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Published by E. TIPPER, West Maitland

Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

VOL. 19. No. 8.

NOVEMBER 30, 1910.

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“The Australian Bee Bulletin.”

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Circulated throughout the Commonwealth of Australia,—New Zealand & Cape of Good Hope.

Published by : E. TIPPER, West Maitland, N.S.W. Aus.

Editor: W. ABRAM, Beecroft

MAITLAND, N.S.W.—NOV. 30, 1910.

EDITORIAL.

This is a most extraordinary season so far, strong wind almost daily, and weather changes from one extreme to another repeat themselves continuously. It affects vegetation and the production of honey. Besides, breeding is retarded in such circumstances, and swarms are few. Or have the bees read in the papers that the swarming impulse is to be bred out of them, and thus they anticipate the beekeepers in order to avoid the treatment they might be subject to otherwise I am no advocate of excessive swarming, but I like to see some strong stocks to swarm; it indicates prosperity, and I want to replenish what has been sold. So far, however, they persist not to swarm. Some hives had queen cells started, but they tore them down again, though I did not reverse the combs, as I do not believe in reversing.

I have been asked why some queens from some breeders incline to become drone-layers. Shall I imitate Dr. Miller and say “I do not know”? My opinion is, however, that such queens possess weak vitality, occasioned perhaps through in-breeding. Queens with vigour and stamina are different.

At last meeting of the Executive of the Union, a bee-paper was laid on the table and extracts read referring to foul brood. The subject matter of that editor’s note is

certainly wide of the mark, but it was considered a matter outside the sphere of the Executive to take further action in reference thereto. An examination of the brood nest once a month in the breeding season will reveal the state of affairs therein, nothing else will do me. Do likewise.

In the same paper the editor is asked what he is going to do about Mr. Brand’s report of bees carrying eggs laid by a caged queen, and rearing brood therefrom. To this the editor says: “I am open to change my views on the matter, etc.”

I thought this matter was settled years ago to the satisfaction of all observant beekeepers—that bees do not transfer eggs into other cells. Mr. Doolittle was then a believer of it; but when I pointed out to him, and others the falacity of it, nothing has been heard. But it pops up like a mermaid from the sea now and then, and I must give the reason why it is impossible to transfer eggs. When the queen lays an egg it is coated with a glue-like substance, which makes the egg adhere to the bottom of the cell. It very soon hardens, and once hard nothing but the use of a paste brush or such like utensil can make it stick in another cell, not to mention that the shell of the egg may be damaged if removed from its place of deposit in the cell. Now, as the bees have no means of fastening the egg to the bottom of the cell, they cannot transfer

them from one into another. It is marvellous, though, how soon Mr. Brand solved the problem, and it must have been a fine sight to see bee after bee coming to the cage, reaching through the wire and getting an egg, placing it in the cell, and taking care of it. The wonder is, if 15 out of 175 colonies did the trick, why did not all do it? On closer investigation it will be found that some other factor is the solution of this alluring but delusive trick.

The foregoing reminds me of a case of egg transferation I witnessed as a boy. My father was mowing rye, and in so doing he nearly cut the head off a quail, which was setting on her eggs. Shortly after we had lunch close by and we saw the quail coming and going to and from the nest, each time carrying an egg under each wing from the nest into the grass close by. When we had finished eating and went to the nest, every egg was shifted away. I have seen wild ducks do the same. But though bees can shift eggs and throw them outside the hive, in all my experience I have never had a case of even a single egg being transferred by them from one cell into the other, or from the wires of the cage in which a queen has no other means of depositing them. They were always carried outside.

For information's sake I will reprint the matter referred to—

**Bees Carrying Eggs to Rear Brood.
IS THIS UNUSUAL?**

By W. T. BKAND.

During our recent drouth in the honey flow I found it necessary to feed some of my bees. As I did not want to buy sugar and put it into the brood I decided to cage my queens until the flow started again. I caged them about July 5. July 15 I went through them to cut out the "forced cells" which I expected to find. I was very much surprised to find eggs

and young brood as well as queen cells. At first I was puzzled to know what was taking place. If there was another queen, why were those queen cells there? I looked for another queen, but in vain. I shook them through a queen excluder, but still no second queen. The old queen was still in the cage. I gave it up as a bad job, and left it and resumed my work. Before long I came to another case of the kind. This time I determined to solve the mystery. I soon found out what was wrong or happening. The queen was laying eggs on the wire netting of the cage and in the bottom of the cage, and the bees were reaching through the wire and getting the eggs, placing them in the cells, and taking care of them. I found about 15 out of 175 at the same trick. Is this unusual? I have had ten years' experience among the bees, and this is the first time I have found anything of the same nature.—"Gleanings in Bee Culture."

Whilst calling on Messrs Hawken & Vance the other day, there was honey being loaded to the extent of 160 tins, and then there was a large stock left on hand. Some beekeepers are evidently having a good harvest. Good luck to them!

Demand for queens, especially choice, and for full hives of bees, is this season better than ever.

**The New South Wales & Commonwealth
Beekeepers' Union.**

At the Executive meeting of the above Union on the 31st ult., the President mentioned that the Dept. of Agriculture proposes the formation of a Bureau of Agriculture, and invites those interested to unite and form local branches. 20 members to constitute a formation. Lecturers, etc., would be sent free to their place of meeting, etc. It was intended that this Union take steps to that

effect. It was further resolved that the monthly meetings take place the third Monday in the month, to be held at the Queen's Hall.

Mr Branch submitted a bee paper, wherein the editor says that he has not heard of a case of foul brood in N. S. W. for some two years. As a matter of fact, Mr. Branch only lately detected it in his own hives, as published in the September issue of the "A.B.B.," and he thus disagrees with the other off-hand statement referred to. The President said that the disease is more prevalent than is generally admitted.

Very lengthy discussion ensued re Messrs. Hawken & Vance's invitation to send a shipment of honey to England in order to open up an export trade. For many beekeepers this may be a rather unfavourable time to comply with the request, as, having disposed of their last season's crop, the new not being in yet. But it was resolved to invite members to support the scheme to the best of their ability, and to obtain honey from various sources to find the taste required, as the information gained thereby would be of immense value to us.

In this connection it was again pointed out that a writer and the Ed. exert themselves to assert that Northern River honey, lucerne honey, and not box honey, should be sent. As it happens, the Union has members all over the State, and none are excluded, not even non-members. The greater the variety, the better. Lucerne and coastal honey is likely to find flavour in England. As the shipment is to be made shortly, participants should bestir themselves and act at once. Some few are willing to send a ton lot even, but if enough can be obtained in smaller lots it would be preferable.

IS A NON-SWARMING RACE A POSSIBILITY.

Is the Swarming Tendency Due to Habit or Law?

By Dr. A. F. Bonney.

If for no other reason than that some of my beekeeping friends might be happy, I hope the dream of a non-swarming strain of bees may become a reality; however, the more I think of it the more doubtful it appears.

There has been very much written on the subject, I know. I should not be surprised to learn that the ancient Egyptian beekeepers voiced a wish—but, wait! "It is not our knowledge but our ignorance of the past which constitutes the pride of the present," so perhaps that old-time folk knew more about bees than we do. They trained cats to go into the water to catch fish, though now Puss has a fit if she gets her dainty feet wet.

The first question which comes to my mind when I get to discussing this question is: "What is Swarming?" It is not atavism, for that is merely a reversion to ancestral characteristics, a returning to shape, colour, or other physical characteristics; nor is it instinct, for that is a special innate propensity in any organized being, but more especially in the lower animals, producing effects which appear to be those of reason and knowledge, but which transcend the general intelligence and knowledge of the animal. Intuition is entirely an unconscious mental process, so it is not that. It is not heredity, for that is almost synonymous with atavism, the transmission of mental and physical characteristics from parents to offspring. I believe this was fully understood by the old philosophers. "I will visit the iniquities of the fathers upon the children, even to the third and fourth generation of them that hate me."

Dr. Jones, in advertising his non-swarming discovery, alludes to the "swarming habit of bees." But it is a habit—a usual or customary mode of action, something which may be acquired and afterward laid aside? "Habit," says the dictionary, is "a more of action established by use so as to be entirely natural." It would really seem that the definition would apply to this characteristic of the bees; however, the word does not seem to fit entirely, so I ask again, and in all seriousness, "What is swarming?"

In time past, many things were believed which we now smile at. That the lion would not touch the true prince was as implicitly believed a few generations ago as is any church dogma to-day. The world was flat; slavery was a divine institution. Shall we in another generation look back at the idea of a non-swarming strain of bees and smile indulgently? That many beekeepers long ardently for such a thing, and believe it possible, is not evidence, logic, nor reason. Consequently we are free to discuss the matter fully and freely.

What is swarming? It is something which is to the bee what family-forming is to human kind. That the young stay and the old go from the hive, and the young go and the old stay in the human home is only a different way of obtaining the same result, if, mind you, we may argue from man to bee and bee to man. Swarming, then, is not a habit with the bees any more than it is a habit for the young couple, impelled by love, to go, gladly and unafraid, into a new world and to a new home. Unsex them and they would not mate and leave the home. No; swarming is not a habit; it is law, a part of the sexual plan of the bees. It may even be that the almost sexless workers take this way of mourning their lost queenhood. It is law; and he who violates God's law perishes. Do

the bees commit such a violation when they fail to swarm? There are men who do not marry, and there are bees that do not swarm. Let us suppose there were no marrying (a condition said to exist only in the other world); how long would the human race exist? Suppose all the honey-bees in the world were to die save one swarm (a not impossible idea), and that these, for any of many reasons, failed to swarm, and that in the dead of winter the queen died. The unfortunate insects could not fulfil the law, and they would perish utterly; and no one may ever know how many types of animals, birds, and reptiles have become utterly extinct from inability to comply with the law of propagation of kind.

By breeding, selection, we influence the shape, size, colour, and even the disposition of the lower animals, and to some extent the characteristics of the insects; but in working with the chickens, if we keep the pullets shut away from the males the eggs they lay will not be fertilized; and if this were persisted in the chicken family would soon vanish. God cursed Onan. Lot's daughter knew the evil of non-swarming. In olden times a barren woman was despised, for perpetuation of kind was a law highly esteemed before these days of swift and easy divorces and race suicide.

Thus it will be seen that, when we take up the study of the exact meaning of words, habit is not the one to apply to the swarming of bees. Rather it is a law peculiar to them. Humans migrate, and that is the human act which bears any relation to swarming.

It is, I think, permissible to discuss this matter. Were it possible for us to get the queen to mate in the hive, or to have two or more queens in the hive until a new swarm were ready to fly, we might have some hope of creating a non-swarming strain; but we can not;

and to attempt to we must upset, not a habit of thousands of generations of bees not to go contrary to instinct or inherited traits, but law, and one of the fundamental rules of their being. However, there is nothing in the economy of the human to compare with this law of the little people; hence we can have no conception of their mental processes, if they have reasoning faculties as sometimes seems. Having nothing but subjective evidence it is a question if man will ever be able to reduce this tendency to swarm; for, consider keeping a swarm of bees in a hive, room, or cave, five, ten, or even fifty years without swarming is not evidence that we have destroyed the tendency to do so. It merely means that we or our environments have put the bees into a condition where it is not necessary for them to swarm. They probably had more comb than they would ever fill, and simply went on superseding as the age of the queen required. Moreover, it is very likely that in cave or house room there were more than one "swarm," two or more queens. This is reasonable from what we know. Even if we did keep a lot of bees as above described for scores of generations of bees, is it not a fact that, if they were placed in normal surroundings again, crowded for room with a big honey-flow on, they would at once swarm? They certainly would, for they are wild by nature. Man has never domesticated them. In all the thousands of years he has been handling them he has not made a start to tame them or bend them to his will. Give a swarm the nicest hive, with every thing an honest bee might reasonably be expected to ask, and when they come to swarm they will leave the yard, seeking a dirty rotten tree, even though there were a dozen empty hives in the yard left.

I have expressed the opinion that a

certain method of preventing swarming might be used to overcome slowly the tendency of bees to swarm. However, I now think, and I believe time will prove the correctness of my conclusions, that even with that carried on for scores of generations of bees they will swarm just as soon as they get from under man's control, because they are wild by nature. They were created so, or developed to be. They are impelled by a law of which they have no knowledge and which they have no wish to violate. It is a part of their sexual plan, just as home-making or family-forming is part of the human plan, of which the young folks have no knowledge. They only know they are in love, but that is quite sufficient.

A man came to me once with an invention. He proposed to wind a rope on a shaft. At the rope's end was a weight, which, falling, unwound the rope and thus gave power to do work. He found in time that the falling weight would lift less than the man could lift in winding up the rope. Many of my brother bee-men are trying to develop a strain of non-swarming bees with the idea that they are dealing with a habit. Are they? —"Gleanings."

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COST OF BEESWAX TO THE BEES.

By C. P. Dadant.

Should the bees be allowed to build the combs? Is there a waste of wax when the hive is supplied with already-built combs for the harvest? These questions, mentioned in the American Bee Journal for February (page 37), have lately been discussed both in this country and in Europe, with entirely different conclusions by different writers. The matter under study can never be positively decided, because of the different conditions in which the production of wax is carried on. Experiments on the cost of wax in pounds of honey have been made, and the amount of honey needed variously estimated at from upwards of 20 pounds down to 2 pounds for each pound of comb. The last-named estimate was given by a foreign writer who has so little practical knowledge of bee-culture that he condemned the use of the honey extractor as altogether impractical. On the other hand, the scientists who tried the experiments of feeding bees and found 20 pounds as needed to produce a pound of wax were doing this in too artificial a manner to secure as good results as must be secured in the height of the honey harvest.

It is evident to me that the amount of honey consumed in producing a pound of wax varies greatly, even in favourable circumstances, just as the amount of corn or cereals needed to produce a pound of fat in our domestic animals varies under different circumstances. This comparison is supported by most scientists. Cheshire compares the conditions necessary to produce wax to those needed by chickens to fatten—confinement, bodily inactivity, warmth, and high nourishment.

But must the bee produce a certain amount of beeswax whether she is

ling to do so or not. In other words, must an amount of wax be produced, which if not used to build combs will be thrown away or plastered over the walls of the hive?

When the bees are filled with honey and have no combs in which to deposit it, there is no doubt that they hang in clusters, "in warmth and inactivity," until this honey is changed into wax. It was once believed that a certain part of the bees were "comb-builders," and that their sole occupation was to build combs; that they differed from the field workers in appearance, being larger in the abdomen and less active than the others. This was asserted by Huber, who, with the help of his faithful Burnens, made such accurate discoveries. But Huber had no means of discovering what was later ascertained by the introduction of the Italian bees, that those bees which he named "comb-builders" are the young bees before their first flight, and that these bees become field-workers in their turn. They are wax-workers when wax-producing is necessary at the time when they are too young to go to the field. But when the combs are full, from one end of the hive to the other, then all the bees must become wax-producers, as there is no other way for them to get rid of their honey.

Huber and others since have ascertained that all the bees are capable of producing wax when their honey-sack is full and cannot be emptied. It is also evident from the testimony of a number of writers that at the time when the adult bee is constantly carrying honey to the hive, the wax-producing organs are more or less active, and a small amount of honey is constantly being changed to wax.

In all my experience with bees, and while producing extracted honey, supplying the bees with supers full of empty combs already built, I have never seen

the bees waste wax, except when the combs were full, and there was no more room to build other combs, and no full combs to seal. In one or two instances I have seen wax-scales wasted, but in each of these cases there was room to spare; the waste was caused by a sudden change of temperature, and I ascribed it in each instance to the inability of the bees to keep up the warmth of the hive, the scales of wax becoming too tough to be manipulated and had to be thrown away. Such instances are so rare as to be hardly worthy of notice.

When the honey harvest begins, and there are plenty of empty combs for the bees to store the honey, there is very little wax produced. That which is brought forth is used to lengthen the cells which have been cut down during the winter and spring while consuming the sealed honey, for any of our apiarists know that the cappings are cut away and wasted when the honey is used. So the bees repair their combs and "whiten" them—a process well known to both comb and extracted honey producers at the opening of the crop. Should we consider this whitening of combs as a waste? No, for the wax is placed where it serves the bees, and it is sufficient to say that they always do it, whether they have room for new combs elsewhere or not. But they always place honey in the cells, and have them fairly well filled before this whitening goes on.

I have never seen the bees build brace-combs except in too open spaces (in their judgment, evidently), or waste wax otherwise by plastering it on the walls, as long as they had plenty of empty combs within their reach.

It appears to me that we can very easily reason the bees' action in comb-building. When the crop is light, their stomachs are never crowded. Only for a few minutes each load does a bee

find opportunity or desire to pass into the digestive organs more honey than is absolutely necessary for its sustenance. When it reaches the hive, and hands over its load to a young bee, the latter easily finds a storing place for it. Then there is no inducement for either of them to build comb or to consume honey in comb-building. But when the crop is well on, or sudden; when each adult worker brings home a full load and at once goes back for more, with all the eagerness of a miner who has found a fortune, then all the combs are soon filled. If the apiarist has not provided an extra supply, the young bees, after filling all the cells, have to retain in their honey-sacks as much as they can possibly contain, since the harvest keeps arriving from the field. Then it is that wax-production is not only welcome, but involuntary, for there is no other way of overcoming the difficulty.

Every apiarist who has opened a crowded hive at the time of a sudden and plentiful harvest has noticed how full all the bees look, how sluggish they appear, hanging to each other in festoons, apparently idle, waiting for their honey to change into wax so that they may build more combs. Should there be no room for more combs, the wax would have to be wasted, unless the bees swarmed. This waste will not take place as long as there is a single cell to finish, a corner to fill, a cell to seal. Open a hive in this condition and supply it at once with empty combs and the condition will change. You will immediately see a new activity. They deposit their honey and rush to the field again. Those that have produced wax-scales utilize them to repair the combs given them, as well as to strengthen these combs.

The evidence of the great cost of combs to bees is visible it seems to me, in the economy with which they build

thee combs. How light and fragile they are! If wax cost them next to nothing, they would surely build them stronger at first. But it is only when they handle over old combs that wax is added to make them strong—they add a little here and there. Is that wasted wax? Not by any means. If you are a producer of extracted honey, you know how much nice it is to handle a comb which is several years old, for it is much tougher and less liable to break than the new combs just built.

In my experience, I have found no more waste of wax in the production of extracted honey than in that of comb honey. As long as your bees have room there will be no waste of material, but whenever the combs are full and sealed, and every space crammed, there is a chance for waste of both honey and wax, whether you are producing comb or extracted honey.

That the bees must produce more or less wax during a harvest does not admit of a doubt, but that they must produce enough wax to store all the honey they harvest, and that the supplying of combs already built is a waste, I cannot admit. Far from that, I hold that in locations where the harvest is sudden and very large for only a few days, there is a positive loss in compelling them to build their combs before they store the honey. In countries where the flow is gradual, beginning with a few ounces per day, increasing steadily to a few pounds, the loss from lack of combs is smaller. But when the honey flow is delayed by unfavourable atmospheric conditions until the blossoms are in profusion and the harvest begins with a rush, there are days when the bees are actually compelled almost entirely to suspend operations in order to secure combs to store their crop. The loss is then threefold. There is the actual cost of the

wax in honey consumption, the loss of time to the bees whose abdomens are full and that cannot harvest more until they can unload; and the loss in breeding caused by the filling of all available cells with honey, in the brood-nest as well as the supers.

Some will say that such sudden crops are rare. Not in this part of Illinois. Our crops are sudden and short. We have weighed hives at times to ascertain the amount gathered each day, and we have several times noticed an increase of 18 to 19 pounds in one day. This weighing of colonies is not carried on as persistently on this side of the Atlantic as in Europe. The "Societe d' apiculture pour la Suisse Romande" publishes statements every year of weights of hives regularly taken in different locations. Such a statement was published in the December number of their Bulletin, from 23 different localities. Those reports show plainly how sudden crops may be. In some instances crops of 11 pounds are recorded following a day of entire failure. In one instance there is a record of 9, 10, and 11 pounds of increase for 6 or 7 consecutive days. Bear in mind that these large crops are made with extracting supers filled with combs. I doubt very much if such crops would be possible if the bees had to build their combs, no matter how favourable the circumstances might be.

The reader knows that we are almost exclusively producers of extracted honey, but there was a time when we produced comb. I never could secure results at all adequate, when the bees had to build their own combs. At one time we had an apiary of 87 colonies with all supers full and the crop still on. We went on extracting and took off about 5,000 pounds in 3 days; at the end of the third day we examined some of the hives extracted 2 days previous and they did not have a single cell without honey.

It would have been utterly impossible for those bees to gather the fifth of that amount if they had had to build the combs. Yet there was no waste of wax, because the bees were not compelled to retain honey long enough in their stomachs to digest it into beeswax. The production of wax was at its minimum, while if they had had to build combs it would have been at its maximum.

I have never heard of more than two instances where it was found necessary and advisable to produce wax as much as possible. The first was reported by an apiarist of South America, living away from civilization with very inadequate means of transportation. He could not secure more than about 3 cents per pound for his honey, and found it profitable to have as much as possible of it converted into beeswax, by cutting out the combs and allowing the bees to rebuild. The other is reported by Dr. Phillips on Hawaiian Bee-Culture, "Bureau of Entomology, Bulletin No. 75", a very interesting report concerning the status of apiculture in Hawaii. It appears that the bulk of the honey produced there is from honey-dew of different kinds, but dark and of poor flavor. This is so inferior an article that Dr. Phillips suggests that it may pay to have this honey transformed into beeswax.

But in our case, I believe it pays to economize the wax as much as possible. I do not have very far to find corroborative testimony to support my view. In "Gleanings" for February 15, 1909, p. 102, Mr. Louis Scholl narrates how he accidentally supplied a number of colonies with supers containing starters only, while a similar number of other colonies were supplied with full sheets, and the latter yielded a crop averaging \$1.10 per colony more than the others, after paying the excess of cost of the wax supplied in the full sheets.

If the beginner will carefully take note of the above explanation and experiment for himself, I think that he will readily ascertain that we run no risk whatever of loss of wax as long as we keep the bees supplied with a sufficient number of combs for storing honey. The wax produced will just about keep pace with the lengthening of the cells to proper size, and the sealing of the honey as it matures.—"American Bee Journal."

BEES AS SOIL FERTILIZERS.

It has long been known that bees are among the most wonderful factors in the cross-fertilization of flowers, but it has not been so well known that these same insects also fertilize the soil so that we often have larger and better flowers. Did you ever stop to consider what becomes of the millions and millions of bees that are produced in a large apiary?

Years come and go, and during every day of those years for many months thereof, the mother-bee industriously toils on producing bees, for what? In the end, to die like all animated things, and like the rest of God's creatures, to be resolved again into dust. And in this dissolution of the bee lies a great fertilizer, greater than at first thought we are apt to consider her. One has but to notice the wonderful growth of vegetation in front of the colonies in the apiary to know how great a soil-fertilizer dead bees are. I have not studied this matter from the standpoint of a scientist, but simply as a casual observer. I feel that if it were tested in some of the Experiment Stations it would be found that the decaying carcass of a bee generates a germ (to put it that way) that is a great factor in soil-fertilization.

This much advanced, I drop the matter for others to try it out as they may see fit.

HONEY EGG-NOC—IT'S GOOD.

Here are directions for a delicious egg-nog, with a rich, nutty flavor, made without brandy from an original recipe by the writer:

Take the yolk of one egg, beat well. Add slowly one level teaspoonful of sugar. Continue beating until the yolk is a light, thick froth. Then add a level teaspoonful of bees' honey, dropping it in while beating. Beat the white of an egg to a firm froth. Pour the beaten yolk into the white, gently folding it in. This will make a tumblerful.

Egg-nog made in this way is doubly nourishing—the honey having much the same nourishing quality that olive oil has. At the same time it is most palatable to one of weak digestion, and acceptable to all of strong temperance principles. I think any one who tries it once will wish to try it again and again.—A. V. F., Tenn., in "The Delineator."

Greatly Increasing the Honey Crop by Selection in Breeding.

GEO. B. HOWE.

In writing this article it is not to advertise queens for sale; as I am a honey producer, and can make more money producing honey. It is written simply to help the beekeeping world to improve its bees, and to produce from one-third to double the honey that it is now producing. I know this can be done, as I have done it. My best breeding queens are not for sale at any price. I have sold some queens for ten dollars, taking them out of their colonies before the honey flow, and I lost money every time; for these colonies would make me ten dollars' worth of honey, even in a poor season, and some seasons three times that. I cannot afford to rear

queens for sale—seasons are too short and unreliable.

Let us compare the breeding of bees to the way they are breeding animals and poultry. Do these successful breeders use any old male that they may have, or any female, as well? I think you will find them selecting and breeding from the best.

I wish to say that I have just a fair location. The soil is mostly sandy, with clover, and some basswood, no buckwheat, a little goldenrod, so you can see, you who are favoured with a first-class location, that you can easily get larger yields than I could possibly get.

Dark Italians in the Lead.

It may be interesting to the readers of the "Review" to know of my experiments, and the results that led to my selection of the dark, leather-coloured Italian bees. I know there are yet many good beekeepers who said, and who still say that the hybrid is as good, or even better, than the pure Italian. I bred the hybrid Italian-black, and the Carniolan-Italian crosses for several years, and will admit that I had some wonderful colonies of these crosses; but, after breeding them for years, I found that the three-banded Italians would average at least one super colony more of honey; and, as honey was my aim, I discarded hybrids.

I am led to believe, however, after years of careful breeding, that the Italian, at its best, is a hybrid. We all know how hard it is to keep them uniform in colour and markings, and how quickly they will degenerate back to the black bee. I found that I could take a yellow queen from an Italian queen-mother, mated to a black drone, and some of these (not all) when mated to Italian drones would produce three-banded bees. If I breed these for several generations, each time selecting the yellow queens, they breed true to colour every time. So, you will see, you can cross

your bees with any other race, and, in a short time, by selecting and breeding, get them as pure as they were before the cross was made. I am just as sure that I can take the average Italian bees as they are now bred, and, by selecting the dark queens and dark drones can, with three crosses, breed the black bee with all its characteristics. The colour factor is a great guide to go by.

Take a strain of Italians like mine, that has been bred by selecting the dark queens, and you will find that their drones are very dark, and their queens are also dark; that is, the majority of them are, although the workers are all nicely marked three-badners, only dark.

I have a queen bred by Mr. D. K. Hardy of Burr's Mills, N. Y. She is at least one-third Carniolan, as he breeds the Carniolan-Italian along my line of breeding. Now, this queen, mated in my yard to an Italian drone, breeds as true to colour as my own queens. I bring these things up, by just touching on facts, so that you may better understand the breeding of bees.

You all know, or should know, how hard it is to get a perfect male, and how few of them there are in the animal world, even with all the advantages we have in selection over the male of our bees. There are so many inferior males to one perfect specimen; and we, as a whole, pay so little attention to our drone-mothers, is it any wonder that we have not advanced in the breeding of bees as we should?

I know there are some who have bred bees, as to color, most beautiful to look at, but, in all those beautiful colonies of bees that I have had, not one was up to the dark colonies as to gathering honey. I wish I could report otherwise, for I am not blind to beauty. I find after fourteen years of breeding, that these dark queens will breed some very yellow queens, but **nothing** like goldens.

This field of breeding for honey has scarcely been touched; and as I found the dark, leather-coloured bees superior, I naturally selected them. I found some strains of Italians inferior, however, even to the common black bees. There seems to be two strains of the common black bees. The strain that is brown (not black) is superior in every way. They are larger and more quiet. I find that the beekeepers who stand up for the black bee have the brown race every time.

I got an Italian queen of L. H. Robey, and she proved such a wonderful queen that I reared a number of queens from her, and they proved superior to all others. I used her for a breeder as long as she lived. About the time she died I found one of her daughters to take her place. This queen proved a wonderful breeder. The only fault with these bees is that some of them would cap their honey thin, or "greasy," as some would call it; and, as these queens were generally some of the best, I did not like to kill them. I tried ventilation, but it did no good. I found that this was a trait of certain colonies; that by changing the queen I stopped it every time. I wish that it could have been stopped with more ventilation, for it would have saved some fine queens for honey. I found, however, that by breeding from queens whose colonies capped their honey white, reduced this trait very much, although we will get now and then one that will cap their honey thin. I had to kill all such queens at that time, but now, with out-yards to take them to, I can save them, but I would not have them in my breeding yard at any price. If you had fought this one trait as I have, you would not blame me.

Now, as I was breeding for honey, paying no attention to colour, only as I want a breeder whose bees show three bands, I will use no other—a pure mother

every time; I do not care how dark they are.

Big Yields often come from "Sports."

For a few years I bred from the queen that gave the largest yield of honey, but I found that was not a good rule to go by, as some of those very best queens proved to be poor breeders. In fact, I test every one, and have been often disappointed in them. But, when you do get one of those high flyers that is a good breeder you have got a prize. My best breeders are always above the average on honey gathering, and are queens that winter perfectly, build up fast in the spring, are very prolific, and, also are good to keep their hives full of brood and bees, not stopping all brood rearing if the honey flow is poor, as the average Italians do.

It was about in 1900 that I got a queen with "Gleanings in Bee Culture," as a premium. This red clover queen was one of the best breeding queens that ever lived. Had the ones that made fun of the long tongues and all sorts of comments, taken one of the daughters of that famous queen, and done a little selecting and breeding, we would have for more superior colonies at the present time. I reared from the Root queen and mated them to the Robey queen's drones. I got a great variation as to colour, traits and characteristics. The next season I used a Robey queen, mating the young queens to the red clover queen's drones. I got so many good queens from this queen that I used her three seasons as a breeder, discarding all the Root, except a few of the best ones, each season culling all inferior queens, only keeping the best, replacing all poor queens with a daughter of the breeder. I called this queen *Pride*, and she was well-named, for in her fourth season she produced 168 boxes of comb honey, and nearly every one of those boxes was extra fancy honey. During

her four seasons she was one of the best, producing over 200 boxes of comb honey for two of those seasons.

Don't fear Inbreeding.

I thought I was inbreeding most too much, so I used a red clover queen, as a breeder. I got some wonderful queens from this queen, but they did not average up to the others. I had tested three or four of the best Robey queens for breeders, using the one for a breeder whose daughters gave the largest average—not one queen, but all of them. I want a queen for a breeder that will reproduce herself, so strong in all good points that her daughters are very even in honey production.

What main points are we to look for in a breeding queen? A queen whose colony winters perfectly, the bees must be extra honey gatherers; she must be prolific and have her brood very compact, literally filling about every cell in the comb; not using six combs for brood when it would not fill four combs, filling the combs not only to the bottom bar but to the top bar as well. I look well to this trait. I am talking about the regular L. frame. But they will fill the Jumbo just the same way, maybe not crowding the top bar as close as in the regular frame.

I never use a queen whose colony daubs up every thing with propolis. Did you ever stop to think how much this trait costs the comb honey producer in cleaning his boxes and supers? I find that by careful selecting and breeding this can be reduced one-half.

Biting of Cappings may be bred out.

Biting the cappings and combs when disturbed can be reduced by breeding. I have seen supers of fancy honey ruined by the bees uncapping their honey when the escape board was put under the super. Black bees are more inclined to this trait, some strains of Italians are bad.

I look well to see if they tolerate the

bee moth. If I find a colony that tolerates wax worms in their combs, the queen is not used even as a drone-mother. I also breed against swarming, not using a queen given to this trait. Seasons and the beekeeper do much to encourage swarming. Size of brood nest or hive have much to do with it. Carniolans are great swarmers; a strong trait and hard to breed out of the pure race, but can be overcome by crossing with an Italian drone. I merely mention this to show you that the trait is in the race or strain of bees. I find that the colony that never swarms, or, seemingly, thinks of it, has the bees that roll in the honey.

Value of Longevity.

What a great difference in colonies as to longevity. Some colonies whose queens are the most prolific do not seem to have any more bees than other colonies that have less than half the brood or seemingly so. By taking some of these colonies to make nuclei for mating our queens, we can tell to a nicety where the trouble is; keeping records of when made and when the last bees hatch from the brood of that queen. Bees don't show much vigour that are short lived. I keep a record of all queens; that is, to a certain extent.

I observe my breeders, or all prospective breeders, to see if the bees get out early in the morning, and if they work late in the evening. I also look to see if they dart away like a flash on leaving their hive, and, on their return, that they enter the hive so quickly that it is hard to catch one unless it is cool. This tells you that they have a strong homing instinct. I am thinking of the old workers. I find that colonies with this trait hardly ever lose a virgin queen in her mating flights. The workers do not lose a second on leaving the hive, nor in their return. The bees that get the honey do

not hang around the hive. If you had ever bred the homing pigeon, you would better understand this trait.

The Foundation for my Strain.

Now, after inbreeding these bees for 11 years or more, I got the best queen-mother I ever had. This is a Robey queen, or from that strain on her mother's side, and everything leads me to believe that she was mated to a Robey drone. I have the color fairly fixed in this strain. The bees are easily detected from any queen mated to these drones. This queen is No. 58. She has wintered perfectly every winter. She will be four years old in August next, has produced a large crop of honey every season, and is the mother of more extra good queens than any two breeding queens that I ever had. I do not know just how many hundreds of queens I have reared from her, and scarcely a poor queen in the whole lot of them. Even the queens that are mated are good honey gatherers—some are hard to beat. I have some most promising young queens from her; that money can not buy.

I can not boast of beauty in my bees, but, when it comes to honey, I will leave that for some of the parties that have this strain to tell. Not only are these bees superior in a good season, but show their breeding in a poor season, producing a fair crop of honey, while some other strains scarcely make a living.

I bought 70 colonies of black bees last spring (1909) putting them $3\frac{1}{2}$ miles from the home-apiary, in a better location, if anything, than the home-apiary, which had 250 colonies, mind you I run the out-yard, using full sheets of foundation in most of the shallow extracting supers, running them mostly for extracted honey, and they produced a little less than one-half as much per colony as the home-yard did, run for comb honey. I said "mostly full sheets of foundation," the rest was drawn combs. There was

more work and care to each colony than in the home-yard.

The drone is the son of his mother. He has a grandfather, but not a father—direct. You can see that the drone-mother should show all the qualifications of the queen-mother, and more, for her drones must be uniform in size. You all know that some queens that are good queen-mothers are poor drone-mothers; now, when we find that they are all O.K. as to size, look well as to their wings. Here is where you will find the worst defect. Some queens produce lots of drones with imperfect wings; don't use such a queen for a drone-mother. Some queens breed not only bantam queens and workers, but drones as well. What I mean by "bantam" is a runt-like bee. It is not caused by starved brood, but these queens will breed this way all the time. It is not caused by the size of the cell; it is some defect in the queen. I have no use for such queens.

Now, as you see, I test all my queens that are promising breeders, to be sure that they are good breeders as well as good honey gatherers. It will not do to guess at this business. After you are sure that you have a good queen-mother, rear all your queens from her. (We will say in 1909.) Now, in 1910, use the same queen-mother, mating her queens to her daughter's drones. I suppose it would be safer to trap all of your breeding queen's drones. I never have done this, but do not allow any drone comb in her hive, to speak of, just a few cells, sometimes cutting off their heads occasionally. Now, cull out every poor queen, replacing them each season as long as you use the same queen-mother; always giving the best drone-mother a full comb of drone comb anyway, and more will do no harm.

How to make a Start.

Now, be fair with your bees; get the best queens that you can find, of some

one else, not one but three or a half a dozen. Give them a fair trial with your own, and, as long as you find your own strain giving you more honey per colony, keep right on breeding from them, testing your breeders, always on the lookout for a colony that is doing a little better than the rest. Some of these sports are good, more are not desirable. If, at any time, you find that some one has better honey gatherers, get a good breeder, a tested breeder. Now, mate her queens to your best drones, you will get some surprises, or I lose my guess. You will find it is diamond cut diamond. The strongest strain will win out, and it may be the poor traits that are the most active.

How I would start Anew.

Should I lose all my bees of this strain I would get, say, six untested queens of each of the two best queen breeders that claim that their bees are superior honey gatherers. I think that you would get one queen out of the six that would be a good one to breed from for a queen-mother. From the other six I would select my stock for drone-mothers, using the best queen daughters for drone mothers. Cross these two strains. Now look for your ideal queen; and, when you find her, rear all your queens from her for drone-mothers, requeening everything in the yard, unless you have an extra good queen that you wish to keep, but restrict her drones in some way. Now use the same queen-mother as long as she lives, repeating the same thing for years, for, do you not see that I got my best results when I used this method of inbreeding? As each queen mates to a different drone do you not see that it is hard to inbreed bees, and as you are using the very best all the time for breeders, selecting only the good and culling all inferior queens, what is there to hinder you from fixing every trait so it will be hard to lose them? Old 58

was set out of the cellar March 20, 1910, and on April 16th, the colony had five frames of brood.

I wish every one who reads this could see those frames of brood from a queen in her fourth year. This has been an unusual season, for the bees got pollen the same day that they were set out of the cellar, but the imported breeding queen direct from Italy that I received June 7, 1909, has less than one-half as much brood; so much for selecting and breeding.

One Hundred Dollars for a better Strain.

I will repeat what Editor Hutchinson says in "Gleanings," I will gladly give \$100 for a queen superior to my stock. Let's figure just a little bit on that one hundred dollars for a queen: As I have nearly 400 colonies, say that they give me five pounds more per colony; that would not be much for one colony, but figure it on even 300 colonies, that would be 1500 pounds. Would not that pay for that queen the first season and give me a good profit besides? I will say that when you take this up in earnest you will not stop at any price.

I clip every queen, so as to know that if I find any queen with wings that she has been superceded. I do not see how any one could swear that a queen had lived so long, unless she had been clipped. I know my queens better than most farmers know their cows, yet I clip them to make sure that I know what that queen has done. I replace all queens in my home-yard, where I rear and mate all my queens, that I do not know their pedigree. I clip the right wing in even years and the left wing in odd years. I number all my queens, and that number follows each queen as long as she lives. Thoroughness and persistency are the price of success.—"Review."

Freeing Supers of Bees, Extracting and Outwitting Robbers without using Bee Escapes.

R. F. Holtermann.

In the discussion of this subject there is no doubt in my mind that neither Mr. Hutchinson nor myself have an axe to grind; neither is it a fault in either that we should earnestly contend for that which we see. Progress in anything is made by the men and women who earnestly contend. True, they are the ones upon whom the blows often fall, but, what of that, the man or woman who is truly sincere in that for which they contend have that within them to sustain something which can never be overshadowed by reverses or temporary defeat. Any right-thinking person will have more respect for an opponent who sees wrongly but believes he stands for principle, than for those who support him, thinking he is wrong, and who sell their integrity for friendship, policy or expediency.

In the extracting of honey, the methods pursued by me are mostly my own thought and planning! yet I have been very fortunate in my help, and we are always ready to give weight to an idea from the most inexperienced; and I believe this atmosphere has brought the best out of each in most instances. Necessity is the mother of invention, and again and again I have been placed in that position where I have been compelled to invent to overcome a difficulty; and, to-day, while, no doubt, there are those who have individual ideas which would be of great value to me, yet, rightly or wrongly, I have the strong conviction that I would not care to change my system for the system of very many. The influence of the weather in Avoiding

Trouble from Robbers.
Where I can extract in a bee-tight

place, I want, during robbing-time, when carrying out that work, to close the doors and windows so the air, laden with the aroma of sweet, cannot escape to excite the bees outside. A wire screen door to a bee house is a poor affair in robbing-time; it tends to keep the bees in the very place, where, as one goes in and out, they can at times gain access. During extracting I prefer to have the wind blow away from the apiary, not from the bee house to the apiary. When there is danger from robbing, the bees will give very much less trouble with a high wind than when the weather is calm. They do not follow the scent so well. Cloudy days are to be preferred to bright sunshine; and, of course, a day so cool that the bees are not readily induced to fly is ideal, as far as the prevention of robbing is concerned; and, when other matters are rightly arranged, is not bad weather for extracting.

Owing to the practice of migratory beekeeping, it has been impossible for me to always have bee-tight places in which to extract; and places where I, at one time, would not have attempted to extract in robbing time, are now tackled by me with at least a measure of confidence. I fully realise the great need of the utmost care, and in our extracting, especially that feature of it relating to robbing, I lay down for every helper an absolute rule which they know, and which I constantly watch, that it shall not be violated. In my experience with many beekeepers, few there are, unless having had long experience, who would, of themselves, be careful enough, and vigilant enough, and thoughtful enough, to conform to these laws; and when I say I am surprised that the Hutchinsons can be satisfied with the bee escape it is in view of the fact that, in my estimation, they are men who could carry to a successful issue, extracting without the bee-escape.

Circumventing Robbers when the Building is not Bee-Tight.

Our method of procedure is to endeavour to get a bee-tight place to extract in, then we try to extract while there is still some honey coming in. Last year we took out, in six days, not full days, either, for it included twice moving, some 24,000 pounds of white honey. If we cannot obtain such a place, we will use a barn; even one quite open to bees. We have found, by accident, if there is an open space where the light comes in much more conspicuously than from other parts, that robber bees, no matter where they enter, will fly to that opening; and, if is covered with mosquito netting, fastened in the shape of a depression projecting outward, the bees will be trapped there, as they want to fly out, being drawn toward the light and remaining in the pocket by the same light. Next, I have a small boy, or other person, whose business it is, with a couple of paddles, to kill all bees that enter the barn to rob. This alone is worth a lot. Next, I have one or two smokers going, one, especially, at the entrance door. By this method there is enough smoke in the air, (and it does not take much) to prevent the beginning of robbing. There is no let up to this plan during the entire day. At the noon hour I nearly always stay behind while the rest eat their dinner, so the paddles for stray robber bees are always ready for use.

As to the apiary, I have never yet had to stop extracting on account of robbing. Everything is done, however, by taking advantage of everything we know—as far as circumstances will allow. We aim at not having (through carelessness, thoughtlessness, forgetfulness, or laziness) to learn the same lesson over and over again, and, of course, again pay for the learning.

(To be continued.)

SIMPLE TALKS ON BEES.**Feeding.**

It is not to be wondered at if the necessity for supplying bees with artificial food is not one that the uninitiated readily discern. Tell a rank outsider that bees require to be fed, and he will probably regard it as your best joke. It will seem to him to be no more reasonable than it would be to suggest preparations for feeding the snipe on your bogs, the hedgehogs in your plantations, or the bats that fly before your windows at night. Nevertheless, if the natural food of snipe, hedgehog, or bat were saleable at 9d. per lb., it is probable that those animals would be domesticated, and a substituted diet would be required in lieu of that appropriated for sale. So, also, with the bees. If we deprive them of their hard-earned provender, gathered with astonishing energy from natural sources, we must supply them with artificial food instead, unless we turn back to the old rascality of smothering our stocks, to save the trouble or expense of feeding them. That would be abominable.

The beekeeper, however, has other objects besides that of preserving his bees from starvation. He does not want to fatten them, but he wants to keep them in good heart, and he knows that without food in abundance they will slacken at their work. He wants also to bring their numbers up to "boiling over" point in time for the honey flow, and he has learned, from the books, or by costly experience, that if food is not coming in somehow, the queen will not exert her laying powers to the uttermost. Further, some of us know that, let the queen do her level best, the bees will not rear brood as we want them to unless the state of their domestic larder justifies it. Therefore, we feed; not indiscrimi-

nately, nor fitfully, nor in a haphazard way, but suiting the quantity to the need, the quality to the season, the means to the end.

It may be bad English, but it is good beekeeping, to say that spring feeding should be given in autumn. The meaning of this must be explained. A stock that has been properly attended to in autumn, will have at least 30 lbs of sealed stores in its combs before October 1st. During the winter, the consumption of the stores should be small. When spring opens, there should be sufficient food in the combs to carry the stock on, without dwindling, until the early flowers and fruits begin to yield nectar. Left to themselves, the bees will feed, the queen will lay, brood will be hatched, but the beekeeper is intent upon surplus honey for himself, and knows that nothing short of a sweated industry in the hive will supply it in sufficient quantity. He must, therefore, hurry matters forward so that there may be a crowded population of spring-bred bees in the hive early enough to forage among the fruit and clover blooms. Assuming the roll of a good providence, he anticipates the season, brings in spring before its time, and "stimulates" the bees by gentle feeding. Now, if there is a good supply of sealed stores in the hive, he quietly raises the quilts and sheets, and with the flat of a knife, or any other suitable implement, he bruises the cappings of some cells, and covers the frames again. The bees take to the exposed honey, they feed the queen more generously, she increases her egg-laying activities, the beekeeper repeats the operation twice or three times a week, and the result is a rapidly enlarged brood nest, and, in good time, a full population of honey-gatherers.

But, if the stock was left in the previous autumn with insufficient food, breeding will have been retarded, and

the dying off of the aged bees will not have been compensated for by the hatching of fresh brood. In such a case, spring feeding must be given in spring, and sugar-made syrup is generally the food that is used. This is the best made half and half, that is, one part sugar by weight to one part water by weight. The water is first heated, or boiled, and the sugar is stirred in until it is dissolved. A wise man will use no sugar for bee food, in any season, except pure, refined cane sugar, and he will procure this from a firm which guarantees it to be such, for what is often sold in country shops as pure cane sugar, is not the right thing.

The syrup having been made, how is it to be administered? That will depend upon the object in view. If stores are short, and there is danger of starvation, the food must be given rapidly; if stores are sufficient, and the aim is to stimulate breeding, the food must be given in small quantities each evening—just sufficient for immediate consumption, but not so much that it may be stored in the cells which it is desired to have occupied with brood. In the former case, it may be given by the pint, in the latter, by the wineglassful. The doors should be closed to one bee space to lessen the risk of robbing, the supply of food should be stopped in the mornings for the same reason, and, as an additional precaution, not one drop of the syrup should be allowed to fall outside the hive where it might attract stranger bees, and set up the thieving nuisance. The food should be given over the frames. Feeding bottles and stages may be purchased from any appliance dealer; these are inexpensive, and are well worth their cost, they permit the regulation of the supply, so that it may be given through one or more holes, and they save time, which often saves money. A home-made feeder may

be readily constructed by any handy man. Take a glass jam jar, and two squares of $\frac{1}{2}$ -in. wood; fasten the pieces of wood together temporarily and cut through them a circular hole, which will admit the mouth and neck of the jar; separate the pieces, insert between them a piece of perforated zinc, and nail the squares of wood together. A hole must now be cut in the sheet covering the frames, the stage will be set on over this hole, the requisite quantity of syrup will be poured into the jar, a piece of coarse calico will be tied over the mouth of the latter, and when the jar is inverted on to the stage, the bees will have access to their food.—J.G.D. in "I.B.J."

HONEY.—

Choice quality is scarce, and selling at $3\frac{1}{2}$ d., with an occasional lot at $3\frac{1}{2}$ d. There is a plentiful supply of medium, which is slow of sale at $2\frac{1}{2}$ d. to $2\frac{1}{2}$ d., while good is worth $2\frac{1}{2}$ d. to 3d. Candied is dull at 2d. to $2\frac{1}{2}$ d. per lb.

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A VISIT WITH HAWAIIAN BEE- KEEPERS.

By E. F. Phillips.

It was the writer's privilege, during the winter of 1908, to visit the Territory of Hawaii and to meet the beekeepers of the islands. These islands, which form one of our outposts, are, from a beekeeping point of view, of exceptional interest. The methods of management, the honey sources, and the tropical conditions under which the work is carried on, are things entirely new to one who has studied bees only under our mainland conditions, and there are many things to be observed there which will probably interest other commercial honey-producers.

The area now covered by apiaries does not equal Rhode Island in size, nor is all the available area as yet covered. The beekeepers are at present extending their operations, and it will be but a few years before they make a larger showing. They have already shown that they are progressive, and their methods of management are thoroughly modern.

While there is a season during which there is less honey coming in, there is no definite honey-flow such as is found in most places on the mainland. On the contrary, there is something coming in almost every day in the year. As a corollary the flow is not so intense, but the bees keep right on at a moderate rate, adding to their stores. The old tradition that bees in the tropics do not store excess honey is certainly disproven by results on the islands.

The main floral honey source is the algaroba-tree, closely related to the mesquite of the Southwest. The honey is white, and granulates rapidly, resembling most of our alfalfa honey. During the spring and early summer (if we can designate seasons in such an equable climate) the bees work vigorously on the

algaroba. The most interesting phenomenon, however, is the second large honey source. The bees of the islands annually gather tons of honey-dew honey from the secretions of the sugar-cane leaf-hopper. Such an extensive gathering of honey-dew to form a commercial product is a thing which is unknown to the writer in any other locality. This honey-dew honey does not resemble the honey-dew honey generally found on the mainland. It differs in flavour, and, when relatively unmixed with floral honey, does not granulate, even after a period of years. This product is sold as "honey-dew honey," and finds a ready market among bakers. It could not be used as a table honey, and the producers make no effort to use it in competing for that market. Since leaf-hoppers are always present in numbers on the cane, the flow from this source is practically continuous. During the algaroba flow, or when other nectar-producing plants are available, the bees prefer the floral nectar.

According to the decision of the Pure-food Board, the product made by bees from the secretions of insects may be sold as "honey-dew honey." It is a natural product gathered by the bees, and unmixed with any added sugars. Since there is a market for this product there is no reason why it can not be sold provided it is to be so labeled that the buyer knows what he is using.

A point of considerable interest in Hawaiian beekeeping is the fact that there are few small beekeepers and almost no amateurs on the islands. Beekeeping is a commercial industry, and most of the bees are owned by corporations. By such organization one competent beekeeper can superintend the work with several thousand colonies, the actual manipulation being done by labourers. This reduces the cost of production, and such a plan seems to foreshadow the future of mainland commercial apiculture.

The Hawaiian beekeepers are extremely fortunate in that they have among their bees no contagious disease. Either American or European foul brood would cause enormous losses under such tropical conditions, and it is to be hoped that effective quarantine regulations may be established to prevent the introduction of these plagues which annually cause so many thousands of dollars' loss on the mainland. Steps have already been taken in this direction. It is doubtless true that the bee-men of Hawaii would control a contagious disease as good beekeepers do elsewhere; but if they can prevent the introduction of the causes they will be relieved of much troublesome labour.

Aside from these special features, Hawaiian beekeepers face the same problems as do their mainland co-workers. They are good examples of what a progressive beekeeper should be, and should have the cordial co-operation of the mainland leaders in apiculture.—“Gleanings.”

Bringing the Season to a Close and Caring for the Crop.

S. D. House.

As we near the close of the white honey flow, about three days from the close of basswood, we cease giving new supers; and at the close of the flow we take away all except one super from each colony; and, if there are any unfinished sections, as many times there are in the outside wide frame, we take these and make up a super and give it to a strong colony, which usually finishes them from sweet clover, of which there is a fairly large growth in this locality. These last supers to be finished, are given to colonies that have new comb in the brood nest, as the honey may come in slowly, taking some time to finish it, and, with the new

combs, there will be very little travel stain.

Finishing up the last Sections.

With the shallow brood chamber we can get our sections finished much better than with full-depth frames; and those colonies that have continued finishing supers late in the season will be either doubled, two together, or given an additional section of brood combs with honey for their winter stores.

The supers that are filled with honey are piled about ten high in the honey room, and from ten days to two weeks later the honey is fumigated to kill all wax moths, which is very quickly done by the following method: Place an empty super on top of each pile, and inside of this super set a saucer containing about $1\frac{1}{2}$ ounces of bisulphide of carbon, and cover the upper super with a blanket or cloth, and allow the bisulphide to evaporate. I do this work at the close of the day so that I can lock up shop until the next morning, as the bisulphide is an explosive, and care should be taken that there is no blaze in the room. The next morning I uncover the supers, giving the honey room plenty of fresh air, and in two or three days all odour from the bisulphide will pass off, and, if the honey room is tight, as it should be, there will be no danger from the wax moth.

A High Temperature needed in Curing honey.

I store as much honey in the super as possible until ready to clean, grade and case it. The temperature of the honey room should be kept close to 90 degrees, Fahrenheit, for thirty days after the honey is in, and at no time should it go below 70 degrees. I never give any ventilation to the room with a high temperature.

Some fifteen years ago I had a honey house that was built fire-proof from the

outside, covered with sheet iron, roof and all, with a cement floor. The room was shelved for honey on the north and west sides, with one window to the south and one to the east. These windows were kept open during the day, allowing the heat to pass out. They were five feet from the floor, so that the current of air was above and to one side of the honey. There were some ten thousand sections stacked one-half inch apart, and every section in that room absorbed enough moisture to force the honey through its cappings, and some of it was "weeping" good and hard, when discovered. I closed the windows and by the use of a stove kept the temperature at 110 degrees for three days, then dropping it to 90 degrees; and this temperature was kept for several weeks. Some of the sections that showed "runs" on the surface of the cappings had to be put back on the hives to be cleaned up. Comb honey needs a high temperature, with no ventilation, to cure it properly; the least it is exposed to the atmosphere the better, unless it could be in a direct current of air.

Correct Grading of Great Importance.

The grading of comb honey is of much importance, not only to the producer, but to the middleman and retailer. A purchaser goes into a wholesale house and is shown samples and given quotations on different grades of honey. He leaves his order, the honey is sent; and, in the course of time, he opens a case, and perhaps the first two or three boxes are all right, then he gets one that is so different that he at once makes a complaint to the house that he hasn't got what he bought; "come and get this and bring me something that is right." Perhaps there is not more than two or three sections that are off-grade, but what will the wholesaler do with it? One of two things; re-graded the lot, or sell it at a lower price. If the honey is

in a commission house, it will be sold at a lower grade, in price, and the producer must stand it; and, not only has the producer lost, but every producer of comb honey loses by the influence it has on the market. I have bought crops of honey that had to be re-graded, and have found three grades in the same case. I know from experience that close, uniform grading of honey, year after year, has advanced the price and caused a demand for our honey, and it is usually contracted for before taken from the bees. If we beekeepers could unite upon a uniform package, grades and price per grade, we would take one long stride in advancing apiculture. The Ontario Beekeepers' Association of Canada has demonstrated what can be done along this line, and its members are reaping the benefits thereof.—"Review."

Some Suggestions on Marketing by a Lady Specialist.

Mathilde Candler.

Dear Editor "Review"—Your editorial in the May "Review", on selling honey, interested me ever so much; for I have been waiting for years for something of that kind to come up, something that would begin a real and definite campaign for securing better prices and market conditions. I have attended every convention with the hope that at last something would be done. At the St. Louis convention a start was indeed made, and a committee named, but that was as far as it went. The Honey Producers' League, that was begun a few years ago, seemed to me a nucleus of a good thing, and I was sorry to see it dropped. Finally I gave up looking for any action in the matter, partly because I was doing a little better than formerly myself, and partly because I thought it was of no use anyhow.

I wish the subject would be taken up by all the bee papers; and that they would discuss and agitate the matter until we beekeepers wake up. It's up to us. I am sure the journals have helped beekeeping very much by their continued preaching of better quality in honey production. The discussions on that subject have run through the journals a number of years, and have been talked over in conventions, until it has had some effect; and, in consequence, we are already finding a more ready market for our product. The agitation must be kept up. We must wake up.

Continued Use makes Necessities of Luxuries.

Luxuries we can do without; but not so with necessities; and most articles in common use, that we deem necessities now, were considered luxuries once. By common use they become necessities. Beekeeping has now reached a point where co-operative action and a united aim and interest is all that is necessary to make honey a staple product and a necessity on every table. More honey is used now than ever before. More people eat honey, and people eat more honey, and the increased consumption is due largely to the better quality.

Salesmanship an Art that may be acquired.

But there is quality in salesmanship as well as in production. Good salesmanship is an art, but it is an art in which while we may not all be equally efficient, yet each of us could improve it a little, and a little more study and effort all along the line would make a great difference indeed. Salesmanship covers a great field, and the quality of the product is only one of the factors necessary to its success.

And then, beekeepers do not take their business seriously enough. To them, beekeeping is only an avocation; a

side-issue; a by-product; something on the side—it doesn't amount to so very much. This hurts us, and always will. Until we begin to feel its and our importance, until we give it the same attention in all its details, including the financial part of it, that other business concerns give to their business, we can not expect the same success that they find in their work.

Great Things may come from Specialty.

If ever the day comes when the specialist in beekeeping is supreme, there will be a better market and sale of honey. And that day will come. I believe there is more than merely a small competence to be derived from apiculture. The automobile, the telephone, the various labour- and time-saving apicultural appliances recently invented, and yet to come, will make it possible to direct bee yard work from the desk or office, and for a man, or a company of men, to own or control 10,000 colonies, and manage them more easily than he now manages 500.

Think of the advertising matter that every business concern, large or small, distributes. Bills, posters, pamphlets, circulars everywhere. Do you think another business would have such a good chance to put a nice printed label around a box or can as we have in our honey sections and cans, and not use it? Do you think the housewife wouldn't read it if it were on there? I don't, and I think it belongs there. If the section is not adapted to bearing an attractive label, descriptive of the merits of its contents, then the section is not fit to be the receptacle for comb honey. This is a commercial age and we must use commercial methods or fall behind.

I used to stamp my name on the fancy and No. 1 sections, and always received letters from parties who wanted to buy. I did not like to compete with my own honey by sending to another party in the

same town, and I replied by sending them to the commission man to whom I shipped my honey, by referring to him as my agent. Their letter I sent to the commission man. I think I secured better prices by doing so.

I now sell most of my honey outright to a jobber, and get the cash at once. I like this way, as it gives me a chance to get a little vacation and rest after the honey is gone, and before preparing for the season. I have done some mail order business. More money can be obtained for the honey that way, but I am tied to my post all the time. After the honey season is over, and everything scraped and cased, I feel pretty well used up, and need a rest and a change.

Help from Advertising Literature.

My honey market is not a large one. In a good honey year, the farmers hurt my sales a little. As a rule, people buy more honey when they know there is plenty. Then they talk about my honey, and figure out how much I am getting, and their gossiping advertises my honey. Hence, more sales.

I have used the pamphlet "Honey as a Health Food", with good success. Such circulars, or booklets, are not appreciated as they should be. Beekeepers should give them a trial. They really help, at least, I have found it so.

I did not intend, when I started, to write such a long letter, but, after I got started, I didn't know when to quit. I hope you will succeed in getting honey producers as much interested as you did with your editorial on "keeping more bees."—"Review."



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