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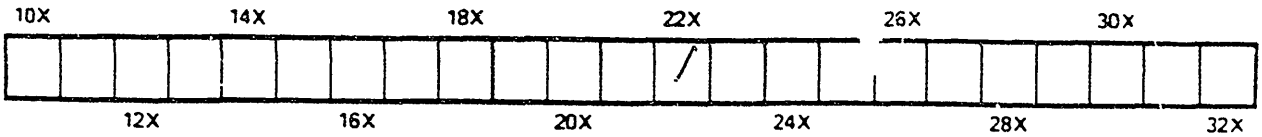

CANADIAN BEE JOURNAL

PUBLISHED MONTHLY.

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Herr L. Hoffman in an article in the Munchener Bienen Zeitung says that foul brood germs are kept under control by the formic acid a colony secretes and throws off. He speaks of the foul brood floating in the atmosphere. Referring to Herr Alphonsus' investigations and writings, he quotes the latter gentleman as saying: "On a cool day, by opening the hive, one can readily see how the bees disinfect the atmosphere which rushes in. They lift the posterior ends of the abdomen, thrust forward the sting, upon which the poison drop—the means of disinfection—hangs." Herr Alphonsus argues that foul brood may be developed and caused from chilled brood, the latter developing spontaneously, but Herr Hoffman says not. He, however, admits that in colonies where a large proportion of brood is chilled the condition of the combs and the diminished amount of formic acid generated in the hive renders it liable to the attack of foul brood germs floating in the atmosphere. Whatever the direct cause may be, the editor of the Canadian Bee Journal has always pursued the safe policy—to remove combs having chilled brood and either render them, securing the beeswax, or burning the comb as it left the hive. The editor of this journal does not believe in the spontaneous generation of germs but he does believe that formic acid in a strong colony may hinder the development of germs which might otherwise prove harmful. We do not believe that it pays to give the bees the task of cleaning out any considerable quantity of dead brood in a comb.

Formic Acid.

Imports and Exports of Honey and Wax.

According to the last report of the Department of Trade and Commerce there was 43,232 lbs. of honey imported into Canada for the year ending June 30th, 1898, valued at $3,920, and 29,500 lbs of beeswax, value, $8,015, and bees to the value of $430. Wax and manufacturers of wax from British Empire, $5,293; the balance from other countries. The previous year ending June 30, 1897, there was exported 26,596 lbs. of honey, value, $2,811.

Honey exported for the year ending June 30, 1898, 5,213 lbs, value, $507. Of this the British Empire took 2,093 lbs, value, $193, Great Britain taking 2000 lbs., Newfoundland 93 lbs., and the United States, 3,121 lbs. Ontario exported 3,003, Quebec 2,182, Nova Scotia 8, and Prince Edward Island 21 lbs. Of the bees imported Ontario took $306, Quebec $34, and British Colombia $90.

In the same book we find about parafine: The United States sent to Canada 103,041 lbs., costing 5 7/10 cts. per lb. What Great Britain sent averaged 5 1/5 cts. per lb. and that from Germany 6 cts. per lb. The latter pretty well bears out the statement made some time ago as to the value of parafine.

I am happily disappointed in the way my bees have come through. They had a good fly yesterday and the day before. Only five dead out of 144.

JACOB ALPAUGH.

Waterloo, Apr. 14th, '99.

A POINT IN QUEEN-REARING

Will Bees, When Left to Themselves, Rear the Best Queens?

By Dr. C. C. Miller,
British Bee Journal.

In reply to a questioner, I favored the idea that, left to themselves, bees might rear as good queens as when they were restricted to eggs or larvæ of a certain age. Referring to this, Hon. R. L. Taylor says in Review:—

"He argues (A. B. J., 295) that in a colony made queenless, with eggs and larvæ of all ages present, it looks rather reasonable that the bees will select what will make the best queens if it is left entirely to them. It may look reasonable that they should, but they don't; at least, they don't altogether; and the trouble is that, when they err, as they generally do, I suppose, from their eagerness to get a queen as soon as possible, by selecting one or more larvæ for the purpose that are too old to produce the best queens, the queens from such hatch first, and so the later and better ones are destroyed. The remedy is to remove the larvæ, in four or five days, from all but three or four of the most satisfactory cells."

So important is it to have the best queens possible, that the matter should be very seriously considered before following a plan that, in Mr. Taylor's judgment, would bring such bad results.

One might suppose that, if the bees have intelligence enough to select an older larvæ because it would give them an earlier queen, their intelligence might carry them a step farther, and make them willing to wait for a better queen. But it isn't always safe to trust the bees to do what might seem best to reasoning creatures. In some cases man's reason comes in to direct the bees. Mr. Taylor says when the matter is left to the choice of the bees "they don't" select what will make the best queens. In their hurry they select larvæ too old. Scientists tell us that the food the worker larvæ gets for the first three days is the same as the royal larvæ gets throughout its entire existence, and that a larvæ three days from the egg is as good as the best to produce a queen. So the difference between a worker and a queen is made in the last two or three days of feeding before it is sealed up. But although the difference is made in that two or three days, it makes more than that length of time in the development, for the worker is five or six days longer in coming to maturity than the queen.

Now, suppose a queen is taken away from a colony, there being present eggs and brood in all stages. One set of bees say, "Here's a larvæ three days old; we'll rear a queen from that." Another set says, "Here's a larvæ two or three days older, just ready to be sealed over; let us rear a queen from this, and we shall have a queen two or three days sooner." Now, this latter larvæ, if it were continued as a worker, would not emerge from its cell until twenty-one days from the laying of the egg; and, changing from its original destination so late in life, it will be only an abortive sort of queen, taking nearly as long to develop as a worker; so it will turn out that the larvæ three days old will come out of its cell sooner than its older sister. In general, it may be said that any larvæ more than three days old in a worker-cell has had a change in its food unfitting it for a perfect queen, and lengthening the time of its maturity so much that any gain in the way of age will be more than counterbalanced by the longer time it remains in the cell after being sealed up. Considered in that light, is it not easy to see that it is not possible for any queen to emerge from its cell earlier than one from larvæ three days old?

Keep in mind that the oldest larvæ that is unsealed in a worker-cell is only two or three days older than a three-day larva that will produce a perfect queen, and that, after the first three days of its existence as a larvæ, every day that it grows older before it is chosen for a queen makes more than a day's difference in the time it remains sealed up.

Let us look at the matter in a little different way. How long does it take from the laying of the egg to the emerging of the queen, under favorable conditions, in a full colony? Forty years ago seventeen to eighteen days was considered the right answer. On page 19 of the American Bee Journal, vol. i., 1861, no less authority than the Baron of Berlepsch gives, as the result of very careful observation, that in one case the queen emerged in eighteen days, and in a second case in seventeen days. He then remarks:—"These experiments show that the opinion generally entertained that the queens emerge between the seventeenth and eighteenth day after the eggs are laid is correct." But Berlepsch used a small

forced swarm or nucleus, and it will hardly do to take that as a basis for what would happen in a full colony. At any rate, the time has been shortened since then, and most of the text-books now give sixteen days. Cowan gives fifteen; and as he is a careful observer, and, withal, properly conservative, it is not likely he would so far depart from the traditions of the fathers without being very sure of his ground. So it is safe to say that fifteen days is correct.

Another question: "When a queen is taken from a strong colony, the bees being left to their own devices as to raising a queen, how long is it from the removal of the queen to the emerging of the first young queen from her cell?" Perhaps something like twelve days is given, and I do not remember ever to have seen any record of the emerging of the young queen any sooner than the tenth day after the removal of the old queen. A somewhat large experience of my own confirms this view.

Now, suppose a queen emerges ten days after the colony is unqueened. How old was that queen, or, rather, that larvæ, when the bees began to treat it as a thing of royalty? Ten days taken from its entire inter-cell life of fifteen days leaves five days as its age from the laying of the egg, or two days of age as a larvæ. Allowing that the bees did not discover their queenlessness immediately, there is still leeway enough to assure the selection of the larvæ before it was older than three days. When the young queen emerges eleven or twelve days after unqueening, then a still younger larvæ must have been chosen. On this point Berlepsch says, on the page I have already quoted from, "I will only add, in passing, that the bees do not, as is commonly stated in the books, usually select a larvæ three days old, but in most cases a younger one."

I know it is a quite commonly accepted belief that bees left to themselves select larvæ too old for the best queens; but it is high time to lay such beliefs aside. The truth is, they don't make such mischoice; and if they did, such old larvæ would emerge as queens later than their younger sisters A larvæ chosen at the time of weaning, at three days old, will emerge a perfect queen at an earlier date than any other larvæ either older or younger.

So there is no need of any remedy such as Mr. Taylor proposes, "to remove the larvæ, in four or five days, from all but three or four of the most satisfactory cells." Even if such remedy were necessary, how many are there who can tell which are the most satisfactory cells?

In the hands of experts I believe queens as good as the best can be raised by confining the bees to eggs or larvæ of a certain age, but they will average no better queens than will be reared by the bees when they have brood of all ages from which to select. In the hands of the common honey-producer, the best queens will be reared by allowing the bees their own way, and then when the cells have been sealed in a strong colony, letting the nucleus or colony in which the queen is to be kept till laying have several cells from which to select. I know that I have reared hundreds of good queens in that way, and there is less chance for miscarriage thereby than in any of the other ways that may be advisable for queen-rearing specialists.—Gleanings (American).

[My own experience of several year ago, when I was doing the queen-rearing here—and the subsequent experience of our Mr. Wardell, who now has charge of that same work—would rather lead me to lean toward Mr. Taylor's position; namely, that when a colony is made queenless of eggs and larvæ of all ages, they do not, as a rule, "select what will make the best queens." I have sometimes thought that, when they find themselves suddenly deprived of their mother, they are in such haste to supply the deficiency that they start with anything they can get; but, on the other hand, when they are about to supersede a queen there is no hurry; neither is there need of any haste during the swarming season, for they have in either case plenty of time, not only to do good selecting, but to do good work. Our recent experience shows that, in order to get good queens under any circumstances, a moderate honey-flow or moderate feeding is an important requisite.—Ed. Gleanings.]

[We have thought it advisable to quote Mr. Root's footnote to the above article in order to have his views on the subject dealt with. We shall also invite our esteemed contributor, Mr. H. W. Brice, to give his opinion.—Eds. British Bee Journal.]

I set my bees out of the cellar on April 10th and I find them better than I expected as they seemed affected with dysentery.

WM. COLEMAN.

Middlesex Co., Ont.

Notes and Pickings.

—D. W. HEISE.

"Most certainly introducing a young queen in place of an older one before harvest, lessens the chance of swarming; and more than that, if the young queen is not introduced, but reared in the hive there is no danger of swarming. Why a queen reared in the hive is better to prevent swarming, than one of the same age introduced, I don't know."—Stray Straw, Gleanings.

Perhaps Doctor, it is from a desire on the part of the introduced queen, to set up house-keeping on her own responsibility; rather than be ushered into an established and furnished homestead.

According to "Sterrog." E. T. Abbott, is now thoroughly convinced that a cluster of bees with "full honey sacks," will not freeze. The past winter he deprived a colony of all its stores, and placed a sugar cake directly over the cluster. Said colony was in fine condition when last reported. This Picker is with Mr. Abbott and his "pet" theory, that if a colony is given plenty of good stores "in the right place" (easy of access) they will not freeze. But Dr. Miller thinks this may be so with a large cluster, but entirely different with a small one. But, Doctor, if the space were contracted in proportion to the size of the cluster, would you not expect the results pretty much the same, as far as freezing is concerned?

Gleanings, P. 300, An American Tramp tells some things about bee-keeping in Cuba, and in so doing he hopes to save money for those who go there and more for those who "stay away." Pretty strong hint to stay away. Says it is a fair honey country but such largs crops as are reported from California and Florida are unknown there. Crop will generally pay a bee-keeper fair wages; has known 375 colonies in the hands of an expert bee-keeper to pay him less than $300 dollars for his season's labour. Surplus honey flow is from November to the first of March. Railway fare costs 13 cents per mile for third-class; what the first-class rate was, the tramp was afraid to ask. Honey this year brought forty-eight cents per gallon (an exceptional year). Has known it to be only twenty-four cents, and cost two dollars to draw a barrel of ninety gallons a distance of eight miles. There are almost no houses on the island, what are left are filled with "fleas." The tramp found it necessary in order to get a little rest at night, to first bathe himself in kerosene, and it at a cost of from fifty cents to one dollar per gallon. Flour is eight dollars per barrel; beef thirty cents per pound, and everything in proportion. I have concluded with editor Root not to start for the Isle of Cuba just yet. Will wait until Uncle Sam has taught the fleas in his newly acquired territory better manners.

J. A. Green, Gleanings page 303, says: Having combs built so thick that the queen will not lay in them, looks plausible. He admits that it is somewhat of a deterrent, yet from his experience, it cannot be depended on as a complete preventive. He has extracting combs with cells seven-eight inches deep, yet when the bees desire to extend the brood nest, they simply cut those deep cells down to the proper depth This I would readily believe. But when he says, "I have some times thought they prefer those extracting combs to the regular brood combs," I think he would find not a few who would disagree with him on that point. According to my observations the bees always, but more particularly in the spring season, show a decided preference to old darkened brood comb for brood rearing and I think the reason is very simple, the brood is not so suddenly affected by fluctuations of temperature.

Elias Fox seems to have a super abundance of proof that bees have a decided dislike for "black." Has known them, when angry, to strike at black spots and knots on boards, and, when very angry, he has seen them strike and restrike the auger-holes in the ends of covers on empty hives. Those must have been very, very, angry bees, or were they trying to get away from the "Fox?"

Henry Alley gives in Gleanings, page 307, an experiment. He tried to force a colony to rear some drones, by filling a hive with nearly all drone comb, and the queen was obliged to lay her eggs in drone cells. He watched the experiment with much interest In due time the cells were capped over, but not as drone brood is usually capped, and when the bees emerged from those cells they were no larger than those reared in ordinary worker cells. Mr. Alley thinks this demonstrates conclusively that when it

happens that some queens and bees are "unusually large," it is from some other cause, and not from the fact that the cells were extra large as some seem to think. He asks those who are so enthusiastic on rearing large queens from large cells where they are going to draw the line as to size. Why don't they make cell cups half as large as a hen's egg, and raise queens proportionately large? Rats! Mr. Alley, what are you giving us? why we would have to build henneries to house them in.

"To prevent swarming. When bees show signs of swarming, and upper story is on, raise it and put excluder between. Put in upper story queen cells, also two or three frames of brood, make entrance at rear end of upper story. As soon as the young queen begins to lay, dispose of old queen, and remove excluder, and work is done. The colony has not been without a laying queen at any time; and the young queen will not swarm no matter how many bees are added."—J. F. Leel, in Gleanings. Editor Root does not think it safe to assume that such colonies would not swarm, and thinks Mr. Leel will agree with him if he tries the plan on a large scale. If this Picker went to the trouble to re-queen at that season (when bees are showing signs of swarming) he would not consider it any benefit to have the colony without a laying queen at any time, but rather a detriment; where a fall flow can be had it may be an advantage.

In my last notes I reported a case of bad wintering. Now at this date, May 10th, I am pleased to say that, after a thorough examination, I find the bees in better condition than I had anticipated. While my loss is 25%, those left, excepting a few, are in a prosperous condition. Their only salvation lay, however, in the propitious weather which obtained since the 12th of April, only about two days during that time that they could not forage. My first experience of leaving honey-dew in the hives for winter stores, has taught me an object lesson, and I now promise NEVER to do it again.

All the bees in this section are out and seem to be strong. Prospects are now fair for another good season as clover is all right, the frost not having affected it up to date. The goods sent are very satisfactory, especially the Holtermann covers. I like them very much.

E. A. BUZZELL.

Rouville Co. Que. Apr. 25, '99.

Moving Bees for Fall Pasture.

—R. F. HOLTERMANN.

During the years 1895, 1896, and 1897, we moved bees after the clover and linden flow to fall pasture, buckwheat being the particular blossom in view. Last year we had 155 colonies within range of buckwheat. For the past three years it has paid us to move the bees. This year we had 173 colonies within range of buckwheat. They were at three different apiaries, and in two of the apiaries the results were satisfactory. The bees built up well, and had plenty of young bees for winter; they also put in ample winter stores for themselves, and gave a surplus in comb and extracted honey which more than paid for the labor expended. The third apiary did nothing at all; the bees when placed there did nothing at all, and although buckwheat was in full bloom, they were continuously on the verge of starvation. Four years of experience and observation, combined with previous experience, have put us in a much better position to judge as to the expediency of moving bees to any location for a honey flow, and while that experience applies to a greater or less extent to the flow from all blossoms, it is particularly applicable to buckwheat which is very susceptible to drouth. Buckwheat is mostly grown on sandy soil; the lighter the soil, the more readily it dries out, and then the honey flow fails. When the weather is dry, and this condition has been prolonged, pasture and crops generally feel the effects, and under such circumstances it is not advisable to move bees to the vicinity with the expectation of a return in honey.

The bees had better be held in readiness to move, and should copious showers come, with buckwheat still in blossom, and the time when frost may be expected still remote, they can be moved. The two apiaries referred to above gave good results, simply because there had been plenty of rain in the vicinity; the third apiary, only nine miles distant, gave no return, because little or no rain had recently fallen in that locality.

EXPERIENCE IN MOVING BEES.

Bees in July and early August that are able to use two and three comb honey

supers with twenty-four and twenty-eight sections each, must be strong. With one apiary of 100 colonies we took a very radical departure in preparation. Eighty colonies were prepared with a wire screen on top, and at the entrance a portico (See Fig. 7.) of the same width and height as the brood chambers in front of the eight frame dove-tailed hive, and two and a half inches deep. A frame was constructed of the above proportions, and the front covered with wire cloth. This really forms a pocket into which the bees can crowd, when, through the excitement of moving on the wagon they feel

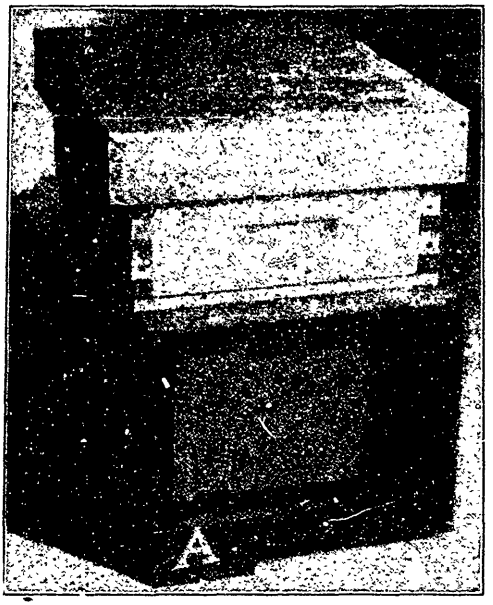


Fig 7. Portico for moving bees.

too crowded to remain in the hive. Twenty strong colonies were prepared the same as the eighty, with porticos at the entrance, but no ventilation at the top. Instead of a screen on top, a board giving no ventilation was nailed on the hive. We thought this number would be ample for the test, and we were a little afraid that the experiment might result in the destruction of the colonies so tested.

The porticos were attached as soon as the bees ceased flying in the evening. They were loaded on three wagons engaged for the purpose. Owing to a baulky horse, a tire coming off the wagon, and other unforeseen difficulties, the bees did not reach their destination until 6 p. m. the following day. They were exposed to a bright and hot July sun during the day, yet, in spite of this, the bees came through in perfect condition. Those with the porticos only were in as good condition as those with the wire screen on top. The test was certainly severe, and we feel safe in saying that no one need hesitate in future to prepare bees for moving in this way.

PRECAUTIONS—We were careful to hammer very lightly in driving nails just before moving the bees. Two pieces of wood, of a wedge shape, formed a projection on each side of the portico, and when they were inserted into the hive entrance, the portico was kept in place by only two small wire nails. These we intend to do away with in future, and use a clamp on each side. When the hive is tapped the bees fill themselves with honey, and with the honey sack full they are more likely to be injured in moving. We find that bees suffer considerably unless the porticos are removed immediately after the hives have been moved and placed in their new stand Apicultural Report.—Agricultural and Experimental Farm.

Queens and Queen Rearing.

—DR. E. GALLUP.

Where bees take their own time and supersede a queen at the right season, and in a strong colony, I have invariably had good queens. I removed a queen from one of those strong colonies right in the season, when it was good weather or swarming time, removed all unsealed larvæ, left the sealed brood and only eggs, introduced two frames of eggs from other queens, so I had three frames of eggs in different parts of the hive separated from each other. Now understand I had a large working force of outside or field bees, and a large force of inside working bees or nurses, yet I went to different colonies, until I had a hive running over full of nurses, as the nurses having never had a flight, staid where they were put; of course the old bees went back. By allowing them none but eggs to start queens from, I did not run any risk of having queens started from larvæ too far advanced, as we many times do.

Well, the result was, I had thirty-six extra large cells built, and saved thirty of the first lot of queens, and every one turned out as satisfactory a lot of queens as I ever had. I was not expecting so large a number, consequently I was not prepared to take care of them all. You can readily see that having so many nurses and strangers, as it were from many different colonies, they built large cells, and after the queens hatched out there was left in each cell a quantity of royal jelly nearly, if not quite, as large as a common marrowfat pea. So they were reared under the very best possible conditions. That was experiment No. 1.

After removing the first lot of cells and queens I filled up again to overflowing with nurses as before. The weather was still excellent. This time I gave four frames containing eggs, separated from each other in different parts of the hive; no division board was used and I had thirty eight cells built, I lost some of this lot in getting them fertilized, as the weather turned bad. What I did save turned out perfectly satisfactory. I then quit the bees and went into my present occupation.

I tried the experiment again in Ventura County with a three-story ten-frame Langstroth hive, and reared thirty good extra ones the first experiment.

I need not tell you that I am in favor of extra large hives and powerful colonies, both where I lived in Iowa, and here in California, either for honey or queen-rearing.—The Rural Californian.

Orange Co., Cal.

Honey Dew.

—JACOB HABEKER

DEAR SIR:—After a poor season last year and any amount of honey dew, my bees wintered pretty fair. By about the 20th of March I had them all living, but since I have lost 18 colonies out of 74. Two of them were queenless, a few lost by dysentery, but the most of them I lost by robbers. Never, had such robbing during my twelve years experience. Just at the time of maple blossom about six or seven colonies attacked some of the strongest colonies in the yard (not queenless ones but nicely filled with brood) and reduced them to almost nothing. I have some small colonies and the robbers left them alone. I do not know the reason. I did not expose frames of honey, hives or anything like that, left no dead colonies or very weak ones. The entrances I kept small, but I believe I have them now under control. I exchanged hives with other combs but I failed in the latter case, the latter got robbed out the following day. At last I closed the robbed ones and removed them a distance from the yard where they work in peace. The whole yard is now quiet and works hard on willows of which we have a great variety in a swamp in our neighborhood. About this time I noticed every year a strange thing. My bees are facing south, have most of them packed in red painted pine winter cases, each containing four colonies. This swamp lies east of my yard, the west side is sheltered from buildings and every spring the west side colonies get weak and the east gets extra strong. I am now fully convinced that the west ones when coming home heavily laden from the east enter very often the east colonies in the same packing box. The single hives keep a far more uniform strength. During this time of robbing I made a few heavy hardwood blocks to close the opening of the out side case with, only leaving a small hole. One of these blocks I had on the east colony, another just the same on the third hive. About a week ago that colony was pretty fair. Yesterday I noticed that colony not flying and the east colony extra strong. On examining the one there was only the queen and a few dozen of bees with three or four sheets of brood and eggs.

We'll face some east for another spring.

Huron Co., Apr. 26th, '99.

Bees came through the winter well and since spring opened the weather has been grand. It is quite cool to-day and if this weather lasts long look out for starving. The first batch of brood is just coming out, and colonies can at this time get away with a lot of stores. A number of careless bee-keepers around here have lost very heavily. MARTIN EMIGH.

Oxford Co.. May 5th, '99

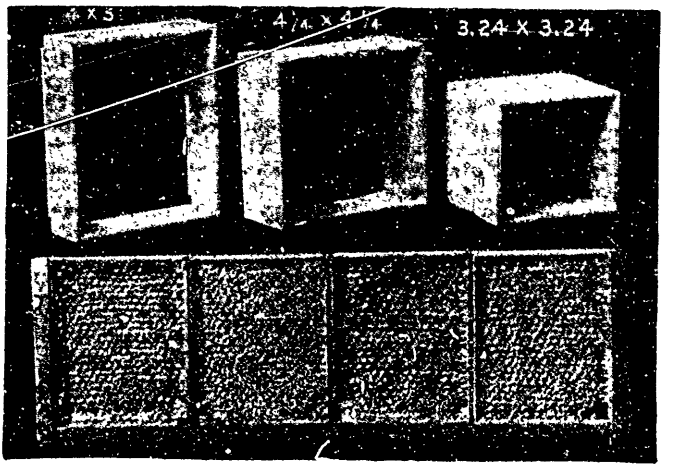
I must say that your comb foundation is first class. JAMES AUSTER.

Renfrew Co., Ont., April 27th, 1899.

I received the goods as ordered and all in first class shape. CHAS. JOLLIFFE.

April 27th, 1899.

Plain Sections.



The above is an illustration of the best plain sections we have seen and is an illustration kindly loaned by the editor of Gleanings in Bee Culture. After all the controversy, Editor Root has stated in the last number of Gleanings, "Under like conditions, plain sections will be filled no better than bee way sections, and if there are any of my remarks that can be construed otherwise, I desire to repudiate any such construction as emphatically as I know how." In the above Editor Root and the Editor of the CANADIAN BEE JOURNAL stand on common ground.

THE APIARY

How Bees Have Wintered—Hints To Beginners.

Bees have wintered fairly well in this section, where they had food of a proper quality and quantity and there winter quarters were warm and well ventilated. A few have reported losses from starvation, dampness, the depredations of mice and dysentery.

The weather since the last of April has been favorable to their exercise, and breeding. The willow and soft maple have yielded pollen and a little nectar. It will be better not to remove the packing for winter protection from the hives for some time yet. There may be spells of weather sufficiently cold to lower the temperature and chill the brood, in case there is nothing but an inch board around them and a thin covering above. See that they have plenty of food. If there is a scarcity in the combs feed them. A little every day will stimulate them better than a quantity given at once. Moistened brown sugar on paper placed over the cluster is a convenient method of feeding at this season. The bees will cut through the paper and take the sweet down gradually. Keep the entrance closed so as to admit only a few bees at a time. And when there is a certainty that warm weather has come to stay, they can be given a wider doorway. —Evening Times, Kingston.

The bees are in good order, doing well bringing in pollen. Hope this will be a good season for bees. WM COLEMAN.
Middlesex, Apr. 19, '98

There is good sleighing in Renfrew and surrounding country. I have not yet taken my bees out of the cellar.
Apr. 4, '99. R. MCEWAN.

Putting on Supers---A Question.

Would it be asking too much to let me know when to put on supers for comb honey? I put them on early last year as you recommended to prevent too early swarming. My first swarm came off May 17th. When I took off my first supers the bees had carried up buckwheat honey and my first sections were spoiled for sale. I have some left yet as I could not sell it, and none of us like buckwheat honey.

In the report of the convention you say put on the supers when the bees cluster on the out side of the hive. During the warm weather a week or two ago you could scarcely see the hives for bees. Since the weather has been cooler they seem to be busy working. I used the wedges last summer but was afraid it was too early to put them under the hives yet. Why do bees sting one person in a family more than another? I come in for all the stings.

Hyde Park, London, May 8th.

[In reply we would say that if the bees were hanging out as stated by you and the fruit trees in blossom, I think they should have supers. I do not think it is advisable to put on sections. I would either utilize the hives in which later on I would put the swarms, or, if you are running for extracted honey, put on the extracted supers. This honey could be removed when the light honey comes in.

As to the wedges. At this season of the year I believe I would put on the supers and allow the bees to enter them rather than put on the wedges and allow the bees to cluster underneath the combs.

As to the reason why bees sting one person in a family more than another, the question is one difficult to answer. I think, perhaps, that, as the result of an accident, misunderstanding arises between the bees and the bee-keeper and both are on the aggressive. The bee comes in the vicinity of the bee-keeper without any intention to sting, and the bee-keeper, remembering the past accident, shows fear or makes a nervous movement and the bees think that they are on the defensive and ready to fight. The clothing may make a difference, the person wearing fuzzy and woolen clothing is more likely to be stung. I do not know if the color of the clothing makes any difference, some say the darker clothing is objectionable. Of course some people have hair on the hand to a greater extent than others; where this is the case the hooks on the legs of the bees get caught in the hair and they sting.

The above explanations may not cover the point but possibly they may.--Ed.]

Personal.

Even if one has not met, through the Journal one makes friendships, and when I saw the picture of the Canadian Senate in the Canadian Bee Journal I felt that I saw old friends there, although I knew no one personally. Particularly one or two, and Heise with his humor. Is Heise not a German? JACOB HABERER.

[Yes, Heise is certainly a German. I do not know if he ever waylaid an Irishman and stole his wit or how he acquired it, but we may rest assured he never came by it honestly.—Ed.]

THE TORONTO EXHIBITION.

Stimulated by the grand success of last year's Industrial Fair, the Directors of the Toronto Exhibition are putting forth greater efforts than ever to make the one for the present year eclipse all that have gone before, both as to the extent and variety of exhibits as well as the magnitude and novelty of the special attractions. The Prize List has been published, and copies can be procured by any of our readers by dropping a post card to the Secretary at Toronto. The Fair is to be held from the 28th August to the 9th of September.

From what I can learn there has been a heavy loss of bees through this locality. I think it will run from 25 to 90 %. I wintered 282 colonies in the cellar and 43 on their summer stands. I lost two in the cellar, (starved) and one outside. I never had them winter so perfectly; all the hives are heavy and well filled with bees. It will require great manipulation to convert the buckwheat honey in the combs into young bees. C. W. POST.

P. E. Co., May 3, '99.

My bees are in pretty fair shape considering the severe winter, but there has been a heavy loss by some in the vicinity.

Welland Co. Apr. 15 '99. J. F. DUNN.

I have only lost one colony out of 33. The balance are in good shape.

JOSEPH S. TROTTIER.

Soulanges Co. Que. Apr. 17, '99.

Meeting of the Senate of Canadian Bee-Keepers.

Court House, 1.30 o'clock.

How to Prepare a Hive to Receive the Swarm, for Either Comb or Extracted Honey, was Introduced by Mr. Armstrong.

Mr. Miller. I prepare the hive with foundation; put in a strip from two to four inches; I would put that in in preference to comb, if I had them.

Mr. Gemmill. It depends upon what the bee-keeper wishes to do. If he wants to hive his bees for comb honey, and has the Langstroth frame he should use dummies, but if I was hiving on 8 frames I would put foundation in. If you want bees to work well in sections you want to crowd them from below. If you give them the draw frames down below they will be apt to fill them. You want to get comb honey in some particular form. If I had the combs, I would hive them on combs; if I had foundation I would hive them on sheets of foundation. I would fill the bottom right up of comb.

Mr. Miller. My frames are only equal to four of Mr. Armstrong's.

Mr. Shaver. I have used frame for extract; I use seven sheets of foundation, and one starter. For comb honey I use one drawn comb and seven starters; I mean starters; I do not mean halves or quarters; I want one comb for drones, and the others for workers. I generally put the starters on one side. I am not in favor of the drawn comb for the bottom part. I hive on the old style, shaking the bees off into the new swarm, or nearly so; enough to keep them going.

Mr. Gemmill. Why do you shake the bees off? Why not leave them a few days longer; there is a heavy amount of brood then?

Mr. Shaver. I do not shake them so that the brood will suffer; I leave enough to take care of the brood, but I want the workers in my comb honey.

Mr. Gemmill. Do you set the new hives on the old stands?

Mr. Shaver. There are lots of bees in the hive that have not gathered much; they are not old enough; I shift the day they swarm.

Mr. Gemmill. Instead of shaking the old hive of bees off, I would sooner leave the old hive and shift it around every few days. Every bee that came out that was going to be of service could not get in again. You can leave the hive twenty one days, if you like, and pick it up and carry it away.

Mr. Shaver. The trouble with me was that I found, if it was not nice weather every day—I have had them come off in three or four days.

Mr. Armstrong. I understand you to say you put in one starter, and seven sheets of foundation; you just reverse it for comb honey?

Mr. Shaver. One drawn comb, and the rest starters.

Mr. Gemmill. If this comb was old, would you put the old one in, or a new one?

Mr. Shaver. As a rule, I generally have some combs left from one year to another, to start with. You can pick out one that has had comb honey on the previous year; I do not use very dark ones for that; we generally can keep sorting and keep the light ones for it.

Mr. Roach. If I have workers, as long as I have combs I use them; I do not generally take much comb honey.

Mr. Shaver. Is there any danger of the big ones swarming out on the drawn combs?

Mr. Heise. I practise hiving on full sheets of foundation. Sometimes, when I have a number of nice brood combs, I have hived a swarm, but do not like it, for the reason that they are apt to cast a virgin swarm; I never do that unless I cannot use my brood comb any other way.

Mr. Shaver. You only find that in good swarms?

Mr. Heise. Yes, and in good honey flows.

Mr. Young. I always use full sheets of

foundation for extracting purposes, and when I am going through the brood chambers, if I come across a comb with more drawn comb than I think there should be, I put that in the centre, when I have a new swarm.

Mr. Taylor. Last summer I tried five starters, and had very large swarms, and the next day I found them swarmed out again. I always use the old stands.

Mr. Atkinson. But, supposing they came out?

Mr. Taylor. I would throw them back in again.

Mr. Alpaugh. I have been mostly in the habit of hiving on starters; but I hive on a full set of starters, never using any comb, and just leaving them about a day or so before putting on the surplus; and in that way I get enough to catch the pollen; then you can put on your surplus. That is for comb honey. If it is for extracted honey, I would sooner have a full set of combs than anything else. You can mix up the starters if you choose.

Mr. Atkinson. For comb honey, when you put them on starters, don't they build more or less drone comb?

Mr. Alpaugh. Yes.

Mr. Atkinson. Provided you give them a full comb of drone comb, couldn't that be avoided?

Mr. Alpaugh. I have tried that, but they seem to build a certain amount of drone.

Mr. Young. My foundations come within an inch of the bottom bar, and I notice that in that inch they will fill solid drone comb.

Mr. Holtermann. There is one thing advocated here at different times, and that is, the use of half sheets of foundation. It seems to me that, unless you have some special object in view, as in the production of comb honey, to get the stores up into the super. that the full sheet is the best; we hive sometimes on five full sheets, and put in dummies. It seems to me that the use of the half sheet is a mistake. Either use the full sheet or a very small starter, just as small as you can get in, to handle it nicely. If you use a half sheet, and put your bees on that, they will draw it out at once; the bees continue to build, and the queen, as a rule, does not follow them as quickly, and there is a tendency to more drone comb with half sheet, than if you use a full sheet from the beginning or a small starter. The queen with a starter will follow them better, and that is one reason why a young queen will not have as much drone comb as an old queen. When you use a half sheet you spoil all that. I do not like the idea, which is very prevalent. Use the starter as small as you can get it, as long as they start straight.

Mr. Atkinson. Don't you think it makes a difference, the half sheet or the quarter sheet, if you have plenty in the upper story? With lots of drone comb up there, are you so apt to get drone comb below, where the bees are building? I know this year I used half sheets, and got very little drone comb below; if you have plenty of drone comb above, they are not so apt to build drone comb below.

Mr. Armstrong. Here is my hive, but it is not on the place it is going to stand. As soon as the swarm comes out I get it into the swarming box, and when in there I remove my old hive; I reverse my hive around the other way; I take whatever is on top of the old hive and place it on the new one, and run my swarm in. Does every one here adopt the plan of transferring from one hive to the other?

Mr. Miller. I have hived in that manner a number of years; the only reason I did not mention it is that I supposed it was only the brood chamber for which preparation would be needed.

Mr. Gemmill. For fifteen years I have had them on starters or foundation, and had them transferred from one to the other.

(To be continued)

We had sleighing on Sunday, April 2nd, and drifts higher than the fences.

G. H. NIXON.

Middlesex Co. April 4, '99.

Bees are in good shape and wintered fairly well. I have lost about ten per cent. S. WOOD.

Simcoe Co. May 10th, '99.

My bees wintered well last winter, I lost only four out of sixty-six colonies.

J. C. ELLIOTT.

Lanark Co., May 11th, '99.

Bees came out fairly well and I look for a good season. F. A. GEMMELL.

Perth Co., Ont., May 5th, '99.

Annual Meeting Ontario Bee-Keepers' Association

Held at Guelph Tuesday, Wednesday and Thursday Dec. 6, 7 and 8, 1898

Continued from page 443.

Mr. Holtermann. And that goes to the bottom of the frame. (Laughter.)

Mr. Gemmell. He has a shallow frame, and he uses the starter a little wider.

Mr. Holtermann. Do you put that wide starter on all frames?

Mr. Alpaugh. No.

Mr. Holtermann. I may say, I was not advocating drone traps, because we do not use them in the same way Mr. Hutchison does, and in this country I think they are very rarely used for that purpose.

Judging at Fairs was then discussed at some length.

QUESTION—Which is the Best for Extracting, Thick or Thin Combs, say 1 ⅞" or 1 ⅜"?

Mr. Newton. In my extracting supers I use one comb less than my brood nest, and in that way they are spaced so as to have the combs project out at the side that they are handy for uncapping, but otherwise I don't know as I can answer the question.

Mr. Chrysler. I find a thicker comb extracts much easier than a thin one.

Mr. Post. I prefer comb an inch and three-eights for extracting to one and seven-eights. In my frames the top bar is an inch square, and I like the honey built out slightly past the surface of the frame. There is a great advantage in uncapping; the frame is not in the way. You get more honey in the same number of combs, and it facilitates the work in extracting.

Mr. McEvoy We can go sometimes a little too far in the thickness. I went so far as to make some of them 1¾". I am turning them into wax. I do better with the inch or 1⅜". As to projecting out past, that is right; it is handy to uncap. I wouldn't use the Hoffman frame for extracting, it sticks out, it is in the road.

Mr. Evans—I am with you there.

Mr. Darling—There is just one other point in connection with the difference between thick and thin combs. It has been my experience that the thin combs do not uncap as easily as the thick combs. Outside of the fact that the frame is in the road, it is harder work to take the cappings off the thick combs. Some say they get more honey out of the comb; I don't care whether I get it out of one comb or two. There is another difficulty you have to guard against, and that is, a thick comb will bulge the screen in the extracting basket, and so it might get out of place.

President. The answer to the question would then be in favor of thick comb.

Mr. Armstrong. There are a few here who condemn the Hoffman frame. If you leave them far enough apart it will do away with the projection, the comb will stand out past the projection, will it not?

Member. Yes.

Mr. McEvoy. That is all right, but sometimes it stands out a little past it, and you come to it in a hurry with a knife and that shoulder sticks out there. I would a little sooner that was out of the road.

Mr. E. Dickenson, North Glanford. Don't you get the frames more of the same thickness when you use the Hoffman?

Mr. McEvoy. I use a better hive than the Hoffman altogether, that is a self-spacer without that shoulder. As far as the uniform thickness goes you are correct.

Mr. Hall. The idea is you can uncap seven thick combs in less time than you can uncap seven thin ones, and you can extract them just as quick, and you will get an eighth part more honey from them.

REPORT OF INSPECTOR OF APIARIES.

Mr. Atkinson. You visit a yard where they have foul brood. The man says he will look after it. Do you take his word for it?

Mr. McEvoy I don't wish to dispute any man's word, but I don't take any man's word. If I don't visit them within a reasonable time I come back another day. I neve had

any person get into trouble in eight years; that is, I never had the disease spread only one time. One time I burnt three for a man. He would use the old comb. I told him what he didn't cure I could burn, and I came on him another time and burnt up thirteen. I have generally got around in time so that no person was hurt yet.

Mr. Frith. You are satisfied that the foul brood is decreasing?

Mr. McEvoy. Yes, and I believe if we hadn't an inspector at all people would come to the conclusion that there was none. What I did get I got in a private way. In 1890 there was only three days from May to November I hadn't foul brood.

Mr. Hutchison. You examined how many?

Mr. McEvoy. One hundred and sixty. It was like this, the Province was going to the dogs. It was the first break in.

Mr. Davison. I very much approve of this gentleman receiving the letters in confidence of those who have the disease, and it would be a much better plan if it was known that that was the method adopted.

Mr. Evans. I don't quite understand what Mr. McEvoy referred to when he claimed it wasn't fair to mention a particular apiary here in this convention. I haven't heard any complaint that I can remember. I did mention certain events that occurred not very far from home. I would like to know fair and square whether Mr. McEvoy was referring to me.

Mr. McEvoy. I was.

Mr. Evans. The Toronto Junction case was this. I bought six hives from a man at Toronto Junction, and I wrote to Mr. McEvoy and he said he found them all right. I brought those six hives home and shortly after that Mr. McEvoy called at my place and I found three of them had foul brood. I didn't know I was making any complaint at all to hurt the feelings of Mr. McEvoy, because he is a gentleman I very highly respect, and I am rather surprised that he took offence at the remark I made last year. I think it was a very unfortunate case. This man Vandervoort was rather an expert bee-keeper. He had foul brood and was trying to cure it. However, he didn't succeed, the next year he had it again.

Mr. McEvoy. Why?

Mr. Evans. I don't know why. The only thing I complain of is that when the inspector knows a man has foul brood he should go back until it is cured. Last year there was somewhere about twenty hives in this man's yard, and he went to Winnipeg and left them. These hives were rotted with foul brood, dwindled all down till there was only two or three left last fall, and they were left there to infest the neighborhood. I have no complaint to make, but I think the gentleman should have gone back until he saw the apiary was destroyed.

Mr. McEvoy. I had never seen that apiary. At the Toronto Exhibition I heard he had foul brood. He told me it was cured. I looked at two or three combs and I didn't see a cell. It might be possible he had some later on. But when I went to Mr. Evans' and looked them over carefully, I think there was only one or two out of three. The three were not all diseased, but we concluded to return the whole three. It was the genuine thing, but it was only two or three. I went with Mr. Evans and got the man to take them back. I went to the man's place, and I showed him how to cure it, and he tried. He sent the people their money. I told him I would take the queens myself in my own yard; all I want to know is that they are from a stock that gives a big yield of honey, and that they are young. I don't care how foul, I want them for my own, and I will pay for them. Very well, he went to work, and he straightened the yard out pretty thoroughly, but he left a set of combs and went to Winnipeg. These combs were calculated to be melted, but the people knew nothing about how the bees were managed, and this set of combs was used in a mistake, and it came back again. I called and brought Mr. Evans out there, and we found three, just three, and I burned them up. Now, what more could I do? You surely wouldn't expect I should follow and burn the man up.

Mr. Evans. The point I merely raised before is that Mr. McEvoy can't see all; it isn't possible for one man to examine all the apiaries in the province; and what I say is, if the Inspector knows there is disease in the apiary he should go back year after year.

Mr. McEvoy. I do.

Mr. Evans. These hives remained there all last summer.

Mr. McEvoy. What I took exception to was this particular case. You can't name another such case as this. This was put up to leave the impression that it was in keeping with my whole management, and it isn't. It so happened

with this young man; it may happen one case in a thousand. If Vandervoort had stayed at home there wouldn't have been any trouble.

Mr. Holtermann. I think the discussion in this line has gone, perhaps, about as far as it is profitable. Mr. McEvoy is always a good peacemaker, so I think we ought to step in and do the same for him. I believe, as Mr. Evans does, that no better man can be got to do the work of foul brood inspector. I think there is a little difficulty with the amount of work to be done. I believe the feeling of beekeepers generally is that where work is undertaken, do this work thoroughly and well; and leave that undone until it can be done thoroughly and well, and, by doing so, that we can, with the grant we have, do the more effectual work.

Mr. Evans. I don't think it is necessary to have a peacemaker between us. I have a most unbounded confidence in Mr. McEvoy and I had no thought as to the effect it would have outside. I was only discussing that question on its merits. I think we ought to be very proud of him in Ontario. I believe he is the only man who has discovered how to do away with foul brood. I knew when I came here he had something against me—I can smell it in the air when there is anything wrong; but I have nothing in the world against Mr. EcEvoy.

Mr. McEvoy. I will be plain about it—I had; but I have nothing now, that is the end of it.

Mr. Darling. Is there not a tendency wherever he has gone and shown the proprietors of apiaries how to treat this disease, with these proprietors to help themselves out of the difficulty another time? He is an educator as well as an inspector, and the time may come when we will not need an inspector. The beekeeper may know how to get rid of the disease himself and help his neighbors do the same.

Mr. Armstrong. I would like to ask Mr. McEvoy how he treats the hives with foul brood.

Mr. McEvoy. I don't do anything with them. If it is right to burn the hives, it is right to burn the bees, and if it is right to burn the bees I don't know but what it is right to burn the Inspector.

Mr. Holtermann. The bees can clean themselves, but the hives cannot clean themselves.

Mr. McEvoy. That is not the important question. This gentleman asked me what I did with the hive. I don't do anything with the hive; I go further than that. I have saved, in one case, $200 worth of comb in the State of Vermont, and I will tell you how. If you have, say, 40 or 50 nice, clean combs, but they have been in most foul hives, I extract the honey and give it to the bees to lick it dry. Those combs can be used anywhere in the world. There is a mark of foul brood, and just as long as that comb lasts it will stay there.

Mr. Dickenson. What will be the mark?

Mr. McEvoy, The foul matter. A good many are careless—maybe hasn't queen-excluders enough—and the queen has got above. If we go in for boiling hives you see to what an extent it would have to go.

Mr. Frith. How are you going to detect whether the honey is diseased or not?

Mr. McEvoy. What is stored in the stain-marked cells.

Mr. Holtermann. We know that during the spring of the year the honey is stored in the brood chamber, and it may be stain-marked. Now then, we put on the extracting super, and we know the bees will then carry honey into the upper stories. Suppose they carry it from a stain-marked cell into an upper storey, and you give that to another colony?

Mr. McEvoy. I said stored there or moved from other cells would disease that also. It is the same thing. The hives don't need it. You can boil them and scald them all you like, but I look on it as folly. But all bright, clean, new combs that are dry (recollect, I don't care how foul the hives are), if I can save you $50 or $100 worth of them I will do it. But if you have not been using queen excluders, and you have only two stain-marked cells, those have got to go. To those who have dead brood in your hive, what are you doing with dead brood anyway? Make wax of them; take no chances.

Mr. Dickenson. How do you clean it up?

Mr. McEvoy. I wash that out. I asked Mr. Gemmell here once to take some foul comb and crush it against the side of the hive and let it stand for a few weeks. I think he was busy. He didn't do it and I tried it this summer on four in my own yard and nobody gets any more of it. I have piles of it like that but it didn't show up and if it did I could treat it.

Mr. Frith. Is there not a possibility of this bacteria getting into its proper medium in the future yet?

Mr. McEvoy. We both have had bitter experience. I had twenty three years ago. I had it in fifty out of sixty.

Mr. Sparling. Did you leave those

hives out in the air and sun?

Mr. McEvoy. Yes, they were out for a week. I didn't believe that hive could give it, and I thought I would give it a pretty severe test.

Mr. Frith. I wouldn't like to take chances in trying it in my yard.

Mr. McEvory. I did, in the honey flow.

Mr. Holtermann. I would just like to say this, that it appears to me that as far as disinfecting the hive is concerned, it can be done with so little trouble that we should use that precaution and disinfect it. At the present time science and practical experience do not agree. Mr. F. C. Harrison, B.S.A., the bacteriologist at the Ontario Agricultural College, has been from a bacteriological standpoint studying this question of foul brood for some years. I know he has found the germ of the disease in the egg. I will candidly confess there are things about foul brood I do not understand. I speak rather from the practical standpoint than the scientific; but I believe this Association should not rest satisfied until we can reconcile science with practical experience. Is it not possible that when we attribute a disease to carelessness it may be transmitted in some of the channels we do not understand at the present moment?

Mr. McEvoy. When the very scientists stand as far apart as the poles, what then?

Mr. Holtermann. That doesn't make both wrong or both right.

Mr. Boomer. How long should honey taken from a foul brood hive be boiled before it is fit to feed to bees?

Mr. McEvoy. I never recommend it at all from the first summer, because I couldn't trust the people. I have never had any trouble when they put half water with it and bring it to a sharp, bubbling boil.

Moved by Mr. Holtermann, seconded by Mr. Post, that the report of Inspector of Apiaries be adopted. Carried.

Dr. James Mills, President of the Ontario Agricultural College, was now introduced, and after welcoming the Association to the City, invited the members to attend any of the meetings of the Experimental Union now going on at the College, and particularly the open meeting to be held this evening.

Moved by Mr. Smith, seconded by Mr. Brown, that we accept the kind invitation of Dr. Mills and attend the meeting at the College this evening. Carried.

Mr. Evans. At the last session of the Association Mr. Hall and myself were appointed a Committee with regard to the San Jose scale. I communicated with Mr. Orr, and told him that if necessary we would attend at any time or place to help with the passage of the Bill, but I found it was unnecessary, that the Bill was going through without any opposition practically, and Mr. Orr didn't think it necessary for us to attend, so we didn't meet or attend the House, and consequently didn't incur any expense whatever.

Moved by Mr. Newton, seconded by Mr. Longford, that the report of this Committee be received with thanks, and that they be discharged from further duty. Carried.

HONEY FOR THE MARKET.

(Paper read by R. F. Holtermann, Brantford. See January C. B. J., page 444.)

Mr. Gemmell. There is only one point I would like to touch on now, and that is with regard to the quantity of comb and quantity of extracted honey. I think Mr. Holtermann says there is 70% of comb to 100% of extracted honey. Some years that may be right, and some years wrong. I would like to hear the experience of some of those who have been a little more in that line.

Mr. Holtermann. In the paper I say that no one says that you can produce more than 70 pounds to 100 of extracted, and of course giving the benefit of the argument in that direction, granting that you can get 70 pounds of comb, that puts it in the most favorable light for comparing comb and extracted. But even if you can get 70 pounds of comb to 100 of extracted it shows that there isn't the profit in comb honey there is in extracted.

Mr. Darling. I don't think he places the price low enough. In a town a little bit north of where I come from first-class comb honey is sold for 5 cents.

Mr. Davidson. I think there is even more difference than he says in the amount of comb honey to extracted.

Mr. Holtermann. Your idea is that there is less profit in the production of comb honey than I have stated?

Mr. Davison. Yes.

Mr. A. E. Hoshall, Beamsville. Do I understand that is by weight or by section?

Mr. Holtermann. I am figuring by weight. My idea is to discourage every beginner who thinks he wants to go into comb honey.

By F. A. Gemmell, Stratford.

I might say that I really have no paper—

that is, no paper prepared. I hadn't the time. I had written a little synopsis of the method I have been using for getting wax, for THE CANADIAN BEE JOURNAL last spring, and I was in hopes I would receive a copy of it here before I started to speak about the matter. In regard to the rendering of wax, I have nothing to offer. Anything I have is a combination of what others have been carrying out for some years past. Several years ago I had quite a number of combs to melt, and I made up my mind that all the wax had not been secured out of the rendering of combs by any process I then knew. I had been practicing the plan generally followed by most people: that is, crushing the old combs in cold water, and allowing them to remain for 24 or 48 hours, in order that the cocoons and pollen contained in them would be saturated with the cold water, and not so apt to pick up any of the wax when the combs were put into hot water. So that bruising the combs as I have told you, they were placed in an ordinary gunny sack, and placed in a boiler of hot water, and sunk to the bottom of it by placing a framework on top; underneath there was a framework also. After boiling for a certain time the wax would rise to the top, and it was skimmed off, and I have thought that I didn't get all the wax by that process I should get, because I always found some refuse in the combs remain. So, having a few more combs to melt a year or two ago, I thought I would try some other process. I found that the Solar Wax Extractor was no use for old combs, for the simple reason that as soon as the wax melted, the cocoons would saturate a certain amount of the wax, as well as the pollen. That refuse was put to one side and kept for experiment later on. Then I tried the experiment of using a steam wax extractor. I had spoken to Mr. Hall about it, and he had used the same extractor, that is one such as you will find illustrated in the A. B. C. Book, and in fact it was once called the Jones Steam Extractor. Mr. Hall thought he could get all of the wax out of the combs he considered worth taking out. I wasn't quite sure of that and I got one of the steam extractors made and tried it. I wasn't satisfied with it, so I resolved I would bring some pressure to bear. I tried the three different ways. I first got the press made It is a simple thing. First of all there is just a wooden frame and two iron uprights and across the top of the apparatus is a wooden bar and an ordinary jackscrew put in at the top, so that by turning this screw the screw would go down and bring pressure to bear on whatever was under it. We had to have an ordinary scouring tin pan about 14 inches square and 4 inches deep, and there was a lid to it that was set down on the wooden platform. On top of that was set a wooden mat. This mat was made of slats, such as you have seen in these ordinary window blinds. The slats were $\frac{1}{2}$ of an inch high and about $\frac{1}{4}$ of an inch wide and a quarter of an inch apart. This mat set right down on the bottom of this tin pan. On top of the mat we used a frame that was made of $\frac{1}{4}$ inch stuff and just set inside of this tin tray. After that was put on top of the wooden mat, a piece of gunny sacking was spread over all, and a quantity of combs that had been melted on the stove was poured in on the gunny sacking, not in a bag but just a plain piece of sacking. Then the gunny sacking was folded on top again and tucked along the edges of the wooden frame. There was a follower of two inch plank having a piece of iron on top. There was another small mat laid on top of the gunny sacking similar to the one underneath, and then this wooden follower, this two inch plank, was laid on top of that again. Then pressure was brought to bear, and as we pressed we found we could force both wax and water out of the sack into the tin pan underneath. But of course we didn't get all the wax out that way. We still pressed and found we could get nearly every particle forced down in between these spaces in the wooden mat and the mat up above After it was kept there 15 or 20 minutes we would sometimes pour cold water in to get it cooled quicker. After that we would take the screw out and lift off the follower and take out our top mat and we would find this wax seemed to be forced through into this place. Sometimes the wax was a little colored with pollen, and underneath we would find the same thing, and we would roll the mat up and scrape long strips of wax out from the mats. We found by trying that process we could get a great deal more wax. I want to say we would get about an average of one third more wax from the comb melted in the Solar Extractor or from the combs melted by the steam extractor, but we wouldn't get as much from the combs that were boiled in the water. It seems to me that in using the steam extractor that for a time the wax would come out very freely, but as it got near the bottom the cocoons and the

pollen seemed to prevent all the wax coming out. There would be more wax come out then if you boiled it. It seemed when the wax was boiled, that the wax being so much lighter than the water would come to the top more freely, and there seemed to be less contained in it, so that I didn't really lose as much by the old process as I thought. We found that we could by the boiling and using the press afterwards get about three pounds of wax out of eight combs, that is old combs that were maybe five or six years of age. That is a great deal more, I think, from what I can learn; it was thought that about as much wax as would fill the hive with foundation above what had been got by any other process.

Mr. Chrysler. These tests you have been making have they been on old refuse or have they been from old combs?

Mr. Gemmell. Old combs. I took no refuse that had been boiled, but one or two parties that had refuse that had been through the steam wax extractor seemed quite satisfied they had gotten all the wax out. Mr. Hall was one. He said he got very fine wax, and believed he got mostly all the wax out of the combs. He asked me how I had gone about it, and he said I differed very little from him, as he melted the combs in a pan of water on the stove before he put them in the steam wax extractor at all. Mr. Newton followed the same process. After I had concluded my experiments I asked Mr. Newton if he would give me a little of his refuse to see what I could do with it. I got 20 pounds, and we put it on the stove and heated it, and poured it into the press, and got out of it 7 pounds two ounces of wax. My boy went down there to learn to make comb foundation, and he took this press of mine down there to convince Mr. Hall that there was something in it, and Mr. Hall said he was crazier to find out about that press than to make the foundation.

Mr. Dickenson. Did I understand you to say you could get 3 pounds of beeswax out of eight frames?

Mr. Gemmell. Eight combs.

Mr. Dickenson. Would these combs be made from starters?

Mr. Gemmell. Full sheets of foundation. You might not get that from all, but out of 96 combs there was an average of 3 pounds per hive of wax.

Mr. Hutchinson. Before you put this refuse in the press is it run through the steam extractor or boiled?

Mr. Gemmell. Steam extractor. I tried the ordinary way of boiling it, and I got less wax than out of the other.

Mr. Edmundson. Do you think it is necessary in your process to break your combs and soak them in cold water for 24 hours?

Mr. Gemmell. It is not necessary if you use the press. I wanted to find out how much wax I had been losing by the old plan. If you melt the combs and put them through the press what you don't get by the steam extractor you get by the press.

Mr. Hall. I simply get up to state a fact. I told Mr. Gemmell that I thought he could not get any wax out of my refuse. We put it in a Jones Extractor and stirred it until we thought we got the wax out. We tipped it out, and he was so sanguine I hadn't got it out, and I was pretty positive I had, that he wanted me to send up some refuse to see how much he could get out. I thought he was too sanguine to be trusted in the transaction, and I said, "No, you send the press down to me, and if I like it I will get one too." As he says, his boy came down with the machine, and we tested it, and we got a lot of very nice wax out of that stuff that had been laying around for four or five months on the ground. We then tested some from the comb, and we got very nearly a third more after we took out all we could by the boiling process. We got one-third more wax than what we got out in the common way. I sent the wax extractor home, and we sent down to the wagon shop and got the iron made and the cross-pieces and the follower, and it laid aside until last week, when I commenced to build it up. It will be done when I go home ready for operation. In the past I didn't like to melt our old combs because we got so little wax for so much trouble, that I let them be. I have only one improvement to Mr. Gemmell's. His sets on the floor or box, and if you pull it to one side it slips. I put four iron pieces on to that to screw it to the floor, that is the only improvement I have made, and all I think is necessary. It will cost you $1.60, besides your labor to make it.

Mr. Gemmell. Mine cost about $2.00.

Mr. Smith. I would just like to ask Mr. Gemmell—I understood he got three pounds of wax from eight frames?

Mr. Gemmell. Yes.

Mr. Smith. How much wax would be in the foundation?

Mr. Gemmell. About a pound and a half.

Mr. Holtermann. Wouldn't you be

inclined to think it was fairly heavy foundation to begin with?

Mr. Gemmell. It might, I wouldn't like to say. That is what we got. We didn't take one hive, we took 96 combs, that was 8½, and that was the result. We kept count of the wax we boiled out and the amount we pressed out.

Mr. Hall. It is very soft wax.

Mr. Smith. I didn't think there would be so much added. There must be more or less absorbed in the cocoons.

Mr. Gemmell. This pressure seems to press everything out through the gunny sacking.

Mr. Newton. I am glad Mr. Gemmell has brought out the point he has. I think it was too years ago we had a long discussion on the same line, and it didn't seem as though we could get much light on the subject. I have done a good bit of melting of old combs, and I thought I could get a pretty good percentage though I never was certain I got it all, because it makes too good kindling to light the fire to think we got it all. After Mr. Gemmell was up to see me the refuse was out in the garden, and he asked if I would give it to him. He sent for it, and the return he told me was seven pounds two ounces out of the 21 pounds of refuse. In making up some of Mr. Gemmell's wax this year into foundation, I might say, it was nice wax that was out by that process, and although a little bit soft it worked very nice. I am sure as bee-keepers we have to thank Mr. Gemmell for what he has brought before us, although probably not new in a way, yet it is new to the bee-keepers of the Ontario Bee-Keepers Association.

(To be continued.)

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