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March 31, 1909

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A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W.
Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

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MARCH 31, 1909.

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Editor & Publisher: E. TIPPER, West Maitland, N.S.W. Aus.

MAITLAND, N.S.W.—MARCH 31, 1909.

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USING HONEY FOR CANNING FRUIT.

So far I have used honey for canning fruit only in a small way, but have watched the results carefully, and am fully convinced that it can be used in place of sugar for any kind of fruit with much better results than if the sugar were used. When using honey I have never had a can spoil, and have always found the fruit far better and richer than that put up otherwise. We have been eating some peaches this winter that were put up 3 years ago, and in that time we have moved once. In every instance the “gude mon” has handed up his dish for a second helping, which is always a sign that it “hit the spot.” I would, therefore, advise those wishing to try the honey to do so by all means.

Formerly, when I canned strawberries I took 2 quarts of good firm berries, just from the vines, stemmed them late in the day, rinsed them quickly in cold water, and drained in a colander until I could prepare another can. I put them in a stone crock and covered them with a cup of granulated sugar and set them in a cool place until morning. I then put them on the stove, boiled them well, and canned them. With this amount there is enough to fill a quart Mason jar, and a little over for a taste. When using the honey in place of sugar the same method

is followed except that only half a cup of honey is used, which is poured over the berries so that it goes down through and all around them. We are careful to use good fruit, as one over-ripe berry may spoil the whole lot. Cherries, raspberries, and blackberries may be canned, using about half the amount of honey that would ordinarily be used of sugar. The larger fruits, such as peaches, pears, quinces, etc., are also improved by the honey.

Fruit must be handled right in order to be good and we must be free from other duties while canning it. A very safe rule is, to follow whatever plan has been found successful, substituting half the amount of honey for the sugar. I am sure no one will be disappointed.

For cooking purposes, making pickles, etc., honey is just fine. We never buy molasses, corn-syrup or glucose,—“ugh!” You should see some of my gingerbread which Mr. McGlade says is the “cake that takes.” Here is the recipe—try it for yours-lf :

Two eggs, cup granulated sugar, cup and a half of honey, cup of sour milk or butter-milk; cup of butter or lard; teaspoonful of cinnamon and a teaspoonful of ginger. Beat all together and add two teaspoonfuls of soda dissolved in a little hot water; flour to make a thin batter (about 5 cups). Bake slowly.

We use honey in making pumpkin pies—a generous teaspoonful to the pie. Furthermore, we use honey on the table every day, and our little boy never tires of it. He helps himself with a spoon whenever he likes, at mealtime or between meals, and has not had a cold nor seen a sick day this winter, although he runs and plays out in the fresh air in all kinds of weather. Of course, honey can not be given entire credit for this, but it helps, and is cheaper than doctors' bills.

Some have asked whether fruit can be put up cold by simply filling the can with the fruit, covering the fruit with honey, and sealing. I have never tried

it, because I don't believe the fruit would keep or be good; but if any one wishes to be convinced, let him try it, for it would cost only about 75 cents.—Mrs. Frank McGlade, in “Gleanings.”

BEE-CULTURE IN WALES.

I spent my annual holiday last year during the month of August at that most bracing of seaside resorts on the North Wales coast, Rhyl, whence on my bicycle I made frequent excursions into the surrounding country. One day I attended the Agricultural Show at Corwen, and was pleased to find a bee-tent in the centre of the ground, in which Mr. David Roberts, an enthusiastic and experienced beekeeper from Llanlidan, Ruthin, was lecturing on beekeeping in the Welsh language to a large and interested audience. At his request, I joined the lecturer in the tent, and helped him to drive a skep of bees. When I spotted the queen the lecturer had no box in which to place her majesty for inspection, but when I placed my hand before her she crawled on to it in a most gracious manner, and remained almost stationary till she was seen and admired by all around the tent and had been photographed! This was Mr. Roberts's first appearance as a lecturer, but he seemed quite at home in the tent, and his lecture and demonstration was much appreciated. I hope his services will in the future be secured in other Welsh-speaking districts. Wales, with its wealth of bee-forage, especially clover and heather, is an ideal country for bee-keepers, but I was surprised to find so few modern hives in the district which I visited during my holiday. At the Flintshire and Denbighshire show last year the honey-classes were cancelled at the last moment owing to lack of entries, but the Chester Show had some very good samples of Welsh honey from those countries. At the present time in North Wales there is, I believe, only one county beekeepers'

association—viz., in Anglesea, where I have been invited to lecture on two occasions. There are signs that Wales is waking up to the advantages of modern beekeeping, and now that the bee-tent has arrived I hope we shall soon hear of great strides forward in more than one county. Writer in "B.B.J."

CORRESPONDENCE.

Dear Sir,

Pressure of work prevents me from writing on subjects I had a mind to write on for this issue; but I will endeavour to make up for loss time later on.

What I want to draw attention to at present is Mr. Trahair's letter in your last issue, which speaks for itself.

Will you, as the Editor of the A.B.B. for 17 years, make it your business to be there in the interest of the beekeeping fraternity. Will *bona-fide* beekeepers attend, or will it be left to others to direct how to look after the interests of beekeepers and those interested in the industry? Beekeeping and those interested in the industry are two different things. You and every beekeeper is now called upon to carefully consider these points and to voice his opinion at the proper time. Looking on or leaving it to others to decide for you will not do, concerted action on behalf of beekeepers is necessary. Prepare yourself to protect your own interests—it is the interest of the fraternity and each is a part of the whole. If your interests clash with those of others defend your own with vigor and energy, but do not let the others rule you. Rule them!

I shall be glad to see persons of our fraternity at any time during the Show at my exhibit at the Show, Sydney.

With best wishes.

Yours truly,
W. ABRAM.

Dear Sir,

Re my letter in last issue of A.B.B., have had a few replies, sufficient to warrant my making arrangements for a meeting during Easter week; place and time think it wise to leave until the last possible moment, and then I will write to all that have made enquiries and others that I think will be in town. Will also have notices posted in the honey pavilion at the Show ground. Would suggest Saturday or Easter Monday evening so as to catch everyone; if too early, some not arrived and if later, some may have returned home.

Thanking you in anticipation of your very best assistance,

Yours truly,
JAS. TRAHAIR.

B.B., Mahora P.O., Hastings H. B., N.Z.—We are having a very erratic season. Last season was too dry for a crop, and this season is too rough. Hoping you have better luck.

J.W., Glenorchy, Vic.—I only keep a few hives but am always glad to get your paper. I don't think the beekeepers about this part are doing too well this year; plenty of blossom, but very little nectar.

J.F.B., Dungowan.—This has been a pretty fair season for honey here, the best for several years. The bees, however, are very fierce; I am almost afraid to go amongst them.

J.G., Gunnary.—I have had a very poor year here. I have taken no honey from my bees this season, but I am getting a bit of a fall flow now from stringy bark, but will leave it to them for winter supply. I still have a quantity of honey left from last season yet, but it is selling pretty regular now.

T.A., Katoomba.—My bees are doing pretty well this year, but it has been very wet the last month.

BEES v. FRUIT.

THE BIRDS AND NOT THE BEES ARE TO BLAME; THE LATTER CLEAN UP WHAT THE FORMER DESTROY.

BY W. A PRYAL.

The question, "Do bees destroy fruit?" has been pretty well answered in the negative long before this; still, there are some persons who to this day insist that bees are the guilty marauders. I have lived among fruits of various kinds all my life, and I must throw the weight of my testimony in favour of the bee.

The past season I watched with more than usual interest the destruction of the fruit of some Royal apricots that grew at one side of my apiary. Some of these trees furnished shade for many of the colonies. I found bees working on the fruit from morning until night. When fully ripe this fruit is luscious. There is, to my mind, no finer fruit than a fully ripe apricot, for it comes very near being as rich as the best grade of well-ripened honey, and the best of it is you can eat more of them than you can of honey.

In all my watchings I was not able to find a single case where the damage to ripe fruit was started by the honey-gatherers. Many linnets were about, and they are a sore pest to the fruit-grower. In May they begin on cherries, which they slaughter badly at times, and they run through the gamut of tender-skinned fruits well into the fall. They usually choose the ripest and finest fruit for their prey. They seldom make more than half a meal of a poor or under-ripe fruit, but they simply dive head first, as it were, into the dead-ripe 'cots.

A fruit once opened by the birds is later set upon by the bees, and they keep up their toil till nothing is left but the skin and pit. And the bees might as well have such fruit, for once it is damaged by the birds it is useless for marketing. If it is not picked at once it begins to decay; and if not removed from

an adjoining sound fruit, which it may happen to touch, the neighbouring one will rot too. Thus it is seen that in such a case the bees are a benefit to the orchardist. And here let me mention that the birds do not feast on a fruit more than a single day. They seem to want fresh fruit every time they begin a meal. From this it is evident that a large quantity of apricots is ruined.

Pears, peaches, figs, and a number of other fruits whose juices are sweet, are cleaned up by the bees when first punctured by birds. Some varieties of plums are liked by these insects, especially the French prunes. Juice of fruit of the plum kind soon ferments, and I have been told by Mr. W. E. Stewart, of Danville, Cal., that he has seen thousands of bees at a time as tipsy as lords from quaffing of alcoholic plum or prune juice. This, no doubt, was a case where they were too "full of prunes." The gentleman I mentioned also stated that he and others noticed some years that, where bees filled up on the juice mentioned, they died, possibly of chronic alcoholism—poor things! He said several years his hives became much depopulated through this means. In my apiary I never noticed bees under the influence of the "drink habit," possibly for the reason they had no chance to become full of prune juice, as we have but a single tree of the French prune, though we have many varieties of plums.

Bees are fond of grape juice. I never heard of their getting drunk on it. It is possible that this fruit does not ferment as rapidly as the more slightly acid fruits.

Bees clean up grapes rapidly when they are injured by birds or when they rot or crack after early and unexpected rains.

Twelve years ago when on a visit to a commission house in San Francisco I was given a sample of a rich jelly-like article from a five-gallon can. I was asked to taste it, and state how I liked it and what I thought it was. I remarked that it resembled apricot jam with a

slight honey flavor. I was then told that it was apricot "honey," that it was gathered by bees up the Sacramento River, where apricots were being dried. I should think the bees got the best of those 'cots. In such a case it behoves the apiarist to take his bees far off, or else for the orchardist to "kiln-dry" his fruit instead of sun-drying it, that bees might not swarm upon it and do too much damage by carrying off the juice. But seldom do we hear of any great injury of this sort.—"Gleanings."

HELPING THE SALE OF HONEY.

BY DR. G. BOHRER, IN "AMERICAN BEE JOURNAL."

Under the above caption, Dr. Miller asks me a number of questions, upon all of which I have expressed my views in former articles, if memory serves me correctly. I will, therefore, recapitulate as briefly as possible in substance what I have said, or aimed to say, heretofore; and will, so far as I am concerned, dismiss the subject for the present at least. I will also say that I have no ax to grind. I am not in the bee-business for either financial gain or notoriety, as I am too far advanced in years to think of managing a large apiary, being nearly 76 years of age. And at this period of life, it is scarcely to be supposed that I should thirst after fame. To keep myself pleasantly employed, my life having been a busy one, and having a beautiful farm that I improved as a soldier's homestead, upon which to pass the remainder of my days, I still feel it a duty to learn all I can about the pursuit of apiculture, and, if possible to aid others who may desire to become bee-keepers; for among all the industries engaged in by mankind, apiculture has been the most slighted, nearly all the legislative bodies of the world having given but little aid or encouragement to its advocates, devotees, and admirers; and Dr. Miller, and all interested, may

rest fully assured that I will throw no obstacles in the way of a ready market for the well-earned products of the apiary.

I deem it no injustice to beekeeping to tell the truth, and the whole truth, concerning the properties of honey and beeswax, as far as I understand them. I did not state the *fact* that beeswax possesses no nutritive properties available to the human system; that as a laxative or cathartic proper, it never was, is not now, and in all probability never will be, recognised by standard authorities upon the properties of medicines; and that whatever effect it may exert as a laxative, is wholly due to its irritating effects as a foreign substance, being entirely unassimilable, and can not on this account, if on no other, act through the organs of assimilation and excretion, as cathartic medicines do. I also stated that to say the most in favour of wax when served in the shape of comb with honey, it is simply ornamental; and I will now in this connection say that a great many persons, notwithstanding the foregoing facts, will purchase and use comb honey as food, just as many persons buy and wear tight shoes even at the risk of rearing an interesting crop of corns. But it is but proper to state that honey in the comb is not used as food in quantities sufficiently large for the wax to do much harm.

I also stated that a few persons can not use comb honey as food, on account of the fact that it produces spasmodic colic, which is due to bee-sting poison, which is spread over all the exposed surfaces of the combs of all colonies of bees. This is not a new idea of mine, for as long ago as 1866, I had a talk with Mr. Langstroth at his home in Oxford, Ohio, and, among other matters, bee-sting poison being deposited upon the combs of the hive was mentioned. Concerning it he remarked, "What a fine thing it is that so few persons are susceptible to its influence."

I have stated that the uncapping-knife removed this bee-sting poison, and that in all probability, persons who can not eat comb honey may use extracted honey without experiencing any unpleasant symptoms, I also stated that extracted honey can be produced in larger quantities with less labour and less expense than comb honey, and that in the extracted form it is in the most wholesome shape as food.

As to whether bee-sting poison is spread over the surface of the combs as a vapor, or whether the bees deposit it directly on the combs by travelling over them, is not important for practical purposes. And as to increasing the sale of honey, I stated, or meant to state, that the pure food law, rigidly enforced, is doing, and will continue to do, more to increase the sale of honey, both in the comb and extracted forms, for now people who believe that comb honey is manufactured by machinery and filled with artificial honey, and sold as pure honey, are seldom ever found. And they are also rapidly learning that when extracted honey is labelled "Pure Honey," it must be such. I think that no one knows better than Dr. Miller that many people have, for years past, refused to buy honey on account of its being thought that pure honey was very difficult to obtain. With this difficulty out of the way, the sale of honey ought to increase very largely, and I believe it will.

Dr. Miller also asks how I know that all the bees in the hive thrust out their stings when their hive is materially jarred. In answer I will state again what I thought I had stated heretofore. During the sixties I had one of the large Langstroth observatory hives in use. When the cover was raised three sides of the brood-nest were exposed to view. During cool days I often raised the cover, and as far as I could see every bee in sight would thrust out her sting, and a small particle of fluid could be seen on the point of each sting. So that I feel

quite safe in reaching the conclusion that every worker-bee in any hive, will, and does, resent any and all such disturbances of their home. And when the poison is thus thrown out in the hive, it is not at all likely that it is entirely removed from the hive, but reaches the surface of the combs, and as the process of evaporation is constantly going on in the hive, when honey is being stored, it is not likely that any poison is ever combined with the honey in the cells, and it is almost absolutely certain that the bees never dip either their feet, body, or wings into the unsealed honey in the cells.

Now, if Dr. Miller or any one else has a better solution of this question, no one will be more ready to accept it than myself. For actual facts are what I hope all of us are in search of, as nothing short of this method of dealing with unsolved problems will ever place the industry of beekeeping on that high plane that it merits and the wants of humanity demand.

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FOUL BROOD—HOW TO CURE.

(Read at the Ontario Convention)

By Wm. McEVoy in "AMERICAN BEE JOURNAL."

During the past season I inspected 63 apiaries, and several of these I inspected the second time. I found dead brood in every apiary, and in many apiaries I found a great deal of dead brood in every colony. I was astonished at the mistakes that were made and the reports that were sent to the papers. When will beekeepers learn the tell the different kinds of dead brood in every stage and form from each other?

I did not find much of the real serpent (foul brood), but I found large quantities of starved brood. This class of dead brood was found in very many localities in the Provinces of Ontario, Quebec, and Nova Scotia, and also in very many parts of the United States.

With so many apiaries in this condition, and the alarmists holding up "death's head and the cross-bones," it frightened the beekeepers, and caused many to worry a great deal over their bees, and then many samples of dead brood were mailed to me. I answered all these letters of inquiry very promptly and saved the most of the beekeepers from any further worry.

There never was a time when things needed clearing up so much as now, but before going into this I will give some of my experiments and discoveries.

In 1875, when foul brood broke out in my apiary, I did not know what to do to get rid of the disease. I wrote to the best beekeepers for advice, and all advised me to burn every hive of bees that I found the disease in. I did not want to destroy any colony if I could by any means save it, so I went in to do my best to cure if possible.

Everything I did at first ended in failure. I then took all the combs out of several brood-chambers and filled them with white combs that never had brood in, thinking that this might result in cure. All these would have ended in failure if I had not made one very important discovery, and that was the testing of the honey and finding it to be diseased. One colony that I had taken all the combs out of, and had given it a full set of dry white combs, became a little restless, and thinking that something might have happened to the queen, I carefully spread the combs without disturbing the bees very much, so as to find the queen sooner, I found her all right, and I also found that the bees in the short space of time had stored a little honey in these white combs. I extracted what little honey I could get and fed it to a sound colony, and gave it foul brood at once. This test proved to me beyond every shadow of doubt that the disease was in the honey as well as in the old combs. After that I went in for getting all the honey taken away from the bees after they were given in the white combs, and along these lines I cured every case by the use of two sets of combs and the frequent use of the extractor. This was so much work, but it was the best plan that I had found then. It was plain to be seen that all the honey in foul brood colonies was not diseased, because if it were no brood would ever hatch that it was fed to.

I found honey stored in a cell which had a thin crust of foul brood left in it. I took a wire, ran it from front to rear across the comb and right over the diseased cell. I then ran a wire up and down the comb, and also over the same diseased cell. The wires being crossed over the diseased cell gave me a good mark on it. I then took a pin, and with the head of it lifted the honey out of the bad cell and dropped a little of it on the brood in the cells along the lower wire, and soon after the brood in all

these cells died of foul brood. I then took a clean pin and lifted honey out of several clean cells and fed brood under the upright wire, and failed to start the disease in any of these cells.

This test proved to me that the honey to become diseased must be first stored in cells where foul brood matter had dried down. When the bees began storing pretty fast I took the combs out of a number of diseased colonies and shook the bees back into the same hives, and then put in empty frames and left the bees to build their own combs. The bees soon made a little comb and then stored part of the honey they took with them from the diseased combs, and after that foul brood broke out again in the colonies that had been the worst with the disease. I took away the little combs made during the first four days and left the bees to build more combs. This made a sure cure in every case. I saved the brood that I took from the diseased colonies and tiered it up on the weakest, and when the most of it was hatched I treated these colonies.

When the honey season was drawing to a close I found a few cells of foul brood in several colonies that were full of good brood. I worried a good deal over this, because I saw that it was going to be pretty late to get curing done by comb-building in the fall when the brood was all hatched, even if I could get suitable weather to feed sugar syrup while the bees were building comb. And on the other hand I also saw that if I destroyed all this brood, that I would have nothing left but the old bees to go into the fall and winter with, and that the most of these bees would "peter out" with old age before spring. I saw that I had to have all this brood hatched so as to get plenty of young bees to go into winter quarters with. I also saw that I had to get all these colonies cured before winter. Now how was this to be successfully done and have all colonies brought into spring in grand condition?

After some more study, I thought of another plan, and that was to feed the sound colonies abundance of sugar syrup, and by so doing get the bees to fill and seal every cell in the outside combs right down to the bottom—a thing they did do. When this was done I took these outside combs out which were full of all-capped stores, and saved them until an evening in October when the brood was all hatched out of the combs in the diseased colonies. I then took the combs out of the diseased colonies, shook the bees off them and put in the sound combs of all-capped stores, and, these not having any place in them for the bees to store the diseased honey which they took out of the old combs, the bees had to consume it. This made perfect cures in every case, and the colonies that were given the all-capped stores came into spring the best of any in my apiary.

These methods of treatment by which I cured all of my colonies in 1875 were all of my own working out. I never got any instructions from any one. My method of curing diseased apiaries, which I have so often written up, are too well-known to need repeating. Big crops of honey have followed my curing in all parts of the Province. I will here mention two of these.

In 1888, I myself cured 40 colonies for Mr. James Marshall, of Binbrook, that had foul brood, and in 1889 he took 8,000 pounds of extracted honey and increased to 62 colonies.

In 1898, I cured an apiary for Mr. J. B. Hall, of Woodstock, and in that same summer he took an average of 140 sections of comb honey per colony, and left his bees abundance of honey to winter on.

Before, and for several years after, I was appointed inspector, foul brood colonies were shipped in the most wholesale way into 37 countries in our Province, and from these the disease spread to nearly all the apiaries in the localities it was shipped into. The people had to

be taught how to cure, and I was in duty bound to give the beekeepers every possible chance to do so—and did. To Mr. Gemmill belongs the credit for saving the whole bee-industry of Ontario, because, if he had not taken hold and got his Foul Brood Act passed when he did, the disease would have destroyed nearly every apiary in the 37 countries which I found it in.

The springs and foreparts of the summers of 1889, 1895, 1907 and 1908 have been followed by a lot of dead brood being found in many localities in Ontario, Quebec and Nova Scotia, and also in very many parts of the United States. This class of dead brood is the result of the seasons, kind of bees, and neglect of man.

I was pleased to hear Mr. House, of New York, come out so strong in our convention in favor of the "yellow bees." I judge that Mr. Wright, who is one of the inspectors for New York, is also an advocate of Italians for keeping brood-chambers clean and free from dead brood. I never found any race of bees that was as good as pure Italians to feed their brood.

Various Positions of the Entrances in Winter.

UPWARD VENTILATION.

"Mr. Doolittle, you can remember how they used to winter bees before the movable-frame hive came into use, can you not?"

"Yes. Our bees were first kept in the Weeks patent hive, which had a bottom-board attached to the hive with wire hooks, which were so arranged that, by turning a button, the bottom board would hang down from the hive an inch below the bottom all around during winter or during hot spells in the summer months. By pushing this bottom-board forward, and turning the button another way, it would come up

tight against the hive, and project in front two inches for an alighting-board. The entrance was cut from the bottom of the hive, so that, by turning the button, all could be closed secure except the entrance, which was enlarged and contracted at will by the sliding door, which was simply a strip of tin free to move in a groove. The front of this bottom-board was some three inches lower than the back, so that any dirt, cappings of brood, moldy pollen, larvae of the wax-moth, which the bees might release from the combs above, and particularly all dead bees which died during winter, would roll down and out of the hive, thus keeping the hive free from moths and dead bees during the whole season. I can almost see that Weeks salesman now as he rolled off in the smoothest terms the *great* value of the Weeks hive had above all others, especially for winter."

"What were his claims for the lowered bottom during winter?"

"Lower ventilation, claiming that such was the best thing then in sight for safe wintering of bees. Things went on all right for several years, as our home then was what would now be called a clearing in the woods; but a few years later, after the woods had been cut off more, father had poor success in wintering bees, while a neighbour wintered his successfully with the hive tight at the bottom and a two-inch auger-hole at the top. Seeing how successfully bees wintered for our neighbour, father bored holes in the top of part of our hives, and left the bottom turned, thus closing the entrances to such hives, while the rest were left as before. Those having the hole at the top with the closed bottoms wintered so much better, and proved themselves so much better in every way, that the bottom-boards were left fastened to the hives during winter with all of the colonies, the bees being allowed to go in and out from the holes at the top. After this we had very little trouble in wintering."

"Do you use holes at the top of the hives now?"

"No. After a few years father lost all of his bees by that dread disease, foul brood, and no more were kept in the family till I purchased again in 1869. At that time there were plenty of bees kept near me in box hives, many of which were set on blocks, raising the hive from the bottom board from one-half to one inch, as recommended for wintering on the lower-ventilation plan."

"Did you raise your hives in this way?"

"No. I adopted the upward-ventilation theory (it was considered by nearly all only theory then), but not a direct current of air through the hive. After a series of severe winters, myself and three or four others had about 300 colonies of bees which wintered with upward ventilation every year, while not one of the box-hive or lower-ventilation men had a single colony."

"Were you still using the holes at the top of the hives?"

"No. About this time I began hunting bees in trees by going through the woods on the first warm days in early spring while the snow was on the ground in the woods, when, by the dead bees dropped on the snow during their first house-cleaning time, the tree containing the colony could be easily found. These trees were cut later, the bees and combs transferred into movable comb hives, this giving me an additional start in bees. By looking at these natural homes of the bees in these hollow trees I could find that the hollow in most cases was composed of partially decayed wood, especially from one to three feet above the combs. This seemed better to me than holes at the top of the hive, for in winter the moisture from the bees passed into this decayed wood which surrounded them, while, later on, it would be expelled each summer by heat. In this we had something pointing to the advisability of a porous covering for our bees for winter, from which idea originated

cotton-padded comfortables, supers filled with forest leaves, sawdust, and ground-cork cushions, chaff hives, etc., all of which have had their advocates."

"What about the entrances where such were used?"

"Some closed the entrances entirely, believing that the bees could get all the needed air through the porous covering above, while others left the entrances wide open. I made a rim of $\frac{7}{8}$ inch stuff, $1\frac{1}{2}$ inches deep, putting this under each hive so that the dead bees and dirt could drop down into it and away from the combs and bees above. Then leaving an entrance in the top of this rim $\frac{1}{2}$ inch deep by $2\frac{1}{2}$ inches long, I leaned a wide board up in front of the hive and this entrance. This allowed the bottom of this board to stand out and away from the hive and entrance some four or six inches, when, in this way, I had nearly the same thing we had with the Weeks hive, without any of the disadvantages that hive contained during the winter."

"I see. That board kept the wind from blowing into the entrance, while at the same time the bees were allowed to fly during suitable weather by coming out around the ends of the board."

"Yes; and the chaff and sawdust cushions, directly over the combs, absorbed all the moisture so that the bees were kept dry and nice."

"Do you recommend wintering in that way?"

"Yes, where bees are wintered out of doors. But for our long, extremely cold winters here in Central New York, I would recommend cellar wintering in preference to any plan in which the colonies are left out. Central New York is now a very different place from what it was fifty to seventy-five years ago, when four-fifths of the land was covered with forest. Now nine-tenths of the land is nude and bare, except during the summer months, when the regular crops are growing on it."—"Gleanings."

ORIGIN OF FORMIC ACID IN HONEY.

Probably there is no one living at the present time who is better acquainted with the scientific history of the honey-bee and bee culture than Mr. T. W. Cowan, chief editor and proprietor of the "British Bee Journal." His knowledge of the many scientific works in all languages, containing more or less reference to the bee, is unique. It enables him to give to the beekeeping world occasionally the particulars of experiments which have been carried out at different times, and to sum up their results, thus conveying exceptional information to those interested in beekeeping that would be otherwise unattainable.

This applies especially to his article recently published in his journal on the "Origin of Formic Acid in Honey," which has been a debatable question among beekeepers for a long time past. The following is the article referred to:

In 1883 a national exhibition of special interest was held in Zurich, inasmuch as in it were shown only Swiss products and manufactures.

In the agricultural department a section was devoted to bees and beekeeping, and we spent much time investigating the various interesting things displayed. Amongst the scientific exhibits we specially noticed a unique collection shown by Dr. de Planta, representing seven years of arduous labour on his part, and to which we draw attention in the "B.B.J." of December 1, 1893, page 267. Here could be seen in separate small bottles the several constituents of pollen and honey. One bottle contained hazel pollen, and thirteen similar bottles were shown, each one giving in proportion one of the thirteen constituents of this pollen. Nectar was also demonstrated in the same way. The different constituents of this were displaced in six bottles, and as

we took especial interest in this exhibit, Dr. de Planta personally explained to us the enormous difficulty he had in getting a sufficient quantity of Nectar. This he collected direct from the flowers by means of a pipette, and it was at once sealed up in tubes to prevent the formation of bacteria. It is not necessary to give details of the trouble and perseverance with which Dr. de Planta got sufficient glandular secretions or saliva for his experiments; but, having obtained them, he was able to show that they played an important part, and found that by means of this saliva various substances in the nectar were converted into others which only appeared in the honey. The constituents of honey were shown in a dozen bottles, and experiments had proved that honey undergoes a certain change in passing through the bee, and that glandular secretions play an important part in producing this change. On our questioning Dr. de Planta with regard to the proportion of formic acid in one of the bottles, he replied that Professor Erlenmayer and himself had first separated it in 1878, and he believed that it was a powerful preservative, having found that nectar which did not contain formic acid fermented very rapidly; hence his precaution in sealing the tubes as he collected it. Dr. de Planta was also the first to prove by analysis that honey contained formic acid, and published his discovery in the "Schweizerische Bienezeitung" for 1879, page 29, but not until much later was he able to demonstrate its origin. At a meeting of the Societe Helvétique des Sciences Naturelles, held in Berne that year, Dr. de Planta said "There in the stomach of the bee is found the apparatus for concentrating the sweet liquid, the nectar, by diffusion of the water through the membranes of the stomach, and its expulsion by means of the numerous tubes of the urinary apparatus. There also must be found the formic acid at the moment when honey, once prepared, remounts by the mouth to be stored in the

cells. The nectar we have found does not contain formic acid" ("Schweizerische Bienzeitung," 1879, page 28).

From the time of our first meeting Dr. de Planta in Zurich, we kept up a correspondence until his death in 1895, and in some of his letters he alluded to the progress made in his researches, and expressed himself as confident that the origin of the acid would be found in the blood.

In 1884 Dr. Mullenhoff stated in the "Bienzeitung" (page 61): "When the cell is nearly filled, and the honey is not intended for immediate consumption, bees add a drop of the secretion of their poison gland. After the addition of more wax, followed by the bending together of the rims of the cells, the latter become half closed; the cell is then filled up and finally closed by completing the cell cover all round.

Dr. Mullenhoff acknowledged Dr. de Planta's discovery, but adhered to his statement that the bee turned round and deposited the formic acid with her sting. In 1885 the Rev. W. F. Clarke tried to improve on Mullenhoff's theory, for at the Detroit Convention of American beekeepers in that year he stated for his own part he believed that the formic acid was added by the bees in the capping process, which was carried on mainly by their tails—the sting being the last polishing tool" ("American Bee Journal," 1885, page 793). Mr. Clarke propounded his trowel theory in the same journal in 1886, page 549, and in that year he published a poem entitled "A Bird's Eye View of Beekeeping," on page 60 of which we find the same thing stated.

It having been shown that honey contained formic acid, the question naturally arose in what manner the fluid was introduced. Did the nectar in flowers contain it; or did the stored honey absorb it from the air in the hive, containing so large a population giving off the poison, which became volatilised; or did it come from the sting?

Dr. Mullenhoff's theory did not satisfy so able a scientist as Schonfeld; he had seen bees finishing the capping of cells, but had never seen one turning round to deposit the acid with her sting. He therefore invited Dr. de Planta to make further experiments and to furnish scientific and irrefutable proof that the formic acid in the honey could only be derived, as the Doctor had stated, from the blood of the bee.

Dr. de Planta undertook the work, and in a series of articles published in the "Sweitzerische Bienenzzeitung" in 1893 this indefatigable worker first refuted Mullenhoff's theory by proving that 100 grammes of sealed honey contained 0.0186 grammes of 22 per cent. formic acid. One hundred grammes are the contents of 165 worker cells. By careful experiment, the details of which are too lengthy to go into here, he found that the minutest possible drop of poison from the sting contained at least 0.0250 grammes of formic acid, which would make 4.1910 grammes in 165 cells—that is to say, 200 times more than is actually found in them. Such a quantity of acid in the honey would make it quite unfit for consumption. Dr. de Planta then proved that the nectar of flowers gathered by bees does not contain formic acid, and that the air in the hive could only impart an infinitesimal quantity, which did not account for the amount found in honey. The practical work with the bees was carried out with the greatest care and skill by Schonfeld himself, while Dr. de Planta did the chemical analysis.

With indomitable patience Planta collected and analysed the blood of the bee, the contents of the honey-stomach, and the salivary glands, and in the end he arrived at the conclusion that the origin of the formic acid is in the blood of the animal. The blood which circulates in all parts of the body traverses also the salivary glands, and deposits, along with the ferments necessary for digestion, formic acid; these are directed

towards the mouth, when every particle of nectar which passes to the honey-sac receives a portion of saliva impregnated with formic acid. This was proved to be the case, analysis of the contents of the honey-sac having clearly shown the presence of the acid, whereas not a trace of it was found in nectar.

It is impossible within the limits of our space to go into fuller details of all the work done by this distinguished man, whose loss was severely felt not only by scientists, but also by practical beekeepers, for besides this question of formic acid he decided many others connected with the beekeeping industry.

We are pleased to be able to comply with Colonel Walker's request, and to corroborate his statement with regard to Mullenhoff's theory. Cheshire, when he wrote the book referred to by the "Times" correspondent did not know of Dr. de Planta's work. When the first part of "Bees and Beekeeping" appeared there was an appreciative review of it, and it was then pointed out that since Langstroth's book much had been discovered, and there was also the work of such men as Cohn, Planta, Grassi, and others to chronicle. Mr. Cheshire wrote asking about these works, having a desire to become acquainted with them. The information was supplied, but he did not avail himself of it, as no mention of any of these writers was made. Probably it was because he did not know German, and for this reason also omitted to allude to Schonfeld's experiments in respect to formic acid, and misrepresents him with regard to his researches with foul brood. The Rev. W. F. Clarke's trowel theory, based on that of Mullenhoff, has always been regarded as a joke by scientists, and Maeterlinck is not an authority on bee matters, however pleasantly, though romantically, he may have written about them.

We may therefore take it for granted as being proved, on the best authority, that formic acid found in honey is a

secretion from the blood, and is introduced involuntarily, as similar secretions usually are.—"N. Z. Farmer"

BEET-SUGAR FOR WINTER BEE-FEED.

The question as to the relative value of beet and cane sugars as food for bees is one upon which it is very difficult to get light. For years the British Bee Journal has stoutly insisted that only cane should be used to feed bees for winter, and that there was danger from beet sugar, but on this side the big pond there has been very little said about it, and probably no serious investigations in the direction of trying to settle the question. So it is impossible to cite you to articles that would help. Occasionally some bee-keeper, roused by what has been said in England, has raised the question here, and if he has had any sort of an answer at all it has been to the effect that chemists assure us that chemically the two are the same. But that answer is not altogether satisfactory, seeing that coal and diamonds are so nearly alike chemically without ever bringing the market prices of the two on a par.

Tons of granulated sugar have been used in this country as winter food for bees, and perhaps every beekeeper agrees that sugar syrup is as wholesome as honey for that purpose, while some insist it is more wholesome—certainly more wholesome than some honey. Now if tons of sugar have been used, and it has never been discovered that it was bad for bees in winter, it would seem there is safety in beet-sugar, if beet-sugar has formed any considerable proportion of the sugar used. That, however, is perhaps a matter that no one can exactly find out. It is doubtful that any beekeeper ever knew whether the granulated sugar he fed was made from beets or cane. Perhaps experts in the sugar business can not tell one from the other. Certainly a beekeeper can not be expected to tell the difference.

A Chicago daily, in an article based on U. S. government reports, says that in the year 1907 more than a third of the sugar produced in this country was from beets, while beets now supply one-half of the grand total produced in the world at large. So it is reasonable to suppose that, so long as there is no way by which beekeepers may know the source of the sugar he feeds, there is likely to be fed a pound or more of beet-sugar for every 2 pounds of cane. In that case, if beet-sugar is so very bad for bees, there hardly ought to be such a general impression that sugar is good for bees in winter. Probably the average beekeeper in this country never troubles his head to think whether sugar is made from beets, cane, or what not. At the same time, the word of so good an authority as Mr. T. W. Cowan has weight, and if one could know for certain as to the kind of sugar offered, she would do well to use cane.

As to how beet-sugar is supposed to injure bees by those who consider it injurious, it is probable that it is supposed to cause diarrhea.—“Am. Bee Journal.”

CARRYING BEES ON BICYCLES.

It may be said that nowadays there is nothing new in apiculture, but perhaps an old idea in a new dress may possess interest for “B.B.J.” readers. I recently rescued some bees from the cruel fate of the sulphur-pit. In the first week in October a postcard came worded thus:—“Come and take my bees or I shall smother them!” The spot was over fifty miles away, far from railway smoke. I rigged up two light baskets covered with porous sacking and four skeps, and cycled off. On the outward journey with the packages empty I covered over fifty miles at the pace of eleven miles an hour without once dismounting. It may be explained that the back of the bicycle is loaded up with three packages just like the front, the six packages with the bees

weighing 50lbs. Favoured with fine weather, all went well with the exception of a puncture in one of the tires, when I had to unpack and reload. All sorts of remarks were made by onlookers, one of them exclaiming: “Look out! Here comes the new flying machine?” He guessed better than he knew, for there were nearly 100,000 excellent flying machines inside the packages.

I may explain that the front carrier is a folding detachable wire, one of my own make, on which a ten-frame body-box full of bees or three empty racks of sections can easily be placed. There are many methods of dealing with driven bees sufficiently numerous and interesting to form an article by itself, the points of importance being (1) a young and vigorous queen, (2) fed up in good time with suitable food, and (3) a sufficient number of bees to enable them to come out strong in spring.—JOHN SILVER in “B.B.J.”

THE BEAR AND HONEY.

An amusing incident with a bear is related in the “Deutsche Imker aus Bohmen.” It is said that Count Schonburg recently sent a brown bear from Glatzen to Halle a. d. Saale by rail. During the journey to Eger, being of an inquisitive turn of mind, Master Bruin managed to break down the partition and examined the other goods in the van. He consumed two geese, several kilos of butter, and a basket of cherries. Two baskets of eggs were trodden to pieces and scattered about, as was also a parcel of margarine. On arrival at Egar the railway official opened the van, when Bruin received him with extended arms. Needless to say, the door was hurriedly closed. The consigner was then sent for, and quieted the bear by giving him a piece of honey-comb so that he could again be made secure in his own apartment.—“B.B.J.”

Feeding Syrup in cold Weather under the Cluster.

BEES CARRYING HONEY INTO THE UPPER
STORY.

BY FRANK C. PELLETT.

The proper time to feed is in the fall, before the weather gets cold; but it sometimes happens that one must feed colonies purchased late in order to save them, or for other reasons. I prefer an empty super with a pan of syrup covered over with a light cloth to any of the feeders on the market for use at any season of the year, for when placed over the bees, there is less danger from robbing than from an entrance feeder. For cold-weather feeding we simply reverse the thing and set the empty super, in which is placed the pan of syrup, under the hive. With this plan the hive may be covered with the usual tar-paper covering. Of course, this plan or any other, for that matter, will not work in extremely cold weather; but in this latitude we get warm days occasionally throughout the winter, in which the bees may be fed if the syrup is ready, so that they need not be lost for want of stores. The advantage of this plan over the over-head method is that the cluster will form over the pan and the bees will hang right down to the cloth cover and take the syrup when it is much too cold for them to break the cluster and go upstairs after it. I have had the bees take syrup in this manner when it was too cold for them to fly. I think that much less heat is left by lifting the hive off the bottom-board and placing over a super as above described than from any other way. The lifting of the cover in winter is especially bad, as the heat naturally rises to the top.

Perhaps a little unusual experience that we had in uniting this fall may be of interest. We had a swarm that was rather light, so we decided to strengthen it by adding more bees. A neighbour

offered us his bees, from which he wished to take the honey, if we would take the job. His bees were in a chaff hive in which we wished to winter them, so we took an ordinary eight-frame hive full of empty combs in which to drive the others. We paid no attention to the queen, as there was no difference in the two so far as we knew, so we left the choice to the bees. On bringing them home we placed them over the hive in which we wished them to winter, as we had always done before, expecting, of course, that they would unite with the colony below on the combs of sealed stores. All our experience indicated that they would go down, and all we have read of uniting by this method has been to the point that the two colonies will unite in the lower hive. In this case there seemed to be nothing else to do, as the lower hive contained the honey while this contained empty combs. I looked at them frequently, expecting to find the upper hive deserted and remove it; but, not finding it so, I decided to look below, and, to my surprise, I found that the bees had carried all the honey above, and the two colonies had united in the upper hive, leaving the lower one empty. As it was too late to transfer the frame we must now winter in the single-walled hive.

Perhaps such experiences are not uncommon, although I had not noticed such an occurrence before. I should like to know whether or not it does frequently happen that the colonies unite above, especially when the honey is below, as in this case. It seems to me that the stronger queen must have been present in the upper hive, and this must have been the determining factor in the case.

[As a general rule, when two colonies of equal strength are put one on top of the other, the two forces will unite in the upper hive on account of the greater warmth; but if the lower hive has a lot of brood, and the upper one none, the bees will probably all occupy the bottom section.

We may lay it down as another rule, that, where two colonies, one a week one and the other a strong one, are put together, one on top of the other, the weak one will go with the strong, whether it be above or below. In the case you have cited, the colony in the lower hive was weaker than the other; and the fact that, other things being equal, a lower lot of bees will unite with the upper one, would easily explain why both forces occupied the upper hive.

The tin pan and the piece of wet cheese-cloth make a most excellent feeder; but the cloth should be large enough to spread clear down over the edges of the pan, reaching to the brood-frames to afford a sort of ladderway to and from the feeder. If the cloth is just large enough to cover the surface of the syrup, the bees will have some difficulty in climbing up a sloping surface of the pan, although they will do it after a fashion.—ED.]—“Gleanings.”

Improving Market Conditions by the Bottling of Honey.

By O. L. HERSHISER in “BEEKEEPERS REVIEW.”

The beekeeper who has harvested a crop of extracted honey fit for table use has gone only half way towards the coveted goal of “The Highest Net Profits upon the Investment and Expenses of Operating the Apiary.” There still remains important work to be done before the honey is prepared to be placed in the distributor’s ware room, upon the retailer’s shelves, or the table of the consumer. It is not too much to say that in this preparation there is the probability of almost, if not quite, duplicating the profit that has been earned by the bare harvesting of the crop. The question is “Shall the beekeeper complete the necessary work of preparing his honey for the table, and thus reap the fullest reward

for his technical and rare skill as an apiarist or shall he leave an easily earned profit upon that part of the work that requires no gift or skill that is difficult to acquire, to go to the packer or vendor of promiscuous food commodities?” The importance of this subject is apparent, and although much has been said and written in reference to bottling and putting up honey for market, a few further reflections may not be out of place.

That the average beekeeper has much to learn and put into practice before he can justly claim to have mastered his occupation or profession, if you please, is evidenced by the wide difference that exists between the low and unsatisfactory prices obtained by the many, and the higher and more satisfactory prices obtained by the few.

HIGH PRICES WOULD BE STILL HIGHER WERE IT NOT FOR THE DEPRESSING INFLUENCE OF LOW PRICES.

It may be added that those who are now receiving the highest prices the market affords, would be receiving still *higher* prices were it not for the bearing down influence of a large number of beekeepers whose eagerness to convert their honey into cash would seem to indicate that there was a wide-spread impression that the supply greatly exceeded the demand.

Beekeepers, this may be a land “flowing with milk” but the experience of many of us every few years, and sometimes two or more years in succession, proves to our satisfaction that for us it frequently does not flow with “honey.” There is no danger of an overflow. There undoubtedly are portions of the land that do often overflow with honey, but the country is vast in extent, and the thing needful to correct the local overflows, and maintain fair and reasonably stable prices, is a proper and systematic distribution of our product. If you have a light crop, and similar conditions obtain throughout

your region, your market may be said to be good, and you receive a certain sum for your output. Another season the crop throughout your region is one-half greater, and immediately there is a rush to get ahead of all the other fellows in the race to convert the honey into cash, and so great is the rush that instructions sometimes accompany the invoice to the effect to "sell for — cents per pound if you can get it, but if it will not sell readily at that, then sell for whatever you can get." The natural result too often follows that the crop one-half greater brings little if any more, all things considered, than the light crop. The beekeeper unwittingly but surely wastes the advantage that was his, and Nature has lavished her bounty upon him in vain. Far better would it be for the beekeeper to sell what he can at a fair price, and carry over the balance to another season of lighter crop, if necessary, and in the meantime do some judicious work in the development of his home market, and resort to advertising through well selected mediums to discover outlets into other markets where the honey crop was less bountiful.

It has been the experience of the writer, and doubtless of many other beekeepers, that to induce a non-user of honey to try a sample glass or pail of honey, is to gain a customer who will order regularly and in considerable quantity. These experiences simply show that the demand for honey is capable of great increase, and only awaits systematic effort at development.

HONEY OUGHT TO BE ADVERTISED THE SAME AS OTHER DELICACIES.

Every time we enter a trolley car, of either the city or suburban service, we have thrust before us good examples of how to reach a great proportion of the purchasing and consuming public with the extollation of the merits of food products, the rapid sale of which it is desired to develop. The eye and mind are not to be left in repose a moment after

entering the car, for immediately we are to be again reminded for more than the thousandth time that all that is required to prepare Campbell's soups for the table is to "just add hot water and serve"; to "look for Duff's molasses at the sign of the gingerbread man"; that Rigley's "Spearmint gum is fine for digestion"; or "for the teeth"; and the like.

But it is to be remembered that advertising is expensive; that most of those who practice it have a monopoly of the goods advertised, and that the advertising is for the individual benefit of the person or company doing it. On the other hand, the apiarist who would advertise the merits of honey in this way would be doing so for the benefit of *all* good beekeepers, for Nature treats us all alike, and the honey of one beekeeper in a given locality is no better than that of another, provided it is left on the hive until ripened and finished in the natural way, and equal care is taken in the harvesting and preparation for market. There is no encouragement for a beekeeper to work up a good market just for the fun of seeing it flooded with honey by beekeepers and packers from all quarters who will compete with each other, or until there is nothing worth while left of the benefits of such expensive but effective advertising. Could the National Association undertake such advertising in many cities, so as to benefit the beekeepers of all the leading honey-producing localities? I leave that for the other and wiser heads to answer. Would it be too much to assume that such advertising would result in advancing the price of honey $\frac{1}{2}$ to 1 cent per pound, or 5 dollars to 10 dollars per thousand? If it would have that effect, then it ought to be apparent to all beekeepers that something of the kind ought to be undertaken.

But, brother beekeepers, there is something that each of you can do for yourself that will bear immediate fruit: If you will put up your fine extracted honey,

that which is fit for table use, and make a determined effort to develop and supply the local demand to its utmost before shipping out to the larger centers of trade, you will accomplish two very important results. First, you will make a handsome profit on all the honey used to supply such local demand. Second, you will have contributed towards the desirable end of keeping the large trading centers from receiving an over supply. It is conceivable that if a large proportion of the beekeepers would practice this advice, a very perceptible and beneficial impression would soon be noticed in the honey quotations. This kind of activity would immediately benefit the beekeeper who practiced it, and, incidentally, it would benefit other beekeepers, and would not be in any sense antagonistic to the jobber, packer, commission merchant, or any other legitimate apicultural interest. The beekeeper would be the first to be benefitted; then the packer would receive higher prices for the goods he handles; as he would have less to offer to his trade and could therefore maintain higher prices; the jobber would be benefitted by handling less goods at better prices and profits, so that the larger margins would compensate for the loss in volume; and the commission merchant receives a fixed percentage on the *sale value* of the goods, the increased value of the smaller amount of goods would be the basis of his compensation for the decreased volume of honey handled.

The canning or bottling of honey is a simple art that comparatively few beekeepers have well-learned, and for that reason the dissemination of knowledge as to the process must have a wholesome influence upon the prices obtainable for our product, which will inure to the benefit of all engaged in the pursuit. I venture a few simple suggestions that will enable the beekeeper who wishes to do so, at trifling expense, to prepare for the retailer all his honey fit for table use.

HOW TO LIQUEFY HONEY.

The first step to be taken in the bottling of honey is liquefying; the assumption being that the work is not commenced until in the fall after the honey has granulated. For this purpose nothing is better than a bath of hot water consisting simply of placing the can of honey in some other vessel and filling in water until it comes nearly to the top of the can of honey, the heating being done, ordinarily on a common cook-stove. The can of honey should rest upon some sticks in order that the heat of the stove may not strike too strongly through the can of honey. It will not answer to *boil* the water surrounding the honey, as that would almost darken the color and injure the flavor. No more heat should be applied than will be sufficient to liquefy a five-gallon can of well-granulated honey in the space of ten or twelve hours. The water may be allowed to get a *little* too hot to bear the hand in.

Where liquefying is to be done in a small way a common wash boiler answers the purpose very well. Where honey is stored in barrels or other large containers it may be cut out or dug out into a pail or open can and liquefied by the use of the water bath as above described, or a larger pail than that containing the honey may be used instead of the boiler.

When liquefying full cans of granulated honey, a small amount (equivalent to about a pound and a half to a five-gallon can) should be removed at the beginning of the operation as hot honey occupies more space than when cold, and the honey will overflow and waste if this precaution is not taken. The required amount of honey may be removed from the can with a common case knife. A better method is to provide a tube or pipe of heavy tin about fifteen inches long, and one inch in diameter. This may be thrust into the can of granulated honey, and, upon withdrawal, will come out with a quantity of the granulated

honey contained therein which may be removed from the tube by means of a wooden plunger. A few thrusts of the tube will remove the required amount.

Full cans of granulated honey may be liquefied without removing any of it by leaving the cap screwed down tight, so there is no escape for the honey, as the tin will bulge enough to allow for the expansion. However, if this method is followed, the honey should be allowed to cool and contract sufficiently to keep it from overflowing when the can is opened.

The honey, being thoroughly liquefied, should be strained through fine cheese cloth into the tank from which it is to be drawn into the containers. This will remove a part of the froth and nearly all particles of foreign material, such as the minute bits of comb, propolis, and particles of wood if the honey has been stored in barrels.

The honey should be allowed to stand in the tank over night, or for several hours, at all events, to allow all particles of foreign material of whatsoever kind that have passed through the strainer to rise to the surface, from which they may be removed by careful skimming. The honey should be drawn from the tank into the containers, jelly tumblers, cans or bottles, while quite warm so it will flow readily. A good tank for the purpose is one about 14 inches in diameter and about 20 inches deep, with the bottom raised about two inches from the lower extremity of the sides, in order that the tank may rest on any plain surface without the honey gate coming into interference. A honey gate of large diameter should be used, as it may be gauged to any desired capacity. If the honey should be cold, and the flow slow, the work may be performed more rapidly with the larger gate.

A re-heating water bath should be provided. For jelly tumblers a common dripping pan will answer the purpose in a small way, and for fruit jars or other

deep containers a wash boiler will suffice. A wooden rack should be placed in the bottom of the re-heating tank, and enough water placed therein to come well up on the sides of the containers. The containers being filled, are placed in the re-heating tank, and, with caps or tops loosely placed, heated up to about 125 to 150 degrees F., for the purpose of bringing all air bubbles to the surface and expelling the air as far as possible. While the honey is thus heated the containers are securely sealed so the outside air is excluded.

BEE BUZZINGS.

(By a beekeeper.)

IMPORTED HONEY AND BEES

It has frequently occurred to me that since the Department of Agriculture has done so much toward the suppression of disease in bees by passing the Apiaries Act and appointing inspectors, whether something more ought not to be undertaken to prevent the evil being re-introduced from outside, in perhaps, a worse form than we have at present. It is well-known that honey from diseased colonies carries the spores, which so far as we know, may remain quiescent for ages in the honey, until, by accident or otherwise, they are introduced again into a suitable medium when they at once assume the active form and do their deadly work. Now, with regard to imported honey, if we do import any, we do not know but what it may contain the spores of the dreaded "black brood." True, there is a duty of two-pence per lb., import duty which may prevent outside honey coming into the Dominion; if so, well and good, but it is worth looking into, and I commend the suggestion to our Government Apiarist.

With regard to the importation of bees. With the exception of queen bees, there is not much likelihood of these being imported, although we have had a num-

ber of colonies brought over from Australia by beekeepers who decided to take up their residence here, and such a thing may occur again. No doubt our inspectors can deal with these under the Apiaries Act, but it will be well to keep this matter in view.

That this matter has attracted the attention of others is evidenced by the following from the editorial columns of "Gleanings":--

"It has been said that foreign honeys are scattering foul brood in the United States, and that there should be a sufficient tariff to prevent its importation into this country—not so much to cut off competition with domestic honey as to stop the spread of European and American foul brood just now gaining rapid headway in the United States. It is claimed that this imported honey, much of it coming from ignorant natives of foreign countries where disease is rampant and unchecked, is now scattering disease in new territory in the United States."

(To be continued.)

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