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Vol. 2, No. 9.

The WESTERN BEE JOURNAL



JULY

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INTEREST OF THE
BEEKEEPERS.

1905

P. F. ADELSBACH,
EDITOR AND PUBLISHER
KINGSBURG, CALIFORNIA

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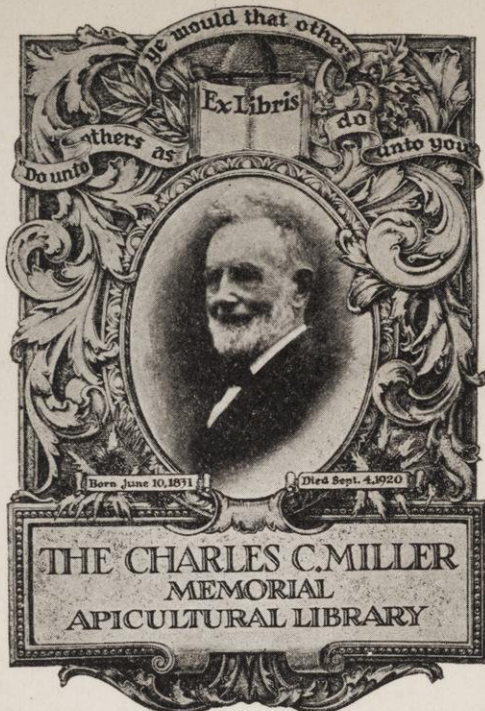
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Raising Queens.

ADRIAN GETAZ, KNOXVILLE, TENN.

This contribution is not written for the queen breeders, but expressly for the apiarists who want to raise only a limited number of queens for their own use. One might think that the best process for one would be also the best for the other, but it is not so.

The first question to decide is whether artificial cells with transferred larvae are to be used, or if the bees will build the cells themselves over the eggs or young larvae given them.

I emphatically advise the average bee-keeper to use the last process. There is no use to go to the trouble of making artificial cells, transferring cells, etc., when the bees can and will do the work themselves just as well and even better than the apiarist. Of course when thousands of queens have to be raised from a limited number of colonies such process is inadequate. But, I repeat again, I am writing for the average bee-keeper who wants to raise his own queens.

There is another consideration. The experienced and skillful queen-breeder can transfer larvae and raise good queens from them. No doubt about that. But will the ordinary bee-keeper succeed as well? I doubt, and in fact I know that I don't, whatever may others do. The larvae must be of the right age, the food transferred must be of the right kind for such queen larvae, the operation must be made very carefully in order not to hurt the larvae, the temperature must be just right, etc., etc. The chances for a green hand to make a bothch of the whole job are a plenty.

Cellbuilding Colony.

It must be of course a queenless colony; unless one wants to raise the queens in an upper story. I decidedly object to the latter plan. If some surplus honey is the object, the lower story would do as well, or even better, by being on a separate stand. With a queen below the bees will take care of the queen and her brood first and the chances are that the upstairs occupants would be neglected. Then having a queen, they might not build cells or only very few up stairs; and I am writing under the supposition that the bees are to construct the cells.

From time to time, say every four or five days, a comb from the selected colonies, having plenty of eggs and very young brood, are given to this colony. To induce the bees to build queen cells and have them well built, oblong strips are cut out, through the comb just under the cells containing young larvae and eggs. Last year, instead of cutting through, I merely raked the cells down to the septum. This answered just as well, only the queen cells thus built have a very weak base and are therefore not so easily handled.

Caging.

As soon as the queen cells are ready they are caged. They may be caged as soon as sealed. But at that time the tip is quite thick and sometimes the young queens are unable to cut their way through. Better wait two or three days until the bees have thinned the ends. This can be very easily ascertained. When thinned down the tips have a smooth, leathery appearance. But whatever you do, be sure that no young queen will be turned loose in the colony.

The edges I use are made of wire cloth, about 4 or 5 inches long and $\frac{7}{8}$ inch in diameter. They are made by wrapping a piece of wire cloth on a stick and sewing the edges together with trimmed wire, the kind used to wire the frame. A ring of heavy wire is slipped over the top and enough of the wire cloth turned over to hold it. One end of the wire which constitutes the ring is left long enough to make a handle or hook to hang the cage against a comb. The lower end is closed by pinching the wire cloth. The cell is slipped into the cage and held there simply by pressing the base well against the wire cloth. A cork or any kind of stopper that the bees cannot gnaw out closes the cage. The cage is then hung on a comb anywhere in the hive provided it is not quite outside the cluster. The young queens will be fed by the bees, and do not need any attention until needed.

Dequeening.

It is sometimes very easy, and sometimes very hard, but it must be done. The old queen must be taken out before a new one is introduced, if we want to make a sure thing.

The strength of the colony, strain and temper of the bees, presence or absence of a honey flow, etc., all have an influence. The worst cases in my experience are colonies having the swarming fever. I have occasionally failed entirely. Perhaps the best, then, would be to cut out all the queen cells. This will destroy, or considerably abate, the fever, and three or four days later the queen could be more easily found.

The best process in difficult cases is the following: Smoke the colony first at the entrance, then through the supers, if any. Remove the supers, smoke again from the top, and finally from the entrance a second time. This is in order to drive back the queen on the combs if she has left them. Put an entrance guard or other perforated zinc before the entrance. Take the combs out of the hive and put them as rapidly as possible in a comb basket, without losing any time

looking for the queen. Look into the hive and be sure that the queen is not there. Cover the hive so she cannot fly back in unbeknown to you. Now take the combs out of the basket one by one, shake the bees in front of the hive and put them in another comb basket. The queen will now be found either on the combs or on the perforated zinc, if she is to be found at all. Have a cupful of water at hand, and as soon as you see her on the perforated zinc give her a good shower bath. A baptized queen can neither run nor fly, and can easily be caught.

Another process is to move the hive in another part of the apiary, put a new one in the old stand, with only one comb from the old hive to retain the field bees. A few days later the queen can easily be found in the old hive, this being depleted of most of its bees. The old hive can then be returned to its place.

Introducing.

A day or two after the old queen is out, a young one can be introduced directly. Take one of the caged queens, plunge cage and queen in water for a few seconds, open the cage and turn her loose. A cause of failure in introducing is sometimes a hostile disposition of the queen toward a set of strange bees. A good wetting takes such notion out of her head. In cleaning her the bees get acquainted, and everything is all right. What led me to devise the wetting method was not the advantage of safe introduction, but rather a prevention against the queen flying off and away, as soon as the cage was opened. It is necessary before introducing to destroy any queen cell that might be started. It is not likely, or at least not often, that any will be started after the queen is introduced, still it might be best to see about it. After the brood is too old to start queen cells, or after the new queen has begun to lay, there is no more danger except in cases of excessive heat or over-crowding.

Breeders.

The queen or queens from which

the brood is taken to raise the young queens may be either your best or some bought from a reliable breeder. I will not discuss the subject this time. I want to caution the reader about some colonies giving an extravagant amount of surplus above the others. More often than not these colonies are what is termed silent robbers. Their bees are in the habit of pilfering the apiary, in a slow way that can be seldom detected. I am suspicious that some of the 100 or 200 dollar queens that have been so extensively boomed were simply bossing a hive of robbers. Still I may be mistaken.

If possible control the drones. Have plenty of them raised in some good colonies, and destroy the others. Good drones are at least as essential as good queens, to raise a good strain of bees. Probably more, I think, and some other time I will tell why. With plenty of good drones, the queens will be promptly and safely mated and but few are lost.

The Swarming of Bees.

L. STACHELHAUSEN, CONVERSE, TEXAS.

Cause of Swarming.

In the Western Bee Journal for May I find some interesting articles written by Mr. Adrian Getaz, one of them on prevention of swarming. About the cause of swarming Mr. Getaz says:

"Before treating a patient the doctor must know what ails him, and before treating our swarming bees we must know the cause of their swarming." Reading so far I expected Mr. Getaz would explain these causes, as he is one of the scientists in our bee-keeping fraternity, but right at once this expectation was disappointed, when I read the following sentence: "Or if not actual causes themselves at least the conditions under which it occurs, and remove these conditions." In fact, in the following lines nothing more is said about the actual causes of swarming, but some condi-

tions are explained under which swarming can be expected.

Can or do we in fact know nothing about these actual causes of swarming? I will explain in this article that we are not entirely in the dark in this respect, but some knowledge of the physiology of bees is necessary, especially in respect to nourishment of bees, to understand the condition under which the different impulses of bees will appear.

For nourishment the bees have pollen and honey only, and prepare from them all the different foods for queen, drones and workers, and for the different larvae. The process of digestion in the body of a worker bee is very much simplified if compared with the same process in higher animals. It goes on in the following way: If pollen is chewed by the bee it is mixed with saliva, and the same takes place if nectar is sucked through the so-called tongue; this saliva is important for digestion, then the food is swallowed into the true or chyle stomach, where it is fully digested. The partially digested food we call chyme, the fully digested food is called chyle; both we can find in the true stomach at different times and state of digestion. If chyle remains in the true stomach for some time it passes through the wall of this stomach and is mixed with the blood, is in fact identical with blood. This explanation of the digestion, as it is given here as briefly as possible, is accepted by all scientists.

Now by the help of that wonderful organ called stomach-mouth the contents of the true stomach can be regurgitated and can be used as food for other parts of the bee family. Queen-larvae receive fully digested chyle in large quantities till the cell is capped by the bees. To the queen herself the same chyle is fed, because she can't eat pollen, but she helps herself on honey. To worker-and-drone-larvae chyle is fed the first three days of their larval state, and after this chyme is mixed in larger

quantities by and by, and from the fifth day till the larvae are capped honey and pollen are fed to them. That the royal-jelly and the larval food are fully digested chyle and regurgitated from the true stomach is a discovery of Pastor Schonfeld. It is accepted by F. W. Cowan of England (*The Honey Bee*, page 120) and by Professor A. I. Cook (*Manual of the Apiary*, page 141), while Cheshire in his book explains the older theory, that this larval food is a secretion of glands. It would take too much space here to explain why this gland theory is fully mistaken and impossible.

Now we will consider the cause of swarming. That bees are caused to swarm by their instinct or impulses, and not by some kind of reasoning, I do not think it necessary to explain to the reader, and the same is true with all other actions of the bees. The question is, By what conditions and in which way are induced these different impulses? In a given colony of bees we can observe that with the advance of the season different impulses will appear in a certain order. During the winter bees are in a semi-dormant state, in colder climates, at least. With warmer weather, especially after the first flight, the impulse for breeding will appear. Here in the South this is in close connection with the first pollen flow. The bees getting more active, eat pollen, digest it to chyle, which is fed to the queen, stimulating her ovaries to activity, and eggs are laid, and when the young larvae appear chyle is again fed to them.

We may suppose that one worker bee can prepare enough chyle to feed 10 worker larvae. We know that feeding larvae is the first duty of a young bee. If the young bees gnaw out of the cells we will soon have enough young bees in the hive to feed ten times as many larvae as it was possible during the first breeding period of 21 days. In the third period 100 times as many can and will be fed. If the colony is strong and has a prolific queen in early

spring, and consequently started with a large patch of brood, and if we consider the fact that a queen can hardly lay more eggs than 3000 a day (many queens will not do as well), we will soon have the condition that the young bees will prepare more chyle than can be consumed by the larvae. The consequence is that this chyle cannot be regurgitated at once. It will remain in the stomach for some time, and a large part of it will go into the blood in the body of the bee and will enrich it or cause a kind of extension of the blood.

According to Gerstung's theory this gradually increasing extension of the blood is the actual physiologic cause of different impulses. At first the surplus of blood is acting on the wax glands, wax is secreted and combs are built if possible. But hereby no albumen is consumed, the blood will get richer on nitrogen and the impulse to build drone combs and raise drones is incited; and if the blood is still more extended queen cells are started. As chyle is fed to the queen by the young worker bees, and as this chyle has the same chemical composition as the blood of the worker bees, the queen is governed by the same impulses as the worker bees and will lay eggs into drone and queen cells. If queen cells are started and larvae raised in them a swarm will follow by necessity.

This is, as briefly as possible, the new theory. In my next article I will show how this theory explains all our observations made as yet in respect to swarming.

Prevention of Swarming.

If the theory explained in my last article is correct, it will be plain that we will prevent swarming for some time at least, if we satisfy as much as possible the lower impulses, because we prevent the extension of the blood and thereby the appearance of higher impulses. The first requirement is to give a large brood-nest, a large hive filled with empty combs. The queen can lay more eggs than in a small

hive. But this is not sufficient. The brood-nest of a normal colony will always show a certain order. The queen is laying eggs in a circle, or rather in the form of shells like the skin around an onion. The brood of the same age will always be close together. If we destroy this order the queen can't lay as many eggs. She may find capped brood where she expects empty cells. If the beekeeper, for instance, places an empty comb between two frames of capped brood he will very probably observe that these combs will remain empty for some time, till the young bees in the neighboring combs will hatch out of the cells. Such empty combs should be given just there, where the queen is laying eggs in the center of the combs, or outside of the brood-nest between the last brood comb and the pollen comb. If this is not observed the spreading of the brood will do more damage than good. Another hindrance in egg-laying is frames very shallow or very narrow. As the queen soon arrives on her laying way on these ends of the combs, her circle of egg-laying is broken and she has to hunt for another patch of empty cells. So not only a large brood-nest is required, but it should contain large combs, too; a hive with many small combs will contain less brood than one of fewer and larger combs, both having the same comb surface.

The queens, too, are very different in prolificness. Some may lay 3000, and even 4000, eggs daily, others only 2000 at the most. Some colonies are strong, and may start with a few cells of brood. All these differences have some influence on the time when the swarming impulse will appear, and this influence is quite in accordance with our theory.

If secretion of wax and comb-building has commenced we can delay swarming by satisfying this impulse. On this principle is based the "Simmins non-swarming system." Simmins induces the bees to build combs between the brood-nest and the alight-

ing-hole, and repeatedly cuts away these combs. Under certain circumstances swarming can be prevented in this way.

If we take from a colony some capped brood and give in its place combs with eggs and young larvae we can prevent swarming for several days, because we diminish the number of bees, which will soon prepare chyle and we enlarge the number of consumers of this chyle. To the contrary we can induce a colony to swarm if we take away open brood and give some capped brood to this colony.

Another observation made by beekeepers, especially here in Texas, is that during the main honey flow no colony will swarm if this flow is very good and if the colony had no queen cells when the flow commenced. In some years even drones are driven out of the hive by most colonies during the flow. Generally it is asserted that a honey flow is favorable to swarming. Here the contrary is true. This fact is not explained as yet, nevertheless the explanation is very simple. As a rule all worker bees eat pollen, if they need nitrogenous food, but during a very fast honey flow, if all hands are at work, a new division of labor takes place. Chyle is fed by young bees to the field bees and so all the surplus of chyle is consumed, sometimes even so much that the brood-nest is contracted too much and every empty cell filled with honey. That during such honey flows the field bees are in fact fed by the young bees, can easily be observed by any beekeeper.

It is recommended by some to prevent swarming by placing the queen with one or two brood combs in a new hive on the old stand. On top of it is placed a queen excluder, and over this the hive with the other brood combs. How can this way of prevention of swarming be explained by Gertungs' theory? At first it must be considered that the queen excluder is so much a hindrance for the bees that to a certain degree the two parts

divided by the excluder feel themselves as two different colonies, not so much that the bees above feel entirely queenless, and would start queen cells, but just enough that they nurse queen larvae, if such are present. The bees above are dissatisfied with the laying power of the queen, and will start queen cups and expect the queen to lay eggs in them. Above the excluder we find all the signs of the swarming impulse. The bees below the excluder are in the condition of a swarm, little brood and combs can be built. They will not swarm and the bees above cannot swarm. This is the reason why we can raise queens in such supers as well as from swarm cells, if the colony is strong enough. Here is to mention another important fact, that the young bees as long as they are nurse-bees generally do not leave the place in the hive where they have hatched from the cells, another reason why the brood-order should not be destroyed.

Mr. Getaz mentions the lack of ventilation as a condition which may induce swarming. He says the real cause is overheating. The brood itself by consuming a large quantity of food produces a considerable quantity of heat. If the hive is exposed to the sun and has no good ventilation the bees can hardly keep the temperature low enough to prevent the melting down of the combs. They sometimes remove the eggs from the cells. Young larvae may die by overheating, and so a surplus of chyle can be caused. Such a condition is very unsatisfactory to the bees, and sometimes they move out of the hive as a swarm without having started queen cells.

If we work for comb honey we cannot give a surplus of empty cells. The brood is crowded by the honey, which the bees store in the brood-nest because in the supers are no empty cells, but foundation not drawn out as yet, and so the condition is created by which the swarming impulse will appear. Here we need other ways to prevent swarming—about them in another article.

Prevention of Swarming When Comb Honey Shall be Produced

If a colony shall store honey in sections we need a small brood-nest, in which, if possible, every cell is occupied by brood; no empty cells should be present, in which the bees could store honey. Such a condition forces the bees to work in the section supers, but at the same time it is very favorable to cause a surplus of chyle, as the queen can not lay to her full capacity and so the swarming impulse will appear.

These small brood chambers have another diadvantage in the spring. They are not favorable to brood-rearing. To overcome this spreading of the brood is recommended, but generally more damage is done thereby than good. A better way seems to me to use a divisible brood chamber, large enough for brooding, and when the main honey flow commences remove one half of it to the top of the section supers.

The practice of comb honey producers generally was to let these colonies with small brood chambers alone. If they did not swarm the beekeeper accepted the situation thankfully; if a colony did swarm this swarm was hived on starters and set on the old stand, and the supers given to this swarm. If Heddon's plan to prevent after-swarms were used, and so some more bees added to the swarm, such a colony generally gathered as much honey as another colony that did not swarm at all. If we have out-apiaries for comb honey this plan can't be used; for this purpose we need a way to prevent natural swarms.

The best way to prevent swarming is to prevent the start of the swarming impulse, as I explained in my former articles. If this is not possible here the next best will be to satisfy this impulse. We can do this in different ways, as I will explain afterwards. The least satisfactory way would be to prevent swarming in a mechanical way, and at the same time having the condition which

caused the swarming impulse continued in this colony.

For instance we could prevent swarming by a queen excluder or a queen trap, but such a colony would probably swarm out every day till the old queen would be killed. Now a young queen would lead out swarms several times a day. During all this time very little is done in the supers, the bees are sulking, the whole state of affairs is apparently very unsatisfactory to the bees.

If we cage the queen and release her a certain time afterwards we can hardly expect a much better success. Mr. Getaz recommends the following manipulation: The queen is caged a little before swarming time, the queen cells are destroyed, and the queen released a few days later, but not until the colony has been at least four days without unsealed brood. I tried this plan several times and had no success. Dr. Miller reports in his book, page 179, no case of success with this plan. In other localities the plan may work better. Mr. Getaz explains his success in the following way: "During these 4 days or more without unsealed brood, the young bees having no brood to feed, take to the field, and become actually field bees notwithstanding their age, or rather youngness." I am sure this idea is not based on facts. It is proven by many experiments that under no circumstances will a worker bee fly out of the hive before she is about 12 days old. If this were not so, and a young bee could become a field bee, if not enough brood is present, the swarming impulse would never appear in any colony. If the plan succeeds the reason is that during that 10 or 12 days, while the queen is caged, a large number of cells will get empty by hatching of young bees. Now the queen is released; if the bees have not filled these cells with honey and if the queen is prolific she can lay many more eggs as she did 21 days before. These will be the nursebees now and they have enough larvae to feed and

no surplus of chyle is produced, at least not enough to arise the swarming impulse. Till all these cells are occupied with brood the danger for united. If the young queen shall be swarming may have past.

Another way is to remove the queen entirely and allow the colony to raise a young one, at the proper time destroying the surplus queen-cells. By this plan the colony is weakened considerably, even more than with the caging plan. It is said that a young queen, if fertilized, will not swarm in the first year of her life. Gravenhorst and Dr. Miller say she will not swarm if reared in the same colony, but if in a colony an old queen is exchanged with a young one, such a queen may swarm. Baron Berlepsch said that young queens of the brown German race would never swarm the first year, while with the Italian race we can't depend on this rule. Probably this difference in the race and the interruption of many days in brood-rearing are the real causes of these differences.

The proper way to prevent swarming, when queen cells are started already, is to satisfy the swarming impulse by making the swarm artificially. This can be done in different ways if some increase is wanted. If no increase is desired one of the simplest ways is that known as the "shook swarm system." By manipulating the old hive the whole force of bees can be thrown in the swarm on the old stand. This method has generally given satisfaction, but Mr. Getaz has the objection, "that a new brood nest has to be built and the work, honey and time spent thus would be more profitable in the super." This seems reasonable, but just this building of a new brood nest consumes the surplus chyle and cures the swarming impulse. If this surplus chyle is not removed the bees do more or less sulking. The plan has another advantage. As there are no empty cells in the brood nest the gathered honey must be stored in the

super, and there is done the most comb building; in fact, in the brood nest no more cells are built than are necessary for the queen to lay eggs. According to my experience this building of a brood nest is a clear gain. This shook swarm plan has another important advantage. During spring we can use large brood chambers, in which the colonies build up much better without any spreading of the brood and other manipulations. When the honey flow commences the bees are forced into the supers by making the artificial swarm and using a contracted brood nest.

Even this building of a new brood nest can be avoided in some localities, where a less radical management is sufficient to prevent swarming. I know two such ways since about 15 years.

1. The old colony is moved from its stand and a new hive containing some empty combs and some start-ees is set in its place. From the old colony we take a brood comb with one or more queen cells and set it between two empty combs in the new hive. By brushing or shaking, more bees from the old hive are added to this swarm, being careful not to get the queen in with the bees. (It will be best to cage the old queen during the operation). The section supers are given to the swarm on the old stand and the parent colony having the old queen is set to one side or on top of the swarm. By this manipulation the parent colony is weakened so much that the bees will destroy all queen cells. This generally takes place in less than 6 days and now both colonies can be reunited. The queen cells on this one frame of brood in the swarm are destroyed, the brood comb set back on its place in the parent colony, the new hive is removed and the parent colony set back on the old stand.

2. A brushed swarm is made on the old stand with the old queen, and the parent colony with queen cells is set to one side on top of this swarm.

just as with the shook swarm system. As soon as the young is hatched and has destroyed the other cells we can reunite. If the old queen shall be kept we do not need to hunt for the young queen in the parent colony. At evening before the bees cease to fly we exchange the places of the two colonies for about an hour, so that many field bees from the swarm will enter the parent colony; then the hives change places again. These field bees are used to an old queen and will, during the night, kill the young queen. The next morning the hive can be rearranged and the colonies selected the best way would be to wait till she is fertilized, then the old queen is found in the swarm, removed and both colonies united.

In this way no new brood-nest is built and the colony is divided during a few days only, the swarming impulse is removed, as the bees themselves have destroyed the queen-cells; but in some localities such colonies may make preparations for swarming again soon after manipulation.

Since some years I produce mostly bulk comb honey, which finds a good market here and pays better than section honey. I prevent swarming in the same way as described for extracted honey. When the supers are given they contain 3 or 4 drawn combs, the balance full sheets of foundation for comb-honey. These supers are accepted by the bees nearly as well as if they were full of drawn combs. I can't see any reason why this plan, with a proper arrangement, could not be used for section honey. Of course a part of the produced honey would be in the extracted form. For bulk comb honey we need this to fill up the cans, but if in place of the frames with foundation some sections would be given this extracted honey must be sold separately at a lower price. Experience would teach whether this plan would pay or not.

When the storing of honey is well under way in the supers I generally set a new super under those already

on the hive and many times in this case I use no drawn combs at all, but frames with foundation only.

Lately this plan of producing section honey and extracted honey from one and the same colony is recommended in the bee journals as something new.

Another way to manage for comb honey in sections, which will work in some localities, is to use a large but divisible brood chamber and to prevent swarming as with extracted honey. When the honey-flow commences a super with sections is set between the two stories of the brood-chamber. The queen and the most of the brood should be in the lower story. If necessary a queen-excluder can be used between this lower brood-nest and the supers. The upper brood-story is kept on the hive till the brood is hatched and the combs are filled with honey, then these combs can be extracted or used for winter food in the same or another hive.

Can Bees Hatch Eggs?

ELIZABETH GRINNELL IN LOS ANGELES TIMES.

Under the caption, "Bees Can Hatch Eggs," a newspaper story relating the alleged discovery by Henry Decker of Ashtabula county, Ohio, that "heat generated in a hive of bees can be depended on without fail as a substitute for sitting hens or incubators in the hatching of chickens." Concerning this story the editor of this page has received numerous inquiries. "Is it true, can bees hatch eggs?" "Do you take any stock in that story?" "Can you give us the exact truth about bees hatching eggs in bee hives?" etc.

In reply, I will say emphatically, yes, under favorable weather conditions. But let not the apiarists think to turn their disappointed prospects into sudden wealth in a non-honey season by giving the idle bees hens' eggs in place of honey, here in south-

ern California. It is a fallacy, believe me! I have investigated the subject, having kept bees for many years, both for fun and for the scientific information to be derived from their study, never financial profit.

The story goes on, as follows:

"One day while handling a swarm of bees he recognized that the temperature of the bee hive was similar to that which he maintained within the incubator. Subsequently a thermometer proved his supposition to be correct. The idea of making his bee hive do double service then dawned upon him. Accordingly twenty eggs were placed within the hive as an experiment. Opening the top of the hive the eggs were placed on a cotton cloth, thus separating them from the bees. Around the sides a cushion made from a quilt was placed and over the eggs another cushion was put in before the cover of the hive was returned to its position. Out of the first twenty eggs eighteen chickens were hatched. The proportion in many subsequent experiments has been similar. The claim is made that one hive in this manner may be made to do the work of eight sitting hens and at the same time yield 100 pounds of honey in one season. Since Mr. Decker's experiment has become known, he has been flooded with inquiries from farmers and bee keepers."

"One day while handling a swarm of bees he noticed," etc. Now it is a well known fact that apiarists do not disturb bee hives at other times than in the middle of the day, and seldom at any season of the year save in mid-summer. Had Mr. Decker (if such a man exists) taken the temperature outside the hive he would probably have found it the same as required in his incubator. In a warm day the bees temper the heat condensed by the reflection of the sun and surrounding objects to a temperature as near the uniform as possible by simply fanning constantly with the wings. Extreme heat is far more fatal to bee brood than low temperature. That

bees do cover the brood at night, exactly as a sitting hen hovers her eggs, is true, but I believe, for the purpose of keeping out or off from the eggs a possible draft. Bees are cold blooded insects. Their blood is white and cold, not red and warm. The agitation they constantly keep up cools the hive in midday, and at night the calm packing together of the whole colony in a hive tends to preserve uniform warmth. Eggs of any bird, or the young animals, unmothered, which fall to our care, are best preserved under cover. They are too weak to endure cold drafts of air. Beyond the naturally protected temperature of the especial season I do not think that bee brood is warmed by the worker or nurse bees. I have had observation hives in the house both summer and winter for years on purpose to watch proceedings. When the temperature of the room is suitable the bee brood hatches in midwinter. But when exposed to cold, even though covered completely by adult bees, the brood dies. Were it not for the impossibility of the old bees warming the brood in winter, here in California, we should begin to have full hives by New Year, and so honey with the first orange blossoms. But we must wait until the cold nights are tempered before the bees make brood and by that time, if the fogs follow, we get no orange honey.

It was several years ago—perhaps four or five, I haven't the exact date—that I first took to setting eggs under or rather on my bees. It was after the summer's crop of honey had been made and the honey boxes taken off that I began the experiment. Now, you must know that the large hive proper is given entirely to the making of brood. Bee keepers never disturb this nursery chamber. Above the hive are placed the honey boxes, which the queen never uses as a depository for her eggs. The workers pass up through little slits made on purpose for them from the lower brood chamber into the super or hon-

ey boxes and there construct the comb which they fill with nectar. There is no brood in these upper sections. Read carefully what Mr. Decker is said to do with his eggs. It is in this "upper honey space," not among the brood, that he places his twenty eggs. He first lays a cotton cloth all over the top of the brood chamber upon which he "sets his hen," so to speak. Then he cushions the entire setting all around, soft and warm, puts the cover on, and presumably hears peeps in nineteen days. Not a word about turning the eggs, as incubator eggs are turned, each day. From this same mother-hen-bee-hive is taken a hundred pounds of honey by the time the nineteen chicks are ready for their first breakfast. This sounds very plausible, provided one is not acquainted with bees. But how do Mr. Decker's worker bees get to the top sections to store their honey? Certainly not by way of the honey boxes, which are all "cushioned over." Possibly by an outside stairway? Oh, Mr. Decker, were these castles regarding double duty imposed upon your bees only better detailed we might believe!

I laid the cotton cloth above the brood chamber with all faith, placed two dozen eggs on a pad, cushioned the whole, and tucked my prospects in. This was in August, our warmest month. From time to time I lifted the cover and counted the eggs. All there! At the end of the natural term, according to Biddy's reckoning, I set a basket beside the hive in which to place the chicks, which by now, must be "nest ripe." Behold, the eggs were unbroken! Not a single pip! I broke them and found every one as fresh as the ordinary store egg, and so fit for market. I tried it again with the same result. Then, thinking the brood chamber itself would be warmer, I made a thread hammock and suspended four eggs between the frames in the middle of the hive, lifting them out and turning them each day, as incubator eggs are turned. In due time they did not hatch, and ex-

amination showed me fresh eggs. They were fresher than if they had been left on the kitchen shelf, for the bees had fanned them, with the brood, when the temperature went up beyond normal heat. The late Hon. Walter S. Melick, editor of the Pasadena News, called just as I was in the act of setting my bees on hen eggs, and the idea so impressed his naturally humorous mind that he actually laughed at my expense, standing knee-deep in the green alfalfa. Next evening there appeared in his paper the following editorial, which I unfortunately clipped without the date:

"Mrs. Grinnell is always doing something new and unique, and she does it with such good nature, force and patience. Just now she is carrying on an experiment which is amusingly unique. She would rather that nothing were said about it until she has made a success. It is so funny, however, that I cannot keep it longer. So to keep from 'busting' with the secret the valve is pulled back and the story will be let out now. Hold my hat until I quit laughing before I start to tell it.

"Here goes! Mrs. G. is undertaking to hatch out chicken eggs with her bees. She has a whole swarm, queen, workers, drones, all hatching out those hens' eggs. She feels certain that they will make it. The eggs are right up in the middle of the swarm among the brood combs. Every few days Mrs. G., with her bare hands, reaches up among her pet bees and turns the eggs over. She expects the eggs will hatch in the regulation three weeks, for she thinks it is about the right temperature in there to bring chicks out of the eggs.

"Supposing Mrs. Grinnell is successful and the little chickens do come out of their shells in there, who will be the most surprised, the queen bee, the workers, the chickens, or the public generally? What will the bees think of their little ones, and what will the chicks think of their Italian mothers who brought them into this

strange world, so full of sweetness and stingers and things. Then, who will be the real parents of these little ones? Will it be the hen that laid the eggs, Mrs. G. who set them, or the bees which natched them? Then what will the new beings look like? Will they have stingers? Will they have honey suckers and take to the flowers, even more than one's neighbor's chickens and bees generally? Will they look most like bees or chickens? Then, who will scratch and cluck for them? Or, will they want some mother to buzz and sip honey for them? Bees have eyes back of their heads. Will these new individuals have such eyes, also honey-pouches, with gizzards in them? Perhaps some scientist will tell us in advance of the hatch."

So much for fun, and now for the truth. Such experiments as these might succeed in places back East, where the nights are the same temperature as the days, and people and things generally swelter the whole twenty-four hours. But here in southern California, where by sundown we have the sea breezes tempering the day's heat to a comfortable coolness, it is different. I have tried hatching eggs in the attic, under ground everywhere, with no success whatever, by reason of our weather changes. After a few warm days that set the eggs out on their journey there follow as many foggy days—and "goodby, experiment." Back East I have known eggs to hatch in a cupboard, left by mistake on a shelf out of sight. In fact, if not closely watched back in Kansas, and Ohio, where Mr. Decker is said to live, it is almost impossible to get anything save incubated eggs the whole summer season. One does not have to take the troupe to set bees on them. Last week I tested the temperature in two of my hives. At sunrise the thermometer registered exactly the figure outside, below 50. At noon I tried it again, the thermometer lowered between brood combs, and found it 103, the same as on top

of the hive in the sunshine. I tried again and again with the same result. If any experimenter has better luck I should be glad to hear from him or her. Until then let readers of the newspapers take a little salt with the eggs Mr. Decker is setting under his bees.

Hardscabble Letter.

Forks uv Snaky Canyon which is uv the State Colorady, May 25, 1905.

Mister Editor:—In mi last lettur I told you that I would begin mi skin-in operashuns on you an that man Putnam, but troubles are cumin again on our orthodoxy teachins so fast that I think I will have to git a tommyhawk an a pitch-fork to work with instid uv a butcher nife. Thare is that man, that anarchist, Arthur C. Miller, who has been tellin' of a new way to introoose queens; that bees does not pack the bee-bred down in the cells with their noes an a whole lot uv new heretical things, he has bin 'pinted editur on the American Bee-Keeper whare he can say all sorts of things again our tradishunal teachins. Then thare is Ernest Root, he has just sed that his baby nuclei keep warm better in the cubical hives than they do in the Langstroth hives. An now comes Hutchinson an tells us he wrote his book a new an sez that he has throwed away sum of the chapters in the old book; that most of those that have bin retained have been rewritten wholly or in part an many new chapters added. It looks like Hutch has gone an throwed the whole dadgummed thing away an commenced at the bottom again. O, why did he do that? The book was only rit a few years ago an it was surely autherodox enuff. Is Hutch and Root goin' to jine our enemys an help to murder our cherished teachins? What are we cumin' to any way? Orthodoxy will be murdered in the house uv its friends I am afeared. What on earth has got into these fellars to cause them to do sich things? But that don't exkuse you

Mister editor, fer your jumping in an startin' up a new bee journal. Didn't York tell you uv it good? tell you how mean it was in you to do sich things? You had no rite to go an start a new journal when we already had so many orthodoxy papers. An you had no rite to by up them other newspapers fer tha had no rite to start up, so to speak. You all art to help our orthodoxy papers and not dare to go whare angels are afraid to, or words to that effect. An Putnam. didn't tha tell both uv you how mean it was to start up a new paper an try to take away their subscribers when tha had built up the beekeepin industry? Uv course tha didn't have to tell you that the bee keepers was supportin them. That was not their bizness. It is tru that sum uv York's correspondents are foolish enuff to ax us to anser their questions, but tha art to no that its not orthodoxy fer York to print an tell whar tha live at. So if we anser them we must advertise an pay York to tell us whar to rite to. Your subscribers makes the paper but then tha have no say about it. Its the editur's stock in trade to sell as he wants to. Several have ritten me an axed me not to subscribe fer York's paper because he wont tell whare nobody lives at what rites to him, but you don't ketch John goin again our orthodoxy rools like that. Well, Mister editur, as York an Hill give it to you fellars about rite an I have so many other fellars to look after I will have to let you go till sum other time.

Thar is that feller T. K. Massie, who wrote a book in 1905 full of all sorts of heretical doctrine of the meanest kind. He had the cheek to tell us that we injured our honey trade by selling light-weight sections. Now cums L. V. Rickets an A. C. F. Bartz in the old Reliable an sez the same thing. Thar are sum others what sez it also. These fellars must have flys all over 'em an their mother's must had warts on their noes, an their gran mothers korns on their toes, or tha noed it was the orthodoxy rool to sell

14 ounces of honey an call it a pound. The fool people art to no that if we did cheat 'em in quantity we would not cheat 'em in quality. What does it matter if we do cheat our customers out uv a few ounces of hunny and make a dollar by it. Can't York an Hutchinson an a few more uv us leaders organize a league fer em an by payin out five dollars to advertise our hunny, can't we again build up our hunny trade? It is more orthodox to cheat our friends—our customers—out uv sum uv their money an pay it out to our enemies what has bin tellin lies about our hunny bein dultered. Thar is the Ladies Home Journal fer one. It told a big lie on us but can't our league now pay the editur \$1000 fer a quarter uv of page an git him to tell the truth fer us? So you see it is much better to cheat our friends out uv a little bit an pay a big sum to our enemys to git the truth told fer us. Sum are kickin again us leaders because we organized the league without tellin the commonfellers what we was goin to do. Whats in sich fellers anyway? Don't we no what tha need? Yes, sir, we do, an when we say the word tha all art to brake their necks fallin over each other to git in line an follow us, yes, an pay up their dues promptly. What need we to care fer the common people? Tha ain't got no rites fer us to respect. Now seein that we can do all these things what are these anarchists kickin again our orthodox light-weight sections fer? Does their consences hurt em? Tha art to be hung up by the toes fer 17 weeks. A big injun once captured a nigger. He sed the nigger was a fine large portly feller with pearly white teeth an he would make a doctor out uv him an make money off uv his tribe, but the nigger sed he noed nothin about medicine an his consence would not let him cheat an kill the poor injuns that way. Then the injun sed, "you black nappy-headed rascal, don't you no it is the rool uv nature fer the big fish to eat the little ones? An sich a thing as you talk about havin' a

consence! I'll give you consence." So he killed the nigger an skelped him. That's the way to do anarchists.

JOHN HARDCRABBLE, Jr.

National Convention.

The Inter-National Fair holds its annual exhibition in San Antonio, Texas, Oct. 21st to Nov. 1st. When this fair is in progress, there are very low rates in force on the railroads out for 600 or 700 miles. Then there are Harvest excursions from the north on the 2nd and 4th Tuesdays of the month. The 4th Tuesday in October comes on the 24th. Considering these facts, it has been decided to select Saturday, October 28th, as bee-keepers' day at the fair. This will give ample time for members from the north to reach the city by startng the 24th. The regular sessions of the convention will begin Monday, October 30th, and continue three days.

The Fair Association has designated Saturday, October 28th, as bee-keepers' day, and will so advertise it, and especial pains will be taken to have on exhibition hives, honey, wax, bees, and other apiarian products. At this fair will be on exhibition all of the agricultural and other products of the South and Mexico, and a visit to it will readily be worth all the trip will cost, to give on an idea of the South and her products.

Then the Texas members propose to give a genuine Mexican supper which will be free to all outside members. There will be Mexican band and toast-making—in short, it might be called a banquet. On Sunday the members can attend church or go on a trolley ride around the city. Side-trips to Uvalde and other places are planned for all who wish to see the country after the convention is over, bee-keepers at the various honey-centers having promised to take bee-keepers around free of charge. Texas is one of the greatest, if not the greatest, of honey-producing states in the Union, and bee-keepers will now have

an opportunity to see her wonderful resources, enjoy the hospitalities of her people, and profit by meeting in convention, all at a very small cost.

The headquarters of the National Association will be at the Bexar Hotel (pronounced Baer, long sound of a), corner of Houston and Jefferson streets, and rates are only \$1.00 a day, and up. The convention will be held at Elks' Hall, 125 W. Commerce St., only two blocks from the Bexar Hotel.

Everything is now all arranged except the program, and I wish that every one would write and make suggestions in regard to topics and men to discuss them. If you have no special topic that you wish put into the program, you must surely have some question that you would like brought before the convention. Pour in the suggestions and queries, and let me get up one of the best programs that we have ever had.

W. Z. HUTCHINSON, Sec'y.

EDITORIAL.

BY P. F. ADELSBACH.

Prof. J. A. Cook is now on his way to Europe, where he will spend a year or two in rest and recreation. It is expected that he will write some interesting apicultural "copy" while he is away.

We notice that the newspapers of this section are publishing more and more about bees and honey since the Western Bee Journal came into existence. Nothing like calling the attention of the newspapers to a certain thing in a persistent sort of way, you know.

Southern California will have about one-third of a crop this year, Central California will have a good crop, Colorado will have about 60 per cent of a crop, Arizona will have the highest crop

in years, while a fair crop is expected in Texas. Nevada will have a good crop. It is reported that southern California will have about 125 cars of 20 tons each, the estimate being based on the number of cans being sold so far. That is our crop report.

The Western Bee Journal continues to please its subscribers, and the effort its publisher is making to make it better seems to be appreciated in no small measure. When we get letters like the following it does us good:

Blaine, Kansas, June 22, 1905.

P. F. Adelsbach,

Editor Western Bee Journal,
Kingsburg, Cal.

Dear Sir:—I am a subscriber to your Bee Journal and like it so well that I would like to have all the back numbers of it from the time you began to publish it, up to February, 1905.

Yours truly,

JOSEPH W. JACKSON.

Los Angeles prices are quoted as follows for this year's crop of extracted honey white 5 cents, light amber, 3 3-4; amber, 4 cents. If the market is not forced the prices may be better.

Frank Benton in charge of Apiculture, Department of Agriculture, Washington, D. C., has gone to the far East in search of foreign races of bees. He will visit Europe first after which he will visit Transcaspia, Afghanistan, then through northern India. From Calcutta he will go to Singapore, Manila, making a special study of apiculture in the Philippines. Great results are expected of this tour.

This publication is published independent of any supply house. Its sole support comes from its subscribers and advertising patronage. We therefore, should like, when readers are answering advertisements, that they mention the Western Bee Journal.

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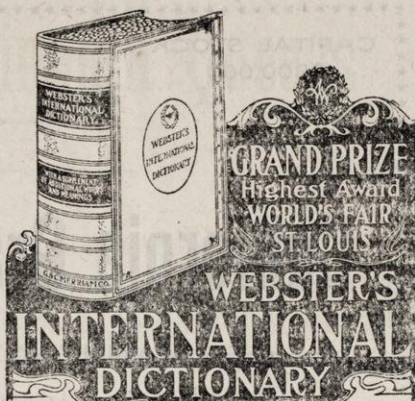
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