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# The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

Vol. 17, No. 1.

January 1909

\$1.00 Per Annum

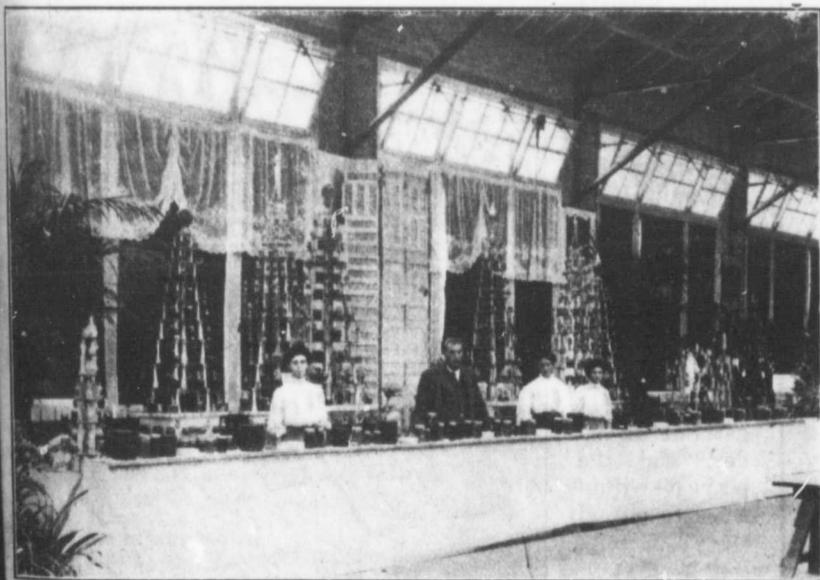


Exhibit of L. D. ANGUISH, Toronto Industrial, 1908

PUBLISHED BY  
The HURLEY PRINTING CO.  
BRANTFORD, CANADA

## That Pile of Old Combs

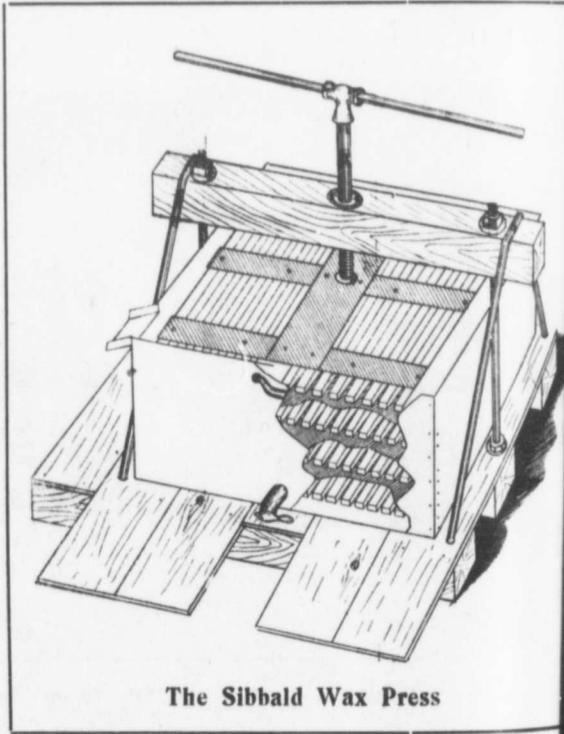
**T**HE Honey Season over, and the bees snugly packed away for the Winter, the Bee-keeper will be able to turn his attention to the accumulation of old and broken combs in the honey house and other places. To the careful Apiarist this accumulation represents so much extra cash over and above his honey crop, and will be treated accordingly. He uses a Wax Press, of course—the latest and best.

The old systems of boiling and steaming did not extract much more than half the wax the comb contained, the steam press was better but still there was sufficient left in the refuse to make it excellent but expensive fire kindling. The latest and best is that of pressing under water, which separates and washes out the wax, practically removing every particle of the valuable.

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# The Canadian Bee Journal

Devoted to the Interests of Bee-Keepers

JAS. J. HURLEY, Editor

Published monthly by  
The HURLEY PRINTING CO.,  
Brantford, Ont.

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Organized 1880

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Bee-keepers desiring the services of the inspector of apiaries should address their requests to Hon. Nelson Monteith, Minister of Agriculture, Toronto, giving nearest railway station and distance of apiary from station.

Place of Meeting: Toronto. Hall and dates to be selected by Executive.

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## The Canadian Bee Journal

Brantford, Canada

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Vol. 17, No. 1.

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# The Canadian Bee Journal

PUBLISHED MONTHLY

Vol. 17, No. 1.

JANUARY, 1909

Whole No. 527

Our readers will greatly regret to learn of serious illness in the home of Mr. J. L. Byer. We understand that his little son was first taken ill. Shortly after he was on the mend Mrs. Byer and a little daughter were stricken. We hope and pray that nothing serious may result. Mr. and Mrs. Byer may be assured of our heartfelt sympathy, as well as that of the entire bee-keeping fraternity.

\* \* \*

Inspector Armstrong, in his report appearing elsewhere, makes the suggestion that all the inspectors should meet once a year for general conference, and compare notes. The idea is a good one. The closer the inspectors get, and the more they come to understand their work and its difficulties, the better will they be enabled to perform the work assigned them.

\* \* \*

Bee supplies are much cheaper now than they will be in the spring. If you are a buyer thereof, now is the time to make your purchases. Buy in the flat and out in the spare time of winter preparing for the busy season. This advice concerns more particularly those who are engaged in farming as well as bee-keeping. But it might be well followed by all bee-keepers.

\* \* \*

We had the pleasure of a call from Mr. Edgerton Shaver, of Ancaster, a few days ago. He reports everything as well with him. He has 97 colonies in the cellar. In discussing the question of winter-cellar we were surprised to hear him state that he endeavored to keep the temperature at 38°, and found that this gave him best results, both in the matter of

bringing his bees through and in low consumption of stores. How many of our readers have had experiences agreeing with this?

\* \* \*

Our estimable contemporary, The Bee-Keepers' Review, is as proud as a baby with a new tin rattle, and justly so. Editor Hutchinson has almost made us envious. We, too, are inoculated with the printer's microbe. The Review has a new home opposite a swell park. Accept our congratulations, friend Hutchinson. There is no bit of printing that comes to our desk that is cleaner or neater than your valuable, dainty Review. We quite sympathize with you and rejoice with you in what you have accomplished—we ourselves know something of the struggle.

\* \* \*

Mr. William A. Lishman, of Cayuga, Ont., writes as follows, under date of Dec. 21st:

I think it is nearly time I renewed my subscription, as I do not want to miss any editions. I have December's issue at hand, and must say it shows improvement, and I place it above ————. I enclose one dollar, as I believe in paper first and Association afterwards. My brother and myself have had unqualified success with our bees the past season. Bee all packed with shavings in winter cases as described in C.B.J.

Thanks, friend Lishman, your kind and encouraging words came to us as one of the most agreeable features of our Christmas cheer. Visions of what our Journal might be dance before our imagination, if we had upon our subscription books three or four thousand such enthusiastic men as you. We are glad to hear of your success, and hope it will be doubled during the coming season.

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Let me say that farming and bee-keeping will go all right, hand in hand, if the right man, with the right spirit, is back of them. I speak from 22 years of experience with this mixture, and if I today were to give advice to any young man as to what to go into to help add to the proceeds of a small farm, I would not only join in saying "more bees," but more studying of the same. This kind of business needs more study and caution than any other, as without knowing the A B C of the bee business it is a sure failure. Get a few swarms at first, learn their ways and habits, study their management from the good books and journals now on the market; then commence to make the mixture. I may say the farmer holds the key to success in bee-keeping; he produces flowers from which much of the honey comes. One of the largest yielders is the clovers, and who raises it? The farmer. Then who should reap the benefit? Answer for yourself. Let a farmer sow a piece of alsike clover within one mile of an apiary of 100 swarms and see the clean profit going off his soil to his neighbor. This will stir the spirit within him to try the business.—E. A. Leffingwell, in Bee-Keepers' Review.

We have had it in mind a long time to say something like that, but somehow never could manage to say it so well. Get busy, brother farmers, and get more bees.

\* \* \*

As will be seen in another column, Mr. McEvoy introduces something new in the matter of prize list for the Toronto Industrial Exhibition. It is merely a suggestion as to what may be done to make the exhibit more attractive and bring out the bee-keepers in larger attendance at the Fair. The demonstrations of extracting honey, uncapping, and filling sections, should certainly prove most interesting and enjoyable for those witnessing the work, and might prove a strong drawing-card to many of the lesser and more bashful bee-keepers in all parts of the Province. Many who feel that they are now very humble and unimportant bee-keepers may be encouraged to become more zealous. It is suggested that these contests take place in the honey building before the judges. With this object in

view he has placed some of the prizes at a higher figure than is usual, in order to better enable the increased expenses to be met. This is a subject that will bear considerable discussion, and we trust that those interested will not hesitate to discuss the matter freely. Mr. McEvoy has made the first kick to start the ball rolling.

\* \* \*

Here's a SHAKER for you! Mr. George W. Williams, in the Bee-Keepers' Review, writing upon the subject of "Shaking," which he strongly recommends for putting life, energy and industry into the bees when they are inclined to loaf, says:

I shook them in the spring to keep them from going back when I moved them, and to stimulate them; I shook them when they would not go into the sections; I shook them when they loafed to induce them to work; I shook them when I introduced queens, and I shook some just on general principles. Every time I "stirred them up from the bottom" they went to work with the push and vim of a swarm just hived. In no case did I find any bad results; but, on the contrary, brood-rearing and honey-gathering were wonderfully stimulated in every case, and as a result I had 1,200 pounds of honey from my six colonies, and I increased to 21, while 12 colonies I treated differently, with the same pasturage, only stored 1,400 pounds and gave 100 per cent. of increase.

Come to think of it, we believe there is something in it. There seems to be something stored away back in our gray matter that would tell us we've had a somewhat like experience. And then what's that phrase about a double-edged sword? Ah, yes—"It cuts both ways!" Well! We remember in our infancy (bee-keepingly speaking), that when the bees shook us up we were inspired with an energy to reach our hospitable back door in double-quick time. Just wait till we see 'em loafing next summer. Sh-sh-shake 'em? Well!

\* \* \*

Elsewhere we are republishing the McEvoy cure of foul brood, as issued by the authority of the Ontario Department

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of Agriculture. We promised this in the last issue. Doubtless there are many who are readers of the C.B.J. now who were not when it appeared before.

\* \* \*

**The Care of Combs.**—The Canadian Bee Journal gives some advice as to this which has the merit of being more specific in detail than such things sometimes are. One is just a bit inclined to raise the question whether **comb honey supers** are really meant, or extracting supers. Certainly the latter generally need the greater care, there being less danger of trouble coming to whatever may be left in the former. At any rate, the advice is good for either. Here is the item:

"When putting away your comb honey supers, disinfect them with carbon bisulphide to kill all moths. Pile them up five or six high and place a saucer about half filled with acid, and put an empty comb honey super on top and cover up well. The acid will evaporate and, being heavier than air, will go down. It will kill everything—ants, spiders, moths and moth's eggs. Your combs will come out beautiful and clear in the spring."—American Bee Journal.

We thank thee, friend York, for your kindness in so gently knocking us over the knuckles for our carelessness in the use of terms. It is only by such kind correction that we may yet develop into an efficient editor of the C.B.J. Editors of bee journals may be "born," but in our humble case we fear we will have to be "made." The task may be a slow one, but we will put forth our best efforts. We believe it was also in your good Journal that we were taken to task for using the word "melt" in its colloquial sense, instead of in its strict literary and scientific sense. You have sharpened us up a bit, but we beg to remind you that our apprenticeship is not yet complete. When writing the above item we had only in mind the empty comb frames in extracting supers about to be laid away for winter in readiness for next year's use. Of course, the advice can well apply to any manner of comb—but that does not excuse us of our carelessness in saying "comb honey supers." Thus we learn and grow. Wonder if our

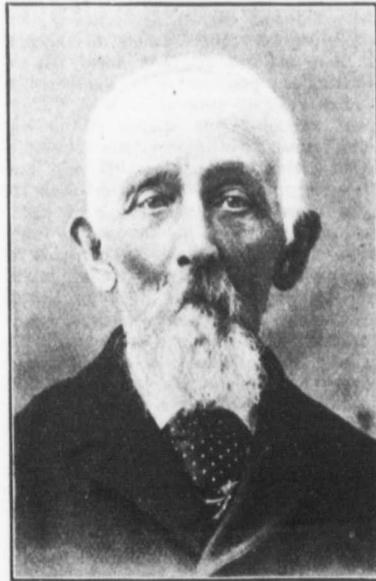
good friend Byer will try to get us out of this scrape? Perhaps friend Anguish will come along and say "Don't think before you speak," or—excuse me—I should say, "Don't speak before you think!"

\* \* \*

We can now announce the date of our Brant Convention. Thursday and Friday, the 28th and 29th of January, have been named. Elsewhere we publish the program as far as it has been arranged. It is expected that some additions will be made, the correspondence for which is now in progress.

**DEATH OF ALEX. BATRIM**

We are sorry to announce the death of Alex. Batrim, on the 7th of December, aged 71 years. Mr. Batrim was one of our old pioneer bee-keepers, having kept bees over forty years in the village of Arkona. He leaves a widow and one son Herbert, druggist, of Parkhill. We extend our sympathy to the bereaved family.



**THE LATE SAMUEL WOOD**

For a number of years a Director of the O.B.K.A.

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**HONEY AS FOOD—ADVERTISING**

On page 420, November number C.B.J., there is an article entitled "A Food That Fills the Bill," part of which I think would make a splendid leaflet for bee-keepers to distribute among their customers and the public generally. For that purpose I think I would leave out the first half, commencing on the second column, near the top, with the words "As an appetizer," etc. I have been thinking of getting our local printer to get out a few (of course, giving the C.B.J. credit), unless you should see fit to get them out yourself. For twenty years I have used the motto on all my stationery which appears at the top of this sheet, viz., "Eat thou honey because it is good."

GEO. WOOD.

Wesley, Ont., Dec. 9, 1908.

[Your suggestion is a capital one. It would place literature of this kind in the hands of the people, and would prove a great educator. Information of this kind, when published only in bee journals, will accomplish very little unless bee-keepers will hand it out to their local papers, with the request that it be published as very interesting general matter. There is not a country newspaper editor who would refuse to print it at the request of his bee-keeping subscribers. To use it as advertising matter in connection with the sale of honey is better still, and would in a very short time create a much greater demand for honey. Thousands of people who are looking about for something to improve their light breakfast, and who wish by dieting themselves to accomplish what pills and other medicines are said to do, would be delighted and forever thankful to discover the results of the use of a tablespoonful of honey each morning. Friend Wood, you are all right. Push the idea. In order to help it along, we will supply them at 10c per 100, in small circular form, neatly printed on good paper. Send along your orders.—Ed.]

**Index for Vol. 16, 1908.**—Accompanying this issue will be found an Index to Volume 16, which closed with our December number.

**A PRIZE LIST FOR TORONTO EXHIBITION**

[Suggested by Wm. McEvoy]

Sec.		1st	2nd	3rd
1	Best 20 dozen sections of Comb Honey .....	\$15	\$10	\$5
2	Best 10 dozen sections of Comb Honey .....	12	8	4
3	Best 5 dozen sections of Comb Honey .....	8	6	4
4	Best 1 dozen sections of Comb Honey .....	6	4	2
5	Best 200 lbs. of Extracted Clover Honey .....	12	8	4
6	Best 200 lbs. of Extracted Basswood Honey .....	12	8	4
7	Best 50 lbs. of Extracted Clover Honey .....	8	6	4
8	Best 50 lbs. of Extracted Basswood Honey .....	8	6	4
9	Best 20 lbs. of Extracted Clover Honey .....	6	4	2
10	Best 20 lbs. of Extracted Basswood Honey .....	6	4	2
11	Best 10 lbs. White Beeswax .....	8	6	4
12	Best 10 lbs. of Yellow Beeswax .....	6	4	2
13	Best Honey Extractor run by a gasoline engine, and 10 combs of Honey to be extracted with it before the judges .....	20	15	10
14	Best Uncapping Machine, and 10 lbs. of Honey to be extracted with it before the judges .....	20	15	10
15	Best and quickest-filled 3 dozen sections with foundation, and this to be done before the judges .....	12	8	4
16	Best 2 dozen vertical wired Combs .....	12	8	4
17	Best and most practical new invention .....	8	6	4

When the judges have finished their work they will put their decisions in writing, and give their reasons for every award given, and then sign their names.

I left out the word "display," so as not to have any "sidetracking" of quality done in any class.

Every pound of honey exhibited should come out of the bee-keeper's own apiary that exhibits it, and it would be much better for all if this rule was strictly lived up to.

WM. McEVOY.

Woodburn, Ont., Dec. 23, 1908.



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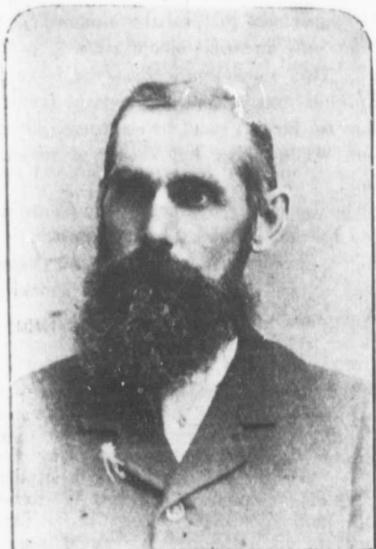
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**MARTIN EMIGH**  
 Treasurer-elect, O.B.K.A.

**CAN A ONE-ARMED MAN BECOME  
 A BEE-KEEPER?**

Please send me a sample copy of your paper, the Canadian Bee Journal. At the same time, would you kindly inform me whether you think it possible for a one-armed man to be a success as an apiarist? I have lost my left arm and am looking for an easy way of making a living. I am very energetic and had some experience with bees years ago, but am wondering whether I should be able to take the swarms with only one arm. I should be glad of any advice you can give me on the subject.

B. O. ROBERTS.

[Without the slightest hesitation we would recommend you to take up bee-keeping. Necessity is the mother of invention. You will devise ways and means of overcoming many difficulties—your energy and ambition will see you through. We would not advise you to embark too heavily at first. Get thoroughly acquainted with the work, and fit yourself to it, so to speak. The difficulty of handling swarms can very largely be overcome by

managing your bees in such manner as to have no swarms. And if one should occasionally swarm, you can easily secure it (if you are on the spot at time of swarming, because if you are not you might lose it, even if you had three arms) by having a box about 8 or 10 inches both ways by 18 inches deep. Nail to the side of this a small stick that the hand can grasp nicely. Bore a number of half-inch auger holes on the four sides of this box—say, about a dozen holes on each of the four sides. If by holding this up you can shake your swarm into it, well and good; if not, lay the box on the ground under the swarm, and, by any means available, shake the bees down upon the box. They will rush into it like a hive and stay there as long as you wish. Then, taking your time, move the hive out of which the swarm came to a new location, placing the new hive to receive the swarm on the old stand where the swarm issued from. By this time the bees will have nicely settled in and around your swarm-box. Pick it up and put the handle over your shoulder and carry your bees where you like. They will not leave it and they will not sting you. When you have arrived at the old stand, dump the bees out before the hive, and in they will go with a rush. By the use of a hook instead of the arm, you can lift your supers on and off or about as you like. There may be much to learn, but you will like the learning of it, and we have no doubt of your success. Consult us often, and we will aid you all we can. We would advise that you go in for extracted honey at first. Experience will tell you whether or not it will suit you to go in for comb honey later. Of course, you will subscribe for the C. B. J. and urge your friends to do so also? Here's wishing you Godspeed!—Ed.]

**THINKS THE C.B.J. IMPROVED**

Burton N. Gates, of Clark University, Worcester, Mass., writes us under date of Dec. 14th as follows: "The last number of C.B.J. is just to hand. The best yet! I do not recall having seen greater improvement in any one paper of the bee-keeping press in so short a time as in this one. Keep it up! Gleanings from the foreign periodicals is a good move. Those fellows over there are hustlers when it comes to natural history observations."

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### STARVING BEES FOR FOUL BROOD CURE—RAISING QUEENS

1. What are the objections, if any, to the following method of treatment for foul brood? Take the diseased colony and shake them into a box, one side of which is covered with wire cloth; then set them down cellar or in some dark place and leave them until a few of them have fallen to the bottom of the box, showing that they have consumed the honey which they brought with them from the diseased combs. Then put them back into the hive, having previously disinfected it by slightly charring the inside by fire or by scalding water. Put the bees on full sheets of foundation or starters and feed. There would seem to be less work about the above plan than by the McEvoy method, and also a saving in foundation.

2. Is the Swarthmore method of raising queens practical for the small apiarist? Is there not some method which is as good, but which is not so complicated and more suited to the needs of a beekeeper who wants to raise only a small number of queens?

3. On page 458 of the December number of the C.B.J., Mr. O. L. Hershiser states that it is "reasonably certain to breed queens with precision during the apple bloom period." Now in this section of the country apple bloom period comes, on the average, between May 20 and June 1. Do you not think it would be necessary to feed the swarm which you would use as a nurse colony for the young queens? We take our bees out of the cellar about the 20th of April, and there are no honey-producing flowers to speak of between then and apple bloom. It would be necessary under nearly all circumstances to stimulate brood-rearing even in a strong colony, would it not?

4. What time would you advise beginning increase on the Alexander plan, when the clover flow of honey begins about the 20th of June and basswood about the 1st of July? The only honey

flow previous to the above-named is a minor one in apple-bloom time.

5. How much space must you leave at the ends and bottom of sheets of foundation to insure good, even combs being built when using full sheets of foundation?

The December number of the Canadian Bee Journal is one of the most interesting that I have received, some of the papers read at the O.B.K.A. meeting making good reading.

H. W. JONES.

#### Reply

[1. Personally we have had no experience in this manner of curing foul brood. We know of one case where it was attempted, and resulted in the entire loss of the bees. But we have no hesitation in recommending against it. It cannot but result in injury to the bees. There must, in our opinion, be a weakening of vitality, a discouragement, a nervous wreckage, from which the bee would not likely recover. Further, a starved bee has lost its comb-building powers, and will require time and abundance of feed to restore this comb-building vitality. This ability to build comb immediately is one of the chief requisites at this particular time. A poor starved bee is incapable of the task. The only wise and efficient plan is to keep up the working powers of the bees in the highest possible degree. Wire cloth screens are not always available, and at most times difficult to procure, especially when wanted in a hurry. Even if cured by this method, the colony would be much reduced in bees, and it appears that there would be a great loss of the healthy brood. We cannot see where it would save time over the McEvoy method. As for scalding or firing the sides of the hives for the purpose of disinfection, we say without hesitation that it is altogether unnecessary. Consider how foul brood is conveyed and spread. Is it not a fact that the poison (or germ, if you like) must first be actually conveyed by the bees to the cell and fed to the larva before it can become diseased? Is it not a further fact that a good, healthy bee will hatch out of a cell that lies right next to a diseased cell? Can there be any contagion here, such as we have in mind when we speak of smallpox or the like? We do not wish to minimize the danger or the rapidity of the spread of foul brood, but as a matter of fact it is not

contagious. In terms, so the Foul brood is a bee. In its feeds the dis out of a disea and thus, in If, on the oth out of a clean take place. M case: A man tea. One is I If he drinks c results; if he harm results. between these be granted the without fear o that there is no eased cell and It is a mere ac tering the poison If this be tr The great obje eased honey and that there rema feed to the larv in reply: "Is th eased honey ma combs when sha honey may fly or drop to the b there, only to again." Our rep bees are shaken f all honey that is is immediately cle to be used up on that are given t moved, and follo foundation, every honey is gone, a feed to the larva clean food. We re a supposedly distin vanced the idea necessary, as in th scarlet fever. We did not properly i of the disease or i the one, more than has had most to s and has caused no little annoyance to ment of Agriculture largely responsible i ffection, and, if rum an applicant for th over the experiment. ation of which is s the Government wou ulties, it will leave ay with square hiv

contagious. Let us state the case in plain terms, so that he who runs may read. Foul brood is not destructive to the adult bee. In its ignorance it unconsciously feeds the diseased (or poisoned) honey out of a diseased cell to a healthy larva, and thus, in simple language, poisons it. If, on the other hand, it took the honey out of a clean cell, no such result would take place. Now let us take a parallel case: A man has before him two cups of tea. One is poisoned, the other is not. If he drinks of the poisoned cup, death results; if he drinks of the other, no harm results. Now, is there contagion between these two cups of tea? It will be granted there is not. Then we claim, without fear of successful contradiction, that there is no contagion between a diseased cell and a healthy cell in a hive. It is a mere act of deliberately administering the poison or disease in either case. If this be true, then why disinfect? The great object is to remove the diseased honey and larvæ from the hive, so that there remains no diseased honey to feed to the larvæ. But it may be said in reply: "Is there not danger that diseased honey may be dropped from the combs when shaking the bees off? This honey may fly to the sides of the hive, or drop to the bottom board, and remain there, only to break out in disease again." Our reply is, "No." When the bees are shaken from the diseased combs, all honey that is shaken out with them is immediately cleaned up by them, only to be used up on drawing out the starters that are given them. These being removed, and followed with full sheets of foundation, every vestige of the diseased honey is gone, and nothing remains to feed to the larvæ but the new, pure, clean food. We remember some time ago a supposedly distinguished bee-keeper advanced the idea that disinfection was necessary, as in the case of smallpox or scarlet fever. We saw at once that he did not properly understand the spread of the disease or its nature. Yet he is the one, more than any we know of, who has had most to say about foul brood, and has caused no end of strife and no little annoyance to the Ontario Department of Agriculture. We believe he is largely responsible for this idea of disinfection, and, if rumor be true, he is now an applicant for the honor of presiding over the experimental apiary, the organization of which is said to be in contemplation by the Ontario Government. If the Government would avoid future difficulties, it will leave this man at home to busy with square hives and write honest

reports to the agricultural papers. In this matter of disinfection we speak from experience. The writer had some thirty-six hives, all diseased, in 1906. Mr. Davis was engaged to apply the McEvoy cure. Not a single hive body or frame was disinfected. In the summer of 1907 the bees were examined by Mr. James Armstrong, who was then Inspector for Brant. He declared the yard clean. It was largely on his recommendation, therefore, that Mr. Holtermann bought the whole outfit (save two), and we have not heard of any difficulty arising from this source since. The two remained in our possession and were last season increased to four. We will give any man a five-dollar bill for every foul brood cell he finds therein. The bees are open for inspection at any time. We would like to hear from any one who disagrees with us on this matter.

2. Our answer is "No." The Doolittle plan, as described in "Scientific Queen Rearing," is better. Read what Mr. Adams has to say on this question in another column, replying to a somewhat similar question.

3. Mr. O. L. Hershiser is an A1 bee-keeper, and we would accept with confidence anything he says. The spring opens much earlier in the field of Mr. Hershiser's operations than it does in your district, Mr. Jones, and this may account for considerable difference. Possibly if the spring was wet, cold and backward, Mr. Hershiser would do some feeding also. This would depend largely upon locality and the nature and abundance of the flowers for the bees to work upon.

4. About the middle or latter end of clover flow.

5. At the sides no space should be left, other than just enough to let the foundation hang freely. At the bottom it is well to have about a quarter or one-eighth, to allow for any sag that may take place.—Ed.]

#### FALL REPORT

Bees went into winter quarters around this vicinity with plenty of good honey for winter stores. Our bees had a good fly about two weeks ago. Bees around here are mostly all outdoors, packed in clamps with dry sawdust, and we expect they will come out all right in the spring.

GEO. OTT.

Arkona, Ont., Dec. 21, 1908.

JONES.

## HOW TO EXAMINE APIARIES AND CURE THEM OF FOUL BROOD

[By Wm. McEvoy, Inspector of Apiaries, Woodburn.]

(Issued by Ontario Department of Agriculture)

Before opening any colony, go from hive to hive and give each colony a little smoke at the entrance of their hive. This will check the bees for a time from coming from other colonies to bother you when you have a hive open and are examining the combs. When you take out a comb to examine it, turn your back to the sun and hold the comb on a slant, so as to let the sun shine on the lower side and bottom of the cells, and there look for the dark scales left from the foul matter that glued itself fast when drying down; for where you find punctured cappings and ropy matter you will find plenty of cells with the dark stain marks of foul brood on the lower side of the cells. Every bee-keeper should know the stain mark of foul brood, as it is more important for him to learn to tell it at a glance than to have to use a pin and lift a little of the matter out of a cell by the head of a pin to see if it will stretch three-fourths of an inch. Dead brood of other kinds often have pin hole cappings, and several cells in the same combs will be found with scales in them; and for this reason every bee-keeper should learn to tell the one class of dead brood from the other, because we often find both classes of dead brood in the same colony with very little foul brood in the same comb, that the bee-keeper did not notice, and after testing the other kinds, and not finding any to stretch, he felt sure that that colony was not diseased when it was, and in time it would get worse, and get robbed out by the bees from other colonies, and then the disease would be spread all through the apiary. I have often been called to come at once by parties feeling sure that their colonies had foul brood, and when I got there I sometimes found that it was not. In some cases I found a very sudden loss of most of the old bees, and nearly all the brood

dead and decaying. This was the result of some foolish people spraying fruit trees while in full bloom, and the bee-keeper, not knowing what caused the sudden loss of nearly all his old bees, and finding so much decaying brood, felt sure that his colonies had foul brood. The only sure way for those people that cannot tell foul brood at a glance is to put the head of a pin into the matter in the cells and lift it out, and if it stretches they can depend on it that it is foul brood; but, as I have often said, the most important thing to learn is to know the stain mark of foul brood, and then it never will make much headway in any apiary or cause much loss, because the bee-keeper would spot the disease at a glance and head it off at once. Honey to become diseased must first be stored in cells where foul brood matter has been dried down, and it is the bees feeding their larvæ from the honey stored in these diseased cells that spreads foul brood. More brood dies of foul brood at the ages of six, seven, eight and nine days than at any other age.

The disease is spread by bees robbing foul-broody colonies, and they carry the disease just in proportion to the amount of diseased honey they convey to their own hives.

Every diseased apiary should be treated according to the exact condition in which it is found, so as to not only drive out the disease, but to make considerable increase in colonies, and end by having every colony in first-class condition. In the honey season, when the bees are gathering freely, is the only safe time to make increase in a diseased apiary, and I make this increase by tiering up two hives full of the best brood with about a quart of bees until the most of the brood is hatched. By that time I will have a very large swarm of young bees just in the prime of life, and when these bees are all shaken into a single hive and treated I will have a first-class colony made out of them. In every apiary that I have treated in the honey season I always had an increase made by having the best brood

tiered up and left until and then the same as the brood and

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In the ho gathering f the evening own hives; foundation s comb for for the starters days, and s them which the old comb the fourth d; and give the out, and then By this meth eased honey before the fi worked out. quantity of n cells of foul colonies, and h treatment, fill combs of brood of brood on t tiered-up brood most of it is ha ing shake thes and then give foundation start comb for four c ing of the four comb and give work out to com brood is hatche they must be m and all the new starters during burned or made the diseased hon in them. Where the dis in bees, put the four together, so swarm to start th not pay to spend

tiered up with about a quart of bees, and left until most of the brood was hatched, and then had these bees treated just the same as the old bees that I shook off the brood and treated first.

#### How to Cure the Apiaries of Foul Brood

In the honey season, when the bees are gathering freely, **remove the combs in the evening** and shake the bees into their own hives; give them frames with comb foundation starters on and let them build comb for four days. The bees will make the starters into comb during the four days, and store the diseased honey in them which they took with them from the old comb. Then, **in the evening of the fourth day**, take out the new combs and give them comb foundation to work out, and then the cure will be complete. By this method of treatment all the diseased honey is removed from the bees before the full sheet of foundation is worked out. Where you find a large quantity of nice brood with only a few cells of foul brood in the most of your colonies, and have shaken the bees off for treatment, fill two hives full with these combs of brood, and then place one hive of brood on the other, and shade this tiered-up brood from the sun until the most of it is hatched. Then **in the evening** shake these bees into a single hive and then give them frames with comb foundation starters on and let them build comb for four days. Then, **in the evening of the fourth day**, take out the new comb and give them comb foundation to work out to complete the cure. After the brood is hatched out of the old combs they must be made into wax or burned, and all the new combs made out of the starters during the four days must be burned or made into wax, on account of the diseased honey that would be stored in them.

Where the diseased colonies are weak in bees, put the bees of two, three or four together, so as to get a good-sized swarm to start the cure with, as it does not pay to spend time fussing with little

weak colonies. All the curing or treating of diseased colonies should be done in the evening, so as not to have any robbing done or cause any of the bees from the diseased colonies to mix and go in with the bees of sound colonies. By doing all the work in the evening it gives the bees a chance to settle down very nicely before morning, and then there is no confusion or trouble. When the bees are not gathering honey, any apiary can be cured of foul brood by removing the diseased combs in the evenings and giving the bees frames with comb foundation starters on. Then, also in the evenings, feed the bees plenty of sugar syrup, and they will draw out the foundation and store the diseased honey which they took with them from the old combs. In the fourth evening remove the new combs made out of the starters, and give the bees full sheets of comb foundation, and feed plenty of sugar syrup each evening until every colony is in first-class order every way. Make the syrup out of granulated sugar, and put one pound of water to every two pounds of sugar, and then bring it to a boil.

Where you find the disease in a few good colonies after all honey gathering is over, do not tinker or fuss with these in any way just then, but carefully leave them alone until an evening in **October**, and then go to the diseased colonies and take every comb out of these colonies and put six combs of all-sealed or capped stores in their place, taken from sound colonies, and on each side of these all-capped combs place a division board. This will put these colonies in first-class order for winter with little or no bother at all, and the disease crowded clean out at the same time. But some may say that the disease cannot be driven out so simply in the fall by taking away the diseased combs and giving the bees six combs that are capped all over right down to the bottom of the frames. It can and does cure every time when properly done, and if you stop to think you will see quite plainly that the bees must keep the dis-

eased honey they took out of the old combs until they consume it, as they cannot find any place in all-capped combs to put it, and that will end the disease at once. Many bee-keepers will no doubt say that this fall method of treatment will not work in their apiaries at all, because they would not have enough of the all-capped combs to spare from the sound colonies, even if they could find some all-sealed. Very true; but you can very easily secure abundance of all-capped combs by putting miller feeders on your sound colonies in the evenings in September, and feeding these colonies all the sugar syrup you can get them to take; and then in October each of these fed colonies can spare the two outside combs, which will be nicely capped all over right down to the bottom of the frames, and with these all-capped combs you will be provided with plenty of good stores to carry out my fall method of treatment. I finished the curing of my own apiary in the fall of 1875 by this sealed comb treatment, when I had foul brood in my own apiary. All of my methods of treatment are of my own working out, and none of them ever fail when properly carried out.

Empty hives that had foul brood in do not need any disinfecting in any way.

In treating diseased colonies, never starve any bees, because it unfits the bees for business and makes them thin, lean and poor, and is also hard on the queens. I never starved any bees, but always tried to see how fat I could make them while treating them by feeding plenty of sugar syrup when the bees were not gathering honey.

If you have nice white combs, that are clean and dry, and that never had any brood in them, do not destroy one of these, as they are perfectly safe to use on any colony of bees just as they are, and are very valuable to any bee-keeper. I have always saved this class of combs for every bee-keeper. I once got a bee-keeper in the State of Vermont to save over two thousand nice white combs, when he wrote to me for advice, and the saving of this class of combs must have

been worth fully three hundred dollars to him. But I have always advised bee-keepers to convert into wax all old combs that ever had one cell of foul brood in them, and the only article that will take all the wax out of the old combs is a good wax press; and as these will pay for themselves many times over their cost, I urge the bee-keepers everywhere to buy one.

Note.—Any bee-keeper desiring to know whether his bees are affected with foul brood may send by mail a sample of the diseased comb, enclosed in a paste-board box, to William McEvoy, Woodburn, Ont. Please see that the sample is free from honey, so that other mail matter will not be injured.

#### BOUND VOLUMES OF THE C.B.J.

If any of our readers wish their Bee Journals bound up, we will be very pleased to bind them. The charge will be 50c. We have some of each month of 1908 left over, and will supply these bound for \$1.25.

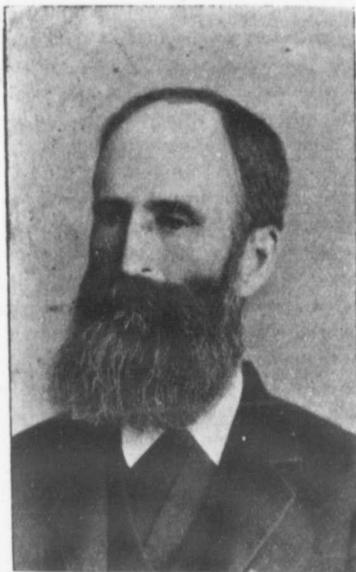
#### MR. J. D. EVANS' ADDRESS OF WELCOME TO O.B.K.A.

Mr. President, I think I owe the ladies and gentlemen present an apology for not being here last night. I believe I was on the programme for last night, but the fact of the matter is, I had been judging honey all day, and I didn't think it was safe for me to stay in town after dark; I was in a highly nervous condition and afraid I might receive bodily harm, and I got away as quickly as possible. I found the judging a rather serious matter; it was an "o'er lang job," and I found very often in judging I suffered a good deal of "anguish"; in fact, I thought at one time of making for the "timbers." We have some good timber here in this Association, which is a good thing, considering we are Canadians; and while, from the type of the timber, which is native maple, our timber may not produce sugar, it produces honey, and, like our native maple, it turns red in the fall.



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J. D. EVANS

Who Delivered the Address of Welcome  
at the Recent O.B.K.A. Convention

Our native maple is red in the fall, but our "timber" is red all the time.

I want to welcome you here, and I hope you will make it a point to come here every year. I am sure the County Council would be disappointed if you went anywhere else. I had particular orders from the Warden to say to you not to leave any bees in the hall, because the County Council were meeting in a short time, and they might get bees in their bonnets. I told them that the atmosphere of sweetness you would leave behind you would keep the Council in good humor when they met. I am very glad every year, and I rejoice about the time of the meeting of this convention because I have so many old friends, and I regret also the absence of so many. When I was first a member of the Association my old friend Jones was one of the chief honey-producers in Canada; and then I see a long succession who are not here; my friend Hall is not here to-day, nor Mr. Pettit, and there are a great many others who

have disappeared; but I am glad to see the younger men are rising in their places and taking the place of those dropping out, and I am sure this Association will go on and prosper. Bee-keeping is in a better, sounder and more satisfactory condition than it ever was before in Canada. I think we owe a great deal to the various Governments from whom we have asked favors in the shape of legislation, and a great deal of legislation has been passed that has helped us in a great many ways.

I was a little surprised in picking up the News last night to see a report there saying that Prof. McGill was to address you, stating that adulteration was very common in the Province of Ontario. I doubt whether that is the fact, because as far as I have seen in the past in a great number of cases that have been examined they have never been able to trace adulteration to any bee-keepers; a few cases have been traced to dealers, but as to bee-keepers themselves, I believe there never has been a case of adulteration traced to any bee-keeper.

I wish you every success. I won't detain you, because you have important matters to discuss, and I know you will discuss them in that beautiful manner which is peculiar to bee-keepers. (Applause.)

The President: I am sure it affords us a great pleasure to feel we are made so welcome.

Mr. Holmes: I think we would be lacking in ordinary civility if we failed to recognize the kindness that has been done us as an Association by the York County Council through Mr. Evans. We have certainly been made to feel very much at home, and his kind words of greeting this morning have added to that feeling; therefore I have much pleasure in moving that the best thanks of this Association be tendered to the Warden and County Council through their representative, Mr. J. D. Evans.

Mr. Brown: I have much pleasure in seconding the motion. We have been

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very well treated by the Warden and Council of the County of York, and we certainly owe them a vote of thanks.

The President put the motion, which, on a vote having been taken, was declared carried.

The President extended the vote of thanks to Mr. Evans, and asked him to convey the same to the County Council.

Mr. Evans: I will convey your thanks to the members of the County Council, and I can assure you you will always be welcome here.

## HONEY—PURE AND ADULTERATED

### An Address Prepared for the Annual Convention of the Bee-keepers' Association of Ontario

By A. McGILL, Chief Analyst,  
Inland Revenue Dept., Ottawa.

(Continued from Page 476)

**Cane Sugar Syrup.**—We are compelled to fix from 8 to 10 per cent. of cane sugar as permissible in honey, because a few natural honeys are found to contain this amount. But the great majority of genuine honeys contain less than 2 per cent. of sucrose, and it therefore becomes possible for honey-packers to add about 8 per cent. of cane sugar to honey without any danger of being accused of adulteration. It is for this reason, much to be regretted, that exceptional honeys show 10 per cent. cane sugar. Perhaps it may be possible to improve some varieties of the honey bee so as to insure their ability to carry the inversion of naturally occurring cane sugar to completeness. In that case, the honey made by such variety of bee command a high price, as it could be guaranteed free from added sugar. At the present prices of honey I believe that the use of cane sugar syrup as raw material from which the bee may make honey is unprofitable. Hence, when we find excess of cane sugar in honey, we infer that it has been added by the manufacturer direct, and not through the agency of the bee. In some cases an acknowledgment of such addition is made (see No. 28,627

of Bulletin 122), but usually it is necessary to resort to chemical analysis to discover the fraud.

Fortunately, the detection and approximate estimation of added cane sugar is not difficult. The methods and apparatus are, however, too complex and delicate to permit of their being successfully used outside of the laboratory. A glance at the columns of any of our bulletins will show you how frequently honey is adulterated by the use of cane sugar syrup. The adulteration which is most difficult of detection, because of its practicable identity with the sugars of honey, is invert sugar. The manufacture of so-called "sugar-honey" or "Kunst-Konig" is a well-established industry in Germany, and is not unknown in other countries. Inversion of cane sugar is usually effected in this industry by the addition of minute amounts of tartaric acid, the quantity employed being so small that the resultant acidity is scarcely greater than is characteristic of true honey. Prolonged heating is necessary, in order to bring about a fairly complete inversion under these conditions, and it is partly because of this fact that we are able to discriminate between the invert sugar of genuine honey and the manufactured article. The levulose component of the invert sugar is partly destroyed at the high temperature needed for inversion, and there results a slight deficiency of this sugar as compared with the dextrose. But the difference is too small to furnish a safe guide to the analyst. In short, no trustworthy evidence of adulteration with invert sugar can be obtained from examination of the sugars contained in honey. We are, therefore, driven to depend upon delicate tests which may serve to detect minute traces of substances which are present in commercial invert sugar, but not in honey.

These tests are quite simple, and are easily supplied, for which reasons I have on the table some samples of honey, both natural and artificial, with the necessary reagents, and we can proceed to make a few demonstrations.

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1. Starch solution was at one time a favorite adulterant. The sample before you contains 25 per cent. of gelatinized starch, and might easily pass as genuine so far as appearance and taste are concerned. But the iodine test serves to detect its presence. Note the blue color produced on addition of iodine to a dilution of this sample, and in contrast the effect of its addition to a genuine honey.

2. Glucose syrup is now one of the most frequently used adulterants.

Bestmann's test consists in adding iodine, which gives a red or violet color quite distinct from that afforded with genuine honey.

The alcoholic precipitation of the dextrin always largely present in glucose syrup is very satisfactory, but unfortunately it is only trustworthy when pretty large additions of glucose have been made.

The two samples before you contain respectively 10 per cent. and 50 per cent. of glucose syrup, and the precipitation in the case of the second sample is very well marked.

Other methods involve the use of the polarimeter, and are not practicable except in a well-appointed laboratory.

3. Cane sugar syrup, as already stated, is easily detected in excess of about 10 per cent. by means of the polarimeter, but the method, for reasons stated, cannot be demonstrated here.

4. Invert sugar. As already mentioned, this constitutes the chief part of true honey, hence it is the most difficult of all the adulterants to detect. It is very largely used on this continent as a honey substitute and adulterant. If it could be of itself profitably manufactured by a method not involving high temperatures, the question of detecting it in honey would be even more difficult than it is now. We may as well recognize at once the fact that the polarimeter, which is our most useful instrument in sugar work, is of no use here. Nor are the various methods which depend upon precipitation of copper from alkaline solutions of its

salts, because the added sugars are identical with the sugars naturally present in honey. The only useful tests are those which depend upon the recognition of traces of substances present in the artificial invert sugar, and not in that of true honey.

(a) Ley's test. (Described and illustrated.) Does not work with honeys that have been heated.

(b) Anilin acetate test.

(c) Fielie's resorcinol test.

The sample of invert sugar exhibited as No. 1 has been made at a temperature not exceeding 100° C. Its analysis is as follows:

Water, 22.3 per cent.

Reducing sugars by Fehling's method—Before inversion, 58.67 per cent.; after inversion, 86.81 per cent.

Polarization—Direct, plus 7.0°; invert, minus 25.0°; difference, 32°.

Cane sugar, 24.61 per cent.

It is evident that a temperature above 100° is necessary to effect such inversion as would enable this to pass for honey. It is quite as colorless as though kept at 100° C. for nearly an hour.

#### Resolution Suggested

Recognizing the importance of legal definition in the case of honey, this Association respectfully recommends the adoption of the following description as embodying the present state of our knowledge regarding Canadian honeys:

Honey is entirely the product of the work of bees (*Apis mellifica*), operating upon the nectar of flowers and other saccharine exudations of plants, and contains not more than 25 per cent. of water or more than 8 per cent. of sucrose (cane sugar), nor less than 60 per cent. of invert sugar. It does not give a blue color with iodine (absence of starch syrup), nor a red color with aniline acetate (absence of artificial invert sugar), nor a dark color with Ley's reagent (ammoniacal silver), nor a marked precipitate of dextrin on adding large excess of alcohol (absence of glucose syrup).

### THE INCREASE IN THE IMPORTATION OF HONEY INTO CANADA

[Read by R. F. Holtermann at O.B.K.A.]

The subject which has been assigned to me is one of no small importance. Knowing that the importation of honey into Canada must be largely on the increase and particularly that of the lower grades, and being alarmed at the prospects of another special tariff arrangement with a tropical country which I am informed is adapted to the production of large quantities of low grade honey, I thought that the cheapest and best way to put the facts before the bee-keepers and those interested was to have the matter with facts and figures brought before the Dominion House of Parliament. I therefore wrote to one personally known to me and asked for a return to the House of the imports of honey during the last ten years. Mr. Foster, the member referred to, very kindly not only asked for a return during the last ten years but for twenty, being from 1888 to 1908. The years from 1888 to 1898 inclusive have been considered by me for brevity and are not given by countries as in the original. The table is as follows :

[The figures will be found on page 264 of C.B.J., July issue.—Ed.]

It will be seen from the above that honey imports have enormously increased. From 1888 to 1895, inclusive, the average annual honey imports were 26,533 lbs. During one fiscal year (9 mos.) 1907, the amount imported was 323,653 lbs. and for 1908 report 621,151 lbs. Under the preference, 33½c has been taken off the duty on honey from the British West Indies. Imports of honey have grown from this latter source from an average of 172 lbs. annually; from 1888 to 1895 to 131,370 lbs. for 1907 and in 1908 to 325,645. No doubt the preference has militated to this end.

But this is not all, we find Great Britain is exporting honey to Canada at an average price of 5.7c per pound. I have already pointed out publicly that

this cannot be British honey, but no doubt it is honey which is coming in under the preference which is not so entitled, Great Britain only being a medium for illegally securing the preference.

The question may be asked, what shall the remedy be, and is it in the interests of the Dominion to encourage the country to produce its own honey. This paper would be too long to add to it a eulogy of Canadian honey, what it has done and can do again in connection with getting verdicts as to its excellence when compared with the honey of other countries. The value of bee-keepers to fruit-growers, clover seed and buckwheat growers. It is not my intention to bring up the matters of protection in its varying degrees, nor is it my intention to cross swords with free traders, if any there are, but the goods we use are protected. In fact, the majority of them have been raised from 20c to 25c, and it appears to me that bee-keepers should put themselves on record as opposed to any further concessions in this direction.

It may be asked, shall we seek to increase the duty on honey? This, in my estimation, is scarcely practical, and in my estimation unnecessary, providing proper distinction is pointed out by the help of the Government to the people. Of course, the importation of honey from Great Britain, at prices below what it sells at in that country is clearly a fraud and should be stopped at once.

Again honey is imported in various packages, and the duty should be insisted on to cover these packages. For instance, honey tins cost us close to a cent per pound for the honey stored. We in our purchases are restricted by a duty on the packages putting both parties on an equal footing. It is, however, much worse in the case of honey imported in glass. I doubt if the duty is paid on the glass, labels and boxes. We have to pay a duty of 25 to 35% on these goods, and with this legitimate protection we would be protected on the goods, and this would make a difference of five to ten cents per dozen

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on the goods. In this case all that is required to be done is to enforce the present law. The invoices generally have only the honey on them, and not the packages, and therefore duty is evaded.

What we then should ask for is that there shall be no further concessions to the other countries, and particularly to those which produce inferior honey. This honey, in order to secure a market at even the lower price, must be sold without giving its source. It leans on the reputation of our own good Canadian honey, our capital, and therefore ours as much as anything else we possess. And our loss comes in where such honey spoils the trade for honey in the homes where we have created it.

We should ask that all foreign honey be analyzed before it passes the customs. A recent letter which a large wholesale grocery firm received from a firm in the United States shows the vigilance on the part of the United States and the danger to Canada with the amount of vigilance at present observed. It reads as follows:

"We have mailed you two fair-sized samples of honey, which we import especially for bakers' use, but should you require larger samples, advise us, and we will send them to you (here the price is given). They are as follows:

No. 1, Fancy, in bbls., 4c; in cases (2 cans in a case), 4 $\frac{3}{4}$ c.

No. 2, Choice, in bbls., 3 $\frac{3}{4}$ c; in cases (2 cans in a case), 4 $\frac{1}{2}$ c; in bond, net cash, f.o.b. there.

"We have been shipping to Canada, and so far it has given entire satisfaction, but under the rulings of the United States Government, if we heat the honey to clean it, it will show a slight excess of cane invert sugar, and claim we should brand it 'Invert Sugar and Honey,' although its purity has never been questioned, for what is honey but 90% invert fruit and cane sugar, and in our opinion it is all wrong. The largest bakers in the United States use it, and they claim they prefer it because it is always clean and uniform, which makes their cakes uniform. We have been shipping this honey to Canada, and although the Canadian customs house will allow it to enter Canada, we thought best to explain it. You can order a few barrels to try before you buy larger quantities, as we would

rather you tested it. We ship a great deal to U. K. and Continent."

It has already by various inspectors been pointed out that honey from doubtful sources is a menace to the health of Canadian apiaries. We should have the assurance from the Customs Department that no more honey shall be imported under false pretences, and that glass, printed labels, tins and manufactories of wood shall not go duty free simply because they contain honey and are not on the invoice of importers.

### BEES AID THE GROWERS

"Give the bee a chance and it will literally break the boughs of your trees with the weight of fruit."

Frank G. Odell of Lincoln, Neb., bee-master, who gave a series of demonstrations with 50,000 bees at the National Apple Show in Spokane, December 7 to 12, made the foregoing observation in the course of an interview, discussing bee-keeping, scientific agriculture and fruit-growing. He said:

"The bee is the expert assistant of the horticulturist and the farmer. So indispensable are its functions in the pollination of fruits, vegetables, cereals and grasses that its activities may be said to lie at the foundation of all successful agriculture. Nature has ordained one supreme law, that of creation, the perpetuation of the race type. This law, universal in its application and absolutely identical in its form, obtains in the plant world as in the animal world. The luscious pulp of the fruit is the envelope, the package, the strong box, devised by Nature to protect the seed within from injury and render it susceptible of germination so that the type may be reproduced in all its perfection.

"The bee, like other insects, effects incidental pollination of flowers in its search for nectar; but its great value to the fruit-grower lies in this, that it goes to the flowers specifically to gather pollen, literally by the carload, in the hairy baskets on its legs, hastening from bloom to

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bloom, rolling and packing and literally rioting in the golden dust, pregnant with the microscopic germs of plant life, until the golden pellets are packed away in its hair baskets, to be carried to the hive for storage as an indispensable portion of the food of its young during the winter months to come.

"It requires no expert knowledge to comprehend how perfectly the bee thus performs the office of pollination. Indeed, it is Nature's chief agent in this indispensable work. No seed, no fruit, is the universal law. Here is the only insect useful in all its habits, having a fixed habitation accessible to man, dependent upon the pollen of every variety of flower as an indispensable portion of the food of its young, and going to the bloom specifically to gather that pollen, thus making possible the marvellous fruit crops in Washington and the Pacific Northwest. That is why I say, give the bee a chance and it will literally break the boughs of your trees with the weight of fruit.

"Delve into the realm of applied mechanics or structural engineering, and your research is incomplete until a lesson is coned from the structure of the honeycomb with its marvellous strength as compared with the fragile nature of its fabric. No more marvellous structure exists among the myriad marvellous works of Nature. This waxen fabric, derived primarily from liquid honey converted into wax in that marvellous laboratory of the bee, formed by some mysterious instinct or intelligence into the very form of all others designed for economy of materials, space and extremity of strength, passes beyond the measure of human skill in its perfection.

"Somewhere between 1744 and 1768 it was discovered that wax is produced between the plates on the lower side of the worker bee's abdomen. It was John Hunter, the celebrated anatomist, who discovered just how the bees secrete wax, and thereby settled a vexed question. He communicated his discovery in a paper

read to the Royal Society of London, Feb. 23, 1793.

"Wax is produced at the will of the bee, and when called for by the necessity of the hive. The wax-producing bees obtain a somewhat higher temperature, usually by close clustering, though they sometimes hang in slender festoons and chains.

"Wax is not chemically a fat or glyceride, and those who have called it 'the fat of bees' have grossly erred; yet it is nearly allied to the fats in atomic constitution, and the physiological conditions favoring the formation of one are curiously similar to those aiding in the production of the other. We put our poultry up to fat in confinement, with part light; to secure bodily inactivity we keep warm and feed highly. Our bees, under Nature's teaching, put themselves up to yield wax under conditions so parallel that the suitability of the fattening coop is vindicated.

"Cheshire in his investigations says that on the inner side of the eight plates lining the lower side of the abdomen are about 140,000 glands, from which the wax is secreted as a white liquid, which hardens on exposure to the air.

"It is evident from the best authorities that the form and method of wax secretion were known as early as 1691, and possibly at even an earlier date. The extraordinary economy of the use of wax is shown by the fact that the hive of eight to ten gallons' capacity will yield but about two pounds of wax when melted. According to Dr. Donhoff, the thickness of the sides of a cell in a new comb is only the 1-180th part of an inch. Cheshire states that he found some that measured only 1-400th part of an inch.

"Notwithstanding the fragile nature of the honeycomb, it is still sufficiently strong to carry the relatively immense load of sweets stored in its cells. The perfection of insect labor is shown by the fact that human ingenuity has never been able to make artificial honeycomb. The

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tales concerning manufactured comb honey are figments of the imagination. Consider that any machinery devised for manufacturing honeycomb would make all parts alike in similar sections. Examine carefully two or more one-pound boxes of honey at your grocer's and you will note differences in the finish of cappings and building the comb fast to the wooden casing, which will at once convince you of the genuineness of the article.

"Not only does the bee excel as an artisan, but also as a chemist. Its honey stomach is the most delicate chemical laboratory in the world. Here the nectar of the flowers is transformed from a highly-diluted sweet, susceptible of speedy fermentation, into the most perfect food product known. This chemical change, inverting the sugar, according to the chemist's phrase, is undoubtedly accomplished in the laboratory of the bee during its short flight from the field to the hive. This chemical reaction is so delicate that no laboratory aside from that of the bee can successfully accomplish it.

"Consider the queen bee, the sole and undisputed monarch of her empire. Endowed with powers superhuman, she governs without exercising visible authority, rules without coercion. Her subjects go about their tasks with that cheerful zeal which can only accompany toil fully recompensed, and offer to men, torn into factions of contending opinion, an ideal social state, where every member of the community is a toiler and all are prosperous, peaceful and content.

"The queen bee is sole mother of the race. 'All life from the egg,' that great biological axiom, is exemplified in the hive. The queen mother, passing rapidly from comb to comb, places a single egg in each selected cell, laying the inconceivable number of 3,000 to 4,000 in twenty-four hours. This labor represents in a single day the expenditure of physical substance equal to two and one-half times the weight of her body. Consequently she does not even feed herself, being always accompanied by a devoted group of

maids-of-honor, worker bees, whose office it is to bring in profusion the choicest pre-digested food to their ruler. Not the least of the wonderful powers of the queen is that of pre-determining the sex of the offspring which shall result from eggs precisely alike under the microscope, but which, in turn, may eventuate into a worker, drone or queen, as their mother may elect."

**A METHOD IN BEE-KEEPING  
 To Keep the Bees at Their Utmost During  
 the Whole Season**

A method is useful only when it accomplishes its aims. Therefore, before we devise a system we must know what we are working for. The desire of most bee-keepers is to harvest good crops of honey, without a loss in bees, at the smallest expense of labor and capital.

Since fall feeding and clamp wintering has come generally in use, and is thought the best for most bee-keepers, six months is all we need attend to the bees. During that time it should be our aim to keep them as busy as possible. With natural swarming, or any other kind of division of bees during the season, we can't expect this to be so.

The man's idea is honey, the bee's is increase, with enough to live over winter. With shiftless keepers of bees we see this at its extreme—many hives, but no more honey than a good man would take from one hive. We can't stop the impulse to swarm, but we can bring about those conditions which will make them give it up and take a substitute. The Doolittle method is the best I have tried for comb honey, while McEvoy's, with large entrances, works right for extracted. My extra precaution with an extra strong one is to take away the queen, giving a ripe queen cell. We need no increase before the first of August, when combs and boxes are plenty. My plan is for a 50% increase. Say in a yard you have 20 colonies, all strong at this time of year, and bees not doing much and queens less, on account of the clogged brood-nest and

slow nectar secretion. This happens at a time when the queens should be extra busy laying the eggs to hatch winter bees. Now, I want you to understand that at this time the second growth clover, golden rod and buckwheat give ample inducement to breeding. I pick out 10 of the stronger colonies, move the hive to one side, and substitute on its bottom a body containing five frames of nice white combs and place on either side a frame of best white honey. In the centre is put a frame of brood on which is a queen cell from best queens. An alley drone trap helps to find the old queen, as the frames are partly shook free from bees, placed in another hive body and moved to the stand of one of the other ten hives, which have been moved just as wanted. These last ten hives lose all old bees and are better off without them. These old bees, returning to the old stands, where the brood and old queens are, work so hard that they nearly all die before winter. This leaves two-thirds of your hives entirely of young bees. The other third, strong in bees but no brood, bestir themselves in earnest and are only surpassed by the young queen. One queen of this kind in my yard this September filled two-thirds of four L. frames in three days, and that hive is the best and heaviest, with only 12 lbs. of sugar in syrup fed. At time of writing there are no more than two or three dead bees on the bottom-board of any hive, which is so far so good. Will tell you better next spring.

WM. A. LISHMAN.

Cayuga, Ont.

#### RAISING QUEENS

[By Wm. L. Couper, Sask.]

Requeen! Replace all queens over two years old! Improve your stock! How many articles in the papers devoted to apiculture have insisted on the necessity for requeening, and how many honey-producers have tried diligently to follow that advice? I can answer for one. I have tried a good many methods of rais-

ing queens so as not to interfere unduly with the honey harvest, and have come to the conclusion that I can buy queens far cheaper than I can raise them.

If only they were as good, but as far as my experience goes they are not. I have bought queens from several different breeders, and only on one occasion have I found one up to the average of my apiary. I think I have read statements to this effect in articles by two well-known beekeepers in one of the American bee journals. In their case it is hardly surprising; they have been improving their stock for many years, and it would be remarkable if they did purchase a queen showing any marked superiority to those of their own raising; but that I, a comparative tyro, should find the same thing, needs some explanation. I think it lies in the fact that a queen sent a long distance by mail deteriorates. I have seen casual reference to this in bee journals several times, and I believe it to be true. In support of this I may mention that the one really satisfactory queen purchased by me came in a two-frame nucleus, and that the daughters of these purchased queens, whether raised in artificial, swarm or supersedure cells, have invariably proved better than their mothers.

In writing this I certainly do not wish to deter anybody from purchasing queens by mail. In my case a queen sent by mail from the nearest breeder will be at least three days on the road, and as we only get mail once a week at our P.O., it is obvious that if the connections are unlucky she may have to lie in the bags considerably longer. I merely speak from my own experience; that many others have had better fortune is abundantly proved by the testimonials so many queen breeders publish.

I have about a hundred colonies. To replace queens that are too old or below the average, and to make a small increase, I require to raise sixty to seventy queens. That may be simple enough to the professional breeder; to me it means a considerable expenditure of time, the

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demoralization of the strong colonies chosen for cell building and the weakening of other colonies to supply frames of brood for the nuclei.

Then there is a most annoying uncertainty about the whole thing. Some colonies will only start a very few cells, and some of these must be culled. As a rule, I find that I cannot depend on more than six good cells from a colony, whether artificial cells are used or the bees are allowed to choose their own larvæ. (My bees are all Italians; with other breeds it might be different.) I prefer the Swarthmore wooden cell cup, because I find that those cells which they do accept are almost always well drawn out, and because they may be safely given to any queenless colony without a cell protector. Of course, I know that other bee-keepers get a great many more cells than this accepted; perhaps it may be some difference in the strain of bees. I have always selected very strong colonies for queen-raising and fed freely when there was no flow on.

Having got all the cells safely completed and the young queens hatched and in nuclei, my troubles are by no means over. A very considerable proportion of the young queens (I should say about 20%) either turn up missing or do not get fertilized soon enough. This, I suppose, would not worry the queen-breeder much; he would simply replace with a ripe cell or a virgin. The mere honey-producer is quite likely to have neither on hand. In writing this I do not mean to argue that queen-raising is not desirable for the honey-producer. I believe breeding from carefully-selected queens pays for the time and trouble many times over, but that does not alter the fact that this breeding is not the simple matter many writers make it out to be. To them it may be; to the majority of more or less clumsy-fingered men it is not.

With regard to re-queening strong colonies, I have found the following plan useful: Place four frames of brood in an upper storey over a queen-excluder; for

convenience we will call this storey B and the lower one A. In about ten days remove A to another stand, putting B in its place. Look through brood frames in B and destroy any queen cells that may be started. Get a frame of young larvæ from your best queen and place in B. In two days replace A, with B on top, as before. In another ten days again remove A, cut out all queen cells but the best one from B, and leave on separate stands till the young queen commences to lay. Then kill the old queen and unite by placing A on top of B. In the second removal A should be placed close to B, so that the field bees will return to the combined colony; in the first it should be placed at a distance, so that the cell-starting colony should be very strong in bees. This plan only works well with strong colonies; a weak one could not keep up sufficient heat in two storeys to raise the best of queens. Whilst this system entails a good deal of work, it stops the work of the colony less than any other I know, as the old queen continues laying till the young one begins.

#### TO EMPLOYERS OF LABOR

In order to relieve the intense situation of the unemployed of this Province, who seem to gather in the larger centres during the early winter months, it has been decided by the Associated Charities to open a free employment bureau in Toronto. This appeal is being sent broadcast through the Province to the manufacturers, farmers and all people who employ labor to cooperate in this work; and it is earnestly hoped that any one needing help of any kind, skilled or unskilled, will apply direct to the "Toronto Free Employment Bureau," 71 Victoria St.

The Bureau already has hundreds of capable men willing to undertake work of any kind that may be offered them, who prefer work rather than charity.

The help of the people in this district will considerably lessen the necessity of appeals being made for large sums of money to be used for charity.

### REPORTS ON FOUL BROOD

[Read by our Provincial Inspectors at O.B.K.A.]

#### Inspector Armstrong's Report

As Inspector of the Counties of Norfolk, Oxford, Waterloo and Wellington, I inspected one hundred and fifty apiaries, and found foul brood in sixty-two, making about 41% of the apiaries diseased. The percentage last year was 50%, but the reason of the less percentage this year was owing to my going over a great part of the same ground this year to see if the bee-keepers had cleaned up. I found that they had, with a very few exceptions. The total number of colonies inspected was 2,583, the total number of diseased colonies being 260, making about 10% of the colonies diseased.

I might say just here that the 150 apiaries inspected does not show the amount of work connected with that many apiaries, for I made from two to four visits to each yard where I found foul brood.

I find that the bee industry is very much improved since last year. The bee-keepers seem to have some life in them now, but last year they did not seem to care which way it went. Now a great many want to buy more bees and go into it stronger. The bee-keepers now see that the Government mean to wipe out foul brood, so that now it will be a pleasure to keep bees, instead of being wiped out of the business every few years with foul brood.

The winter losses were light last winter in our district. The heaviest losses were in the spring where the bees were wintered in the cellars.

The white honey crop was good in the clover belt, and would probably average fully 75 lbs. The buckwheat crop was light. Bees are going into winter quarters in fine shape where they have been looked after.

There is one thing I think should be done; that is, every colony of bees coming into this country should be inspected as soon as possible after they arrive at



JAMES ARMSTRONG  
Cheapside, Ont.

their destination. I think also there should be something done about honey coming into this country, for I believe that is one of the ways that foul brood germs are being brought in, for as soon as the barrels and tins are empty they are thrown out into the backyards for our bees to clean up and thereby carry the disease to the apiary. It looks that way to me, for I know of several cities and towns where foul brood is prevalent, and I think that is how the disease originates.

I think the inspectors should meet once a year and have one session, say, the forenoon before the Ontario meeting opens, and compare notes and try and find out the best way to wipe out foul brood with the least loss to the bee-keepers.

JAMES ARMSTRONG.

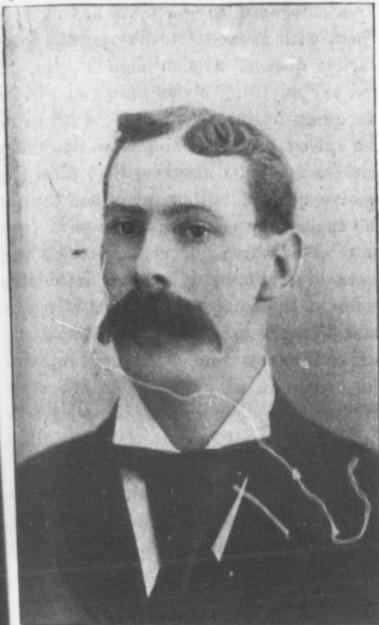
#### Inspector Newton's Report

As Inspector for the Counties of Middlesex and Elgin I beg to report as follows:



JOHN  
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The season was the appointment 1908. I accepted felt the work ought could help the bee my service was in little timid, also, war-horse, Mr. Wm he had done good appreciated by the and Middlesex. An any man is sent out for such work, he appreciated by the ay for myself that I rs in general please ded me in hunting their locality. In most places wh use of foul brood it the bee-keeper. S in a small way) are the disease, and throo and moving combs from



JOHN NEWTON  
Thamesford, Ont.

have the disease in the whole apiary. That is the way the Inspector finds it in many cases.

I found the towns and cities and surroundings worse than the country. I lay this to the honey from diseased apiaries being marketed there and empty vessels thrown out for the bees to clean up and carry the dread disease home.

Then there is the habit of putting out combs and cappings to be cleaned up by the bees. This should be avoided by the bee-keepers. I have found trouble in people buying bees that were diseased and they did not know it. I should like to impress on all buying bees never to do so until they have been inspected by an Inspector and pronounced free from disease.

Again I should like to warn bee-keepers regarding buying queens and introducing them in the same cage in which they come. You have a chance to get the disease in your yard. I had under my care the past season one case. Three queens had been imported and introduced in the same cages. Those three hives showed signs of disease, while no other hives in the yard did. I found some had made a failure of a cure by placing one old comb in the hive while treating, thus placing the dreaded germ back into the colony they were treating. Moving bees that are diseased to clean localities should be stopped. No bees should be moved until they are thoroughly cured. I always try to impress on the bee-keepers the importance of knowing the disease at first glance and always be on the lookout for it. I feel sure if we could but only educate the bee-keepers to know it we would be doing good work. Inspectors and their work ought to be encouraged among bee-keepers, as it is very important in our pursuit in life and the Government are taking so much interest in our work.

Apiaries inspected, 137; colonies under inspection, 5,704; disease found in 28 yards.

JOHN NEWTON.

Mr. Newton: When the Government has so kindly placed before the bee-keep-

The season was well advanced before the appointment was made, July 15th, 1908. I accepted the position because I felt the work ought to be done, and if I could help the bee-keepers in any way my service was in their hands. I was a little timid, also, in following the old war-horse, Mr. Wm. McEvoy, but I found he had done good work and had been appreciated by the bee-keepers in Elgin and Middlesex. And why not? When any man is sent out by the Government for such work, he certainly ought to be appreciated by the bee-keepers. I can say for myself that I found the bee-keepers in general pleased to see me, and all aided me in hunting up the bee-keepers in their locality.

In most places where I found the disease of foul brood it was there unknown to the bee-keeper. So many bee-keepers (in a small way) are not familiar with the disease, and through spreading brood and moving combs from hive to hive soon

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ers of our country such men as have been sent out, I think in every way the bee-keepers in general ought to use the Inspectors and help them in every possible way they can with their work. Personally, I can only say that the bee-keepers in general have used me royally, and only in an odd case did I have any trouble whatever with the bee-keepers with whom I came in contact, and in these cases they only feared the fire. When I reasoned the matter out with them there was no need for any alarm, because they were soon reconciled when they found I had come to cure and not destroy. In most cases where I found the disease it was there unknown to the bee-keepers, and they were bee-keepers in a small way, keeping from one up to twenty-five colonies. These men knew nothing of the disease. They were not taking any bee journal and took no notice, and were not interested in the cause we are all banded together for this afternoon. If we could only instill into the minds of these men in some way to become members of a local or the Provincial Society and get in touch with our work. I think it would be one way of helping to get rid of disease, low prices for honey, and many other things. I found the disease more prevalent in towns and cities. The diseased honey is marketed in towns and cities, and the cans and utensils are thrown out to be cleaned up by the city bees, and it seems to be a hot-bed for disease. They have been in the habit of putting out combs and cappings to be cleaned up by the bees. I think this could well be avoided by bee-keepers. We should try to prevent it as much as possible.

Another thought I wish to bring before the convention is this: To impress upon the bee-keepers in general the advisability of not buying and selling bees without the inspection of the Department. This has come up during the past year, with somewhat grievous results. It would pay any man in buying bees to ask for the report of the previous year or ask the Inspector to be sent on first. This would

be a safeguard to the man buying bees. Then, with reference to buying and introducing queens, a man said to me, "If you say anything about that you will kill the queen business." I don't want to kill the queen business, but I would like to impress upon the members that when they receive queens, not to introduce them in the cages they come in. One yard I was in received three queens, and there were three hives diseased through introducing them in those cages, and this is a common occurrence. It is a very small matter to destroy the cages and introduce the queens in a new cage, or put a cage on the side of your comb and let the queen go in, and in that way you will do away with any chance of disease.

Mr. Timbers: Then I think the queen-breeders should tear off their instructions. They say "Introduce in this cage."

Mr. Newton: We can't control that, but we should not go by the instructions.

Mr. Timbers: I think queen-breeders who send such queens should be exposed.

Mr. Holtermann: Mr. Newton is quite right about that, but I don't see any harm in the statement being made that in such and such an apiary the colonies were all clean with the exception of three colonies in which three queens were put which were got from So-and-So.

Mr. Newton: You can't do that. I have tried to impress on bee-keepers to know the disease at the first glance. Moving bees again that were diseased into clean localities has been a thing that has come before my notice during the past year. This had been done before I came into office. It is one of the things we should strictly guard against. We don't want a hospital. We want the bees cured where they are, and thoroughly cleaned before they are moved.

Mr. Anguish: There was a yard brought into my district, and I understood they were foul brood bees before they were sent. I wrote the Department about it, and they replied that those bees were not to be moved. The Department told me that they were Mr. Smith's bee-

I wrote the bees north of me. I asked London if they and he said that

Mr. Newton they were diseased. I told them. I wrote they had been and that there connection with it into it, and I inspected by them. Mr. Anguish: there now?

Mr. Newton: haven't inspected son to think that at the present time

Mr. Anguish: as strong as I can brood it will colonies.

Mr. Newton: I think they should the situation where until they are clean were moved over district thoroughly them being set do

like that. Bee-keepers ought to use every way to help

During the past year; I had colonies, and I found since we have been there has been a report where I have no doubt amount to in the ne mostly in Middle disease is existing

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n buying bees. I bought and introduced to me, "If at you will kill a't want to kill would like to that when they reduce them in One yard I was and there were tgh introducing this is a com-ery small mat-and introduce or put a cage b and let the way you will do disease. I think the queen-er instructions. his cage." I't control that, he instructions. queen-breeders uld be exposed. Newton is quite don't see any eing made that ying the colonies ception of three ueens were put and-So. n't do that. I bee-keepers to e first glance re diseased into a thing that has luring the pas e before I came the things we inst. We don't the bees cure oughly cleaned was a yard, and I unde od bees before the Departme that those be The Departme r. Smith's be

I wrote the Department that it was the bees north of St. Thomas that interested me. I asked Mr. Newton one day in London if those bees were diseased still, and he said they were.

Mr. Newton: I don't know that I said they were diseased still, because I didn't know. I told you I hadn't inspected them. I wrote to the Department saying they had been inspected by another man and that there was some trouble in connection with it and I didn't wish to enter into it, and I thought they ought to be inspected by the same man that had inspected them the first time.

Mr. Anguish: Is there any disease there now?

Mr. Newton: I can't tell you; I haven't inspected, but I have every reason to think that yard is perfectly clear at the present time.

Mr. Anguish: I try to keep my bees as strong as I can, and if I ever get foul brood it will be among my strong colonies.

Mr. Newton: I think it is unwise; I think they should never be moved from the situation where they have the disease until they are clean. Mr. Smith's bees were moved over against Aylmer in a district thoroughly clean. Just imagine them being set down in a neighborhood like that. Bee-keepers interested in the disease ought to use the Inspectors in every way to help along their work.

During the past season I inspected 137 apiaries; I had under my charge 5,704 colonies, and I found disease in 28 yards. Since we have been called off the work there has been a report from several parts where I have no doubt the yards would amount to in the neighborhood of 35 or 40, mostly in Middlesex County, where the disease is existing at the present time.

Good many of them have been under treatment, but I can't tell you till next spring in what shape they are. I hope next year the work may be put on a little earlier in the season.

Mr. Atkinson: I understand you are Inspector for Middlesex. What instruc-

tions do you receive from the Department?

Mr. Newton: To examine everything as I go along. The man that has one or two colonies I would sooner go to see than the man who has fifty.

Mr. Atkinson: Do all the Inspectors have the same instructions?

Mr. Newton: They had this last year.

### Inspector Burke's Report

This year the appointments were made somewhat late, but from the inspection I made I want to say that disease is not nearly so prevalent in the east as it is in the west. The bee-keepers I found in my district were all willing to cooperate with the Inspector and do all they could. Nearly all the bee-keepers I went to were anxious to have their yards inspected. I think there is still more room for Inspectors in the east. The east is so large that one man cannot go through it and do justice to it. I found disease in four yards; one yard was very bad with it, and the disease had spread from that yard to two others. Then over a hundred miles from that place I found the disease in another yard, but I do not know how it got there. I think if a colony can be saved it should be saved every time, but sometimes if a yard is badly diseased you have got to unite two or three colonies together to save them. I know in the County of Glengarry, where they have a local association, they were more anxious about it than in other parts where they have no Association. One thing I would advise is to clip the queens every spring, and by that means, if you go through every hive in the yard, if there is any foul brood you will stop it before it gets the start of you.

HOMER BURKE.

### Inspector Chalmers' Report

On July 9th intelligence reached me, through Mr. Hodgetts, our worthy Secretary, of my appointment as foul brood inspector for the Counties of Huron and Perth. Accompanying this were a few names of applicants for an inspector's ser-

vices, suggesting at the same time that I should advise those parties in advance of the date of my proposed visit. I accordingly acted as advised and started on my work on July 13th, St. Marys and vicinity being the point of contact.

I was met at St. Mary's station by Mr. J. W. Somers, who piloted me about in the country the remainder of the day in part of Blanshard and Downie Townships. The first place we visited objections were made by the good lady of the house to our touching the bees. Her husband was from home, and, by the way she talked, there was something very sacred about their bees, and no one could nor should handle them but her good man. I tried to assure her that as few bees as possible would be killed, but that didn't seem to satisfy her, and I had to go on with the work against her will. There were seven colonies in all and jammed tightly together, forming quite a rampart. We were not long, however, in removing a super after prying it apart from the brood chamber, and were soon up to the knees in honey—the honey, at least, was streaming down my pant legs when lifting the super aside. With the greatest difficulty we got a comb or two out of three or four of the hives, but in no case all, and from the remainder not a comb could be removed. There was no foul brood found, but considerable dead larvæ—larvæ which had almost been at the capping point. In our various calls that afternoon we only located one case of foul brood.

St. Marys town was the field for next day's work, and foul brood was found to be rampant. Mr. W. B. Stone seemed to have all who were, or had been, keeping bees well looked up, as I was taken to two places where the bees had laid down their spears and their hives were turned into hencoops.

On my second visit I found some had destroyed their bees and others had tried to cure. On this same visit I was taken in a southwesterly direction in Blanshard township as far as the County of Middle-

sex, some five miles. We visited five apiaries in our trip and found foul brood in three of the five.

I was accidentally taken into the County of Oxford to Mr. Fergus McMaster's, who has a large apiary—a man of 63 years' experience with bees, and yet but few of his colonies could be gone through.

I was called to Centralia, County Huron, and had the liberty of inspecting where the applicants wanted; that was in Clandeboye and Lucan, County of Middlesex. I didn't find any American foul brood, nor yet any run on the European plan, but in Clandeboye I found what I would almost take to be a foul brood nursery. I found a great deal of dead larvæ in one yard, and in a single instance, at least, it was traced to improper manipulation. A colony of bees had swarmed; the remaining bees were shaken off the combs and the whole hive of hungry larvæ given to a weak colony, resulting in the death of nearly all the brood.

My services were applied for in Stephen Township, Huron County, where nearly three days were spent visiting apiaries, and I am pleased to report that not a single case of foul brood was found.

Foul brood still lingers in Stratford, being found in three yards out of seven visited, and the gentleman who piloted me around didn't think there was any before we started on our mission.

I wrote to three different parties in and around Listowel, enquiring if they knew of any foul brood in their locality and they all replied in the negative. I might just say that foul brood has been in my neighborhood for at least seventeen years, and is there yet.

In all I inspected 53 apiaries and found foul brood in 15, leaving 38 in which no foul brood was detected. This was done at a total cost of \$95.20.

I would just like to add that when on duty I was impressed with the extent of the missionary work which has been done by Mr. Wm. McEvoy. He is a man whom Canadians should feel proud of. In

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mind it is yet to be decided whether his discovery or the invention of the lamented L. L. Langstroth should be prized most highly by us. In connection with the foul brood cure I am certain his name will never die. Neither should we forget that of Mr. F. A. Gemmill as being the prime mover in instituting the Foul Brood Act, which Act I hope to see so amended as to give Mr. McEvoy and his inspector colleagues more power in carrying out this important work; and were the machinery in proper running order, there is no reason why one inspector should not suffice for the whole Province.

D. CHALMERS.

#### Inspector Chrysler's Report

I might say when I got the appointment it was rather late in the season to do very much, but it was at a time when I could treat the disease, if I should find it, right away. I got instructions from the Department to go where I thought best and to take the territory thoroughly all through, which I did. I went three or four places where I thought it might be, and I failed to find it. My next course was to begin at one end of my district and go thoroughly all the way through. The very first or second day I found seven cases out of eleven which I visited. It was getting late then, the honey-flow was over, but it could have been treated if the bee-keepers could have done a certain amount of feeding for the winter. One man decided to destroy his six colonies of bees which were in box hives, and all had the disease but one or two, and the neighbor's bees were robbing those one or two out. Another man had all of his colonies diseased, but he wanted bees very badly, and he went to work and treated the disease right there, and he got along very nicely. I found foul brood in two other localities besides that. I found eleven yards altogether affected with foul brood. I visited altogether 92 bee yards. By taking them straight through it was easier to visit a greater number of yards. There were



W. A. CHRYSLER  
Chatham, Ont.

2,345 colonies in the localities that I visited. I was out somewhere about 28 days altogether. I did some pretty big day's work and felt really tired. In some localities where the bee-keepers took an interest in bee-keeping they wanted to talk about bees and get all the information they could, and many times I was up late in the evening and had appointments to talk on bee-keeping till probably towards midnight. I enjoyed those talks, but it was hard work. In other districts, where you come across bee-keepers who take no interest in bees, and tell them you are the Inspector, I feel I would just as soon peddle tinware. I went to one bee-keeper who had forty colonies of bees, and I don't know that he could tell me when he had taken off a super of honey. He had one super of comb honey that had been on two years. I actually got a frame out of that hive. I asked him if I would leave the super off. He said, "I don't know where to put it." He spent his time with those bees and he got nothing for it. If a young man who was thinking of bee-keeping had gone around with me he would have felt thoroughly

disgusted in some sections. In other sections he would think there was something in bee-keeping, when he came across progressive bee-keepers who were trying to keep bees in the proper way. Bee-keepers seem to desire to get all the information they can out of the Inspectors, and I have been pleased to give that information, and I think it has helped them, and they have seemed to appreciate it. I have gone over nearly half the territory assigned to me. I do not know whether there is any more foul brood in my section of the country, but I suspect that there is. (Applause.)

W. A. CHRYSLER.

[Unfortunately, we are unable to obtain Inspector Sibbald's report.—Ed.]

#### THE YOUTH'S COMPANION FOR CHRISTMAS

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The Youth's Companion, 144 Berkeley Street, Boston, Mass.

#### TRADE SUGGESTIONS

I have the honor to inform you that, with a view to the further extension of Canadian trade abroad, the Department of Trade and Commerce desires to seek the co-operation and assistance of Canadian exporters and manufacturers. The undersigned, therefore, invites those interested to give the Department the benefit of their views, with the hope that suggestions may be offered which will not only add to the usefulness of the Department, but will tend to promote Canadian trade.

The Department therefore request that suggestions may be received to the following questions, after having been given due consideration.

(a) What would you advise should be done to increase the export trade of Canada?

(b) What improvement or change do you think desirable in the compilation of the trade statistics published by this Department?

(c) Can you suggest any improvement in the collection and publication of commercial information received from the Trade Commissioners?

As far as possible the suggestions should be accompanied by statements showing the reasons therefor. Should there be any general information which it may be thought desirable to communicate to the Department and which is not covered by the above questions, the information will be welcome.

Replies to the above should be marked "Trade Suggestions" on the envelope.

F. C. T. O'HARA,  
Deputy Minister.

Ottawa, December 1st, 1908.

Renew your subscription to the C.B.J. and help along the bee industry. We are endeavoring to give you something that will help you. Your dollar is well invested. It will be returned to you many times over.

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MR. F. ADAMS ON QUEEN-REARING

In answer to the questions asked in December C.B.J., I will take up the matter of queen-rearing in this issue.

Nearly every bee-keeper has tried to raise a few surplus queens at some time or other. A few have been successful, but in the majority of instances the work has been abandoned, either because the apiarist found that he could not give this part of the business the necessary time and attention, or because he has become discouraged, through want of success in his first attempts.

Now there is nothing difficult in raising queens, but it does require very close attention to details, and only one who has the time and patience to attend to the smallest detail of the business can hope to carry it to a successful issue.

Most beginners commence operations too early in the spring. They have heard too much about early queens, and the desirability of getting young queens for the honey crop, that they seem to consider there is some special value in queens reared out of season—like early-raised babbages, they are worth more at this time of the year! Of course, if there should be a lot of old, failing queens in the yard, which will not last until the honey crop, a man may be forced to break up colonies for nuclei in order to mate up a few queens to replace them, in the same way that he would break up some of the furniture rather than freeze to death; but with proper precautions at the right time of the year, this will be unnecessary in either case.

The time to commence queen-rearing operations in any part of Canada, we venture to say, is during June. Before this time every bee is needed in the hive to take care of the maturing brood, and withdrawals are made at the expense of the vitality of the colony. Apart from the injury to the colony is the difficulty of making up nuclei at this time of the year, strong enough to care for the newly-hatched queens until they are

mated and laying. There are several different methods of doing this, all practicable at the proper season of the year, but each method has its limitations, and in the early spring each method is subject to its own particular objection.

We will suppose, then, that fruit bloom is over and nothing is coming in from the fields. The whole yard is in good shape, apparently. Most colonies have their combs nearly filled with brood, and a few have been enlarged by the addition of upper stories. "Surely it is time now to get a few queen cells started," you think. But before you commence, just make an examination of the yard. Don't examine the hives, but examine the combs. Look into the cells, and what do you find? Hatching bees, capped brood, old and young larvæ, and eggs. Examine the young larvæ. Most of it looks all right, although some of it seems a little dry. But here is one that clearly is suffering; instead of a pearly white, it has turned to a sickly yellow and lies uncured in the bottom of the cell. What is the matter? Is it foul brood, do you think? Not likely, my friend, but your brood is starving—starving in the midst of plenty! The hives still contain honey, but the bees, with the natural instinct of their race, are saving that honey. They have the true miser's dread of poverty. They are husbanding the principal when they cease to draw interest.

The effect of short rations is observed in the brood; it is seen in the decreased laying of the queen. Her Royal Highness, even, is being stinted, and if any queen cells are present in the hive they also will suffer from the lack of proper nourishment. Will a colony in this condition raise good queens? The answer to this question is decidedly "No!"

The remedy, then, is to feed. Feed thin sugar syrup every night, or every other night, at least. If there is much honey in the hives, this can be uncapped, a little at a time, in place of feeding the syrup; but between fruit bloom and clover there is not likely to be much honey

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left if the colony is normal and hives are of the usual size.

Suppose, then, that you have realized the necessity of feeding, and there has been no check to the colony when honey from fruit bloom has stopped coming in. As colonies become crowded, put on upper stories, with queen-excluders beneath, and raise a few frames filled with brood above the excluder, putting empty frames in their place. Don't do this until the brood-nests are really crowded with brood and bees. There is nothing gained by shifting the brood around before every frame is well filled below and there are plenty of bees to spare for the upper storey.

When colonies are in this condition it is time to commence operations, and success, both in getting cells started and in making up nuclei, will be in direct proportion to the strength and prosperity of the colonies chosen for the work.

In next month's Journal we will give some simple directions for starting cells and making up nuclei, but before going further we believe that it is of the utmost importance to again emphasize the fact that queen-rearing colonies should be mature. That is, they should have not only enough bees and brood to make up a good ordinary colony, but they should have a large extra force of bees and mature brood to take care of the additional work of rearing and caring for the queen cells.

F. P. ADAMS.

#### GOOD SEASON—NUCLEI

This season I started with 17 colonies. I had slightly over 600 pounds of honey, and after the season was over I divided 13 hives and bought 16 untested queens from Mr. Adams, of Bow Park, introducing 13 of them to the 13 queenless halves, two to two other queenless hives, and one replacing one that was killed. Of the 16 queens I know 11 were accepted, and perhaps 12. By these means I have 27 colonies, of which I believe 24 to be in good shape for another season.

The honey I secured was nearly all basswood honey, as the clover here was badly killed out last year by frost and drought.

I have in two or three cases, both last year and this, unknowingly adopted Mr. McEvoy's system of placing a second super over the brood chamber about the beginning of June, without placing a queen-excluder between, and found it to work exceedingly well. I intend to adopt it generally next year.

I was unexpectedly successful in dividing the colonies in August, with one exception. They were very strong, as I had only one natural swarm this year.

I managed in most cases to divide even the working or field force by stopping up the entrance of the half colony removed away with grass, and placing a board sloping in front of it. The brood I divided equally, and the same also with the young bees in the supers, of which there were, fortunately, a large number. I also shook all the old bees moved away into the old hive, a new hive being placed on the old stand.

What is the best method of making the Miller feeders honey and syrup-proof? Would smearing the joints with beeswax thoroughly achieve the object?

Is it dangerous to use carbon dioxide to destroy bee moths in hives stored in a room in the house, whether by gas fumes in the house or fire?

E. A. CARVER.

[The melting of any kind of wax (beeswax or other), and putting same in your feeder and allowing it to run around the edges and joints before hardening will accomplish the sealing of the feeder in such a manner that they will not leak.]

We know nothing about carbon dioxide to destroy moths in combs. Would you recommend it. Carbon bisulphide is the best to use. There will be no danger from it, unless very deliberately exposed to fire, which would be a very foolish thing to permit. There will be, however, a very bad odor arise from it, which makes it rather unpleasant to use in the house. Your best plan is to place your extracting supers in a barn or shed, or summer kitchen that is little used in winter. Be sure you properly protect

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#### THE YOUTH'S CALENDAR

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cases, both last year and this year, were adopted Mr. [Name] placing a second super about the middle of the month without placing a second and found it to be better than intended to adopt

successful in dividing the colonies, with one exception, very strong, as I have seen this year. It is better to divide even colonies by stopping up the entrance of the colony removed and placing a board over the entrance.

The brood boxes can be made strong hives for fall and winter quarters in prime condition.—Ed.]

method of making the syrup-proof joints with the carbon dioxide to give the hives stored in the winter by gas fumigation.

strong mice. Put queen-excluding zinc at the bottom, and cover well at top. The frost will not hurt your combs. (See item in editorial column re the use of carbon bisulphide for this purpose.)

The plan of allowing the queen to go up in the super in June or latter part of May in strong colonies is a good one. By lifting up brood and putting empty combs below you give the queen plenty to do. It prevents crowding and the swarming impulse. It is a capital plan also in the event of your wanting to make increase. See that your brood above is well capped before making into nuclei. This avoids all necessity for nursing of the brood. Take along with these frames enough bees to keep up the requisite heat, and there you are—with a fine new hive boiling over with young bees in a short time. You can give them a queen cell or introduce one once a young queen if you have so named the matter, and in a few days your queen is laying and no time is lost. These can be made strong hives for fall and go into winter quarters in prime condition.—Ed.]

**LECTION OF OFFICERS OF THE N.B.K.A.**

The following were elected at the late election for officers of the National Beekeepers' Association: President, George Hilton; Vice-President, George W. [Name]; Secretary, E. M. Hunt; General Manager, N. E. France; Directors, R. L. Taylor, E. D. Townsend, Udo Toepperman.

**THE YOUTH'S COMPANION CALENDAR FOR 1909**

"In Grandmother's Garden" is the title of the beautiful picture painted by Chas. Curran for The Youth's Companion Calendar for 1909. It is printed on the finest finished stock, by the most perfect methods of lithography. All the length and beauty of the original paintings are faithfully shown by employing sixteen separate colors. This is the first Calendar that The Companion has ever issued, the picture alone measuring 10 inches in width and 24 inches in length. The picture are arranged the twelve months. Great care has been taken to make the date figures legible, and to insure a practical and useful, as well as an artistic, Calendar. The Calendar is given to all those who pay their subscriptions to The Companion for 1909.

**A. CARVER.**

kind of wax (beeswax) is the same in your colonies before hardening of the feeder they will not leak out carbon dioxide. Would not carbon bisulphide is the best. Will be no danger of liberately exposing to a very foolish will be, however, from it, which is not to use in the jars to place your jars or shed, or in a little used properly protected.

**BRANT BEE-KEEPERS**

Brant District Bee-keepers' Convention will be held in the Court House, Brantford, on Thursday and Friday, January 28th and 29th, 1909, commencing at 2.30 Thursday afternoon.

Among the good things promised are: Stereopticon Talk (bee views), by Mr. G. W. Tibbs, Hespeler.

Address by Mr. H. G. Sibbald, ex-President O.B.K.A., on "Wholesale and Retail Honey—Which is Most Profitable for the Bee-keeper?"

"Profitable Management of Out-apiaries," by F. J. Miller, London, ex-President O.B.K.A.

"Comb or Extracted Honey—Which?" by Mr. Frank Adams, Brantford.

"Bee-keeping by Industrial Institutions," by Mr. G. W. Tibbs, Hespeler.

"Bee-keeping in Other Lands," by Mr. Jacob Alpaugh, Eden Ont.

"A Season's Management in the Apiary," by Mr. J. W. Sparling, Bowmanville.

"Wintering of Bees," by E. D. Townsend, Remus, Mich.

Demonstration and grading of honey for city retailers, Question Drawer, etc.

**HOW TO PREVENT CONSUMPTION**

[Published by the Canadian Association for the Prevention of Consumption.]

**Disinfection.**

Disinfection of rooms which have been occupied by consumptive patients may be secured in various ways, but the following are the practical rules which must underlie any methods adopted:

1. Gaseous disinfection of rooms, or "Fumigation," as it is termed, by whatever methods it is practised, is insufficient in such cases.
2. In order to remove and destroy the dried infective discharges the disinfectant must be applied directly to the infected surfaces of the room.
3. The disinfectant may be applied by washing, brushing or spraying.
4. Amongst other chemical solutions used for this purpose a solution of chloride of lime (1 to 2 per cent.) has proved satisfactory and efficient.

5. In view of the well-established fact that the dust from dried discharges is infective, emphasis must be laid upon the importance of thorough and wet cleansing of infected rooms.

6. Bedding, carpets, curtains, wearing apparel, and all similar articles belonging to or used by the patient, which cannot be thoroughly washed, should be disinfected in an efficient steam disinfectant.

#### A POPULAR HOLIDAY NUMBER

Among the Christmas numbers that have come to hand, the Canadian Pictorial (15 cents; published by the Pictorial Publishing Company, 142 St. Peter Street, Montreal) deserves special mention. Its unique and very charming cover appeals at once to every one, and its contents, from the bright Christmas stories and wealth of Christmas pictures to the sweet old English carols, words and music complete, are full of Christmas spirit. Yet even the Christmas number, true to the motto "News by Views," of the Canadian Pictorial, shows some splendid pictures dealing with the stirring events of the month the world over. The Canadian Pictorial has won for itself an enviable place among Canadian publications, for its exquisite photogravures and fine workmanship throughout stands unexcelled and is wonderful value for the money. One dollar a year, including all special numbers. The new feature, "Unknown Old Favorites," is meeting with hearty appreciation. This gives words and music complete each month of one or more of the old favorites that most people think they know and know they love, yet that only a few can follow right through. A rollicking and spirited old English ballad will appear in the January issue. Short stories have recently been added, the numerous departments are well sustained, and further improvements are contemplated for the coming year 1909. Three selected back numbers as samples will be supplied from office of publication for ten cents in stamps. Liberal clubbing offers are announced.

The Pictorial clubbed with the Canadian Bee Journal for only \$1.75.

**The Canadian Bee Journal** provides the most useful and up-to-date information concerning the bee industry. Subscribe now. One dollar per year.

Make your wants known in the Want and Exchange column.

#### A NEW CONTRIBUTOR

We are pleased to announce that Mr. David Chalmers has agreed to become a contributor from time to time to the Canadian Bee Journal. Under the head of "Chalmers' Observations" something of interest will appear in running comments upon all matters apicultural. It is with great pleasure we make this announcement. We consider it will be a great addition to the C.B.J. Subjoined is Mr. Chalmers' announcement:

Seeing you have requested me to contribute to the Canadian Bee Journal, I have weighed the matter somewhat carefully in my own mind, and have decided that, if it meets with your approval, I will as often as possible comply with your request, sometimes commending, or differing with, other writers, and at other times giving some of my own experiences and would suggest that "Chalmers' Observations" might be an appropriate title. I do not disclaim that said articles will frequently stand criticizing, but anything to help make the C.B.J. interesting and instructive, as Mr. J. L. Byer is doing in his "Notes and Comments," and as Mr. G. A. Deadman has done with his "Notes by the Way." My experience with bees now covers forty summers, and although it is only of late years that I can call the bee business a specialty, yet during all these seasons I have not been what might be called careless in my observations. I do not claim by any means that I "know it all," but hope to be of some little help through the proposed contributions in your already valuable Bee Journal.

DAVID CHALMERS.

#### MEETING OF THE QUEBEC BEE KEEPERS' ASSOCIATION

The first annual meeting of the Quebec Bee-keepers' Association was held at Rierdeau's Hotel, in Montreal, on the 10th of December. The morning session began at 10 o'clock, with President Pélouquin in the chair.

The first business after the minutes had been read and passed was the reading and adoption of the constitution and laws of the Association. This took the greater part of the morning session. In the meantime, bee-keepers had been

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steadily coming in by ones and twos to swell the numbers, until a goodly half and over of the Association membership was present. The remaining part of the morning session was taken up with a discussion on foul brood, various ways and means of treatment being proposed. The consensus of opinion favored the McEvoy method of cure.

Adjournment at 12 o'clock, however, had no effect upon the flow of conversation, and the dining-room resounded with the talk of bees, hives and kindred subjects. As the meeting was called for that day only, dinner was not prolonged unduly, and the meeting was called to order again at a quarter to one.

Foul brood came in for a few moments more of discussion, and Mr. Arthur Comiré, one of the Government inspectors for the Province, who had spent a portion of last summer with Mr. McEvoy, of Woodburn, Ont., was kept busy answering questions.

It was suggested by some of the members that a booklet be published in French on methods of treatment for foul brood, and a resolution was passed asking that the Provincial Government issue such.

The danger of spraying fruit trees at blooming time by horticulturists and others was brought to the attention of the meeting, it being urged that this could be done in another part of the season, at a time when no harm would result to the bees. The speaker pointed out that such a law already existed in the United States and in Ontario, and such a one was needed here. A resolution was passed asking that such a law be put in force.

The Association also decided to ask of the Government that an experimental station be established in the Province, and that, in the course of the winter, meetings be held by the Government inspectors, to the end that more advanced methods of apiculture might be adopted.

The Association suggested to the Government that the apicultural laws per-

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taining to duties of inspectors and the like be published in the journals of agriculture and apiculture, in order that the bee-keepers, farmers and others might thoroughly understand the same.

The election of officers for the following year then took place, resulting as follows: Mr. Charles Péloquin, of St. Hyacinthe, re-elected President; Mr. F. W. Jones, of Bedford, Vice-President; and Dr. A. O. Comiré, of St. Francis du Lac, Secretary-Treasurer. The Directors elected were: Hector Béland, of Louiseville; Méricid Paradis, of St. Hyacinthe; Napoléon Gaudet, of St. Simon; J. A. Camirand, avocat, of Sherbrooke; Dr. L. J. Comiré, of Yamaska West; Michel Dupont, of St. Joseph de Sorel; Onésime Fontaine, of St. Guillaume; Dr. DesRosiers, of St. Felix de Valois. It was decided to add three more men to the number of Directors: J. B. Edwards, of Covey Hill; L. D. Roy, of St. Léonard de Port Maurice, and Alex. Barbeau, of St. Remi.

M. l'Abbe Charbonneau, of St. Hyacinthe, proposed a vote of thanks for the

**QUEBEC BEE ASSOCIATION**

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## Want and Exchange Column

**FOR SALE**—Remainder of 1908 crop of White Clover Honey, put up in 1-lb jars. Price on application. Sample free. CHAS. T. ROSS, Sherbrooke, Que.

**BEEWAX WANTED**—Highest price paid for Beeswax in any quantity. Write me, stating amount you have. F. W. JONES, Bee-keepers' Supplies, Bedford, Quebec.

**WANTED**—In first-class condition, 500 L extracting combs, free from disease, at reasonable price. I. LANGSTROTH, Seaforth, Ont.

officers of the previous year and to all those who had worked for the advancement of apiculture in the Province.

The majority of the prominent beekeepers of Quebec Province were present, making the meeting a fairly representative one. The members reported a good season, the quality of the honey comparing very favorably with the crop of former years. The call for honey was also good, in most cases exceeding the supply.

The Quebec Bee-keepers' Association was formed about ten months ago at St. Hyacinthe. It has already done good work, and its prospects are bright for a useful career.

Montreal and Bedford were discussed as meeting places for next year's convention. Montreal was favored, as being more easily accessible. With regard to time of meeting, the second Wednesday in November, 1909, was fixed upon.

### THE BOOK NEWS MONTHLY

The December number of The Book News Monthly is one of the largest we have published for years. Its special feature consists of articles and a large collection of pictures commemorating the three hundredth anniversary of the birth of John Milton. The book section is unusually large and attractive, containing a guide for the Christmas book buyer, amply illustrated, and a large number of reviews of new books, both fiction and general works.

## FOOD FOR THOUGHT

World Wide is a publication that will not interest the ignorant or the people who do not want to think, but those who wish to keep in touch with great thinkers of the time in Great Britain and the United States will find it both invaluable and extremely entertaining. World Wide is unique. It is the only Canadian paper of its kind and the only paper of its kind in the world, to our knowledge, that gives such a wealth of strong and suggestive writing on every subject for so small a subscription price.

The peculiar mission of World Wide seems to be that of turning the full tide of British and American thoughts into a Canadian channel at a price which puts it within the reach of every one. World Wide has no axe to grind and is free alike from partizanship and faddishness. The following opinions may be taken as representing the opinions of all World Wide readers, who are wont to speak most highly about their favorite review.

World Wide is a very interesting and instructive paper, and its selections have been made with excellent judgment.—H. J. Cundell, Charlottetown, P.E.I.

I have found World Wide both interesting and instructive, the articles and cartoons judiciously selected.—Judge C. O. Ermatinger, Judge's Chambers, St. Thomas, Ont.

I have taken World Wide ever since its publication, and I consider it not only the best eclectic at the price, but the equal of any and the superior of most. It is a great boon to a busy man.—Rev. F. Friggens, Liverpool, N.S.

World Wide is invaluable to business men and others as a means of keeping in touch with current thoughts and events the world over.—Mr. H. H. Loosemore, Standard Bank, Parkhill, Ont.

I have taken World Wide for six years and I consider it excellent. I look forward with pleasure to its weekly arrival and always find it most interesting.—W. C. B. Manson, Grimsby, Ont.

I have no hesitation in expressing my unqualified satisfaction with World Wide. The articles are selected with care and discrimination.—Rev. A. A. Von Iffland, Bergerville, Que.

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CANADA'S BEST NEWSPAPER

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To what other large metropolitan newspaper anywhere in Canada has such whole-hearted and generous praise ever been accorded as may be found in the following examples of what is being said by press and people all over the Dominion?

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The Witness exerts a most beneficial influence in the homes and hearts of our people.—The late Archbishop Bond, Primate of all Canada.

The Witness has manifested in an eminent degree the qualities of courage and sincerity.—R. L. Borden, leader of the Conservative party.

The Montreal Witness is never influenced by mere party feeling. Chatham Commercial.

The Montreal Witness numbers among its clientele the most independent and thoughtful newspaper readers in Canada.—Edmonton Bulletin.

The Montreal Witness stands for purity and honesty in government.—The Hamilton Spectator.

The Montreal Witness was never better or more useful than it is to-day.—Dominion Presbyterian.

The Witness never fails to command respect for its fairness and impartiality.—Sarnia Observer.

The Witness is the most impartial and independent newspaper in Canada.—Charlotte, P.E.I., District.

The Montreal Witness is by far the most influential newspaper in Canada.—The Herald, Comber, Ont.

The Witness is no doubt the best newspaper in Canada.—Northern Advance.

The Witness deserves the good words that have been said of it.—Christian Guardian.

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The Daily edition is \$3 a year and the Weekly only \$1. These rates are low, since it costs much more to produce a paper like the Witness than it does to produce many of its leading competitors. Character counts because it costs.

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**DON'T** give up hope.

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Your lungs will heal themselves—as readily as a cut on your finger heals—if you give them a chance!

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**WE** want every consumptive, and every person with tendencies toward consumption, to try the LUNG BATH.

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It has never failed in a single case in which the patient had vitality sufficient to keep him alive for 90 days. Further than this—it has enabled over 90% of these same people who had vitality to live for only 30 days to cure themselves at home. If you can live a month, you have 9 chances out of 10 of getting well. These are results—not theory.

Is that record not worthy your investigation? Is a treatment with such a record not worthy a trial?

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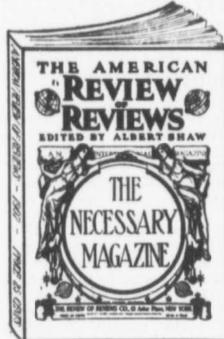
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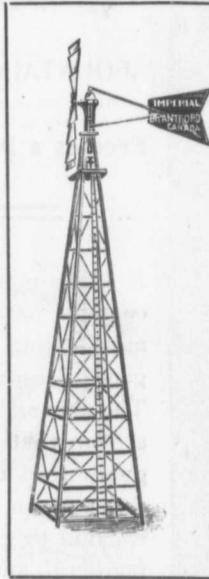
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