, back, sides, top, and they would come and they would see that you got out of the yard. Of all the cross bees I ever saw, they have them out here. I think they are annoyed with skunks and rabbits. As I was out hunting one day I ran across an apiary in the sage brush, and, of course, I started to investigate. I commenced looking around among the hives, but the bees soon gave me to understand I had no business there. I then investigated the bee house, it being on the same principle as the hives. You could get in at the end, side, top or bottom, it being made out of strips of wood for a frame and covered with cotton, the latter being nearly all blown to pieces with the wind. I was just going to tell what I found in that bee house, but I believe I will reserve that at present. While some of the California beekeepers would be tickled with the news, other ones might not like it, but when any of you meet me just ask about it.

I am well pleased with California. The climate is all anyone could wish—just like summer all the time. The orange crop is good here, and they are making a good

thing out of them, on account of the Florida oranges being frozen.

I might just say a word to those who think of coming out here for their health. This is no doubt a fine place for people with lung trouble, or almost any disease, but you want to get into the right place when coming here. Some places it is very foggy, and in such a place you might be worse than where you are; but if you get in some place pretty well back from the ocean and up near some Foot Hill, you will be all right. People who come here sick live to be old; those who come here well have to be killed when they get old, so they say.

You will hear people say that the fruit in California is not as fine as it is in the east. That is not so. The apples and peaches are not as fine here as they are in the east, but most all other fruit cannot be beaten, of which there is almost an endless variety. They raise hay here with a vengeance. They grow with irrigation from seven to ten tons of alfalfa to the acre in one season, and they get from \$12 to \$15 a ton for it.

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### My Method of Management.

(J. F. Dunn.)

You think that it is about time that the promise I gave you at the Toronto Exhibition, to write something for your journal, was redeemed, and I think you are right, although I am not sure that I can give anything that will be of interest to your readers.

For the last three seasons I have run my bees for extracted honey and it is possible that it might be of interest to let you know what has brought about the change. You will remember that a few years ago I made a specialty of comb honey. I then kept all my bees in the village, and in a good year could by close attention, secure 100 pounds per colony in this locality. In 1883 I tried a few colonies for extracted and was so well pleased with the result that I finally adopted the plan of placing comb honey supers on all my strong colonies on the advent of the clover bloom, and all that went into the sections readily were run for comb. Colonies that showed a disposition to refuse to enter the sections were at once given a full set of extracting combs above a queen excluding honey board, first removing the section case. In this way I got all my bees to work without any tinkering or forcing into sections, and my crop would usually be about one-half comb and one-half ex-

tracted honey. About four years ago a good deal of the basswood in this locality was cut and I began to look about for a location for an "out apiary" and have for several seasons had my bees on a farm at Black Creek, seven miles from this town. Within a radius of about one mile from my bees there is 160 acres of Alsike clover, and I think it would be very hard to find a better locality, especially for the clover flow, and the fall forage is not by any means bad. I use the tiering up system, extracting when the honey is ripened, afterward putting it into tin tanks holding about 500 pounds, which are placed near a hot gas fire. (we are in the natural gas belt) and when the honey is very thick we are ready to sell it to our customers. We sell only the clover and light colored honey. Buckwheat and other fall honey is fed back to the bees or made into vinegar. Buckwheat honey, we are quite satisfied, is good when properly ripened, for winter stores. We winter principally on summer stands in double walled hives, although some of our colonies are in single walled hives with a thin outer winter case with two inches of clover chaff between walls and about eight on top. We used to have an absorbent cushion directly over the cluster, but now prefer a cloth of some kind (woolen preferred) over the top of brood chamber, several thicknesses of newspaper over that and the packing on top. About one-half of the colonies in the packing cases have the honey board placed directly on the brood chamber, several thicknesses of paper on the board and the packing above that. I have long been of the opinion that I will know more about it after this very cold winter.

Ridgeway, Ont.

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Please accept my congratulations on the state of perfection to which you have succeeded in bringing the C. B. J. Really I do not see much if any room for improvement. To my mind it is all that could be desired in the way of a Bee Journal, a first-class journal in every respect.

C. BOYD,  
Petrolea.

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We are going to have a very early season. Bees are gathering pollen now. We have had no winter and bees are in a fine condition and it looks as if we were going to get a chance to make up what we lost last year.

J. S. SMITH,  
Chilliwack, B.C., Feb'y 26, 1895.

## BEE-KEEPERS' CONVENTION.

LEADING APIARISTS OF LEEDS AND  
GRENVILLE MEET AND DISCUSS  
BEES AND HONEY.

The annual meeting of the Leeds and Greenville Beekeepers' Association was held at Brockville on Tuesday last. The attendance was not so large as was desirable, the unfavorable weather accounting in a measure for that, but the meeting was fairly representative and the papers were listened to attentively and discussed intelligently.

Letters of regret at their inability to be present were read from his honor Judge McDonald and Mr. G. S. Hough, the well-known apiarian instructor.

At the opening of the afternoon session an address of welcome to the convention was read by Mayor Culbert.

A convention of beekeepers has one marked characteristic: the members appear possessed of an ease and repose of manner that at once strikes the beholder and when they commence investigating and inquiring into the veriest minutiae of the domestic and industrial life of the bees, he might be excused for imagining himself in an assembly of entomological savants. A visitor will generally leave such a convention impressed with the idea that there is very little in bee-culture that the up-to-date bee man has not found out. But this is a wrong idea; the philosophical beekeeper (and the successful are all philosophers) will readily admit that there are hidden things in the nature and habits of the bee and in the most desirable conditions at home and abroad that no one has yet discovered. But the spirit of enquiry is abroad, and it is to diffuse a knowledge of the subject generally that the L. & G. B. K. A. met in Brockville last week.

The program was an attractive one, but it was marred by reason of absentees. However, as those unable to be present sent papers to be read, their absence was felt chiefly in the discussion that followed the reading of each paper. The criticisms were a marked and profitable feature of the days exercises.

Mr. M. B. Holmes, president, occupied the chair, and Mr. Fulford, secretary-treasurer, was present.

The president in his opening remarks indulged in a retrospective glance over the advancement made in the past ten years

and said: "What a wonderful change has taken place! Then it was a box containing a chaotic mass of honey in the comb; now it is a dozen or so of one-pound sections nicely finished by the bees themselves. Then it was "Strained Honey," a compound of nectar of flowers, pollen, grains of wax, etc.; now extracted honey is amber liquid fit to tempt the most fastidious taste. But that which is of most interest to the general public is this fact; that, because of modern improvements, honey has been so reduced in price that it is no longer a luxury seen only on the tables of the rich, but it is within the reach of all. And what do we see as a result? I think we may safely say that there is ten times as much honey consumed as there was ten years ago, and if the beekeepers of this country do their whole duty there is not a doubt that the consumption of honey will continue to increase at the same rate for the next ten years."

The president then defined the duty of beekeepers, the object of the Association and why all should endeavor to attend its conventions. The close of his admirable address was devoted to advocating the extension of bee-culture throughout the Dominion and its spread in these counties until they shall verily "flow with milk and honey."

The program that followed included papers by F. L. Moore, Addison; F. P. Clare, Rideau Centre; Allan Pringle, Selby Ont; H. H. Reeve, M.D., Toledo; F. W. Fulford, Brockville.

Mr. Pringle, who was expected to be the principal speaker of the day, was unable to be present, and sent a paper that was universally voted to be the finest treatise on the subject of bee-culture yet delivered before the Association. It was read by Mr. Holmes. We regret that we not space to give it in full, but will briefly summarise it. His subject was "Beekeeping in Ontario: Its Prospects, Possibilities, etc." As to present status of beekeeping, he said that the excellent record achieved by Ontario at the World's Fair showed it to be in the very front rank of all countries in the world. Ontario has the climate as well as the flora for producing the very best honey. The output of honey has at least quadrupled within the last decade, and it is constantly gaining in favor for table use. Both as food and medicine it was desirable and its consumption was bound to increase. Honey of good quality must be produced and kept absolutely free from adulteration. At the World's Fair he was surprised to find suspicion of adulteration so widespread. The reputation of Ontario honey at home and abroad is such that he was able to sell

the exhibit at an advance over the American make. Adulteration should be strictly guarded against, and the taking and handling should be carefully done. Honey should be allowed to ripen thoroughly (in the hives, if practicable), and it should never be put on the market unripe, untidy or unclean. He strongly condemned as injurious to the business the slovenly methods pursued by some. Ontario has a diminishingly few of such and increasingly large number of first-class apiarists. As to the prospects, he said that beekeepers would continue to grow. This growth will not be in the direction of specialism, but in conjunction with farming, etc. Beekeeping, as an exclusive business, will not pay, except in the hands of a master favorably situated as to forage. As to partial failure of the honey-flow last season, he said that in the whole of Ontario there was not more than  $\frac{1}{3}$  of a crop, and in many states of the Union much less. A leading Nova Scotia beekeeper wrote him to the effect that the clover had produced no honey there. The failure he attributed to winter-killing of clover and the drought affecting other honey producing plants. As to the much discussed question of whether it paid to sow for honey, he gave it as his opinion that it paid to sow three honey producers viz.: Alsike clover, buckwheat and basswood. This opinion he founded on personal experiment. He has now growing nearly 800 basswood trees and expects to see them bloom. In conclusion, he advised every beekeeper to plant basswood which would not only produce honey but would assist in preventing the recurrence of droughts, which are largely owing to the country being denuded of trees.

Mr. F. P. Clare is evidently an experienced beekeeper and close observer, and he condenses much practical information in the following papers which he contributed to the convention.

#### QUEENS.

I do not think we need to trouble ourselves much about them; not but what much depends upon a good queen, but because the bees know when and how to rear the best of queens. This is always done (if bees are in a normal condition) when honey is coming regularly and the hives are filled with young bees. I have never had better queens than those raised the swarming impulse, and with this end in view. I think it well to help those colonies that we desire to breed from by giving them sealed brood from the others. The selected ones will then swarm first and we will have young queens or cells for the others. All this means work and bother, and then how often do we find some hybrid stock better honey-

gatherers than our gentle Italians.

In my experience, a queen's first year is the best; not but what she may be as prolific the second, but she (perhaps it is the bees who desire a young queen) is much more apt to lead off a swarm, and this in out yards, without a watcher, don't pay.

Years ago I endeavored to know the condition and age of every queen in my yard, and when they were two years old I destroyed them, giving cells or young queens (if I had them to spare), or, if the strain pleased me, let them earn one for themselves. But I do not pay as much attention to this matter now, for I find the bees understand this part of their business and generally will attend to superseding old queens. 'Tis well, however, to have a few young ones to spare in the fall, and should an old queen be discovered, replace her with a young one.

I have said nothing about introducing queens, as I suppose each bee-keeper has his own way of it, and if successful this is the best way for him. A provisioned cage, which allows the bees to release the queen pleases me best, and feeding (if honey is not coming in) for three or four evenings makes it generally a success.

#### COMB FOUNDATION.

I suppose, Mr. President, by inviting me to write on "Comb Foundation," you desire the result of my experience in the use of the article. I use but little of it and never used more than starters in brood frames. For this purpose I think beekeepers could afford to pay many times its present cost. Not but what bees will build comb without it, but too often not where we want it.

The reason assigned for using full sheets of foundation in brood nest is to prevent the building of drone comb; but with me this end can generally be secured by contraction. First of all, let us enquire, why do bees build drone comb? Nature teaches a new swarm to build worker comb, that young bees may be reared to take the place of those that are worn out. By the time a few cells are built, the queen is ready to occupy them, and when the swarm is moderate in size and the queen prolific this condition of things continues till the hive is nearly filled with comb. A waiting queen directs the energies of the comb builders. But let the swarm be a heavy one and the queen failing, especially if honey is coming in freely and the queen will soon be distanced by the comb builders, who change off drone comb for storage purposes.

My plan, when working for comb honey, is to have new swarms on five Langstroth frames containing starters of foundation, and after these are filled with comb, and the

white honey harvest is over, to fill out the hive with worker combs.

If bees are bent on superseding a queen, some drone comb will be even in a contracted brood nest; but this little can be removed and the openings filled up with worker comb as they are looked over the following spring.

I prefer starters of natural comb in the surplus apartments and for this purpose save all the suitable comb I can find, often cutting out partly built comb from the extracting supers.

Other papers read will be published in the Reporter as they come to hand.

The election of officers resulted in the return of the old staff, viz.: M. B. Holmes, Athens, president; F. L. Moore, Addison, vice-president; and F. W. Fulford, Brockville, sec'y-treas.

Resolutions were passed tendering the thanks of the Association to those who had contributed papers (more especially to Messrs. Pringle, Clare and Holtermann, who were unavoidably absent) and to the County Council for their kindness in granting the association the use of the Court house for its annual meeting.

It was decided that the next meeting of the association be held in Brockville during October, 1895.

## Outdoor Wintering.

(E. L. Bainard.)

Suggestions are asked for on the plan of wintering in packing cases as described by Mr. Ellis in the February BEE JOURNAL. I think lifting the frames from one hive to the other would be an objection. If there is no rim or cleats on the outside of the hive you use, why not make the packing case about 2½ inches longer and wider, and put in the whole hive, except the bottom board. A hole in the bottom would answer for an entrance. I think the small air space around the hive will keep the hive both warmer and dryer. If a house is frost and moisture-proof with double walls and windows and an air space between, why can't bees be protected in the same manner?

On top of the honey board or propolis cloth I use a section super filled with an inch of the top with chaff. On this is put a flat cover, and on the cover more chaff. This I find keeps the hive and packing dry, the packing case covers fit tight.

Mr. Ellis mentions that he packs one hive in a case. Why not put more together—say four, two facing one way and two the opposite direction with the backs together, setting them out of the clamps for summer in the same position.

## Yellow Bees.

—G. W. Demaree.

What is the matter with the yellow bees? For a number of years past it has been a common thing to see it asserted in the Bee Journal that color has nothing to do with the working quality of honey bees. Many of your readers cannot fail to remember how persistently these writers insisted that color had nothing good or bad about it in connection with bees. How is it that all is so changed now, and color does have a prodigious effect on bees, and bees are "no good" because they are yellow? and especially if they sport too many yellow bands. It is a fact that a bee may sport two or three yellow band and escape reprobation, but if she sports five bands she brings down upon her reputation a commonly disapproval that amounts to prohibition.

For about nineteen years I have handled the light colored or yellow bees, and during this time I have handled nearly all the known varieties of bees, and I repeat what I have often reported through the bee periodicals, that the light-colored varieties of bees have proven themselves to be the best all purpose bees that I have experimented with. I have tested their working and staying qualities both in field work and in feeding back honey to have sections finished up at the close of the honey season, side by side with the darker varieties, so-called pure and hybrids, and they have never failed to sustain their reputation as good strong workers in my yard. Of course I am not to be understood as claiming that every colony of light-colored bees are superior to all colonies of the darker varieties, I speak of them as a rule.

I wish to say here that those persons who have claimed to have originated the five banded bees, talk nonsense. I can breed them up to this type by careful selection in two or three seasons, and have often done it. In 1883 I had 120 colonies of bees in my yard and about half of them were of this type of bees—banded to the tip. That season was an extra good one, and my yellow bees, at the close of the season, stood at the head with large odds in their favor. I speak of this to indicate that I do not judge the merits of these bees from a few "sample bees," as many persons have done, and then write *knowingly* about them. By crossing yellow Italian drones with Cyprian queens, this type of bees can be attained even in one season, and I believe that most

of the five banded bees now put upon the market have Cyprian blood in them.

Some time ago a breeder sent me samples of his bees with a virgin queen with them. I had the virgin queen mated and these bees showed Cyprian blood. The Italian bees are natural, thoroughbred or hybrid, and one of the peculiar marks about them is found on the underside of the abdomen. That part of the bodies of the workers is of dark color, distinctly marked with black veins, and it is impossible to breed out this well fixed characteristics. The color of the underside of the abdomen of the Cyprian worker is yellow or light leather color, without the distinct black veins. When the two races are crossed, the workers will show the characteristics of both races by the color of the underside of the abdomens of the workers.

Mr. D. A. Jones, of Canada, several years ago sent me a queen of his "Jumbo" strain of bees. The workers were large and beautifully marked to the tip, and splendid workers they proved to be. They plainly showed the marks of Italian, Cyprian and Syrian. All these crosses have, as a rule, proven under my method of management, as manageable as straight Italians. It is true that once in a while one will find a colony of these bees as fierce as cross hybrids, or pure Cyprians, but they are exceptions to the rule.

It has occurred to me that the beginners in bee culture must meet with a great deal in our bee literature to confuse them. One man proposes to occupy the brood nest with two queens during the honey harvest, and another man proposes to cage or remove the queen during the honey harvest. The two methods are as opposite as the poles, and neither of them is practicable. I want a system of management that will keep the full working force of the colony together during the entire honey flow, unless I want to increase my colonies by taking a prime swarm in from each colony. If I want no increase I prevent swarming by raising all the sealed brood above the queen excluder and confine the queen below the excluder. If I want the prime swarms, I let them come, hive them on the old stand, remove the parent colony to a new location, after shaking enough bees from the combs to prevent after swarms. There is no use of any fuss about it. After the old hive has set by the side of the new one a few days shake the bees off of all the combs except one that has a good queen cell on it, and move the old hive to a new location and rest easy. There will be no after swarm.

Christiansburg, Kentucky, U. S.

## The Vermont State Convention.

The Twentieth Annual Convention of the Vermont Bee-Keepers' Association was held at Middlebury, January 30-31, 1885. The convention was called to order by President W. G. Larabee. After prayer by R. H. Holmes, President Larabee read a letter from Secretary H. W. Scott, saying that he would be unable to attend the convention on account of sickness at his home. C. W. Fisher was chosen secretary pro tem. The minutes of the last meeting were read and approved. There were twenty-five members present at the roll call.

The Secretary reported that he had sent cards to the bee-keepers throughout the State for the purpose of obtaining statistics in regard to the number of colonies, amount of honey secured, method of wintering, etc. As so few responded to the request, nothing definite could be obtained. The treasurer's report was quite flattering.

A very interesting paper was given by A. E. Manum on "How to raise queen in upper stories, and the best time to raise good ones." He chooses his stock colonies the year before and uses the natural method of queen cells. He often had difficulty in introducing virgin queens the same day that the second lot of cells were cut out, but by skipping one day he was almost sure of success, losing not over three per cent. If the virgin queens were a few days old he had to use much more care in their introduction. Sometimes the colony would build queen cells after the queen had been removed eight days. He thought that he had one instance of a nucleus carrying eggs into the hive and starting queen cells.

J. E. Crane had a case of bees moving eggs from one comb to another. O. J. Lowrey gave an instance of eggs being found and cells started when there was no possible source in the hive from which the eggs could come. Mr. Crane had had trouble in introducing virgin queens into mixed colonies; could easier introduce older ones into black than Italian colonies.

"How to cleanse wax and make foundations," R. H. Holmes. "Put nothing in, take everything out," was his rule. He melts the wax in a steamer, not allowing it to boil; in a second can it is kept warm and allowed to settle, then it is strained through cheese cloth into the dipping can. He uses the Given press. J. Crane thinks the wax is better if water is in the dipping can.

W. G. Larabee had used Solar wax ex

tractor with very good success. E. H. Sturtevant uses the Doolittle method. He could make, with very little labor, fine wax ready for use from old combs.

Reports of the members for the season of 1894 showed that the crop of honey throughout the State was rather light. Some localities reported a good yield, but it was overbalanced by the shortage in other places.

The question box was next opened.

What can the association do to prevent injury to bees from spraying of fruit trees?

J. E. Crane recommended the distribution among the farmers of a pamphlet by A. I. Koot upon the subject of spraying. Educate the farmers as to the best time to spray.

Would a colony of bees be worth as much the following spring if when the supers of honey were taken off the bees were destroyed instead of letting them return to the hive again?

R. H. Holmes thought it would be detrimental to them. He wants both young and old bees for wintering.

H. B. Islam wants August to September bees to winter. J. E. Crane wintered a colony successfully that were queenless after the middle of July.

#### EVENING SESSION, JANUARY 30.

"What I think of House Apiaries, and how to work with one." H. H. Burge. "I have a house holding fifty-two colonies, the lumber of which cost \$50. Have used it one year. There was not much difference from the chaff hives in the production of honey last season, but the work could be carried on much easier because everything was more convenient and accessible. One is not as apt to be stung. Fall feeding was much easier than when the colonies were out of doors.

"What has been done at the Experiment Station," C. W. Fisher. During the winter the temperature of the bee room in the apiary varied considerably. Records were made which showed that at times the thermometer changed 30 to 35 degrees in the course of five hours. The hives were well packed in chaff or sawdust, with cushions of same on top and a dead air space below. The temperature in the brood-nests also changed; sometimes there was a variation of fifteen degrees in the same period of time. The bees wintered very well, not seeming to be affected by the changes. The spring was so very early there was no chance to do experimental work in spring feeding. The colonies averaged heavier, in the spring, wintered in the house than in chaff hives outside. The honey yield was much above that of the State in general, notwithstanding the experimental work.

Mr. D. D. Howe, Farm Superintendent, first said that the Board of Control of the Station commended the work done the year and they requested that experiments be prescribed for another year. Director J. L. Hills requested that a report be prepared for the yearly bulletin. Mr. Howe then gave results of the experiment with the Langdon non-swarmers. Four colonies were run with the non-swarmers through the swarming season. There was no swarming. The colonies were much weakened during the time because the queens nearly stopped laying. Two of them were destroyed by the bees before the non-swarmers were removed. The directions as to changes, etc., were closely followed. However, a good many capped queen cells were cut out. The first capped cells that were destroyed by the bees was July 6 after the non-swarmers had been on a month. The yield of honey from either set was not as much as from single colonies equally heavy at the commencement of the honey flow.

Mr. O. J. Lowrey read the experiments that were accepted by the Board of Control to be tried during the past year. A row of evergreens was set around the yard for a wind break. One of these experiments, which was carried on under Mr. Lowrey's supervision, was for the purpose of determining whether the bees added to or chemically changed sugar syrup when transferring it to the cells. Empty combs were given colonies in the fall, and sugar syrup was fed. One colony was fed three pounds, another twenty pounds per day. After feeding it was extracted and samples taken which were chemically analyzed.

The samples taken were numbered 2, 3, 4 and 5. Nos. 2 and 3 were from the colony fed twenty pounds and Nos. 4 and 5 from the one fed three pounds per day. If these honeys were sold in open market, sampled and analyzed, Nos. 2 and 3 would be condemned as adulterated with cane sugar without question, and Nos. 4 and 5 almost without question.

A very interesting letter was read from V. V. Blackmer, who has moved to San Mateo, Florida and purchased an interest in the apiary of A. F. Brown.

#### FORENOON SESSION, JANUARY 31.

The convention assembled at 8.30 and listened to the reports of the committees. The committee on nomination of officers of the association for the ensuing year gave their report, which was accepted and the nominees elected as follows:—

PRESIDENT—H. W. Scott, Barre.  
VICE-PRESIDENTS—Addison Co., Miss M. A. Douglass, Shoreham; Chittenden Co.,

D. D. Howe, Burlington; Franklin Co., F. M. Wright, E. Enosburgh; Lamoille Co., J. W. Smith, Moscow; Orange Co., M. F. Cram, Brookfield; Rutland Co., V. N. Forbes, W. Haven.

SECRETARY—C. W. Fisher, Burlington.  
TREASURER—H. L. Leonard, Brandon.

The committee on resolutions submitted their report, which was unanimously adopted as follows:

Resolved, That we express our thanks to the proprietor of the Addison House for favors shown at this meeting; also to the C. V. R. R. for reduction in rates.

Resolved, That we express our thanks to the Board of Control of the Vermont Experiment Station for the very able manner in which they have conducted the experiments relative to the apiary connected with the Station.

Whereas, An all wise Providence has removed from this Association E. J. Smith, an able member and one of our vice-presidents be it,

Resolved, That we tender our heartfelt sympathy to the family and friends of the deceased in this our loss and their sad bereavement.

The committee to confer with the Board of Control at the Experiment Station in regard to experimental work to be done there the coming season, consisting of O. J. Lowrey, H. W. Scott and M. F. Cram, was re-elected.

In view of the rapid strides of the disease known as bee paralysis, is it safe to buy queens of any and every one who sees fit to advertise them for sale?

J. E. Crane—"I have had cases which seemed similar to bee paralysis that were probably due to some form of poisoning." Others reported similar cases. It was the opinion of Mr. Crane that what we have had in Vermont is not true bee paralysis.

How shall we grade our comb honey?

R. H. Holmes—We have to grade according to the requirements of the market to which the honey is sent. Thinks that the general call is for but two grades.

H. M. Everest—If a cell of pollen is in the section put a drop of alcohol on it to prevent moths from developing.

How to manage our apiaries.

J. E. Crane—If running for extracted honey the matter is very simple. Strengthen the colonies as much as possible in the spring, then take out the honey. For comb honey, know that the queens are clipped, put boxes on early and cut out all queen cells. In eight days if cells are found, remove the queen, after another eight days cut out cells again and introduce virgin queens. Do not remove queens unless the colony is preparing to swarm.

#### QUESTION BOX.

Which is best for wintering, sugar syrup or honey?

J. E. Crane—"I have no hesitation in saying sugar syrup."

Which queens are the best for Vermont bee keepers, those raised in the northern or southern part of the United States?

R. H. Holmes—"Get the very best queens possible, and from our own climate."

Would a wooden feeder keep as sweet as a metal one?

V. N. Forbes—"Never use metal. Waxed wooden feeders are best."

What is the best way to keep comb from the bee moths?

H. B. Isham—"Place tarred paper on the floor and between every brood-nest. G. W. Fassett hangs them on a rack with a space between combs.

When can we most successfully feed for wintering?

M. F. Cram—"Prefers to feed quick when honey and pollen are scarce late in the fall.

Does a bee inherit its working qualities from the queen or drone?

From both.

The attendance was good and much interest was shown throughout all the meetings. It was voted to hold the next annual meeting in Burlington. The convention then adjourned.

C. W. FISHER, Secretary,  
Burlington, Vt., U. S.

#### Personals.

Mr. John Langohr, Lyndock, Ont., paid the office of the CANADIAN BEE JOURNAL a visit recently

Messrs. F. A. Gemmell, Stratford, and Jacob Alpaugh, Galt, are rustivating in California, both have been elected honorary members of bee-keepers associations. In a recent letter Mr. Gemmell writes about "oranges, roses, lilies, and the like. He appears to be at home amongst them. One would imagine he had been used to them all his life. Mr. Gemmell is feeling better already.

I enclose one dollar, my subscription for THE CANADIAN BEE JOURNAL. I am well pleased with it. I think it has improved very much during the last year. My bees did very poorly this season, only got about 600 lbs of dark honey. Yours truly,

Aaron Young.

# Various Brands

OF

# Foundation.

(Report by Frank T. Shutt, M.A., F.I.C., Chemist to Dom. Exp. Farm.)

Wax, like honey, is a true secretion and not a material gathered by the bees, special cells or glands having for their function its production; It differs from honey, however, in its formation in certain particulars. Honey would appear to be the result of the action of a diastase or ferment. produced by certain cells in the bee, upon the cane sugar contained in the nectar gathered from flowers. Wax is manufactured, so to speak, in the bee and is the result of the physiological function of certain glands, as already stated. Wax, therefore, is not collected, but is produced at the expense of the honey or sugar (as the case may be) consumed by the bee. Thus Dumas and Milne Edwards found that bees fed with 500 grammes of sugar produced 30 grammes of wax, the same weight of honey only yielding 20 grammes. It would also appear that although pollen is not absolutely necessary to the production of wax, its consumption by the bees greatly reduces the amount of honey or sugar otherwise required (Berlepsch). From this it is evident that wax is secreted, primarily at the expense of the tissue and, secondarily, of the food consumed.

Another very important object is to prevent the building of drone comb. The cells of this comb being larger than those of the worker comb cells, the often more than useless rearing of drones is largely prevented.

In supplying "foundation" to the bees, the object is to save much of this expenditure and thus allow the bees more time and energy for the production of honey.

The primary object of the present series of experiments, as suggested by Mr. Holtermann, was to ascertain the relative ease with which the various foundations tested were drawn out and used by the bees, it, naturally, being held that those would be the most profitable which were utilized in this way to the greatest extent by the bees or in other words those to which the least wax was added by the bees in building the comb. It will be seen that other and perhaps more important results have been incidentally obtained.

The experiments were conducted as follows: The frames were filled with the various foundations under test, and the weight

of two inches square, ascertained directly

EXPERIMENTS WITH VARIOUS BRANDS OF "FOUNDATION" 1891.

Designation Letter.	Name of Wax and Mill.	Temperature.	Weight in Grammes of Foundation 2 in. square.	Weight in Gram's of empty honey combs 2 inches square.	Weight in bees per 2 square inches, of wax added by bees.	Approximate Measurement of 1 lb.
A	Choice Wax, Root mill outer section	80 F.	1.4010	2.8335	1.4325	9.0 sq. ft.
B	" " " "	80 F.	1.4010	3.0801	1.6830	" "
C	" " " "	120 F.	1.2940	2.6925	1.3985	10.5 " "
D	" " " inner section	120 F.	1.2910	2.8435	1.5525	" "
E	Foundation in general use, outer section	120 F.	1.115	2.5650	1.4505	8.9 " "
F	" " " "	120 F.	1.115	2.4845	1.3695	" "
G	" " " "	120 F.	1.3157	2.8165	1.5005	9.6 " "
H	Heavy sheet, Root mill, outer section	120 F.	1.3157	2.6750	1.3593	" "
I	" " " inner section	120 F.	1.3570	2.5340	1.1770	10.8 " "
J	Inferior wax, Root mill, inner section	120 F.	1.4570	2.5050	1.0480	" "
K	" " " outer section	120 F.	1.2210	2.5110	1.3170	10.8 " "
L	" " " inner section	80 F.	1.2240	2.8080	1.5820	" "
M	Choice wax, Given press, inner section	120 F.	1.6610	3.0593	1.3983	7.9 " "
N	Patent process, 12 sq. feet, inner section	120 F.	1.6610	2.7055	1.0445	12.5 " "
O	Patent process, 15 sq. feet, inner section	120 F.	1.6830	2.6115	1.0285	11.5 " "
P	Inferior wax, Given press, inner section	120 F.	1.5830	3.0080	1.4270	8.9 " "

noted. At the close of the season, a simi-

liar area of two inches square was cut out of the centre of the full comb, the caps of the cells carefully removed, and the honey extracted with the extractor and finally by successive exhaustions with cold water. The empty honey comb was then allowed to dry in the air and weighed.

TABLE OF AVERAGES.

Designating Letter.	Name of Wax and Mill	Milling Temperature	Average weight of 2 in. Square of Empty Honey Combs	Average weight in Grammes of Wax added by Bees	Average Percentage of Wax Added by Bees.
A	Choice Wax, Root mill	89 F.	2.6587	1.5377	111.1
B	Foundation in general use	120 F.	2.7530	1.5290	126.9
C	Heavy sheets, Root mill	120 F.	2.6227	1.1082	78.3
D	Inferior Wax, Root mill	89 F.	2.7457	1.4300	108.6
E	Choice Wax, Given press	120 F.	2.6105	1.3925	116.0
F	Patent process 12 ft square	120 F.	2.6733	1.4195	118.4
G	Choice Wax, Given press	120 F.	3.6565	1.2555	69.1
H	Patent process 15 ft square	120 F.	2.7065	1.7125	175.5
I	Choice Wax, Given press	120 F.	2.9115	1.8185	166.4
J	Inferior Wax, Given press	120 F.	3.7094	1.4270	96.0

The foregoing tables give in consecutive form the data obtained and the averages therefrom.

PARTICULARS respecting the color and appearance of the foundations and their resulting honey-comb are contained in the subjoined memorandum:

A & B—Foundation, nearly white, clear and bright; in the comb it was only a

shade darker than the cells.

C & D—Foundation, a shade darker than A, but almost white. Honey-comb very similar to A.

E & F—Foundation, a bright yellow, clear; in comb several shades darker than cells, color gradually diminishing from foundation plate to top of cells.

G & H—Foundation very pale yellow; in comb it is slightly more yellow in inner section than in outer. Somewhat darker than wax of cells.

I & J—Foundation, brownish yellow, not so light as E. In comb it is considerably darker than cells, color shading off from centre.

K & L—Foundation, almost identical in color with that of preceding; in comb, yellowish brown and considerably darker than the cells, color shading off as in I & J. On the whole, very similar in appearance to the preceding.

M—Foundation, a very pale yellow, in color, comes between F and A; foundation in comb almost white, scarcely any difference in color to be distinguished between it and the cells.

N—Foundation, a bright yellow, a little lighter in color than E; foundation in comb, color almost gone and in this particular scarcely distinguishable from cells.

O—Foundation, bright yellow, a shade darker than N, probably owing to greater thickness; foundation in comb, pale yellow and in this respect differing from N. Does not this show the same shading off from centre as noticed in some of the heavier foundations.

P—Foundation, deep yellowish brown, the darkest in the series, appears to be more elastic than M, which is about the same weight and from the same mill; foundation in comb, brownish yellow, color extending about one half the depth of the cells.

#### DEDUCTIONS MADE FROM THE ABOVE DATA.

1. That a certain minimum of wax is apparently required for the construction and strength of the cells, although not necessarily the same weight is required in every case.

2. That when a light (in weight) foundation is applied, the bees make up the deficiency; in other words, the weight of wax produced by the bees is inversely proportional to the amount of wax supplied as foundation. This is well illustrated by M and O, and is borne out to a greater or lesser extent (with one or two exceptions) by the other members of the series. It points emphatically to the economy of supplying the bees with foundation of not more than seven and a half feet to eight feet to a pound.

3. That a dark or deeply colored foundation give a dark and unsightly "fish-bone" in the resulting comb, materially affecting the palatability of the honey and injuring its sale.

4. That, in addition to what has already been said, there appears to be some support to the theory that certain waxes are more easily worked and drawn out by the bees, than others. The results obtained in the experiments with the "foundations in general use" and the "inferior waxes" from the Root mill, would, apparently, lend weight to this view. The facts at our command do not at present allow of any general conclusion being arrived at on this point. There can be no doubt, however, that this factor cannot, in view of the data here given, be of equal importance with that of the weight of wax supplied to the bees in the foundation.

5. That the present experiments give no definite results that would enable us to draw conclusions as to the relative merits, as regards working by the bees, of wax milled at high and low temperatures.

It might be urged from what has already been said, that it would be convenient to supply all the wax necessary for the construction of the comb. There are, however, no facts to support this extreme view. The production of the wax by the bees is a normal function, and its entire cessation might possibly affect the honey yield or lead to a disarrangement of the general health of the bees. There is probably a limit in the amount of wax that can be advantageously furnished as foundation, a limit to be ascertained by future experiments.

### Pure Honey Bill.

(From a report of the annual meeting of the Ontario Bee-Keepers Association in the Rural Canadian by W. F. Clarke, Guelph.)

A resolution of thanks was proposed to those members of the House of Commons who had voted for what its friends choose to call the Pure Honey Bill. A more truthful name would be Anti-Sugar Honey Bill. It was objected that if thanks were voted that branch of the legislature which passed the Bill, censure should be pronounced on the Senate for throwing it out. The Bill was also opposed as needless and useless, putting the association to expense for no possible good and contrary to the principles of sound political economy. But these views did not prevail and the resolution was carried. The object of this Bill is to prevent honey being produced by feeding sugar to bees, a practice not likely to prevail, because, even at present low price of sugar,

honey cannot be made from sugar at a profit. Moreover, the manufacture in question is legitimate, there is no deception or adulteration about it, and no legislature has the right to interfere with honest production of any kind whatever.

## BEES AND FLOWERS.

### The Relation of Bees to Horticulture

But few problems have caused more disagreement and been, by some, more difficult to solve, than the proper relations which Bees sustain to Horticulture. Some fruit growers seem to think that the honey bees are detrimental to fruit, while others contend that they are not only a benefit to growing fruit, but are essential to its full development and general prosperity.

Lately several of our most progressive fruit-growers have come out squarely on the side of the bees. Mr. Charles A. Green editor of the "Fruit Grower," published in Rochester, N. Y., after mentioning the experiments made by Prof. Waite, of the Agricultural Department at Washington, which conclusively proved that to many kinds of fruit trees the bees were absolutely essential for fertilizing, remarks thus:

The fruit-growers of the country are greatly indebted to Prof. Waite for the discovery he has made. The lesson is, that the fruit-growers must become interested in the bees, and I do not doubt that, within a few years, it will be a rare thing to find a fruit-grower who does not keep honey-bees—the prime object being to employ the bees in carrying pollen from one blossom to another, from the fields of small fruits, as well as the larger fruits.

Mr. G. M. Doolittle, of Borodino, N. Y., thus states his views concerning the original use of honey:

The first object of honey in the flowers was not as a food or luxury for man, nor even to sustain the life of the bees, but as a means to an end, and that end was, that the fruit, or female blossoms of plants, which could not be possibly fertilized in any other way, might be fertilized through the agency of insects, which would be attracted to these flowers by the tempting and attractive morsels of sweet they spread out before them as a sumptuous feast. While honey as food for the bee and for the use of man came in as a secondary item.

Mr. C. P. Dadant, of Hamilton, Ill., is the author of the following very interesting essay, on "The Relation of Bees to Horticulture," which was read before the Farmers' Institute, at Hamilton, Ill., on February 1, 1891, to which the readers attention is invited:

The honey-bee follow the white man in his civilizing course, in this country at least. It was unknown to the Indian, but an evidence that some such insect was necessary to the welfare of the wild flowers of America, is it to be found in the fact that the different species of wasps, hornets, bumble-bees, and other honey gathering insects, were very numerous when the country was first settled.

Bees are useful in the fertilizing of most flowers, and in some cases their presence, or that of some other honey gathering insect, is indispensable to the production of fruit. Their role in this matter of fertilization will be the subject of my essay.

Most of you are acquainted with the elements of botany, and know the structure of flowers. The organs of reproduction consist of stamens (or male organs) and of pistils) or female organs). The pollen or fertilizing dust is produced by the stamens, and must reach the pistil, or the blossom is barren. More than this, it is necessary that there should be some intermingling or cross breeding between the different flowers of one plant or tree, and also between the blossoms of several trees of the same kind, for in many cases barrenness would follow a too close in-and-in breeding.

The role of the honey-gathering insects is to bring about this crossing, and the honey-bee is, of all, the best fitted for it, for she not only gathers the honey, and in so doing scatters the fertilizing dust which becomes attached to the hairs of her body, but she also gathers this pollen and takes it home for her own usage. Have you ever watched a colony of bees in busy season, and seen the little insects coming home with their posterior legs loaded with a yellow substance that many people mistake for beeswax? That is pollen which is called "bee-bread" after it has entered the hive, as it is used almost entirely to feed the young larvæ in the course of their growth.

The bee carries her honey in her first stomach, or honey-sac, but Nature has wisely provided for her baskets (cavities on her posterior legs) to carry the pollen, and as this is loosely packed in these cavities, loaded on much as a farmer load a rack with loose hay, small particles are dropped as she goes from blossom to blossom, and answer the purposes of fertilization.

In some plants the organs of reproduction (male and female) are on different blossoms some distance apart, and in many of these plants the interference of the bee is absolutely necessary. The melon, cucumber and pumpkin are in this situation. The male blossoms of these plants produce pollen in such abundance that the bees that visit them often look as if they had rolled in powdered gold-dust, their hairs being absolutely covered with the bright dust. After visiting the male blossom for pollen they go to the other for honey, and thus cause fecundation. Pumpkins and melons being closely allied, cross-breeding is possible between them, with the help of the bee, when in close proximity, and the result is a mongrel vegetable which is of no use, except to illustrate the action of the insects in this matter.

There are other plants, such as corn, in which the two blossoms, although some distance apart, are not visited by bees, for they have no honey; but these plants have the male blossom higher than the female, and the pollen is produced in such great quantities as to cover the ground around them. Of the same kind is the rag-weed which covers our stubble fields in August. The pollen of these plants is so plentiful that it pervades the air about us, and causes hay fever in persons who have a predisposition to asthma. In these cases, the pollen falls upon the female blossom, or is carried to it by the breeze. But in some cases these agencies fail. Thus a single corn-stalk growing alone in the middle of a potato field may prove barren, even though very thrifty, simply because the pollen has been carried away from the tassel by the wind, without reaching the ear.

In other cases, the reproducing organs are still further removed from one another, being on altogether different plants, as in hemp. In those cases, unless the pollen is produced in enormous quantities, the agency of insects is indispensable. In a few instances, plants under cultivation which were perfect in reproducing power when left to Nature, have become imperfect by cultivation. The strawberry is among these. A number of varieties have either no stamens, or very imperfect ones, so that they must be planted in close proximity with other varieties possessing both stamens and pistils. The use of the honey bee has been clearly evidenced in this case, for the pollen of the strawberry is not very plentiful, and it grows so near the ground that breezes have but little effect, so that the agency of a pollen-carrying medium is plainly needed. At the meeting of the State Horticulturists in December, 1893, an extensive strawberry grower stated that he

had much larger crops since there had been an apiary established in this vicinity.

Is it necessary to give evidences that even in the case of the most absolutely perfect flowers, the agency of bees is useful or indispensable? Red clover has a blossom, the corolla of which is so deep that none of the pollen can well escape without the help of insects, and yet when red clover was imported into Australia, it was found impossible to reproduce the seed, until the bumble-bees were imported there. The same red clover, it is well known, cannot bear seed in its first crop here, because bumble-bees are not sufficiently numerous for its fertilization in the early part of the summer, and its corolla is too deep at that time for the honey-bee to reach the calyx.

Apple trees do not bear fruit when blooming takes place during weather cold enough to keep the insects away from the bloom. The experience of the season of 1892, here, was a plain evidence of this, for although apple trees are covered with a profusion of bloom, there was no fruit. Why is it that a peach-stone, when planted often produces a tree whose fruit will be entirely different from the peach from which it came? Because the blossom was fertilized with the help of insects by pollen from another tree.

In short, the agency of insects produces in fruit the same result that is produced in corn, by the agency of the wind. Put white and yellow corn side by side in the same field, and the result will be a mixture of the two kinds produced by the cross-fertilization of the blossoms.

I believe that I have given sufficient proof that the honey-gathering insects are necessary to the farmer, to help the crops of his orchard and garden. Let us now look at the other side.

It is said that bees may be too plentiful, and that their too oft-repeated visits to the blossom may damage the latter. Some say, also, that the honey with blossoms produce is necessary to their growth, and that, when not removed by the bee, it is absorbed by the fruit, and helps its development. If such be the case, the blossoms which are most visited by the bees must suffer, and sooner or later become extinct. What are the blossoms most visited by bees? White clover, knot-weed (better known as smart-weed), Spanish-needle, asters, etc. The pests of your fields are the bees' favorites. Then you had better keep bees to help destroy those pests; but, if the bees cannot destroy them, you must acknowledge that they are not injurious to flowers, especially if you find that those plants are the most numerous, after the largest honey crops have been harvested from them.

But there is another stumbling-block. Are not bees injurious to sound ripe fruit? Do they not damage sound fruit in honey scarcity? During the fall of 1879, there was a great complaint made of bees on that score, in this vicinity, especially in the matter of grapes. These complaints induced us to make careful experiments on the matter, and I ascertained, and will say now, not that I believe that bees cannot injure sound fruit, but that I know they cannot, and that they may be starved to death upon it.

Some four or five years ago, a doubt of this assertion having been expressed in our public high school on this question, by the lady principal of the school, I offered to make a public test of this matter before the pupils, and this offer was accepted. The bees were attracted from neighboring hives to a table in the school-yard, and damaged fruit offered them. After they got fairly to work upon it, the damaged fruit was removed and sound fruit put in its place, and in the course of 15 minutes, the bees had all abandoned the spot. I earnestly request those who doubt my assertions on this question to make such a test for themselves. It is not difficult, and is conclusive.

Most of the damage charged to bees is done by birds. Ants, wasps and hornets do their share, but as the little honey-bee sometimes gathers the remnants so that nothing may be lost, she is often accused as the leading perpetrator of the offence.

Let us, then, give full credit to these honest toilers, and let us remember that, aside from their usefulness as plant fertilizers, we have great use for them as honey producers.—Issued by Bee-Keepers Union.

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### From British Columbia.

*To the Editor of the Canadian Bee Journal.*

DEAR SIR,—We have had a very mild winter, or, as you eastern people might say if you were out here, no winter, only April weather. Willows are in blossom, and yesterday I noticed the bees carrying in fallon. I have seventeen colonies and they have wintered so far without any loss. Some time ago I saw an inquiry in the CANADIAN BEE JOURNAL from a correspondent in this city in regard to dragon flies or "devil's darning needle" catching Queen bees. These dragon flies are very plentiful in this country, and when the afternoon flight of drones and other bees was on, I could count as many as a dozen of them hovering over my apiary at once. They would remain stationary for a few

seconds in the air like a hawk watching for game, then make a sudden downward flight, and if they secured a bee would fly away with it. Not being able to locate any of them at their "free lunch," I cannot say for sure what he dines upon, but as I found several queenless colonies about that time, and as it is claimed that the queen is not as rapid in her flight as other bees, it stands to reason that they would be an easier victim than the worker or drone. I found several dead and mutilated bee leaving on top o' holly hock and rhubarb leaves, but not any queens that I was sure of.

Respectfully yours.

M. J. HENRY.

## Beekeeping in British Columbia.

Feb. 21st, 1895.

There are a great many who keep bees in British Columbia, but there only a few beekeepers. That is, those who go at it in a business-like manner. British Columbia is a fine place for bees, as we do not have it extremely dry in the summer nor extremely cold in the winter. I am wintering on summer stands with great success.

It was warm enough last week for me to open and examine my weakest colony, which went into winter quarters rather weak. I was surprised to find it apparently, in as good condition as when I packed them for winter.

I pack them for winter simply by raising one corner of the sealed quilt and placing on instead a fresh piece of cotton cloth, then put on an empty super and fill with nice clean dry oat chaff, and partly close the entrance, then they are ready winter. I got from 20 to 25 cents for last season's honey. I use the eight-frame Langstroth hive and run for comb honey altogether. If it keeps fine for a few days longer bees will be gathering pollen from the willow. From all appearances I judge we will have a good honey season this year. I take the CANADIAN BEE JOURNAL and I am highly pleased with it. It is worth a good many times the subscription price to anyone who keeps bees.—British Columbia Bee-Keeper.

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## To the Bee-Keepers of Canada.

The Ontario Bee-Keepers' Association desire to have as large a membership as possible of those interested in apiculture, and as the bonus to members is worth more than their annual membership fee it seems but reasonable that all interested should become members, as the object of the Association is to benefit the industry and those engaged in it as well as being a benefit to the country at large.

THE CANADIAN BEE JOURNAL, of which the annual subscription fee is \$1.00 will be given to members of 1895. The report of the annual meeting is also given, which is a full report of all interesting discussions as well as giving financial statements, etc.

There is no doubt but what the Association is doing a good work in many ways such as having a Foul Brood Inspector going through the apiaries in the Province curing and clearing the country of that dreaded disease where found, and in getting laws passed by the government to protect the industry, even as to prevent the spraying of fruit trees with poisons which has been very injurious and caused great loss to those having bees poisoned where spraying was done at the wrong time.

The Association can fairly claim the support of all interested in bee culture and trust that all seeing this request will respond by remitting the annual membership fee one dollar, (\$1.00) by registered letter or Post Office Order.

**W. COUSE, Secretary,**

STREETSVILLE