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WHOLE No
483

Annual Meeting

Twenty-First Annual Meeting Bee-Keepers' Asso., Ontario.

HELD AT
NIAGARA FALLS,
DEC. 4, 5, 6, 1900.

Experiments in Wintering Bees.

JOHN FIXTER, EXPERIMENTAL
FARM, OTTAWA, ONT.

The following eight experiments in connection with wintering bees have been made at the Experimental Farm. Four in the cellar, one in a dug in a hill-side, one in a root-house, one in the house apiary, also inside. The cellar is below a private house, the walls are of stone and the floors cement. The bee-room is five feet wide by fifteen long and ten feet high. This allows three tiers of shelves and two passages. It is boarded off from the remainder of the cellar by a partition, which runs all around the chamber, and is cut through from the stone wall to the floor of a small air space. Under the cement floor a layer of small stones, twelve inches thick, act as a drainage and keep the cellar perfectly dry. There is also a tile drain run through the wall on the lower side. Any water near by will readily run away to this drain. The first tier is eighteen inches from the floor, the second twenty inches in the

tier above and the third twenty inches above that. Neither the hives on the third shelf, nor the uprights supporting the shelves, nor any part of the partitions touch the ceiling, so that no vibration can disturb the bees from the upper part of the house. The bee chamber is thoroughly ventilated, as is also the whole cellar. There is a three inch pipe passing through the bee chamber up to a stovepipe provided with a damper with which to regulate the draft. There is also a six inch pipe passing through the floor to a chimney which ventilates the balance of the cellar. Before entering the bee-room there is a small room with a door leading outside, and another leading to the bee room. Both rooms are provided with sliding ventilators in the doors so that outside air may be let in at will; ventilation is carefully attended to and sudden draughts or changes of temperature are avoided. For this a thermometer, which is always kept in the cellar, is watched. The best temperature for the bee cellar has been found to be from forty-two to forty-eight degrees F. This arrangement has given entire satisfaction. In former years there was not proper ventilation and the cellar was always damp. Since the concrete floor has been laid and the ventilators put in, the cellar has been much dryer and cleaner. It is also rat and mouse proof, which is a great advantage.

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The difference in the consumption of honey by the bees is marked since the cellar was improved. The coal stove which was formerly in a smaller room to keep a uniform temperature and to keep the cellar dry, has been abandoned, as the cellar and hives can be managed so as not to require it. I would not recommend anyone to use artificial heat.

Experiment No. 1.—Eight colonies in eight frame "Langstroth" hives were put into winter quarters in the cellar and placed on the shelves. Under the back end of each hive was placed a three inch block, by which means the back of each hive was raised so as to ensure free ventilation. Each hive was besides raised from its own bottom board by a small $\frac{3}{8}$ of an inch block placed at the back. All front entrances were left wide open, the wooden covers all removed and replaced with cushions made of chaff four inches thick, and wide and long enough to lap over the hive two inches. Temperature of the cellar was taken once a week all through the winter.

November	Temp.	46 to 47 deg.
December	"	47 to 48 "
January	"	44 to 46 "
February	"	46 to 50 "
March	"	48 Steady.

The bees were quiet, only a very slight hum being noticeable up to February, when the temperature having risen to 50, the bees began to get uneasy and make considerable hum. Cold air was carefully let in during the night by opening the slides in the doors and closing them in the morning; this lowered the temperature and the bees quieted down.

During the past winter every colony in this experiment was perfectly dry and clean and all came out in excellent condition. Average honey consumed, or loss in weight for the past

six years, eleven pounds one-half ounce.

Experiment No. 2—Two colonies were put into the cellar on November 12th with tops and bottoms of the hives left on, just as they were brought in from the bee-yard. They were watched for dampness and to compare the amount of honey consumed. Temperature of cellar the same as No. 1. During December and January both hives made considerable hum. December 27th drops of water were noticed all along the entrance of both hives. This same trouble continued until March. On March 30th both hives were removed to their summer stands; one had spots of faeces on the entrance, both hives were damp, and the combs were slightly mouldy but there were very few dead bees in the hives. Average loss in weight for the past six years has been thirteen pounds one and one-quarter ounces.

Experiment No. 3—Wintering in a root-house. The hives were placed on a shelf nailed up against the wall about three feet from the ceiling and projected two feet. A curtain was hung from the wall over the top and down in front of the hives so as to keep out all light. The wooden covers were removed and replaced with a chaff cushion; a strip of wood 2x2 inches was placed all along both sides between the brood chamber and the bottom board so as to give ventilation at the bottom; both back and front were left wide open. In former years the hives kept in the root-house did not appear to have ventilation enough. This extra space has proved very satisfactory. Temperature was taken every day of each week.

November, highest temp. 38 deg. lowest 36 deg., both hives quite dry but very noisy.

December, highest temp. 42 deg.

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Mice had found their way into both hives and disturbed the bees. Some strips of tin put around prevented their getting in again.

January, highest temp. 41 deg., lowest 39.

February, highest temp. 39 deg., lowest 38.

At the end of February both hives had got perfectly dry and fairly quiet.

March, highest temp. 40 deg., lowest 36.

During March both colonies had got very noisy and showed signs of dysentery, dampness and mould, but were strong in numbers, considering the amount of disturbance the bees were subjected to in this experiment. I would consider that they came out well. Once or twice each week the large doors of the root-house were thrown wide open to allow the teams to draw the roots out, and this let in much cold air which came in suddenly upon the hives; also, the teams drawing over the floor jarred them very much. The amount of honey consumed on an average for the past four years was fourteen pounds three ounces each

Experiment No. 4—Wintering in a pit dug in a dry hill-side. The pit was three feet deep, three feet wide and ten feet long, in such a way that the ventilators at both ends might not be immediately above the hives which were in the middle of the pit. The hives rested on two cedar poles laid along the full length of the pit. The ventilators, which were three by four inches, were made of boards, three of which reached down to the bottom of the pit, the fourth to the top of the pit, and the ventilators rose three feet above the ground. Wooden covers removed and replaced by chaff cushion. In each hive 2x2 inch strips of wood were laid on the both sides and under

the back end and between the brood chamber and the bottom board, so as to provide more space for freer ventilation at the bottom of the hive.

The pit was covered with cedar poles laid along to length, the middle ones higher than the others, and these covered with a layer of straw and one foot of earth. A small shaft was so arranged between the hives from which a thermometer could be lowered by means of a string, so that the temperature of the pit could be ascertained. The temperature was taken each week. From November to March the temperature did not go below 38 nor above 39. On the 26th of March the pit was opened, both colonies came out good and strong, but the combs were badly moulded. Average weight consumed during the past four years was eleven pounds four and one-quarter ounces. Great care should be taken to guard against water reaching the pit.

Experiment No. 5—Wintering in a house apiary. The house apiary faces the south, the walls are double boarded and with an air space of four inches. The floor which is about one foot from the ground is also double boarded, and there is no draft under it. The hives were removed one foot from the wall and placed on a double thickness of sacks laid on the floor. The wooden covers were removed and replaced by chaff cushions. In addition to this the hives were covered above and all around with a double thickness of sacking, also one foot of cut straw a foot below and all around. A small shaft $1\frac{1}{2}$ in. square extended from the opening of each hive to the outside of the building. Two inch strips of wood were placed at both sides and under the back, between the bottom board and brood chamber so as to give more space to the hive in case a quantity of dead bees should

accumulate. No fly took place from the 12th of November until the 7th of March when several bees flew out. From March 8th to 26th they flew nine days, but were very weak. Another examination was made April 21st but both colonies had deserted. The combs were quite dry and clean and there was plenty of sealed honey in the hives. An average amount of honey consumed during the past five years, fifteen pounds fifteen ounces.

Experiment No. 6—Two colonies were put into the cellar with bottoms of the hives left on, just as they were brought in from the bee yard. The wooden covers were removed and nothing left on except a tightly sealed propolis quilt. The entrance was left wide open. During the entire winter the bees kept perfectly dry and a very slight hum could be heard. Both hives came out in excellent condition. Average amount of honey consumed during the past four years eleven pounds seven and one-half ounces.

Experiment No. 7—Two colonies were placed in the cellar and placed on the shelves, a three inch block being placed between the bottom board and brood chamber, only in front, making the full entrance three inches high across the whole front. The wooden covers were removed, and replaced with a chaff cushion. Temperature the same as No. 1. During the whole winter both colonies in this experiment were perfectly dry and clean, and showed no uneasiness of any kind and came out in the spring in excellent condition. Average amount of honey consumed during the past four years, ten pound eight and three-quarter ounces.

Experiment No. 8—Wintering on summer stands. Two colonies were left on their summer stands with extra packing around the back and top. A box one foot larger each way

was placed over the hive and filled with cut straw. The wooden cover was removed and replaced with a chaff cushion. A small shaft $1\frac{1}{2}$ in. square extended from the opening of each hive to the outside of the box. No flying took place from the 12th of November until the 7th of March when a slight hum was perceptible and a few bees made their appearance.

On the 15th of April the hives were taken out of the packing case and found to be deserted. Many dead bees lay at the back end of each hive; the frames were all dry and clean and had abundance of sealed stores. Average loss of weight, including honey and bees, during the past six years, nineteen pounds one and one-half ounces. Only three seasons out of the six the bees came out in good condition. From experience gained I would recommend wintering in the cellar in any section where the temperature goes fifteen below zero. Average loss in weight of honey and bees:

No. 1—11 lbs. $\frac{1}{2}$ oz. Wintered in cellar.

No. 2—13 lbs. $1\frac{1}{4}$ oz. Wintered in cellar.

No. 3—14 lbs. 3 oz. Wintered in root house.

No. 4—11 lbs. $4\frac{1}{2}$ oz. Wintered in pit.

No. 5—15 lbs. 15 oz. Wintered in house apiary.

No. 6—11 lbs. $7\frac{1}{2}$ oz. Wintered in cellar.

No. 7—10 lbs. $8\frac{3}{4}$ oz. Wintered in cellar.

No. 8—19 lbs. $1\frac{1}{2}$ oz. Wintered on summer stands.

Mr. Darling.—As to experiment No. 6, where did you winter your hives?

Mr. Fixter—In the same cellar as No. 1.

Mr. Post—Referring to experiment No. 7, what distance were these from

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the cellar bottom?

Mr. Fixter—I generally carry on my experiments on the second shelf. The first is eighteen inches and the second twenty above that ; that would be thirty-eight inches from the floor.

I thank you very much for your hearing and if there are any questions to be asked I will be pleased to answer them.

The President—I am sure as an Association we are very thankful to Mr. Fixter for the experiments which he has presented to us this morning. I know it would bring out a long discussion if we should dwell on every point, but time will not permit of that at this hour of the meeting, and so I hope that the members will be as brief as possible, so we can proceed with the next item of our programme.

Mr. Darling—Before the matter is discussed I would like to suggest that there is one other experiment that might have been tried if Mr. Fixter had had the time ; that is, to either leave the top board on or leave a propolized sheet under the cushion and raise it up at the bottom and note whether there would be any difference. By taking the cushion off and putting the board on you allow the moisture to get away.

Mr. Fixter :—I have tried that but didn't keep track of the amount consumed.

Mr. Darling—What about the condition of the colony ?

Mr. Fixter—It comes out very good. What I tried it for was to see how much heat there was between the cushion and the hive.

Mr. Darling—I fail to find any particular difference in the honey.

Mr. Smith—I think you said in the last experiment that it was single checked.

Mr. Fixter—Yes.

Mr. Smith—And that the consump-

tion of stores was very much greater than in the other experiments. Have you ever tried them packed in four so that they have the benefit of heat from one another.

Mr. Fixter—No.

Mr. Smith—We have never conducted any experiments, but I think you would not lose so much with four.

Mr. Fixter—In changeable weather I think it is harder on the bees. They must consume more honey in order to keep up the heat. I have come to the conclusion that it does not pay any person to winter outside where the temperature will go down to ten below zero. So far as packing is concerned, one can carry ten hives into the cellar in the time it would take him to pack one. The great fault had been that we have been leaving our bees in the cellar too long in the spring. Get them out. We are trying them every year a little earlier—about a week earlier. Last year I set out those in the out apiary, those in the closed apiary and those in the house apiary, and in the out apiary we had from a foot to a foot and a half of snow to clear away before we could set the hives down on the ground. I covered them over to protect them to a certain extent ; I find that as soon as we take them out they start breeding and by the time the honey flow comes on they are in excellent condition.

Mr. Smith—Of course that is all very nice where you have the bees at home, but when you have out apiaries cellars are not always convenient. We have to use the next best thing. You will find if they are packed in fours that at any time during the winter you put your hand down in the centre of those four there is quite a warmth and the bees cluster to that side and they do not consume nearly so much stores.

Mr. Fixter—Taking all things into

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consideration I think it would pay well to build a cellar.

Mr. Hall—I want to suggest to Mr. Fixter that in answering Mr. Smith he has just given us the reason why those outside consume more honey. As soon as you get your bees out in the spring they begin to brood. I once put out twenty stocks in Heddin hives on the 1st March, temperature went down to below zero, and I said to myself, "You ought to be kicked." Allow me to tell you that those twenty hives, with one exception, when the honey flow came, were about two weeks ahead of all the rest put together.

Mr. Post—As these experiments were all conducted about forty inches from the cellar bottom floor it would have been very interesting to have had two hives prepared, one quite close to the bottom of the cellar and another one higher up. There are not many of us who have the room to put our hives forty inches from the cellar bottom. I have to begin close to the floor. I commence by putting a cushion under the first one. There is a trouble with bees becoming mouldy at the bottom and the reason of that is that if there is any current of air the cold air will circulate near the floor of the cellar and striking the bottom of the hive it condenses the warm air in the hive and causes moisture. If the bottom of the hive has a cushion put underneath and the hive is set close to the floor I cannot see any difference between the top tier and the bottom.

Mr. Holmes: I would like to ask Mr. Fixter with reference to the loss of bees in the first flight, in the experiment where he had to remove the snow.

Mr. Fixter: You will have to watch the day that you set them out. If you can get a day when the temperature runs about 48 or 50 and

calm there is very little loss, but if you happen to get caught and put them out and the wind comes up cool, then you will find quite a few dead bees on the snow. But I would take my chances and set them out.

Mr. Evans: I would like to suggest an experiment. Instead of putting a block under the hive just simply pull the hive back so that there will be a space of about two inches behind the bottom board. That is my system.

Mr. Hall: Mr. Evans is all right with this exception that if you put a couple of hundred stocks in the cellar you are sure to have a larger or smaller quantity of bees die. The live ones are lazy sometimes, and they don't carry the dead ones out of the hive; they let them lie on the bottom board, and there they accumulate and touch the combs and the combs become mouldy. If you raise them up that doesn't happen.

Mr. Miller: I find an excellent way to avoid this trouble if a man is lazy, is to leave the bottom board in the yard; lift your hive directly from the bottom board and carry it to your cellar. The idea of bees escaping is erroneous. I have found it very satisfactory both in carrying in in the fall and in placing out in the spring.

Mr. Hall: If Mr. Miller had a cushion in front he couldn't carry very many out except with a hand barrow (Laughter.)

Mr. Miller: I carry them on my shoulder.

Mr. Heise: The only experiment that I am particularly interested in is where they were wintered outside. Mr. Fixter told us that the consumption of honey was somewhere in the neighborhood of six pounds greater than of those wintered in the cellar. Mr. Hall said those wintered outside commenced brooding earlier than

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those in the cellar. What is the difference, if any, and is it not in favor of the colony wintering outside notwithstanding the consumption of honey? When the honey flow commences are they not in a better condition to take advantage of it?

Mr. Pettit: In wintering outside with ventilation from the entrance are you successful in keeping the dead bees cleared away?

Mr. Fixter: Yes. I have a long wire and I do it as carefully as possible so as not to make the least sound.

Mr. Sibbald: I have wintered both in and out and I find, like Mr. Fixter, that it takes a good deal more stores to winter outside. Mr. Hall's idea may be all right but I always fancy that the occasional flights they get through the winter which are really unnecessary—because they will winter all right in the cellar without any flights—causes a consumption of stores and a wearing out of the vitality of the bees, and in consequence that they have got to start to breed to have a new generation to take the place of those that are dying off perhaps a month earlier than the ones that are placed in the cellar. That early brood of bees only takes the place of those that are worn out and there is no gain, and they have got to consume just as much honey to raise other bees in the spring. As far as being ready for the honey crop concerned, those wintered in the cellar always seem to me to have the bees ready for the harvest at the right time, whereas those outside were often very numerous a week or two before the clover came in when we hadn't anything for them really to do and hadn't hardly enough honey to keep them. I don't know whether I am right or not; Mr. Hall has had a great deal more experience than I have had and I always dislike to state

anything that conflicts with him because he is an authority.

Mr. Hall: We winter both ways, two lots in the cellar and one outside. I prefer them to the cellar because it is the easiest way.

Mr. Sibbald: I always weigh my hives before I pack them, and either have them up to a certain weight or feed them up, and often when the spring comes I find some of those wintered outside short of stores while those in my cellar have abundance right through, and I have had to take combs from the home yard cellar for the colonies in my out-yards, and so I can not come to any other conclusion than that they use far more stores outside than in. As far as the condition is concerned I could not say there was very much difference. I am very much in favor of cellar wintering if you have a cellar. If you have out apiaries and can't get a cellar there is no other way I know of except pack them up. As far as blocking up goes, I have tried blocking up in front like Mr. Hall and Mr. Fixter and I noticed a little moisture at the back end of the hive with that system. One winter the mice got in at the front and did a little damage; but with the system of blocking them up $\frac{3}{4}$ of an inch behind, you are safe from mice; they cannot get in; but in apiaries where you cannot watch them very closely, mice getting in does a great deal of harm.

Mr. McEvoy: There is a young man here and I do not think he has spoken at any session and I would like to hear from him. It is Mr. Nolan.

Mr. Nolan: Mr. President, I don't know that I have very much to say that would interest you in regard to wintering. We have always wintered outside and have had no experience of wintering in the cellar. We use chaff, sawdust, in fact all kinds of

packing but I cannot see any marked difference in favor of any one of the different kinds. We did at one time think we preferred chaff, but whether there were any better results I could not say.

I think Mr. Smith referred to packing more than one colony in a case. In our experience packing more than one has nothing of advantage. We find they winter better with us in single cases. When there are more than one, and one of them becomes uneasy from any cause, you will usually find that the colony on each side will be attracted by that uneasiness and will be effected, whereas, if they are packed in single cases an uneasy colony will not effect any of the others.

Mr. Smith: I have never found any trouble in that way. If one colony didn't winter as well as we liked it didn't make any difference the next time. We simply pack them in the same shape as they are in the summer; they are set in fours, two facing east and two facing west and the cases are so made that they can be taken apart and piled away for the summer; each case holds four hives. It doesn't take many minutes to pack them and we find they winter in that way as well as any other way we have ever tried. We used to have long cases when we lived in Muskoka.

Mr. McEvoy: I have tried both ways and I have found everything in favor of the single cases. The trouble I believe, when they are put together is, that if it comes a warm spell in January they become a little over-heated and break the cluster, and some young queens begin to breed. They seem to winter better in the single cases and not to start brooding so early in the spring as they do when bunched together.

Mr. Shaver: Do you notice the bees from the hives on one side of

your cases go around to those on the other side on a nice day, Mr. Smith?

Mr. Smith: No. We narrow up the entrance. We have an entrance of about five inches by three-eighths and we narrow that up still more with a piece of cardboard. We leave an entrance on the windward side of about an inch. If the colony wants more room they make the entrance to suit themselves.

Mr. Darling: There was a question asked Mr. Fixter a little while ago and while I have not made or tried any experiments I have had a little experience, and I suppose, although one or two experiments would not establish a theory, it might suggest one. The question was about the loss of bees by snow in case there was plenty of snow upon the ground. I am one of these fellows that sometimes does things that I would not do if I could see a little way ahead. A year ago last spring I carried out quite a number of colonies on the 11th of March and the balance I put out on the 26th. It was rather a fine spring, and for some time I thought those taken out on the 11th were going to outstrip the others, but I found when it came to the honey flow that those were the poorest we had. With regard to the bees flying out I think I would throw a little of that snow in front of the hives. Sometimes I have put out bees a little late in the evening and I remember once in particular I set some out at night for I was sure the next day was going to be fine, but I think it was three days before it was fit for them to fly.

Mr. Post: That exactly agrees with my experience. I have a great many bees and I am not very particular to tell whether it is really fine for them to fly or not. I would rather have it so that they could fly well or else not at all. If they can't fly at

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In Favor of the Union and Mr. G. A Deadman.

At the Niagara Falls convention I mentioned the bee case of Mr. Deadman, of Brussels, to show the benefit of the Bee-keepers' Union, and spoke about a lawyer starting a case in court to move Mr. Deadman's bees, and of Mr. Deadman getting two men to help him move part of his bees as he had too many in one place. I also stated that as soon as the lawyer found out that Mr. Deadman belonged to the Union that he wanted to drop the case on the excuse that the nuisance was partly gotten rid of, and that if Mr. Deadman had been satisfied with this it would have left him to foot the bill. I also said that Mr. Deadman instructed his lawyer to fight it out and the result was, Mr. Deadman won the case. I believe that every bee-keeper in the convention understood me as giving Mr. Deadman credit for his pluck in making it cost that lawyer something for his ugliness.

In the Canadian Bee Journal for Feb. 1901, I read Mr. Deadman's reply to what I was reported to have said at the convention. I at once opened the Jan. number of the C.B.J. and read and re-read what I was supposed to have said. I could see that through not being quite understood it appeared a little different in print.

Mr. Sparling was very unfairly put to considerable trouble and expense by some raspberry grower trying to make out that Mr. Sparling's bees destroyed his raspberries. I have four acres of raspberries only a few rods from my apiary; we keep the berries picked up close so that they will be in good order for shipping,

and we don't have any bother with the bees. It is the over-ripe, soft and spoiling berries that the bees work on and no person should pick such berries for shipping or selling to any fruit dealer. It is not right for any berry grower to leave his berries on the bushes until they are spoiling and then try to move his neighbors' bees. It was a pity that Mr. Sparling had not been a member of the Union at the time. One of my neighbors grew very envious over a piece of land I bought a few years ago and employed an able lawyer to make me move my bees. I belonged to the Union at the time and the Union took the case in hand. My envious neighbor dropped the case, paid the expenses and then became very angry because I had not told him that I was a member of the Union before he started the case.

In the January number of the C.B.J. I am reported as having said that I had 'four acres of strawberries.' I said that I had four acres of raspberries. It was bees and raspberries that we were speaking of and not "strawberries" at all. Perhaps a boy in a hurry setting the type made the little mistake and put in the word strawberries in the place of raspberries. But taking it all in all I am very much pleased with the way everything has been reported so nicely and so fairly, and for this Mr. Angus, our reporter, and Mr. Craig, the editor of the Canadian Bee Journal, deserve much credit.

Wm. McEvoy.

Woodburn, Feb. 23, 1901.

[We are aiming at giving a verbatim report of the convention or as near to it as possible. Sorry that any misunderstanding should have arisen; we are sure that Mr. McEvoy intended giving full credit to Mr. Deadman.—E.D.]

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CANADIAN BEE JOURNAL

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BRANTFORD - CANADA

Editor, W. J. Craig.

MARCH, 1901.

EDITORIAL NOTES.

Reports of indoor wintering continue favorable. Those outside have had a pretty stiff winter taking it all through. No fly since early in December.

We want the following back numbers of the Canadian Bee Journal to complete volumes on file, Sept. 1897, Dec. 1898, Feb. 1899. Any of our readers who will kindly furnish us with these copies will be rewarded.

Glucose in honey may be detected by adding wood alcohol equal in amount to the honey, stirring it thoroughly and allowing it to stand ten minutes. If glucose is present the mixture will show milkiness,—if pure it remains clear.—E. R. Root, at the Wisconsin Convention.

“Does the Ontario Bee-keepers' Association purpose making an exhibit of honey at the Pan-American this year or will either the Provincial or Dominion Governments do so? I have not seen anything about it

either in the C.B.J. or the newspapers and would think, considering the small amount of honey there is in the country, that if it was intended to make a display at the commencement of the exposition, samples should be secured at once.

George Wood.

Erasmus, Ont.”

This was discussed at some length at the Niagara Falls meeting but no definite decision was arrived at; since then the executive have had the matter under consideration and we understand from Secretary Couse that the Provincial Government has offered \$300 toward it, but that the total expense of such an exhibit will have to be considered before any effort is made.

The Glasgow Exhibition opens about the same date as the Pan-American. Might it not be desirable to make an exhibit there as well? If not possible to display in both places would it not be wise to consider which would be the most advantageous to the Canadian honey producer, as far as export trade is concerned?

We noticed the following item in the Toronto Globe a few days ago:

The Minister of Agriculture has appointed W. H. Bunting, of St. Catharines to collect and superintend the Ontario fruit exhibit at the Pan-American Exposition. The department has also proposed to the Ontario Bee-Keepers' Association that the association should take steps to collect a honey exhibit for the Exposition. All the space at the disposal of Ontario has been allotted, but applications still continue to arrive

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We consider that a good work might be done by the directors of the O.B.K.A. by way of reporting to the secretary or some central point, the condition of bee-keeping in their respective districts and especially of the honey crop. Owing to the irregularity of the flows in recent years individual reports have been unsatisfactory and often misleading. We suggested the above to Vice-President, Mr. James Armstrong, a short time ago and he believes that such an arrangement would not only be desirable but practicable. What do you think about it? The following are the Association divisions with their directors for 1901:

Stormont, Dundas, Glengarry, Prescott and Cornwall—W. J. Brown, Chard.

Lanark, Renfrew, Carleton, Russell and Ottawa—J. K. Darling, Almonte.

Frontenac, Kingston, Leeds, Grenville and Brockville—M. B. Holmes, Athens.

Hastings, Addington, Lennox and Prince Edward—C. W. Post, Trenton.

Durham, Northumberland, Peterborough, Victoria and Haliburton—J. W. Sparling, Bowmanville.

York, Ontario, Peel, Cardwell and Toronto—J. D. Evans, Islington.

Wellington, Waterloo, Wentworth, Dufferin, Halton and Hamilton—A. Pickett, Nassagaweya.

Lincoln, Niagara, Welland, Haldimand and Monck—James Armstrong, Cheapside.

Elgin, Brant, Oxford and Norfolk—John Newton, Thamesford.

Huron, Bruce, Grey and Perth—A. A. Gemmell, Stratford.

Essex, Kent, Lambton, Middlesex and London—W. A. Chrysler, Chatham.

Algoma, Simcoe, Muskoka, Parry Sound, Nipissing and Manitoulin—Samuel Wood, Nottawa.

Various proposals have been made to erect suitable structures to commemorate our late beloved Queen. When her Diamond Jubilee was celebrated four years ago large hospital undertakings were begun in London and elsewhere with her special sanction as the best expression of the nation's congratulations. To make it universal, shilling contributions were called for.

The National Sanitarium Association has now provided a place in Gravenhurst for patients who are able to pay, and this has proved its usefulness by saving hundreds of lives since it was opened three years ago. A free hospital for poor patients who cannot pay and who are in the early stages of the disease is now in process of erection near the Sanatorium.

Victoria Hospital for Consumptives.

To round up this work the National Sanitarium Association desires to build another hospital, near Toronto, for incurable consumptives. What better memorial could be erected than a "Victoria hospital" for such cases? All the large cities, of course, will have their statue of the Queen, but this will not be a national undertaking.

We can, however, have the "Victoria Hospital" under the auspices of the National Sanitarium Association, and this might be built by contributions from all over Canada. Every village and town could send to it consumptive patients and thus benefit by the memorial to the Queen, to which they have contributed.

Humanity demands that something should be done; Self protection against the danger of contagion demands that something be done,

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but the very doing of this by exciting dread of the disease makes it more difficult for its hopeless victims to receive the attention necessary to enable them to die in peace.

[The above is from a circular sent us by the National Sanitarium Association asking us to lay the matter before our readers. We are in entire sympathy with the movement and have no hesitation in recommending it. The need of such an institution is being more and more keenly felt as this dread scourge (consumption) increases year by year, and especially among the poorer classes who lack the necessary means to secure nourishing food and the proper care and attention for their afflicted ones and whose crowded and insalutary conditions often favor the spread of the disease.

Note.—Those desirous of helping may remit to Hon. Sir William Meredith, Vice-President, or W. J. Gage, Treasurer, both of Toronto.

A Visit to the Coggsalls.

By W. Z. Hutchison.

After attending the Ontario Convention at Niagara Falls, and visiting the Pan American Exposition grounds, I took a run down to West Groton, N. Y., the home of W. L. and D. H. Coggsall, where I put in two solid days of visiting with a man whose number of colonies are rapidly approaching the 2,000 mark. Never before did this question of locality impress me so forcibly. The bee-keepers here very appropriately call themselves "buckwheaters." If it were not for the buckwheat that whitens the hills in August, bees could not be profitably kept in this region; as it is, there is a scrambling to plant an apiary in every unoccupied spot. When I asked Mr. Coggs-

shall why he planted some of his "apiaries so far from home, he said because there was no other unoccupied territory nearer home." "How did it happen," said I, "that this territory near you came to be so fully occupied before you were ready to



W. L. COGGSALL,
(Courtesy of "Gleanings in Bee Culture.")

occupy it?" "Because I didn't keep my mouth shut," was the terse reply. White clover and basswood, from which so many of us secure our surplus, do but little more here than put the bees in good trim for the buckwheat. It will be seen that there is abundant time in which even weak colonies may build up for the harvest. The Coggsalls make their increase in June, which is before the opening of the buckwheat. The plan is as follows:—A hive is opened, if it can spare a comb of brood, one is taken; the bees being shaken off. Two combs are taken if they can be spared. If the next colony lacks in brood a comb is given it. In other words a sort of equalization is carried on; and, as soon as a sufficient number of combs of brood accumulates, a popu-

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lous colony is moved to a new location, the hive containing the brood set in its place, and a ripe queen cell is given it. This method is typical of Coggshall—no time wasted in hunting up queens. If by chance, however, the queen is found in the colony removed, she is given to the newly formed colony, and the cell given to the removed colony. The apiary is gone over as often as necessary to secure the proper increase, and to practically prevent swarming. Very little swarming takes place during the buckwheat bloom.

Mr. Coggshall has a honey-house, extractor, smokers, tools, etc., at each apiary, thus avoiding the necessity of using a team to transport men and

was going to the "Pine Woods" apiary to bring in a ton of honey.

Mr. Coggshall rather laughed at the idea of taking a large gang of hands to a yard. Two hands, or three, at the most, are all that he needed. I asked if one man could get the combs out of the hives, the bees off from them, and the combs into the honey-house as fast as one man could extract them. With that peculiar smile of his, he said: "The man out of doors can bury up the fellow inside, if he had to uncap the honey. If the honey is capped, three makes a good crew." Of course, this work is done with very few motions.

As editor of a bee-journal, there is considerable pleasure in showing



W. L. COGGSHALL'S RESIDENCE.

tools to each yard, this allows the men to go to and from the yards on bicycles. Instead of bringing home the honey each night, it is stored in the honey house at the yard where it is extracted. Sometimes it is left until it can be brought in on sleighs. The day that I came away a team

pictures of beautiful, comfortable homes that have been built as the result of keeping bees. So many beekeepers do not succeed, or only half succeed, that it is very satisfactory to be able to show such conclusive proof of success. There is one point to which I wish to call special

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attention, and that is, that the Coggshalls keep bees in large numbers. I know of no man who has made a brilliant financial success of bee-keeping who has not kept large numbers of bees. Over at the Ontario convention I had a long talk with Mr. C. W. Post, one of Canada's most successful bee-keepers, one who keeps a large number of colonies, and he told me of the many years that he had made a living and supported his family from bee-keeping alone. He did not fear poor seasons. Supposing that they did come, he made enough in good seasons to carry him over the poor seasons, and allow him to lay up money into the bargain. It is the same with the Coggshalls. Poor seasons come to them; but when a good season comes they have bees enough, and manage them so well, that they secure large quantities of honey at comparatively a very small expense. Plenty of bees so managed that the profits are not used up in manipulations, explain the Coggshall success. To illustrate, allow me to quote a little piece of the conversation that took place between myself and D. H. Coggshall. I remarked that, to me, it seemed that the secret of their success was "lots of bees, and the profits not used up in useless manipulations." Mr. Coggshall said:

"That's it exactly. At my south yard last year we had 80 colonies and secured 10,000 pounds of honey; now how many days' work do you suppose we put in, unpacking in the spring, extracting, and packing in the fall?"

Knowing something of their short-cut methods I said "Fifteen days."

"Fourteen days was all the work done in that yard during the year, and we got \$500 worth of honey."

Both of the Coggshalls own good farms, but W. L. (LeMar, as they call him) told me that it would have been money in his pocket if he had given

away the farm years ago—but Mrs. Coggshall thinks a farm is a good place upon which to bring up boys, and I believe Mr. Coggshall does not dispute her.

Long will linger in my memory the remembrance of the few pleasant hours passed under the hospitable roofs of the Coggshalls.—"Bee-Keepers' Review."

Hall's Wit and McEvoy's "Blarney."

From "Gleanings in Bee Culture."

Mr. J. B. Hall, of Woodstock, Ont., Canada, is one of the live spirits of Canadian conventions. From what little I could gather from the Canadians themselves it would seem to me that a convention without Hall would be pretty nearly like Hamlet with Hamlet left out. This year I think he said he could not afford to be present. As soon as the officers knew this they immediately wired him that he "must come, expenses guaranteed" and so we had the pleasure of Mr. Hall's presence. He has an inimitable vein of spontaneous good humor that bubbles over every now and then. Never long-winded, he has a happy faculty of telling sound hard facts from a long experience, in a few words that delight and edify every one.

At the close of Wm. McEvoy's report as foul-brood inspector, Mr. Hall, in commenting on the inspector and his work, spoke of him after this fashion: "He can get along with cross old men and crooked old women. It is his Irish blarney that gets him through." I did not hear any of this "blarney" that our facetious friend tells about; but on every hand I learned that Mr. McEvoy's success lay in the fact that, while he rigidly enforced the foul-brood law, he did it in such a nice splendid sort of way that, so far from being the cause of offence, he was invariably invited to "call again."

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Questions and Answers

[Questions to be answered in these columns should be sent to us not later than the 15th of each month in order to insure their answer appearing in the following issue. We wish to make this department as useful to our readers as possible and a reliable source of information. For the present at least, the replies will be procured from various sources.]

A HOUSE APIARY.

QUESTION.—Would it be practical to put up a building that would accommodate 100 colonies of bees for both summer and winter and use one end for a honey house? The writer's idea was to put up a building say 65 feet long and 10 feet wide and use say 15 feet at one end as a honey room and the other 50 feet for the bees, two tiers high on each side. The building to be double walled and packed with sawdust, and with an entrance through the side for each hive. The advantages of such a building are numerous, such as shade for bees and apiarist in summer, practically no walking or carrying honey, no packing and unpacking of hives in spring and fall, every hive perfectly dry and warm at all times and the satisfaction of being able to lock up your hives, bees and all, should you desire to go away for a day or two; no double walled hives to make; no grass to cut and very few, if any, angry bees to bother the apiarist.

Would there be any loss of bees worth speaking of if there was an lighting board, say one foot wide, running along the whole building and the front of building at every third hive painted a different color. Hives, of course, would have to be placed right side by side for economy of space inside.

Would this not give something like the uniform temperature of the

cellar, coupled with the advantages of outdoor wintering?

Would the different colors referred to above be an advantage or not?

A. Greenhorn.

Iowa.

ANSWER.—Condensing the question asked by the one signing himself "A Greenhorn," it is about as follows: Would a house apiary for one hundred colonies, sixty-five feet long by ten feet wide, fifteen feet of one end to be used as a honey house, be a practical success? In reply to this, the writer, another "Greenhorn," so far as house apiaries are concerned, says NO.

The advantages mentioned in the question asked in favor of such an arrangement are:—"shade for bees and apiarist during the summer; practically no walking or carrying of honey; no packing and unpacking in the spring or fall; every hive dry and warm at all times; able to lock up the building and know that nothing will be disturbed; uniform temperature coupled with the advantages of outdoor wintering." Even granting that these might all be advantageous, they still would not necessarily make the proposed plan a success.

In the production of honey as in most other arts, there are certain features which are of primary importance and which cannot be set aside without serious loss or absolute failure. For example, a person may possess a large apiary, have it splendidly equipped, the bees of the best working strain, and the apiarist thoroughly understanding his business; yet unless his location is one which will yield honey in paying quantities, all else counts for nothing. The matter of location, therefore, is of primary importance. It is also doubtful, under present conditions, if a bee-keeper can make honey producing pay and not be at least

moderately successful in wintering his bees; and if such be the case, wintering might also be said to be of primary importance. But such matters as shade, no walking or carrying of honey, no packing or unpacking, etc., while important and should not be overlooked, yet they are of secondary consideration as compared with location and wintering.

Therefore, with respect to the 100 colony house apiary described, I would consider that a feature of primary importance as compared with the advantages enumerated would be sacrificed, namely, the ability to handle the swarms and to keep each colony in shape so that it will work to its fullest capacity and make the most of the honey flow.

It would be like a fruit farmer setting out a large field of strawberries and making inadequate provisions for harvesting them. He works eleven months of the year and incurs all the expense in connection with tending and caring for them; the plants are in the best of shape and yield abundantly, but finds himself in the end unable to harvest more than 50 to 70 per cent. This is exactly what many bee-keepers are doing; they incur all the expense and labor and fuss with the bees for eleven months of the year, and yet, just at the last, through wrong management during the honey flow of the twelfth month, lose a large percentage of their honey crop, but unlike the farmer in the illustration, they do not as a rule seem to realize this, and in speaking with them concerning their summer management, they will say as if conclusive in defence of it, "Well, we get the honey anyway." If "Ephraim is wedded to his idols let him alone."

One of the most important features about summer management is the caring for and controlling of swarms.

Some claim to prevent swarming through dividing the colonies, cutting out queen cells, etc., but the writer has never yet found that any of these give as good results as can be obtained, and with as little labor, as by working each colony for all it is worth for honey until it swarms, and then hiving the swarm upon the old stand in the way known as the Heddon plan; and I cannot see how this could be well carried out in a house apiary.

Besides this, it is important if the colonies are to be kept continually doing their utmost throughout the honey flow, that empty honey cases or supers be given them at exactly the right time. When a colony through neglect of having cases added when needed becomes honey bound, and the bees once stop working from this or other causes, it is extremely hard to get them started satisfactorily again. With a house apiary the condition of the many honey cases cannot be accurately kept track of without continually opening the hives and examining them. This necessitates a lot of work at a time when the bee-keeper is busiest and can least afford it, besides being some considerable disturbance to the bees themselves. Many do not seem to know that the advancement of the cases can be kept track of quite accurately, with almost no opening of the hives; but I do not know how it could be made practical with a house apiary.

I would suggest for all the family of "Greenhorns" living in the land of "Bee-keeping," to leave experimenting to the descendants of "Experienced," and for them to adopt the appliances and methods which are advocated and sold by the "Standards," the same as are used by the "Successfuls" and "Mr. Make-it-pay."

A. E. Hoshal.

Beamsville.

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An Observatory Hive.

A SEASON'S "OBSERVATIONS" OF BEES AT WORK—FROM BRITISH BEE JOURNAL.

Concluded from page 197.

When the queen wearies of looking for suitable cells, or has exhausted the supply of eggs at her immediate command, she leaves the brood nest and would fain rest awhile. But no! Then, more than ever, a circle of young bees, from thirteen to eighteen of them, surround her, and she knows no peace, not even when she gets her head and throat into an empty honey cell. I have often seen her lifting up one leg after another impatiently under their assiduous grooming, as if she had been a fidgety horse. And yet a good many of the encircling bees do not touch her, even with the ends of their antennæ, although these feelers are constantly being waved around her. It seems impossible to doubt that by means of their antennæ, and either by the sense of smell or by some sense unknown to us, these young bees experience an acute pleasure in being near their queen. Perhaps it may be the same sense of proprietorship that a dog enjoys when he smells his owner's legs; a sort of feeling that all is well and the universe satisfactory; in any case I believe that their attendance gives them more pleasure than it does the mother bee.

Every now and then a bee will be seen to run round and round in an excited manner, stopping occasionally to shake itself like a dog just out of the water. It will continue to do this for several minutes, and the effect is very comical, for the proceeding never fails to excite the interest of the neighboring bees. They follow the excited worker round and round, rushing in when it leaves off shaking itself and scuttling away when it begins again. It has all the

appearance of a game of play. The shaking seems to be an endeavor to get rid of pollen dust, which probably obstructs the spiracles, for those bees who have obviously been after pollen are most addicted to it. When, as often happens, the shaking bee's hind legs are loaded with pollen, the bright colored lumps seem to be irresistible to the bees that are "chiveying." They make for the hind legs every time. But the odd thing is that when the bee at last desists from its antics, the others cease at once to take any interest in it. The pollen bearer then begins to roam about the combs, with no apparent system. It wanders to and fro, and after traversing several combs very likely deposits its load in a cell which it passed by long before. The unloading is quickly done without assistance. The pollen is tumbled in and the bees take no further notice of it. I never once saw a bee attempt to pack its own pollen.

To watch the young bees biting their way through the cell capping and finally struggling through is very interesting. Seldom do they get any outside help. A passing bee may give a nibble at the comb on its way but very rarely. On the other hand it very likely stands on the poor young thing's head and keeps it back. But out the bedraggled little creature comes, and the sudden plunge into the busy throng of hive life does not seem in the least to disconcert it. It smooths its damp hair down, makes its way briskly to a honey cell or puts out its tongue for food to the nearest bee and is soon indistinguishable amongst the crowd.

My observatory hive was double glazed, and had wooden shutters lined with baize, so that it never got to be cold; but perhaps owing to its position in a sitting-room the temper-

ature varied a good deal, ranging as a rule from 74 deg. to 84 deg. F. Above the latter temperature a good deal of fanning was started, and once, when under some excitement, the heat rose to 92 deg., the bees seemed uncomfortable. Mr. Doolittle, in "Gleanings," quoted in the "British Bee Journal" of October 19, 1899, discusses the question of the heat necessary for brood rearing. He considers 92 deg. as "the lowest point consistent with successful brood rearing," and scouts the idea that bees can be reared at a temperature of 60 deg. From the general run of Mr. Doolittle's figures I take it that he means Fahrenheit. Now in autumn, when, as above stated, I started fresh laying of eggs by feeding, I had the ill luck to break one of the outside sheets of glass. As a result the temperature was lowered, and in the day time stood more than once at 64 deg. It is probable that in the night it went lower. All this time egg laying went on, and without exception the brood hatched out successfully. Hence I think that Mr. Doolittle, admirable guide as he is, is for once in error.

Stimulated by the unexpected food supply, the bees set to work foraging, and propolis being just then plentiful it was brought in in wild profusion. Bees have small sense of proportion; they like to be on the safe side. Yet if a bee-keeper must often lament a good comb ruined from his point of view by having been crammed with pollen, he may console himself with the thought that the hand-to-mouth policy which would suit him very well in the matter of pollen and propolis, would be very disastrous if carried out consistently and applied to honey. The propolis came in packed like pollen in the workers' collecting baskets. But as it is not stored in cells, the load was not so

easily to be got rid of. This bee glue is collected in a soft sticky state, and I do not know how the bees manage to pack their baskets with it. It is evidently difficult to handle, for the loaded bee does not, as far as I can see, attempt to deal with his own load. He walks about the comb, offering, so to speak, his wares, and from time to time a bee bites a portion of it off with his mandibles and chews it up as if it were a wax scale, before depositing it in what it deems a suitable quarter. I have seen a bee so loaded itself bite off a fragment from another bee's load, and walk off chewing up its mouthful. The sticky propolis soon becomes a drug in the market, and in the end a good deal of it becomes smeared about the hive in a fashion familiar to every bee-keeper.

The question of how to mark bees has lately been touched upon in the Journal. Although I marked a good many with both oil and water-color paints, I was not successful. In every case either the color wore off or was got rid of so that the bee was hardly noticeable, or the bee disappeared altogether. I have since thought that there might be some dye that would take effect on chitine, and at the same time would not be seriously prejudicial to the bee, as we know that a bee may be immersed in various fluids for a considerable time and yet quite recover. It is a very important point in observation and I should be glad of any instruction.

There need be no fear as to dead bees accumulating in an observatory hive; the bees keep it wonderfully free. Probably under healthy conditions very few bees return to a hive to die. Their instinct tells them that they would be refused admittance or ruthlessly ejected. It is just as well for the want of combination notice-able in many branches of hive econ-

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omy is very apparent here. Even after making due allowance for the peculiar construction of an observatory hive, from which, after all, the bees are continually passing in and out, the way in which a corpse is dealt with remains remarkable. A worker will be seen laboriously dragging its dead comrade up the glass and along the comb towards the top of the hive. On the way, another worker seizes a wing and pulls hard sideways. A third is now attracted and catches hold of a leg, striving to drag the body in another direction. The tug of war goes on merrily. Presently the second bee gets tired and lets go. One or two more bees take a hand. Then the first remembers another job it had in hand and goes off to do it. After a bit they all get tired and the corpse drops to the bottom of the hive. All you can say is that in the end the dead body will surely be carried out.

It must be admitted that this is disappointing. The master beekeepers of a bygone time used to write about the "Government of Bees." They told us of the king, the captains, the common folk, and the mysterious drones. We may still read about the colored emblems that the captains carried on their heads; we may gaze upon the wood cuts which show specimens of the grades of the army, shorn, alas! of one pair of legs, but bravely bearing the crown, emblems and titles. And, sitting in front of our modern observatory hive, we search for this brave army, and would fain study its marvellous discipline.

It may not be. I had hoped that by watching carefully the movements of the fanners, by observing when they took their post and how they were relieved, I should perhaps get some clue to an organized system. I found, however, that the "fanners"

came and went as they thought fit. One would fan for a minute or two and pass away, while another would stick to it for more than half an hour. A third would break off a minute or two and then begin again. On leaving off, one would go back into the hive and another pass away out of it. And all the time a stream of bees passing in and out with no recognized gangway, so that the poor fanners got bumped on every side, and had to shift their position accordingly. Inside the hive I had thought to find fanners posted in suitable places, but as far as I could see a bee would start fanning just where it happened to be, and leave off just when it thought fit. The only action that I could detect which suggested organization was in connection with packing the cells with pollen. As said above, the pollen-laden worker thrusts off its load into a cell and takes no further notice of it, but, as a rule, at once, and always within a minute or two, a youngish bee turns up and begins to back the pollen, ramming it carefully down with its head. This was very interesting.

It seems to me that the way in which hive work is got through with some appearance of order and regularity must be explained somewhat as follows: The race of bees, including wild varieties as well as our own honey bee, is born with a capacity for work almost amounting to a longing for it. Nature, in its process of evolution, has determined that at certain periods of its life a worker bee shall be fitted for certain departments, and to a certain extent for those only, of the hive work. Thus by its glandular development a young bee is fitted to feed the larvæ and probably the mother bee. Accordingly, we find young bees so occupied, and as they are not yet very strong upon the wing, they pack the pollen and per-

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haps arrange the placing of honey in suitable cells. At a certain age bees are probably best able to produce wax. Again, while their wings are sound and yet untorn they are best suited for the vigorous ventilating work we see them undertaking.

In a honey-flow, every bee that can fly seems to go out foraging. But at a certain age the worker becomes physically incapable of nurse work, and from that time it confines itself to outdoor foraging, until at length it dies—hardworking to the last—in harness.

Many hands make light work, and the colony takes care that the mother shall keep up the population. Instinct quickens every bee to busy itself in the particular work for which it is fitted, and thus, though not always in the quickest or most economical fashion, all the work of the hive is got through with a general outward appearance of system, suggesting government. I believe, however, that if nature could forget herself for a moment and allow a bee to be born thoroughly idle, that bee could live its life out in the hive in perfect indolence. In all their work the bees are much assisted by a power of communicating intelligence which, although obvious to bee-keepers, is not yet thoroughly understood. The most marvellous feature in bee life, and one which will never fail to command admiration, is that thorough good temper and absence of quarrelling which uniformly reigns throughout a hive. In this respect bees must always remain a pattern to other communities.

I cannot too strongly recommend every bee-keeper who can afford to provide for himself with an observatory hive. The best must perforce be costly, combined with great skill in cabinet-making, are necessary for their production. On the other hand

a fairly clever carpenter who has had the chance of inspecting a well-made hive could, no doubt, turn out one which, for want of a better, might well serve his turn.

An observatory hive will be always a joy to its fortunate owner. It will provide occupation for his leisure moments and constant food for thought. He should, however, remember that a year or two of observation, and that with different races of bees, followed by a patient comparison of results, must always precede any deduction that can claim to be scientific. It is with a full sense of these limitations that the memories of one season with an observatory hive have been jotted down by

SOUTH DEVON ENTHUSIAST.

Another Use for Honey.

It is said that a certain lord found so much benefit from the use of the following mixture for rheumatism that he paid his physician £300 for the privilege of making it generally known, Pro Bono Publico.

Recipe:—Sulphur 1 oz., Cream of Tartar 1 oz., Rhubarb $\frac{1}{2}$ oz., Gum Guaiacum 1 drachm, Honey 16 oz.

A tablespoonful night and morning in a tumblerful of white wine and hot water.

This mixture is called "Chelsea Pensioner" and a man of my acquaintance having tried the same has been benefited.—John Browning, Woodchester, in B.B.J.

The "Leipziger Bienenzetung" reports a case in which an apiary stood immersed for twenty-four hours under water to the extent of three-fourths at the time of the flood and that although completely shut off from fresh air and the outer world the bees not only survived but suffered no harm.—B.B.J.

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Editor

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Communications.

Bee-Keeping in California.

Editor C. B. J.—Referring to your letter which I received some time ago, you can not be better pleased than I am myself at my return from the Sacramento Valley, California, and if I may use Mr. Holtermann's words in his good but unheeded advice, "a poorer but wiser man" as regards fruit raising and bee-keeping in that part of the west. The fact of the matter is, that owing to the extremely long dry season existing there, the land is baked by the sun and wind and the cost of almost continual cultivation to preserve moisture, or irrigation, is too great for what is realized from the fruit crop. As to bee-keeping in the Valley, it is a complete failure, the honey flow is from the fruit bloom, and an abundance of wild flowers which are in bloom from about April 1st to May 15th, but it is surprising how small a honey flow these afford, besides the honey being very dark and strong and very much inferior to our buckwheat honey here, the whole season's crop averaging only 10 to 15 lbs. per colony. A practical bee-keeper there, who had 10 colonies, barely produced enough to cover cost of supplies, though he told me it was an average year. I understand that in some locations in the foot hills and mountains where sage brush abounds, that a fair honey crop can be produced, but these locations are miles away from transportation and very remote for a man and his family to live, besides it is very cold and much snow in winter, which of course necessitates as

much protection for the wintering of bees as here. After giving due consideration to all the advantages and disadvantages of California as compared with this location, I am certainly convinced that I can do better here. I have done fairly well with my apiary which I disposed of before leaving for California, having produced on an average of 135 lbs. per colony, (spring count) of good saleable extracted honey. We have a good clover flow and more basswood within a mile or two than the bees can forage, although there may be some seasons less favorable than others, yet I have not experienced a complete failure. I am going into the production of honey again this season with a stock of 12 colonies from my former apiary which I have repurchased, and if for some cause I have to dispose of my apiary again, it won't be to fare better in the golden west.

A. R. Robinson.

Calumet, Que., Feb. 26, 1901.

Good Advice.

"Pray what is good for chappy cheeks?"
 Wrote Molly to the editor,
 And in due time, about two weeks,
 She got the answer written for.
 To other ears by chance it leaks,
 A little birdie told perhaps;
 Thus—"If you wish not chappy cheeks,
 You must avoid the cheezy chaps;
 —Will Ward Mitchell.

Sometimes.

"The hand that rocks the cradle
 Is the hand that rules the—" Maybe;
 But "the hand that rocks the cradle,"
 sure
 Is the hand that spans the babe.
 —Will Ward Mitchell.

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