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CANADIAN BEE JOURNAL

PUBLISHED MONTHLY.

NEW SERIES
Vol. V, No. 12.

BRANTFORD, ONT., JUNE, 1897.

WHOLE No.
388

Bees have wintered well. The spring, although not cold enough to chill larvæ in the brood chamber, has been too cool and wet to allow the bees to fly

The Season. been too cool and wet to allow the bees to fly such, brood rearing has not gone on rapid-

In our own apiary we have fed every colony, the first time since we have been engaged in bee-keeping. The honey season promises everything that is good. Plenty of moisture, clover good, and in spite of last year's heavy bloom, blossoms of all kind, including linden, are plentiful. The demand for bee-keepers supplies has been very. The large factory of the Goold, Hopley & Muir Co., (Ltd), has been taxed to its utmost capacity, and to avoid disappointment every one should order goods as early as possible.

* * *

another page will be found an article on our well-known friend, Doctor A. B. Mason, Station B, United States, Toledo, Ohio, U. S. Beekeepers Union. This article is written in reply to an enquiry from a subscriber. I am certainly of the same opinion as Doctor Mason and Ernest who is a member of the Unions Advisory Board. After urging bee-keepers to join their membership fee, \$1.00, he adds, "I entitle you to all the privileges of membership, and allows you to have a say in certain matters at the annual meeting whether present or not." We do not doubt that the organization is called, and we have every confidence in the officers

of the Union. I am a member of the organization and intend to continue to be. Those preferring it, can send their fee to this office and we will see that the general manager receives the amount.

* * *

Queens By Mail.

A gentleman conversant with mail matters informed E. T. Abbott, ex-president of the N. A. B. K. A., that the government was "talking of excluding queens from the mails." This would indeed be a calamity to the bee-keepers of the United States. The sending of queens by mail has grown to be a large and important industry. Anywhere from five to ten thousand dollars' worth of queens are sold in a single season in this country alone. Great good results in the interchange of stock, and without this interchange there would very soon be in-breeding.

The above is from Gleanings in Bee Culture. We can scarcely think it possible that the United States Government contemplates such action. It would be a reflection upon the intelligence of the people of that country. Of course, should such a change be made in the United States postal law, those of us who are queen breeders need not regret it from a financial standpoint, but such an act would be a blow to progressive and advanced bee-keeping.

* * *

I have the following letter :

ONTARIO AGRICULTURAL COLLEGE,
BACTERIOLOGICAL DEPARTMENT.

GUELPH, ONT., April 28th, 1897.

DEAR MR. HOLTERMANN,—Would you kindly put a conspicuous note in your Journal to the effect that I shall be most pleased

to make a Bacteriological examination for Foul Brood of any material that may be sent to me, and of course, such examinations to be, if necessary, strictly confidential. You may add this or not, just as you think fit, but it struck me that some bee-keepers might have compunctions about letting others know that they had Foul Brood in their apiaries.

Yours very truly,

J. C. HARRISON.

R. F. Holtermann, Esq.,
Brantford.

Bee-keepers will be pleased to avail themselves of Mr. Harrison's kind offer. Samples should be sent postage, or charges prepaid, and in such a manner that contents are not likely to break or leak out. We would suggest cutting a piece 4x4 inches, slipping the piece in a folded section placing a piece of paste board over each side and then wrapping securely with paper. Only a few cells of honey should be sent.

* * *

Mr. Orel L. Hershiser in a letter mentions the Annual Meeting of the United States Bee-Keepers' Union. He writes— "Do not forget the United States Bee-Keepers' Union, that meets in this city next summer. We expect to and very much desire to entertain a large delegation of our Canadian cousins." Mr. Hershiser who is vice-president of the Society and resides at Buffalo, may rest assured if the convention is set for a convenient time many will be there. After August 25th and until the close of the fairs some of us will, however, be too busy with these duties to attend.

* * *

Geo. Wood, Erasmus, Ont., would like to secure a good copy of August 1896 C.B.J.

He would be willing to pay 25c. for it, we have none to spare. If any of our readers can supply him, would they drop Mr. Wood a card.

Chard, Ont., May 4th 1897.

Editor Canadian Bee Journal,

Brantford, Ont.

DEAR SIR—I enclose herewith a clipping from The Montreal Daily Star of April 30, 1897, which will explain itself. Hoping it may find a place in the Canadian Bee Journal, to show that the trade in adulterated honey is carried on to quite an extent in Canada.

ADULTERATED HONEY — THREE GROCERS
FINED FOR SELLING IT.

Judge Dugas this morning heard three cases of parties accused of selling adulterated honey. The persons accused were L. P. Forest, 1978 St. Catharine street, J. F. Fraptier, 2150 St. James street and Lamoreux & Co., 188 Amherst street. Mr. Roy appeared for the accused, while Mr. J. M. Furguson prosecuted for the Departement of Inland Revenue Judge Dugas over-ruled the defence raised in each case, which was that the parties sold in good faith, and not knowing of the adulteration, which being cane sugar and glucose was not injurious to the health and beneficial rather than otherwise.

The court held that the public must be protected and had a right to know what they were buying. It was well known that adulteration of articles of food was extensively practised in Montreal and it must be stopped. However, as the defendants appeared to have acted in good faith, he would impose the minimum fine of five dollars and costs in each case."

I think I once heard someone in Ontario say that the people of Quebec would take it for granted that anything a bee looked at was good honey. I do not live in Quebec, but I fear that idea would not stand investigation. As far as I am aware the people of Quebec are now to the fore in prosecuting the guilty parties.

Now a word to the honey producers of Ontario. Keep your eyes open, be on the look out for frauds, and you will soon find them, for we have them here too, and when you find them spare them not.

W. J. BROWN

[Please note friend Brown it is not Quebec but the Dominion Government at Ottawa which is doing the prosecuting. Thank goodness the action of the Dominion Government set on foot last fall is resulting in this. Be we "Grit" or "Tory" beekeepers, we want a government of action and may the good work in our interests continue.—Ed.]

Management for Profit.

—R. C. AIRIN.

The month of June might be termed the clover month. Red, white, alsike and alfalfa clovers come mainly in the month of June. This article will, I suppose, appear in the June issue, and if so, will come just as we are preparing for our honey flow.

Could I have everything to my liking, I would want every colony so populous, that when active and honey coming in there would be bees enough to work the brood chamber and at least one whole super, and yet half the bees be afield. Such a colony, if the weather is warm, will occupy the entire hive including every part of the super all night long, and usually will cluster out through the night. The first super ought to be on about a week before the flow opens, and all colonies intended for section work have six to eight full combs of brood. If all the colonies cannot be so, better take bees and brood from those not strong and add to those not quite strong enough. Better run only half of the colonies for surplus and have them so strong that they can do good super work in a light to fair flow, than to have all trying to work supers and cannot. Almost any reasonable colony will work sections in a good flow, but in a poor flow even an average colony will not work sections.

To illustrate the necessity of strong colonies for profit, let me make some estimates. Suppose the average yield for 10 years to be 50 pounds. Add to the 50 pounds 25 pounds for stores in the brood chamber—total to store of 75 pounds.

I have found that here in the alfalfa flows, when a colony brings in four pounds a day from morning to night, during the night it will shrink about one pound. Quite extended observations have shown me that the nectar here, gathered during the twelve working hours, will evaporate very nearly $\frac{1}{2}$ during the next twelve hours. I think it entirely safe to say that the nectar evaporates fully $\frac{1}{2}$ and I think some of it $\frac{2}{3}$, if fully ripened.

To gather a total of 75 pounds of honey, means that at least 115 to 125 pounds of nectar has been brought in. A daily gain of three pounds for forty days would approximate the above estimate. Remember this is for an uninterrupted flow, while usually there are some days that nothing is brought in.

Now I have found that if I have my

hives full of brood, the bees so abundant that they must occupy the super or go on the outside, and an average gain of 2 $\frac{1}{2}$ to 3 pounds of raw nectar per day for about forty days, that I can obtain pretty fair super work; but any colony less than that will yield me little or no surplus. I think in all average locations a 50 pound surplus will be counted good. In a term of 10 years several would be below the average, and at least one or two very poor. If such strong colonies are necessary in an average year, what must be the result in those years below the average? I find that in the poor years, to obtain a surplus, I must have just about twice the strength of colony required in average to good years.

The only way then to get a surplus the poorer years, is by having the colonies strong. So firm am I in this belief, that instead of practicing natural swarming I discourage it—or rather prevent it—and if a colony is strong enough to swarm, I keep it so, and very frequently add to it rather than divide. Such a procedure will give a surplus when ordinary methods fail, and in good years results in fine yields.

My method of holding such strong colonies together, is the unqueening method. I know of no other method that will accomplish the end so successfully, though similar results may be obtained by hiving swarms in contracted hives, and by doubling swarms or weak colonies. I have had good results by driving from boxes and uniting in one working colony the bees from two or more, and in the same way uniting the forces of two or more ordinary hives. Whatever be the method of procedure, always keep in mind the fact that a colony left to swarm and follow their instincts, will not average good work in supers. Just as surely as it is necessary to prune the tree or vine to get fruit, restrain and control the cow and horse, making them subject to our use, just as surely is it necessary to restrain and regulate the bee if we are to manage them to our profit.

If using ordinary frames, and these frames are to be handled or changed about, it is a great help and satisfaction to have them filled with brood from end to end. Where the entrance is at the end of the frame as it usually is, they usually fill the front end of the comb with brood, while the rear part holds the honey. The brood is next the entrance and the honey back of it. Thus we frequently find brood in every comb, or nearly so, while there is not more brood than would fill half the combs. To get the combs solid full of brood I sometimes turn the combs the other end foremost, placing the brood end behind and

honey at the entrance, when the honey will be removed from the entrance and the brood nest extended forward along the combs already having brood in, instead of spreading crosswise of the frames. Sometimes when there are plenty of bees and no danger of chilling brood, I alternate and put the brood end of part back. By getting combs full of brood from end to end there are not so many combs with brood in, hence easier to contract, or unite brood of two or more colonies.

This method of changing the position of the brood might be called spreading brood. Changing each alternate comb with the front or brood end back is spreading brood, and should not be done except when bees are abundant enough to cover all the combs containing brood. The only difficulty when all are changed is a little more danger of robbing when the honey is at or near the entrance. To change the whole brood nest, and put the brood clear to the back is perfectly safe except in the matter of robbing, and it surely results in getting brood from end. I think it would surely pay to reverse just as the honey flow opens, because honey will not be stored at the entrance if there is any other place to receive it, and with brood at the back wall will tend to cause super storage. Where hives are loose bottomed the work can be done by simply lifting the chamber from its bottom and giving it half a turn.

Having the colonies made strong and ready for the flow, the super should be added at once. I prefer the super on several days before the flow opens. With such strong colonies it is necessary to get the forces into the supers as quickly as possible, both to discourage swarming and to get the best results in honey. With the unqueening method the swarming is absolutely controlled, yet we want the force in the supers. If they get too crowded or will not work the super they will cluster out.

Having the colony so strong it must either occupy the super or the outside of the hive, usually super work will begin if there is plenty of honey; but a very great inducement to super work is to have one or more bait combs. If there are combs with cells deep enough to receive honey, there need be no fear about work being done there. My experience is that once a bit of honey is stored in a super, with plenty of bees, and nectar coming in they will push the super work.

Every super should be full separated and the sections have both top and bottom starters. Full sheets of foundation will be worked more readily than starters, and especially so if the flow comes on abruptly, or if it is slow not exceeding two or three

pounds daily gain. It is my opinion—not sure that it is a fact—that after the flow has fairly started, say four or five days, that there is wax goes to waste if the colony is not allowed to build comb. I consider that it is best to have full sheets in the sections (bottom starters too) at the start, and possibly only starters at the close. At the close of the flow there is frequently a surplus of wax that is wasted and plastered here and there, especially if the flow ceases abruptly, so that I am not so sure that full sheets are so good at the close of the flow.

To be sure of surplus in poor years, and also sure that all will have winter stores, have only strong colonies. To get the greatest amount of fancy honey and big yields in average to good years have strong colonies. For profit, strong colonies first, last and all the times. Of course colonies will be weak in the spring, but as the honey season approaches, get those strong that are to store surplus. Instead of dividing, add to.

Loveland, Colorado.

An Experiment in the Production of Comb Honey.

Anything which can be done to produce better filled and straighter comb honey, with less travel stain, will materially increase the value of the honey crop. In addition, it will increase the demand for honey, which is a matter of vast importance in the healthy development of the bee-keeping industry. It may be argued that the points referred to do not influence the flavor of honey, and that a section not entirely filled, bulging and travel stained tastes just as good as the comb free from such defects. In reply it may be said, that in stimulating and pleasing the sense of taste, the eye plays no unimportant part, so that in this respect the statement is open to question. In having well-filled sections free from bulges and depressions, clean and white, there are other great advantages. When the cells next to the wood which contains the comb are unfilled, or only partially filled, and therefore uncapped, a very weak point is left between comb and wood. If the sections be dumped or dropped, as is often the case, the comb at the weak point parts from the wood. It is difficult to handle or sell such sections. During transit they are frequently thrown backward and forward against the neighbor-

boring sections with sufficient force to break them; then, by the friction of the comb surface, the capping is broken and the liquid honey escapes and tends to depreciate the value of the entire crate. The dealer receiving such a shipment is a loser. He has no redress, and is likely in the future to be less inclined to handle and sell honey. With well-filled sections, properly crated and packed, there is no risk in shipping. The advantages to be derived from having sections with combs of an even thickness, and built straight, are:

They can be handled by dealers with small experience; facility in crating; sections more nearly of uniform weight and pleasing to the eye. In the experiments conducted, separators were used between adjoining sections and the evenness and uniformity of the comb were entirely satisfactory.

Again, comb honey producers know that, with rare exceptions, in the comb honey supers now used, sections having their faces next the wood are filled last, and the inner sections have to be left capped and finished on the hive, waiting for the bees to finish the surface of the sections joining the wood. Some have practised a system of removing the supers, freeing them from bees, taking out the sections, and returning the unfinished ones. This causes so much additional time and trouble, that it is almost, if not quite, impracticable.

The present experiment was conducted to test a plan to overcome this difficulty, the method adopted being suggested by S. T. Fenit, Belmont, Ontario, viz., to compare supers that have bee space over the sections with those without bee space; and the result of the present year's work confirms observations and experiments made by us in this direction during the past three years.

The main objects in the experiment were: 1st. To compare the number and size of pop holes in the sections of supers with the bee space above and those without. Those without, had a quilt next the sections; those with, had a board with $\frac{1}{4}$ inch bee space over the super, between the board and the sections.

2nd. To compare comb honey having the space of the last sections and wood sides of supers separated by only the usual one bee space, and those having two or more bee spaces. The two or more bee spaces were secured by means of dividers of different construction. Some were of solid boards with holes bored in them. See Fig 2, No. 1.

Others were made of strips. See Fig. No. 3. The bee space used was $\frac{1}{4}$ inch in every case, and it is very important that this should be exact.

Following is the result of the work of seven colonies with cloth and no bee space over the sections:

Hive No. 1—An average percentage of pop holes.

Hive No. 2—Same as number one.

Hive No. 3—Pop holes slightly more numerous than the average.

Hive No. 4—Rather better than preceding supers.

Hive No. 5—Although sections were particularly well filled, the pop holes were remarkably numerous.

Hive No. 6—A still larger percentage of pop holes in the corners both at top and bottom.

Hive No. 7—About the same as number six.

The result of experiments with $\frac{1}{4}$ inch bee space over the sections, nine colonies in the group, is as follows:

Hive No. 1—About 10 per cent. fewer pop holes than the average of the above

Hive No. 2 and 3—Same as number one.

Hive No. 4, 5 and 6—About 7 per cent. fewer pop holes than the average of above.

Hive No. 7—Still fewer pop holes.

Hive No. 8 and 9—A very decided advantage over no bee space.

Hive No. 10—About the same as the average of those having no space above.

Nos. 11 to 16 showed a smaller percentage of pop holes.

GENERAL REMARKS.

One fact was very conspicuous, viz., that the pop holes in sections with $\frac{1}{4}$ inch bee space were smaller than in those without. This report tallies with results obtained from experiments conducted in previous years, but not before reported. The probable reason for their being fewer and smaller pop holes with the bee space above the sections, is, that the bees appear to require a space to pass from section to section, and a bee space above facilitates this passage.

The result of the experiment with two or more bee spaces between the side of the super and the face of the section next the side, is as follows:

Two bee spaces and divider at one side of the super and only one bee space at the other.

Hive No. 1—The outside of sections with the two bee spaces and divider were better finished and cleaner than the side with only one.

Hive No. 2 and 3—Same as number one.

Hive No. 4 and 5—No perceptible difference as to finish of comb, but the sections were cleaner.

Hive No. 6—A difference in favor of the two bee spaces.

Hive No. 7—A marked difference in favor of the two bee spaces.

Hive No. 8—The side with two bee spaces decidedly cleaner and better finished.

Hive No. 9 and 10—Two bee spaces on each side of the super, both sides clean and perfect.

The dividers were differently constructed. One set had holes bored 5-16 inch in diameter and $3\frac{3}{4}$ inches wide, and material was 1-6 inch thick. The other set were made of strips the entire width of the divider, $3\frac{3}{4}$

excluding metal as dividers. The result was as good as with any other divider; but, owing to the limber and pliable nature of the zinc and the importance of having the bee space neither more nor less than $\frac{1}{4}$ inch, we would not recommend this material.

The results of the above test and those obtained from other hives in the apiary, show a marked difference in favor of the two bee spaces. The reason would appear to be that with two bee spaces, the extra

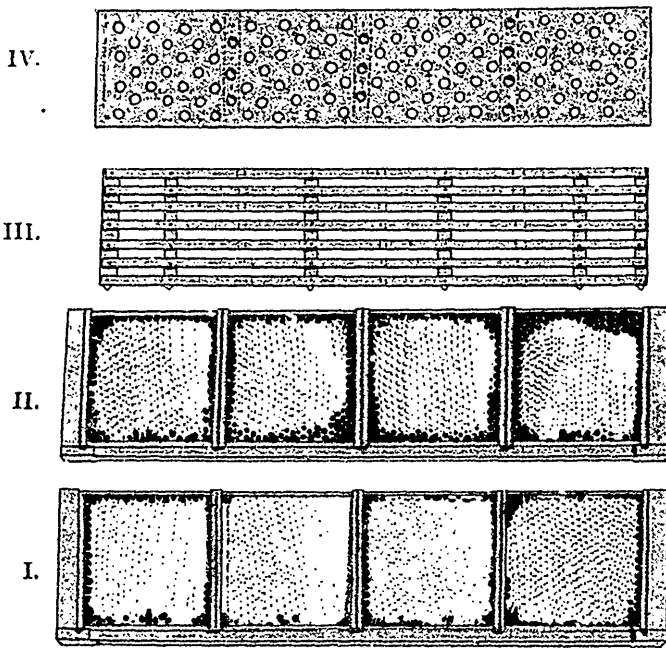


FIG. 2. No. IV., perforated divider; No. III., slatted divider; No. II., comb honey with one bee space between it and wall of hive; No. I., comb honey, out of same super with two bee spaces between it and wall.

inches, and seven strips 5-16 inch wide with $\frac{1}{4}$ inch spaces between. The dividers with the holes gave the best satisfaction. With the strips, there were more burr combs and the comb opposite the space between the strips was ridged, giving the entire section a ribbed and uneven appearance, a modification of what we find in the common wash-board. Five other hives were supplied with two spaces on one side and one on the other. In three, there was no marked difference; in the other two, there was a difference in favor of the two bee spaces. Two hives were provided with queen-

layer of bees on the outside, keeps up day and night the normal heat necessary for comb building and capping. With more than the regular bee space and no divider, the bees would, as is well known, extend the comb until, before the point of capping is reached, the space would be reduced to the regular size. Several tests were made comparing a still larger number of bee spaces and dividers, but no additional advantage was shown, and possibly they furnished too much loafing space for the bees. The one divider and two bee spaces during the past season showed a great

advantage in this method of taking comb honey.

[The above is from the Ontario Agricultural College report, and it is a portion of the experimental work in apiculture. As Mr. Pettit's name is herein mentioned, and owing to some slight change in the wording, a misunderstanding may arise, I wish to make an explanation. I do not believe there is a better all around bee-keeper than Mr. Pettit. Doubtless there are many bee-keepers who have ideas—correct, valuable, and practical—not known to Mr. Pettit, and ideas which he could adopt to advantage, but if I had to adopt any one man's ideas and methods I would select Mr. Pettit's. My best thoughts on wintering I have from Mr. Pettit, but when it comes to the production of comb honey there are several things he is now using which were first used by me. I used the separator slotted, then wide, at a time when Mr. Pettit had no use for it and he did not see any advantage in either. Then at the last North American Convention in Chicago in my address upon the Production of Comb Honey, I advocated a bee space above the sections to secure the best filled sections. Mr. Pettit did not believe in it but has since admitted the value. The above report would appear to give Mr. Pettit credit for this. While on the subject let me say I do not think anyone ever before claimed that a bee space above the sections would give better filled sections. Four years ago we showed at Toronto a section super with a double bee space at the sides to give better finished sections. I thought the idea original, but Mr. Pettit claims I got the idea from him, and for this, in the report, I intended to give him credit as I am quite willing to accept the correction. The idea of the openings in the divider I received from him, and in addition Mr. Pettit has another idea which I think will be of great value in the production of extracted as well as comb honey, and that is putting a strip at the side of the hive $\frac{3}{4}$ in front and tapering to a point at the back. This enlarges the entrance $\frac{3}{4}$ inch during the time when the bees want all the entrance they can get,

and will be of great help. This device, I believe, every bee-keeper should take advantage of. Anyone having a loose bottom board on the hive can use them. Divider No. IV. in the above cut, the Gould, Shapley & Muir Co., Ltd., can supply at 10c. for half a dozen, 15c. per dozen and one cent each for larger quantities.—ED.]

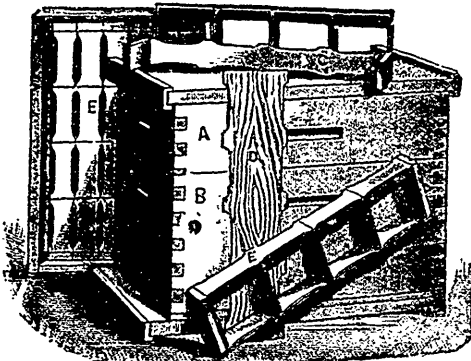
Notes for Beginners.

After the inexperienced has applied what I said in the last number of the Canadian Bee Journal let me add: In selecting the kind of honey, the beginner will produce, he must of necessity go by the advice of others or come to conclusions under great difficulties. Many decide to produce comb honey because they require no honey extractor. Allow me to point out this; after the apiarist once increases his apiary to the desired limit and after he has a set of extracting frames and the honey knife and honey extractor he can keep these for twenty years or more, no additional outlay in this respect is required. When producing combs, the sections and the comb foundation have to be bought and these have to be replaced as often as the honey is sold. Figure this up for a term of years and it will be seen the producer of extracted honey has to make a greater outlay of cash. Again for reasons stated in the last number, bees must be strong in numbers, the hive crowded and great judgment used in giving room to the bees. There is no use in producing comb honey which has to sell as culls and is in such a shape that it cannot be shipped away from home without injury. Let me enunciate some of the causes of failure. If a super is put upon a deep frame, such as the Jones, the bees have to cross several inches of capped honey before they reach the surplus compartment. This they object to. In the Langstroth or Hoffman frame the brood comes pretty close to the top bar and the bees, if any inducement is offered, readily enter the sections. I am of course taking it for granted they are strong and require the room.

Next sections are put on if honey is coming on or not and if the bees are strong or not; this is a mistake. If sections are put on long before the bees require them, the bees will amuse themselves by eating the foundation, and they are likely to soil the

wood. Sections should not be put on when we have every reason to expect that the honey flow is about over. To understand this the bee-keeper must study his own locality and know when certain blossoms may be expected to begin blossoming and when the season of bloom may be expected to end. Of course the honey flow may break off early but this no beekeeper can control.

Again sections are put upon hives having the bottom board sides of hives and wood part of frames covered more or less with bee glue, this should be carefully removed beforehand, scrape the bottom board, sides of hives and top bars just before putting on the sections, and here and all along the line is an advantage in having well constructed hives. If the parts are rough, such surfaces the bees are far more likely to propolize, and if there is less than a bee space the bees are likely to fill such crevasses with



bee glue. Buy the cheapest hives you can, so long as they are well designed, of good lumber, accurately made, and smooth workmanship. You would not buy the lowest price cow to get the best profits in dairying, why be penny wise and pound foolish in bee-keeping.

If you have a deep hive which was never designed for an upper story you are likely to have difficulty in getting the bees to cross the capped honey. They may swarm without properly using the comb honey super. If you have too shallow a frame the bees are likely to put pollen in the sections as the tendency is to put the pollen just above the brood. It may be difficult to beat the Langstroth or Hoffman frame. As to the comb honey super. Fig. 1 shows a comb honey hive. Before I used separators there was no pleasure in taking comb honey. Sections were more or less uneven and comb built from one into the other. On account of this irregularity in the sections

the super had to be left on until all the sections were capped. In crating the comb had to be put in the same order as it left the hive, a great inconvenience. The retailer did not like them; in handling their bulky sections they were likely to be injured in showing to customers and the purchaser would pick out the heaviest sections, leaving those containing a less quantity to the last.

But when the separator and section holder, see D and E Fig. 1, came into use I began to enjoy taking comb honey, and what is quite as important, I was able to produce an article with less labor, which would bring the highest price in the market. I know of no well-known, extensive and successful comb honey producer who attempts to take comb honey without full sheets of foundation in the sections. Look about you and what do you find in comb honey. Sections with drone and worker comb, all shapes of comb, often that comb only fastened to the top bar and not well attached to the sides and bottom of the sections. These sections if shipped from home would break the first dump they received, and the producer is often compelled to sell that at home for 25 or 50 per cent. below a fair market price. The greenest bee-keeper that ever lived can prevent bulging sections by means of the separator. Many have thrown away supers in which they cannot be used and purchased the new kind. I did this and it would pay many more to do so. With full sheets of foundation in the sections the bees climb into these much more readily and there is less tendency to swarm out. Again they work more evenly over the super, and as the foundation for the comb is all over the section, they build and join it to the sides and bottom of the section more readily. I am saying nothing of the saving of time and material. When you put supers in the hive before swarming put only one in at a time. When the bees begin capping this, and you still have reason to expect a considerable flow, raise that super and put a new one underneath. When the bees swarm put the new swarm and the new hive on the old stand, placing the old hive to one side, and until the bees get settled in the new hive at right angles to the old entrance away from the new hive. In say six days' time move the old hive upon an entirely new stand. The flying bees will go with the new swarm and the old is likely to be so depopulated it will not cast a second swarm. I use three or four frames with boards on the outside of the new comb honey hive. The balance of frames contain full sheets of foundation or good combs. If you are a beginner or unexperienced do

not use these board frames, but put in full sheets of foundation or comb. Better get the brood chamber stocked with honey for winter than have to feed and trouble later on. Besides, if you have a full flow of honey it is not desirable to practice this even with the experienced. Put the super from the old hive on the new, in a day or two, when the bees get nicely started in the brood chamber, and if the comb in the brood chamber is partially drawn, or altogether, they may be put on at once. It would not hurt to put on a super with some honey in all the cells. The idea is, if you have partially drawn or drawn comb in the sections with empty cells and foundation only in the lower story, the bees are likely to store pollen in the sections, having no other place to put it. Unless you use starters in the brood chamber, and this you should never do, you need no queen excluder between the section super and the brood chamber.

As to extracted honey, supers want to be put on at the same time as for comb. Combs are best, and next best full sheets of comb foundation. Contrary to the practice of most, I say, when the bees begin to cap their combs and a considerable flow may be expected raise the super and put an empty super, with combs or foundation, between the first super and the brood chamber. If there is a scarcity of drawn comb, this is an excellent place to put frames with foundation. The bees can finish storing in the upper story while they are drawing out the foundation in the lower. Have your honey well ripened (a comb two thirds capped is generally a safe guide) before you extract. Always, in producing extracted honey, use a queen excluder between the super and the brood chamber.

Some one asks, "Shall I wire?"

The new process, comb foundation, is much less likely to sag and break down. In fact the medium brand, 6 feet to the pound, is as strong as the heavy brand, 4½ feet to the pound, is of ordinary make. This is a great advantage, but even then I would advise the inexperienced bee-keeper to wire his frames.

When I think the last of the honey season is approaching I leave in the supers an average of two combs to every colony in the apiary. This is to have plenty of honey for winter, and given to colonies short of stores, and this honey is not extracted until I know the bees have enough for winter. But I have already occupied too much time this month.

R. F. HOLTERMANN.

Canadian Thistles.

BY FALEXIS GEMMELACCE.

OBITUARY.

I am sure that the readers of the C. B. J. will sincerely sympathize with its editor, in the loss he has sustained, by the removal of his devoted mother to the better land, since the issue of May 1st. Having had the pleasure of her acquaintance, I can assure all lovers of apiculture that she was an enthusiastic and successful apiarist during her sojourn here below, to say nothing of her many good qualities as a mother, a place by the way, none but a mother can fill.

LAST MENTION.

I will for the last time refer to typographical errors as the editor in last issue gave an explanation, or apology for the past omissions, and any that may occur in the future. As this M. S. S. may not be easily made out, on account of lack of time, and a slight accident to my right digit, I'll just add that the printers devil, the editor, and myself are now, and I hope always will be, friends.

WATER FOR BEES.

The above article easily obtained, in or around the apiary is a great saver of both time and labor to the insects. I never neglect this part of an advanced apiarist's duty, any more than other work, which may seem of more importance. I have known instances, where hives contained nothing but combs of candied honey, yet survived, and reared moderate quantities of brood, when both water and artificial pollen were readily secured. A bee-keeper in California thinks so well of supplying water all the year round, that he has erected a wind mill for the express purpose of having it on hand. Of course, they do not require to blanket bees there, nor is it cold enough for a bear to wear overshoes as Californians say of Canada. I feed both salt and fresh water, both kinds are utilized generously.

POLLEN DEARTH.

Notwithstanding that the past winter has proved a favorable one for the wintering of bees, it nevertheless cannot be said that the spring up to the present (May 3rd), has been equally so.

In some sections of Ontario, a complete pollen dearth has been experienced, owing to the backwardness of the spring. Artificial pollen can under such circumstances be profitably fed, in shallow trays, in sunny-

nooks around the apiary, as soon as the bees commence to fly in spring. In proof of this statement I have had young bees flying about the middle of April, that were beyond a doubt reared on such and more particularly this spring. I shall continue such conduct in the future, as I have done in the past, as I have never seen any bad results follow so doing, to say nothing of keeping the bees legitimately employed at home, instead of being lost while in search of it elsewhere. Substitutes in the form of rye, or wheat flour, mixed with fine saw dust, or coarse pea or cornmeal answer admirably.

CLIPPING QUEENS WINGS.

I read with considerable interest the replies to this query in the last issue of the C. B. J. on the above subject. Like Will Ellis, I am a clipper, not however of quadrupeds, but of a six legged 4 winged insect called a queen, and consequently side with those who follow such a practice. I am therefore going to try and convert the non clippers. First on the list, is Warrington Scott. Well Mr. Scott, don't you worry about the future generations, on the score of loss of wing power. Just leave that to be demonstrated by some one who has more time to make such experiments, and for the present read and profit by all the good arguments in its favor, and rest contented for a thousand years. The same advice will apply with equal force, to Mr. Geo. B. McCulloch. Now I am not going to tackle Mr. Hoshal, for I understand he uses "knock down" arguments, when he gets mad, so I will let some giant in apiculture tackle him if he dares talk back at me, and that will settle his hash.

Next comes R. A. Morrison, who objects, because he never knows where to find the queen. Why in the hive of course, or on the ground, and not up a tall tree in your neighbors garden, or more probably in the woods 3 or 4 miles away. See here, don't you know, that queen traps, cost lots of money, and all liable to be closed up with drones too. As for wire cloth catchers, I am not going to kick about them, for I find they are a convenience sometimes, even with clipped wings.

Next comes Mr. Armstrong, who does not like to make a cripple of her majesty, or she might get lost in the grass, or she could not be sold, or something else. Say James I have often heard of a man "walking off on his ear," although I never really saw one doing so, but I never thought a queen walked off on her wing, I always supposed she travelled with her legs, when not flying. Anyway what use has she for two, or rather four wings after she has

been fertilized, any more than a queen ant, except to give trouble by skeddling when she takes a notion. The ants take maters into their own hands, and dehorn, oh no, I mean de-wing their queens, so they will not be putting on airs, and looking too pretty, etc. Another thing, bee-keepers cannot afford to let the "grass to grow under their feet" about swarming time. By all means cut the grass also, and everything will walk as the ladies say "just perfectly level."—

[Look here F. Alexis Gemmelarius, (this is a typographical error) if you are in the apiary—No I will not say that—I mean if I am in the apiary, it is all right to have the queen's wings clipped; if I am not in the apiary and not likely to be even after the bees swarm, it is better to sometimes lose a queen than the entire swarm. But, if I have someone watching with little experience, who sends for me when the swarm issues I would sooner not clip the queens wing. In my locality (don't smile) the queens are frequently lost in their attempts to follow the swarm, not up a tree, but if such are available down under the roots, or under and in another hive—she is not particular—anything within reach. Or the bees may, instead of returning to the old stand like clockwork, attempt to enter half a dozen hives in a row. These are certainly objections. I am not saying that under certain conditions clipping is not advisable, but bee-keepers can defend themselves. In closing let me say, there is a great difference in the case of the ant, the workers have no wings. Perhaps they are jealous of the queen and steal her wings?—Ed.

Winter time in Georgia—
 Fires in smoky huts:
 But what I want to know now
 Is—where's them hick'rynuts?
 Winter time in Georgia—
 Frost on hill an' plain;
 But no one huntin' squirrels,
 An' no one grindin' cane!
 Reckon I've been dreamin';
 Has the world turned round?
 Winter time in Georgia,
 An' blossoms drappin' down!

—Atlanta Constitution.

Questions

- (a) What is the best way of uniting weak colonies?
 (b) Under what conditions is it advisable to do this?

My experience is that it is useless to unite weak colonies in spring, but in the fall if you have some that have not sufficient bees to winter, it is all right. My plan is to take the colonies that you wish to unite, move them a foot or two every day until you get them close together, then take a tea cupful of water, put in a tea spoonful of essence of lemon, sprinkle both, don't be afraid of giving them too much. Put the combs into the one, shake in all the bees and I do not think you will see much dissatisfaction. You can introduce queens very nicely this way also. W. ELLIS.

(a) This depends on the time of year you wish to unite. If your colonies are weak in spring, I would try and get them together until the opening of the honey flow and unite simply by destroying one queen and setting the bees together in one hive. Of course, the hives should be placed in pairs before the uniting is done, then remove the empty hive or hives as the case may be.

(b) When your bees are not strong enough to store honey with profit, if you are engaged in honey production.

WARRINGTON SCOTT.

I have united weak colonies by smoking, then taking the cover off one hive, and placing a sheet of strong paper over it. Make a small hole in the centre of the sheet, large enough to let one or two bees pass through at a time. Now lift the other hive on its board, and set it on top of the covered one. After two or three days, when the bees have gnawed away the paper they may be overhauled placing the frames in one hive with all the bees.

GEO. B. McCULLOCH,
 Harwood.

(a) Take all the frames you don't require of both hives one day before you unite, take No. 1 and place it on No. 2 stand and take the frames out of No. 2 and put them on No. 1 alternately. (b) When colonies are weak in bees.

JOHN PIRIE,
 Drumquin, Ont.

I doubt the advisability of uniting except in the fall. To do so then I should dequeen

one colony, if I had any choice in queens, and after a good smoking unite them. Or you may remove the corner of one and the bottom of the other and put one over the other. In the spring I would pack each weak one as warmly as possible and try and carry them through. They may make good colonies before fall and yield some extracted honey, if not comb.

EUGENE SECOR.

(a) First select the best queen and cage her. Then smoke both colonies, after which, shake the bees in front of a hive, taking a comb from each hive alternately. In the meantime select the best combs and place them in the hive where the bees are going and after shaking the last comb (it should be one taken from the same hive where the queen belonged) let the queen run in with them.

(a) On or about the first of June, or during September.

R. A. MARRISON.
 Inverary, Ont.

(a) Cage the queen of your choice and remove the other one. Now unite the two by alternating the frames and adhering bees so as to have them "awfully mixed." Put the caged queen under the cloth on top of frames for a day and night, then turn her loose and there will be no trouble. A little sweetened water sprinkled on the bees just after uniting restores tranquility a little sooner.

(b) If you want honey rather than increase of bees, unite your weak colonies in the spring so as to have strong colonies ready for the early honey flow, or in the fall to have colonies strong enough to winter safely.

G. W. DEMARCE,
 Christianburg, Ky.

(a) Bring the hives together, cage the queens if you wish to be sure of them, then shake the bees off the combs into the hive or in the front, so as to mix them up as much as possible. Sprinkling the bees with sweetened water containing a little essence of peppermint usually makes a sure job of it. Place the caged queen so that the bees can release her by eating away some candy or comb honey.

(b) It is generally advisable to unite weak colonies in the fall. R. H. SMITH.

(a) I don't know. If in the cellar or winter repository, I remove the quilt, or honey board from one hive, and set the other (without a bottom board) on top of the first one.

(b) When one is queenless, or when one or both are too weak to prove profitable if left by itself. I question the desirability of uniting weak colonies in the spring, in order to make stronger colonies.

DR. A. B. MASON.

(a) To do justice to this query, a long answer is necessary, as it depends on the season of the year, and how the colonies are located in the apiary. If side by side, and honey coming in, remove both colonies a little to one side, place an empty hive midway between them, now alternate such combs with adhering bees, as you wish to occupy the new hive, irrespective of the queens, unless you wish to save one. Any remaining bees are now dumped in front of the new or made colony and all will be well; or, first remove, say one-half the combs from each colony, shaking the bees in front of their own hives, and as soon as they get settled, alternate the remaining frames as before, at the same time removing one of the empty hives to another part of the apiary. If the colonies are in different parts of the apiary, proceed as above, by shaking the bees into as few combs as requisite, at the same time making one of the colonies queenless and allowing it to remain so, say for 24 hours. Now place the queenless colony along side of the other one and alternate the frames or combs, close up the hive, and place a board in front of the new made colony, so that the strangers may mark their new habitation. If no honey is being gathered, sprinkle the bees with sweetened water, scented with peppermint, or give each a smoking, so as to induce them to become good natured, by filling their honey sacks. A little tobacco smoke is good. I don't smoke myself except—when my wife don't see me—and that ain't very often.

If you use the Heddon hive, confine the bees to one half of the divisible brood chamber, or one section of the hive, and double up by placing one section on top of the other. The evening is the best time for all such work. Placing a queenless colony *holus bolus* on top of another one, having a queen, with a quilt between, in which there is a small hole therein this will accomplish the same end.

(b) The conditions under which I would double up are several, such as a surplus of colonies, too many weak colonies to

winter satisfactorily, or when desirous of making good colonies for the honey flow about 1st June. I don't believe in uniting weak colonies early in spring, unless queenless, however

F. A. GEMMELL,
Stratford, Ont.

If the colonies to be united are not setting close together, begin by moving them together about three feet each day, until they are close together. If your hive has eight frames remove four of the most undesirable frames from each hive, then remove one of the queens and place the eight frames to be united alternately in one of the hives, brush all the bees in the empty hives in front of the full one and set the empty hive away. Just as the honey season opens, all colonies not up to the standard of numerical strength should be united. Again in September all queenless colonies, also all that are not in good strong condition for winter should be united. C. W. P.

When I find weak colonies in the fall, I place them in winter quarters so as to know them when putting out in the spring, and any that do not winter well I place together so as to be convenient to unite, if necessary, and then on some fine day I smoke them or give some honey, then shake them in front of an empty hive and place the combs that they are to have in the hive as they crawl in. They should be well mixed before going in. All colonies that are too weak to pull through the spring should be united. A. D. ALLEN.

(a) Don't know as there is any best way under all circumstances. If there is a good honey flow destroy the undesirable queen and unite her colony with the other, the same as if it were a part of it. If there is no honey flow, place the queenless colony on top of the other with a wire cloth screen between them, being careful to ventilate so it will not smother and in 5 or 6 hours remove the screen.

(b) At the beginning or shortly before the honey harvest, if a colony is going to be too weak to be able to do anything, and also when preparing for winter.

A. E. HOSHAL.

Remove the poorer queen, then take a new hive and put the frames from each colony in it, alternating the frames when so doing, give only room enough in the new hive to accommodate both colonies. Give them a good dose of smoke, cover them in and then leave them alone for a few days. As a rule no difficulty will arise. T. E. POND.

(a) A very good way to unite two weak colonies, is to remove the bottom board of one of them, and place that colony on top

of the other one and give them a good smoking. Do your uniting about sundown or between sundown and dark. I destroy the poorest Queen. If I have no choice, I let them take their chances. (b) If you want strong colonies.

JAS. ARMSTRONG.

Brant Bee-Keepers' Convention Held May 15th, 1897.

The president, J. Shaver, Cainsville, in the chair. Amongst those present were F. Davis, Cainsville; Chris. Edmonson, A Taylor, Paris; R. L. Paterson, Lynden; Chas. Kelly, Cathcart.

It was decided to give \$10 towards the honey prize list of the Southern Fair, half to be given by the Goold, Shapley & Muir Co., on condition that the prize list be left the same as last year.

It was decided to again affiliate with the Ontario Bee-Keepers Association.

Mr. Holtermann gave a report on wintering, stating that from experiments conducted two years, he was sure that artificial heat and a constant supply of pure honey at a proper temperature, would be recognized as important factors towards successful wintering. It was important to have all conditions just right, owing to a slight change of conditions, wintering had been less perfect during 1896-97.

After discussion it was moved by J. F. Davis, seconded by R. L. Patterson and resolved that in view of the fact that the Government is about to make an effort to place Canadian Agricultural products on the British market, the government be asked to seek to make an opening for Canadian honey, and that a copy of this resolution be sent by the secretary to the Hon. Sydney E. Fisher, the Hon. Wm. Paterson, and Prof. Robertson at Ottawa.

The following paper was then read:

Brantford, May 15, '97.

Brant Bee-keepers' Association.

Dear Sir.—Pressure of business and rush orders for supplies denies me the pleasure and profit of meeting with you this afternoon to hear and share in your discussion. I have assigned to me the subject of "Preparing for the honey flow." It is a very important one, we might indeed consider it just now as being the most important. I wish I could do it justice, but I will only attempt to open up the subject for your more mature and deliberate thought. The weather and prospects generally in our

vicinity have been highly encouraging and promises well if our colonies are in a condition to take advantage of what the season provides.

Strong healthy colonies are what we should aim at, and you will agree with me that successful wintering, whether indoor or outdoor, is a long step towards this attainment. If indoor I believe it is well to have them out as early in the spring as possible, taking care of course to protect them from the uncertainties of the latter March and early April. Good warm top coverings are indispensable. Here we find that our empty comb honey supers come in very useful, placing one on each hive, and within it a well-filled chaff cushion and a liberal supply of old newspapers.

When weather permits scrape and clean off the bottom boards. Look out for their stores. Many a colony has come through the winter all right to die in the spring from starvation, beside if breeding is to be carried on they must not be limited. Very much can be said in favor of a little stimulating feeding, even when they have sufficient stores, it encourages them to greater effort in brood rearing. You will have noticed Mr. N. D. West's excellent article in the C. B. J. on the wholesale system of feeding sometimes practiced by him. It is certainly a very quick and easy method of distributing—viz. that of pouring sugar syrup over some straw in a wash tub. I like the old plan of adding full combs of honey when they are to be had and much feed is wanted. This can be done quickly and without any provocation to robbing.

There may be an advantage however to the colonies in their exertion and excitement carrying the sweets from a source outside their hives.

As the season advances judicious spreading of the brood may be practiced with good results. Of course it is attended with more or less risk in case of a cold snap, but by attending to contracting the entrance, and not being in too great a hurry to throw off the chaff cushion the danger is lessened. Let the queen have all she can do in the stronger colonies by giving empty combs and using some of her brood to build up the weaker.

What I have above noted are just a few of the important things well to be observed in aiming to build up for the flows. Hoping that they may serve to lead to further discussion of the topic.

W. J. CRAIG.

An interesting discussion followed, after which the meeting adjourned.

New Union Ready for Business

Over a month ago—(as soon as convenient after amalgamation was defeated)—the Executive Committee of the United States Bee-Keepers' Union decided to carry out the provisions of the New Constitution, and as it authorized them so to do, appoint a Board of Directors, so that the New Union might be ready to take up the work intended to be accomplished by it. But thinking it would be more satisfactory to the members if they were consulted as to their preference for General Manager and those composing the Board of Directors, a circular and a voting card were mailed to each present member, the latter to be used in indicating those whom each member would prefer that the Executive Committee should appoint, in order that the official part of the organization should be complete.

After allowing sufficient time for the ballots to be returned to Mr. M. Best, of Toledo, Ohio (the member selected to receive and count the ballots, assisted by Secretary Mason), the Executive Committee can now issue the following notice, based upon the result as indicated by the returned ballots, there being 61 returned out of a total of 81 :
To the Members of the United States Bee-Keepers' Union :

We, the Executive Committee, according to the power vested in us by the New Constitution, hereby appoint the following as General Manager and Board of Directors of the United States Bee-Keepers' Union, to hold their offices during the balance of the year 1897, or until their successors are elected and qualified :

GENERAL MANAGER—Hon. Eugene Secor, Forest City, Iowa.

BOARD OF DIRECTORS—Ernest R. Root, Medina, Ohio; Rev. E. T. Abbott, St. Joseph, Mo.; Dr. C. C. Miller, Marengo, Ill.; W. Z. Hutchenson, Flint, Mich.; E. Whitcomb, Friend, Nebr.; and C. P. Dadant, Hamilton, Ill.

GEORGE W. YORK, Pres.,
E. WHITCOMB, Vice-Pres.,
A. B. MASON, Sec.

Executive Committee.

Chicago, Ill., April 1, 1897.

Now as the United States Bee-Keepers' Union is fully equipped as to its officers, we trust that bee-keepers everywhere will at once send in their dollar membership fees to the General Manager, Hon. Eugene Secor, Forest City, Iowa, or to the Secretary, Dr. A. B. Mason, Sta. B, Toledo, so that there may be ample funds to begin to carry out the objects of the Union,

which are expressed in the following paragraph taken from the New Constitution :

ARTICLE II.—OBJECTS.

Its objects shall be to promote and protect the interests of its members; to defend them in their lawful rights; to enforce laws against the adulteration of honey; to prosecute dishonest-commission men; and to advance the pursuit of bee-culture in general.

What more do you want? Where is the bee-keeper that doesn't want to help carry out every one of those splendid "objects?" Surely, every bee-keeper in the land will be glad to have his name enrolled as a member of the New Union.

As to the newly selected and appointed officers, we need only say that all of them are too well known, and stand so high in the estimation of bee-keepers, that it would seem that the greatest success of the United States Bee-Keepers' Union is now already assured.

Sta. B. Toledo, O., April 26th, 1897.

To the Editor of Canadian Bee Journal :

Yours of the 15th enclosing enquiries in regard to the benefits to be derived by Canadians joining the United States Bee Keepers' Union was duly received, but feeling that I might differ with "the powers that be," I asked the General Manager's opinion and have received his reply.

He says, "I should say to our Canadian friends that their rights on this side of the line will be protected just the same as if they were "Americans." That is to say, if they ship their honey into the United States and are swindled, and if it is such a case as would, or could be acted upon by this Union I don't see why they should not have the same protection as any other members."

That's all right for a Yankee answer, and for us on this side of the line, but how about the members of the Union who are not so fortunate as to live in the United States, who have complied with the requirements of the constitution and are members just as much as any one is?

Article 2 of the constitution say, "Its objects shall be to promote and protect the interests of its members; to defend them in their lawful rights," etc., and Article 3 says, "Any person may become a member upon the payment of a membership fee of one dollar," etc.

It don't say anything about where such person must live, but "any person," whether he or she lives in Canada, Cuba, Greece, Turkey or the United States; and

it is not necessary to even be a bee-keeper to become a member.

It seems to me that any member, living anywhere, can claim the protection of the Union, but Article 6, Section 7 says, "The Board of Directors shall determine what course shall be taken by the Union upon any matter presented to it for consideration that does not conflict with this constitution," and I am of the opinion that Canadian members can claim the same protection as those living in the United States, and also that the Board of Directors would so decide.

I don't know of anyone who has the power or right to say to any one that they can't join the Union, and I shall go right on taking in all the Canadian dollars I can get.

There is another matter that is worth taking into account by all bee-keepers and consumers of honey, and that is that the U. S. B. K. Union was organized for the purpose of, in so far as possible, doing away with the adulteration of honey, and also in looking after fraudulent dealers in honey, and every producer of honey who offers it for sale is deeply interested in doing away with adulteration, and ought to be willing to do his share in accomplishing this object. The consumer is also interested in this matter and ought to put his shoulder to the wheel and half furnish the "munitions" with which the work may be done. Some of the present members of the Union are not bee-keepers, and we ought to urge consumers to help us to drive adulteration to the wall.

There will always be a very large surplus of bee keepers who will not only be glad to receive the benefits coming to them as the result of the efforts of others in doing away with adulteration, but they will "tickle in their sleeves" because it don't cost them a cent. If it would only "tickle them to death" we would be rid of the bees.

You had a trial of this in getting your honey adulteration bill passed, and that class were aided by some who actively opposed the measure. They were willing to give time and money in opposing, but not a word or a dollar to help along the good work.

A. B. MASON.

"THE BEST LAID SCHEMES OF MICE AND MEN, GANG AFT AGLEE."—I increased from two colonies to thirteen last year and bought two nuclei—too progressive. Alas they are most all gone where the woodbine smeth. I may have four come through. We have had a long, cold, wet, dreadful winter and all on summer stands unpro-

tested. This dearly bought experience I will profit by in future. E.

Victoria B. C., March 29, 97.

[We publish the above because it gives us a little insight into bee-keeping in British Columbia and because so many beginners increase too fast. It is a safe rule to work for honey and prevent excessive swarming; in the end more will be gained. But beginners are very slow to follow this advice.

Honey Tins For Export.

JAMES BENNETT, AXHDALE, VIC.

In order to determine if possible the cause of the great leakage which occurred in the honey tins exported by the Victorian Government, and to discover how the same might be prevented in future, I recently called upon Messrs Connolly & Co., of Bendigo, and requested them to carry out a few experiments which I suggested with honey tins. They cheerfully consented, and the experiments (which consisted of filling the tins with water and dropping them a distance of twenty inches until they leaked) were carried out in my presence. We tested three descriptions—one similar to the kerosene tin; one similar to the kerosene tin except that the bottom was double-seamed; and one similar to the last, with double-seamed bottom and made out of heavier tin. Contrary to expectation, neither the double seaming nor the extra thickness of tin made the tins any more durable under punishment; indeed they introduced an element of weakness instead for they leaked sooner than the light single-seamed ones. Of course a double seam is stronger than a single seam, and heavy tin is stronger than light, but they seem to cause trouble by making the tin *more rigid*, and when the shock comes the solder breaks, while the more flexible light tins "give" and bend all over, and ease the strain from the solder. I suppose it is another illustration of the bending reed escaping injury, while the rigid oak is uprooted. Anyway, the tin which gave the best results was the kerosene pattern, made of light tin—the one that I considered the weakest of all.

The experiments further shewed that as a factor in the strength of a honey tin the *soldering* is of immense importance, and in consequence of the results obtained, the firm in question decided to abandon the methods previously employed by them in soldering, and to adopt a special method. As showing the importance of the soldering, I tried two heavy double-seamed tins,

one as usually soldered, and the other specially soldered. The old style of soldering leaked first drop, as all this class of tin have done in these trials. The new style stood six drops without leaking, but leaked the seventh—a very creditable performance, but not quite so good as the kerosene pattern, which leaked the eighth drop.

If we should ever be in the fortunate position to require more honey tins for export purposes (which at present seems doubtful for some of us) these experiments seem to indicate that the light kerosene pattern is at least as good, if not better than any other, and as this is the cheapest of all we are fortunate in that respect, but we must insist upon the soldering being of the best and strongest description possible.

I intended to repeat these experiments at the Convention, and so to obtain the opinion and experience of all present, but the powers willed it otherwise. If, however, those who have any experience of this matter will relate it in the A. B. B. they will be doing us all a service.

Notes and Pickings.

By D. W. HEISE.

(CONTINUED).

[See here friend Heise, you say you like foot notes, and I am going to take you at your word. I do know of a bee-keeper who at one time said to me "I do not want footnotes by the editor to my articles. I don't want a man slobbering all over my work when I get through with it." That same man lately told me he wanted to see more footnotes. Well, about this deep cell foundation. You carefully qualify your statement, but think that Hutchinson's head is level on this question, and as you incline to the same view you think both your heads are level. Well I think so too, I actually believe your heads are so level that you are both flat-headed on this question. We can readily understand many having this opinion, but it is simply because they cannot conceive of machinery which can make such delicate comb, and next, they have not studied the question so carefully that they know that what causes the fish bone is thickness and quantity of wax, not texture. Mr. Hutchinson has been shown section finished by the bees. He admits it looks all right, but he says he wants to eat some comb honey

stored in it. That will be proof. Friend Heise, we had some of the article in our house, and their was no fish bone.—Ed.]

After a good deal of experience with a number of different feeders, I am forced to say there is no simpler way of feeding bees for winter stores than supplying them with sealed combs saved from the contracting season. I did not feed a lb of syrup last fall, although quite a number of my colonies were short in stores. All those were supplied with sealed combs from the honey house, and came I to the conclusion that my necessary feeding was never accomplished with more celerity. Feeding syrup, especially if left a little late in the season excites the bees greatly, and they worry and wear out their vitality at a time when they should be resting quiet, which is very essential to their wintering successfully.

I feel quite sure that when the swarming instinct has been bred out of bees, they will have lost one of their fascinations, for me at any rate. I also know that excessive swarming is not desirable, and not always to be enjoyed. But with a moderately large hive, and clipped queens, the main difficulty can be overcome. There is nothing in connection with beekeeping that so thoroughly fills me with enthusiasm as to hear the swarming of the bees.

I have learned to my sorrow that it is a mistake to hesitate about putting the surplus cases on early, for fear of retarding swarming, in what promises to be rather a poor honey season. Better put the supers on early, as soon as the bees are ready for them, and secure what honey you can, and make the desired increase artificially. It will be found more profitable.

[You have touched upon a vital point in bee-keeping, and we should like a few articles upon these questions in the next number of the Canadian Bee Journal. Our advice, broadly, is, keep down increase. Ed.]

"I always like to read footnotes to an article, and they catch my eye first, for they are generally the cream skimmed from the milk, and many a time the short notes contain in substance the sense of the entire article."—J. M. Young, in A. B. J. Here to Pude. I have often felt like that myself.

I know that fumigating combs with brimstone to kill moth worms is not much better than a failure. While it does kill some of the rascals who build tank lines, suburban branches, sidings and breeding stations in our combs, I know by experience that it takes a very heavy dose to kill all, and such heavy fumigating renders the

combs less valuable. I left my extracting combs all on the hives last fall until the first of October, and everything was lovely.

It is said that guess work is as good as any if you hit it right. But I know that in guessing at the amount of winter supplies in a hive, one is liable to be away off. Did you every calculate the amount of honey in a hive by observation and heft, and then shake the bees off and weigh the frames, and also weigh the same number

of frames without any honey? I have, and found my judgement very misleading. Always better be sure than sorry.

Judging from the description given by Dr. Howard, of Pickled Brood or White Fungus, I know that I had a good deal of the genuine article in my yard during the past season. I also saw it in a number of yards in this locality. I am wondering if it will appear again this season.

Seventeenth Annual Meeting

of the

Ontario Bee-Keepers' Association

Held in the Council Chamber of the City Hall at the City of Toronto,
December 8th, 9th and 10th, 1896.

(Continued.)

plates in order to try the effect of each of these germs, whether they would grow on this formic agar. Without exception all of them re-acted the same way, none of them were able to grow on this strong formic agar. A week after they had been on the surface of this I took a portion of the material, which I had previously placed on it, off and transferred it back to the agar which had no formic acid in it at all, and it was able to grow; in weak formic agar I had abundant growth in all cases. I wrote the word "Florida" on one plate from which I had got the source of and growth of the germ, and I could not see the outline of it when I wrote it with the inoculating needle, but after growth had occurred for twenty-four hours a most beautiful growth occurred where I had traced the letters.

With the strong formic acid I have had no growth at all. So, therefore, you may say that the antiseptic quality of the honey differs according to the source. They are unable to grow on it, therefore it has some slightly retarding effect on the bacillus but not on the spores; the spores are able to live on. It retards the growth but does not kill the germ.

The President—I think Prof. Howard's conclusions are all right that honey has little or no antiseptic qualities. Bacillus is

comparatively easy to kill compared with the spores.

Prof. Harrison—I certainly think it has no effect on the spores. I am keeping the spores of the germ as long as I possibly can on the surface of the stronger formic acid, and after it has been on a certain length of time, for instance a month or so, I will transfer it again to see whether it will be able to grow on ordinary agar. It takes time to work it out, and I have not been able to give any longer time than one week. The bacillus is a vegetative form, the growing form; the spore formation is quite different. When the spores are formed the bacillus has ended its existence. The spores are formed, when it comes to unfavorable surroundings, to tide it over places where the germ cannot live. It is the most highly resistant form of the germ.

That concludes the work which I have done on that proposition, having found formic acid in samples of honey and tried its growth.

The next proposition, No. 3, is as follows: "That when bacillus alvei or its spores are excluded from oxygen or atmospheric air they retain their vitality indefinitely and are capable of reproducing the disease in the presence of suitable nutritive media."

Howard found that a germ, with him grew better under mica—what he calls mica

is what you find in all stoves—the transparent portion—he took his gelatine and his agar and the mica plate, and he would make his inoculation on to the plate containing the agar and simply put a mica plate on top of it and press it down and by so doing exclude the air to some extent, but not altogether. The germs are placed between the gelatine and the mica plate and they will grow there. He found he could get the best and most vigorous cultivations under the mica plate. As he says here, "Almost pure cultures were obtained in gelatine under mica plates, etc." I have grown this bacillus in hydrogen gas; in this gas the germ grows in great abundance. I have also tried it in the ordinary illuminating gas, that is partly hydrogen, but there are other gases mixed with it; it would not grow in it and it is not killed in it; it remains as you put it in.

I have also made these cover glass experiments and placed them in hydrogen gas and I found no difference between the cover glass in the hydrogen gas and those placed in the atmosphere.

All the experiments I have made, with the exception of trying whether it would grow in hydrogen gas, etc., were made in the ordinary atmosphere and the spores were produced in great abundance on those media.

(To be continued)

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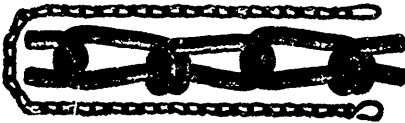
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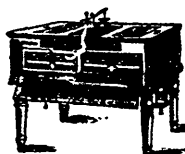
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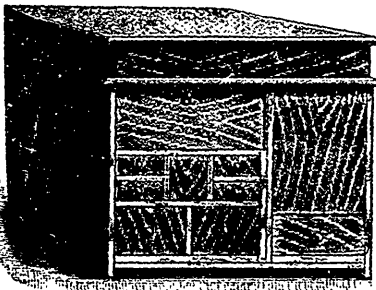
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