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West Maitland, N.S.W.: E. Tipper, May 28, 1902

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The Australian Bee Bulletin.

A JOURNAL DEVOTED TO BEEKEEPING.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W.

MAITLAND, N.S.W.—MAY 28, 1902.

The following is a list of advertisers in our present issue:—

Supply Dealers.

- R. K. Allport, Chuter St., North Sydney.
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Foundation.

- R. Beuhne, Tooborac, Victoria.

ORGANISE!

THE bootmakers are organised; the tailoresses are organised; all mechanics organise. What for? To secure better wages and better hours for working. The doctors, the lawyers, even the clergy are organised. Why? To raise the quality of its members, and secure higher remuneration for themselves individually. Competition kills the tradesman, the merchant, the ship owners.

They combine and form trusts and combines, which kill such competition, and enables them individually to amass wealth and live with peaceful minds. Why should not beekeepers therefore do the same? All industries have their enemies, which can be kept in check by such combine or organisation. Have, beekeepers no enemies? The meddling proselytiser; the over zealous business man; the anxious to do right, but often mischief working Government Departments. All useful and necessary in their way. But to be governed by the beekeeper; not for them to govern the beekeeper. Beekeepers must therefore combine to keep each of these under systematic control. There are already two organisations formed, the New South Wales Bee Farmers' Association, and the Victorian Apiarists' Association. Our last issue gave the annual meeting of the one. The annual meeting of the Victorian Apiarists' Association takes place in Melbourne on Monday, June 9. Let every Victorian beekeeper that possibly can manage be present. Don't waste words, but go in for business. Don't go just to peep in and go away again. And don't hurry business in order to get home the first night. While writing this we don't know what business is already arranged to be transacted. One idea that has ever been brought forward by young societies has been some kind of co-operative scheme of marketing—generally some selfish individual at the back of it. Evidently this has been seen through, for all have come to naught. It would only add one more to the list of commission houses. Commission houses, honestly carried on, are no evil. Each works up a trade, the more so working up trade the better for

the producers. The way the producer should control them is to have a confidential executive, who could be informed, confidentially, of any remissness on the part of any such commission agent, such confidence to be imparted, confidentially, to any of the members. Again, members having worked up a local trade and running short of honey, could ascertain from the officers where such could be obtained. Or having a good stock could know, also confidentially, where a market existed. Local beekeepers should be encouraged to work together for the bettering of their own market, and keeping up of the price, and means adopted to check under-sellers. These are lines we would suggest. Read also the remarks on page 3 of last issue. There is work to be done—let it be to the purpose. Roll up and attend the meeting on June 9, in Melbourne, for your own interests, as well as that of every brother beekeeper. Yes, and we would suggest at least one social meal altogether, where free chat might evolve many good things.

SEASONABLE WORK.

If instructions in last issue are carried out the less bees are interfered with now the better.

Should feeding be necessary ascertain the fact in the day time, marking the hive and leaving space for a frame, and feed at night. Syrup—honey or sugar with warm water—may be poured from a foot or two above a comb. Just before dark raise the cover and drop the frame of syrup in the space left. Do it quickly not to disturb the cluster. No robbing will take place with this method.

Now is the time to paint hives.

For those who have spare land not affected by the present drought, broad beans may now be sown. Bees work on the blossoms in early spring. The same with mustard.

THE DROUGHT

Has been on for months, not an inch of rain in six months. How have we watched the clouds coming over the hills, aye, too, from the right direction for rain, and pass over and away without more than a few drops of rain! And rumours have reached us that such and such a weather-wise man had said there was sure to be rain on such and such a date. But, like the clouds, these dates have come and gone. The stock of fodder has gone, and prices have risen enormously. Farmers had ploughed their land and sown their wheat. The wheat germinated and then died away. The land would have to be resown again *when rain comes*. All that ploughing, harrowing, and seeding lost! The grazing land is all brown and sand. The ewes drop their lambs; in their anxiety to search for food discard their lambs, which are left to die; the ewes, weakened for want of food, are also dying. Under a log would be a lamb plaintively bleating; close by the carcase of its mother. Overhead the hawks and crows circling round—a grand harvest time for them. On the mountains trees laden with bud that in ordinary time would be yielding perhaps tons of honey, dying by hundreds. And the local station managers ordering others—also full of bud—to be cut down to feed the starving stock. Such are the condition of things in our neighbourhood. People cease to ask about the weather; they are ceasing to regard the clouds; ceasing to regard the newspaper forecasts. But silent prayers are everywhere offered—perhaps even by the dumb animals—for rain! rain! rain!!

Ordinary moth balls are said to be effective in keeping small ants out of hives.

Honey Labels a specialty at "Bee Bulletin" office. Send for samples and price list.

Salt water is objectionable to ants.

The *Lone Star Apiarist* says exposure of brood will start robbing quicker than exposure of honey only.

In placing empty combs in hives put them just where the queen will naturally be laying eggs in the next few days.

A colony has been kept queenless for the sake of cell building for ten weeks, by giving it an occasional frame of brood.

Will subscribers note the dates of their subscription being paid to on the wrapper. It costs a lot of money in postage stamps to send out accounts, and there are many subscribers in arrears.

Bisulphate of carbon must be confined on top, otherwise it evaporates. It effectually kills bee moths and then grubs. In an air-tight vessel it kills the vitality of the eggs, also is a good ant-destroyer.

Andrew Carnegie advises all young men who have the chance to become proficient in at least three different branches of technical education. The moral is obvious.—If he finds he is not adapted to one calling, engage in another.

Sweet clover honey has a strong vanilla flavour. Although reckoned in many places a noxious weed, several eminent agricultural professors in the United States, strongly recommend it for a fodder crop.

At a recent Chicago conference the question was asked—Which is the best honey? The replies came—Basswood 1, white clover 8, alfalfa or lucerne honey 3, sweet clover 12, Californian sage 1, orange blossom 2.

Essence of rosemary, obtainable at any drug store, 15 or 20 drops every three or four days in the corner of a hive, will effect a complete cure of foul brood, so a French beekeeper says. Rosemary belongs to the mint tribe.

Mr. W. L. Davey, Sec. Victorian Apiarists' Association, writes: "Glad to see you had a decent turn out, but I think a two day's convention is quite little enough when it only comes once a year."

We have supplied pollen in the shape of wheat flour placed convenient on a reversed cover where the bees could get at it. Very interesting to watch them roll in it, then poise themselves while working it into balls on their legs.

In Rochester, N.Y., U.S.A., an ordinance has been passed prohibiting the keeping of bees within the city limits without the written permission of lot owners within 100 feet of the hives, such permission to be placed in the city clerk's office.

A fine of £50 or six months imprisonment is the penalty for shipping bees into Tulare County, U.S.A., without first notifying the County Inspector or his deputies, and procuring a written certificate that the bees are all in a healthy condition.—*Pacific Bee Journal*.

We have read Loyalstone's article on wax production with great interest. The idea seems very feasible. The main trouble about it is, so few beekeepers have long idea hives, as that is the only kind of hive suitable for this plan of working. There is also more work extracting. We have made it a question for next month, and shall be very glad to get some good expressions of opinion on it.

In our last issue it will be noticed we recommended for winter protection placing linoleum and newspapers on top of cluster, and to contract entrances. Mr. Beuhne places three inches of sawdust on top of cluster. Mr. Beuhne is in a more southern latitude than we are. In his and more southern latitudes than his, such as Tasmania and New Zealand, that amount of sawdust should by all means be used. In Canada and the Northern States of America the bees are placed in cellars for the winter months.

Some sour honey, if boiled for a time, can be improved.

An old comb is deeper than a new one by just the thickness of the accumulations in the bottom of the cell.—*Gleanings*.

✻ CORRESPONDENCE. ✻

R. H. G., Glen William, May 14th.—My bees have done fairly well considering the very dry season. I have extracted three tons from forty hives spring count, and the hives are all full now, and I think I will leave it on till the spring. Hoping your bees have done well.

L. S., Floresville, U.S.A., Mar. 28.—It is very dry over here in most localities. Where favourable everything is better. Around Floresville, or Wilson County, where I am with the Hyde Bee Co., operating some 1000 colonies, we are expecting a good honey flow right soon. Prospects good. Hoping to have the pleasure of a letter from you.

W. C., Yackandandah, Victoria, April 21st:—The past season has been the worst here for many years, no honey to speak of. During February and March of last year I averaged 102lbs per colony from ten colonies. I used to keep 45 colonies, but owing to the destruction of timber for mining purposes, I am not able to keep more than ten now. Hope you have had a good season.

C. B., Willoughby, April 4.—Through unforeseen circumstances I am compelled to leave the district, and therefore had to sell my bees; and I am very sorry to say that I will not require your valuable little journal for another term. If I should make a start again I will certainly call on you. I have spent many a pleasant hour reading up back numbers. You might hear from me later on, as I am working on a scheme for the most inferior honey to supersede the best glucose for manufacturing purposes.

F. W., Geurie, May 14th.—We are having a terrible dry time. The past season has been almost a failure. There was every indication of a good honey flow, but owing to the continued dry weather the trees did not bloom although they were loaded with buds, but they all

dropped off before coming to maturity. We are still living in hopes of better seasons to come. My bees have gone into winter quarters fine and strong with plenty of stores, so that if we get a good fall of rain they ought to render a good account of themselves next spring.

Mr F. W. Penberthy writes.—I consider you had a good meeting considering the small inducement of only four hours meeting. We must try and get a whole day at the least, next year, which would be an inducement to better attendance and the result would be more satisfactory. I am making further experiments with wintering. I have put on wire cloth in place of quilt and raising the cover half-inch off it, so that all the moisture from the bees will pass off. Bees will winter well this season anyhow. I will tell you more about it later on.

Mr. R. A. Price, M.L.A., 7th May, writes:—Your "Bee Bulletin" to hand containing the report, and I note your Association was good enough to convey thanks for what little assistance I rendered to the beekeepers in connection with State Forests. Permit me to express to you and the members of your Association, an expression of my thanks for the compliment they paid me, and I beg to assure you that I shall only be too happy to render what assistance I can in advancing the interests of such a deserving class that beekeepers represent. I am forwarding you herewith some copies of the Forestry Report and Army Remount papers for distribution to your members.

E. J. Rien.—I was very sorry to have to leave in such a hurry, but had to go to Richmond that night. However, I hope in future to be able to give plenty of time to our meetings. I have had a very bad season indeed; the main cause was I think bush fires, not caused by the train either, but bullock-drivers set fire to the country to burn it off, so as to have fresh grass for the winter. They might have saved themselves the trouble, this winter anyway, and me the loss, especially seeing the high price honey is bringing. Our association seems to be able to do

something. It is a pity all beekeepers were not united. I suppose they will be some day. Prices are pretty good now, just when I have very little. I had a curious experience the other day in fixing up for winter. I went through every hive but a nucleus, and I looked at it, concluded from the outside it was A1, so decided to let it take its chance. Not long after I was examining a special swarm, when the other swarmed out and came into it, although at other end of hive.

W. J. B., Clarence River, May 8.—I suppose you will think I am rather a slow bee farmer, on account of not writing a letter to you concerning the industry since I first became a subscriber, but such is not the case. I have had about one of the best seasons just past, that ever I had since I first started beekeeping, that is, being able to get ready sale for my honey in the Sydney market. I have about one of the best localities on the Clarence for bees. That is saying a big thing, as the Clarence is a large place, but I am quite sure of it. The bush here is almost alive with wild bees' nests. A party here lately secured 2cwt. of strained honey from one tree. I saw this myself. I believe ere long that honey will be very dear on account of butter and cheese going up in price, caused through the drought which nearly every beekeeper knows and I think nearly every part of the State shared a bit of it. We had nice soaking rain here about a week ago. It has been rather late for the grass as the weather is commencing to get cold. My bees are going into winter with plenty of honey. The white gum is just breaking into flowers, so I expect that I will have to extract before the winter is over. Trusting that you have had an alright season.

D. N. McIL, N.Z.—Regards bee matters, it has been a good season here in Hawkes Bay. There has been abundance of white clover all through summer, and we seem to get a day's rain just when we wanted it. I only had a dozen hives. I moved them from a fine sheltered place,

on account of having to work the ground where they were with horses, to a place where it was a bit exposed to strong westerly winds, which are bad some years here. The consequence was most of them got blown away from their hives. I shifted out 30, and at the beginning of last winter when I shifted them back to their old place, there were only 12 left, but they did tip-top. Over 80 pounds per hive is not bad for one season, which is a lot shorter than yours, extract from Nov. to January. I find it very hard to extract, it takes a lot of coaxing to get it out, being so thick. I got a couple of Italian queens, but did not think much of them as workers; one of them I had to feed all the summer with brood and honey to try and save it. They took what they call a chill brood here, so I got rid of them. But don't forget they have left their strain behind. I think the A. Dorsata not much ahead of them. I got my share of stings and somebody else's. The black bee is all that's here, nobody seems to take up the Italians, it would be impossible to keep them pure. Could you give me the reason why the bees I had did not swarm? They would have queen cells all ready to hatch, and then they would cut them down. Of course I had extracted from them, and they always cut them out after. Would it be a non-swarming strain? I have got all "A.B.B." saved up, they are handy to refer back for any information. I am sorry to hear you have such a poor price for your honey. It goes at 4d here easy, the middleman does not get much of a div out of that. I hope this will find you with your circulation of "A.B.B." doubled to what it was last time I wrote.

[The giving room by extracting would have saved the swarming, and caused them to pull down the cells.]

A glucose company of \$70,000,000 is being formed at Chicago, U.S.A.

The Californian Beekeepers' Association has eleven members with 9000 colonies.

GOVERNMENT "EXPERTS."

W. AGER.

I read with considerable amusement Loyalstone's article, viz: "The teaching of Beekeeping by the Beekeeping Branch of the Department of Agriculture at the Hawkesbury College," and I fully endorse what he says. I will try and show a little of its practical teachings. I was desirous to obtain the correct names of the honey-bearing flora in my locality, and with this object in view I forwarded to the Department of Agriculture on the 6th February last 16 specimens from the different flora. I received this reply on the 3rd March (as per form). This reply being very unsatisfactory I forwarded duplicate specimen to the Curators Technological Museum, Sydney, who kindly furnished me with the following (as per form). Then on further investigation Nos. 9 and 10 proved to be eucalyptus piperita, peppermint, and eucalyptus hemilampra. Then again, in the *Agricultural Gazette* of March, writing on late swarming, Mr. Gale says, as soon as the late swarms have settled shake them into a receiving box and when fairly clustered within return them to the hive from whence they came. If the queen of the parent stock be a good one and you wish to keep her, kill that with the new swarm, you can best find her by turning the bees out of the receiving box on a white cloth and watching them returning to it. I have generally found that the queen emigrated with the swarm having capped cells.

Department of Mines and Agriculture,
Sydney, 3rd March, 1902.

Date of letter under reply—6th Feb. 1902.

Subject:—Asking for the identification of specimens of trees forwarded by you, and which are honey producing.

Reply:—Mr. Gale, the Bee Expert, reports as follows:—

- Nos. 1 & 2. *Eucalyptus Spathulata*.
- 3. *Eucalyptus Sieberiana*—Cabbage Gum ; Mountain Ash.
- 4. *Eucalyptus Spathulata*.
- 5. *Trachymene Australis*—Wild Parsnip.
- 6. *Tristania Conferta*—White Box ; Red Box ; Brush Box ; Bastard Box ; &c.
- 7. *Eucalyptus Spathulata*

- 8. " " Haemastoma — Scribbly Gum, Spotted Gum, &c.
 - 10. *Eucalyptus Spathulata*.
 - 11. " "
 - 12. *Angophora (intermedia)*—One of the apple trees.
 - 13. *Eucalyptus Punctata*—Grey Gum.
 - 14. " "
 - 15. *Monotoca Scoparia*—A small shrub, the wood a pale yellow.
 - 16. *Eucalyptus Spathulata*.
- Nos. 4 and 11 are doubtful, as there are no fruits by which to name them.

D. C. McLACHLAN,
Under Secretary.

Mr. W. Ager,
Meryla, via Moss Vale.

TECHNOLOGICAL MUSEUM, SYDNEY.

Plants sent by Mr. W. Ager, collected April, 1902, at Meryla, via Moss Vale.

- 1. *Eucalyptus paniculata*—Myrtacrae—White ironbark ; timber excellent ; oil nil.
- 2. *Eucalyptus corymbosa*—Myrtacrae—Bloodwood ; timber durable ; oil of no value.
- 3. *Eucalyptus Siberiana*—Mountain Ash ; timber good ; oil of no value.
- 4. *Eucalyptus piperita*—"Sydney Peppermint ; timber good ; oil very fair.
- 5. *Trachymene lineaus*—Umbeliferae ; no commercial value.
- 6. *Tristania laurina*—Myrtacrae—Water gum timber no good for wood paving ; oil not investigated.
- 7. No. 4
- 8. *Eucalyptus Rossi*—Scribbly Gum—Oil good. What is your experience of this timber.
- 9. A "Messmate" apparently, but could you let me have mature fruits and further material.
- 10. Apparently a "Bastard Mahogany," Could you let me have mature fruit. What is its common name?
- 11. *Eucalyptus quadrangulata*—Box—Timber good ; oil fair.
- 12. *Angophora intermedia*—Apple.
- 13. No fruits or flowers.—*Eucalyptus punctata*—Grey gum.
- 14. No. 2.
- 15. *Lissanthe*—Epacridae.
- 16. *Eucalyptus gonicalyx*—Mountain gum—Timber excellent ; oil good.

R. BAKER.

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LEAVING AUSTRALIA.

At Sydney, May 10th, '02.

Dear Mr. Tipper,

I was sorry that I could not come to the B.F.A. meeting, and it may surprise you to hear my reason for not being able to come. I had just got into my mind a notion of leaving the country, and I was busy trying to sell out. That was rather difficult and took me some time, but it is at last accomplished, and I am now in Sydney on my way to California. Will leave here next Tuesday and expect to arrive in San Francisco on June 2nd. I may mention that it is not on account of the drought that I am leaving as there certainly are good times in store for Australia yet, besides I had a very good honey crop this year—average over two cwts per colony—and I believe it is very dry in California also at present. My reason is that I got a brother over there and I am longing to join him. I have not yet decided whether I will go in for beekeeping there, although it is quite probable that I will, and I may then give you some items re my business later on.

I enclose a few stamps and will ask you to kindly post the A.B.B. to enclosed address. I also enclose the addresses of two beekeepers (coming) that have stated their intention to subscribe, you may send them a sample copy.

I have had a good deal of uphill work during my 11 years stay in Australia but all the same I have learned to like the country, and it is not without a feeling akin to regret that I leave it and the friends that I have made here, although I can not honestly say that I am sorry to go as I am going to a very dear brother and some old friends over in California.

In saying good-bye I wish you prosperity and above all happiness. Same to everybody in general and those that are in the beekeeping-craft in particular.

FRANK EVALD.

[We wish you every success in your new country.—E.T.]

RECIPES.

DIGESTIVE LOZENGES can be made by melting in a bain-marie 3 oz. of pure gelatine in 3 oz. of water; then add carefully, while stirring thoroughly, $\frac{1}{2}$ lb. of honey previously warmed. When well incorporated add a little cochineal and five or six drops to every 3 oz. of English essence of peppermint. This is then run into lozenge moulds or thinly on a plate, dried in the cool, cut into shapes, and finished drying for eight hours in a dry place.

A HEALING BALSAM, really valuable in case of wounds or injuries to the skin, is prepared in the same way in a bain-marie:—Take of wax from the cell cappings 1 oz.; of fresh propolis, 2 oz.; of the finest honey, 7 oz. After all is well mixed pass through a close cloth, and press out well; replace in the bain-marie; add a little cochineal and a few drops of essence of lavender; then beat the mixture well with a fork, and fill into small pots, which fasten down closely.

HONEY COOKIES.—1 cupful extracted honey, 1 pint sour cream, stirteaspoonful soda, flavoring if desired, flour to make a soft dough.

SOFT HONEY CAKE.—1 cup butter, 2 cups honey 2 eggs, cup sour milk, 2 teaspoonfuls soda, 1 teaspoonful ginger, 1 teaspoonful cinnamon, 4 cups flour.

Recently, two horses were stung to death by bees in Yolo county, near Sacramento, Calif. The driver was also seriously stung, but not fatally. He was driving a four-horse team, and ran into a hive of bees. In such cases the horses may be taken into a barn, if possible, as the bees will not generally follow into an enclosure. Covering the horses with blankets wet in cold water will stop the stinging and subdue the fever, and will often prove the readiest means to prevent fatal results. In case a person is severely stung, washing in strong soda-water and covering with cloths kept wet in cold water will do most to allay fever and afford relief.

Prolificness, length of life of the workers, whiteness of cappings, wintering qualities, etc., are all looked after, and all queens at all times are reared, as far as possible, from those giving the highest number of points along all these lines, and in this way any apiary can be kept steadily improving instead of holding its own or retrograding.—G. M. Doolittle in *Gleanings*.

A German writer says:—In the salivary glands of the bees and in the larval food there will be found a substance of which no author has yet spoken; and that is tartaric acid—an antiseptic of the highest order. According to him, the royal jelly contains from three to four per cent. of it. This acid is transformed in the cells into formic acid. Bees fed on honey produce of it, according to the author, much more than those fed on sugar syrup. For this reason the former are much more able to resist the ravages of foul brood than the latter, which are easily affected.

President W. F. Marks, in his message at the opening of the Ontario Beekeepers' Convention compared the prevailing low price of honey with that of an early date and suggested that it was about time for the producers to name the price of that product. He censured the *teachings* that honey is a luxury, and called the attention of his hearers to the fact that most of the food upon their tables was luxuries and yet much of it had come to be looked upon as a necessity, and why not honey? —*American Bee Journal*.

TO BEEKEEPERS.

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THE PRODUCTION OF BEESWAX —WILL IT PAY?

[BY LOYALSTONE.]

Years ago when honey was a good price, when we used to get 1s per pickle bottle, beeswax was a second consideration. Though the price was high, little attention was paid to the production of it. Competition has brought the price of honey down, and bees are squeezed a little more to make the apiary pay. I still believe a good, honest, independent living can be made from bees alone, situated in a good locality, and the person's whole time devoted to them. I am not situated in the best locality in this State, by any means; I have also had in past years "too many irons in the fire" at a time; sometimes neglecting my bees for other work, which afterwards proved not nearly as profitable as the bees. "Experience teacheth," they say, so for the future my motto will be Bees first attention, other work, when no work is to be done in the apiary. My reason for commencing this article thus is to impress on beekeepers in general, that without thorough knowledge and attention to the apiary, it is better to leave bees alone altogether. Despair and disappointment will attend anyone not paying proper attention to them at the proper time. With this prelude, I will commence. It is only in good seasons we may expect to produce beeswax in any quantity. In a poor or moderate season it would prove ruinous to your colonies to attempt to run them for wax production. Nothing demoralises a colony of bees (be they ever so strong) than to stint them of combs, or force them to build combs during moderate seasons; you may get a small surplus of honey, a little wax, but further than this do not press them too hard. If you do, when the following spring comes, you will find your bees debilitated and miserable looking, thoroughly useless for honey production. If you rob your bees of too many combs, and force them to build new ones it seems to take all the vim out of the bees, and they fall an

easy prey to robber bees. It affects the queen, causing her to produce short-lived and half-starved looking bees, as the food given to the queen has not sufficient stamina in it. If a queen is not fed well her progeny cannot expect to have strong constitutions; and unless bees are strong and vigorous, they cannot be good honey gatherers. The strain of bees required for wax production are exactly the same as those required for honey production. If we want quick producers of comb then the black and Carniolan bees are the best at that game, but then their other bad qualities over-balance this, their only good one, so I cast them aside. I prefer either the "golden" or "leather-coloured" Italians, the later for preference. I cannot run an apiary here to pay for wax production alone, so I combine the two, wax and honey. So long as I can receive 3d per lb for honey clear I will run my apiaries for honey, leaving wax a second consideration; at the same time I intend trying to increase the wax production year after year. One season, three years ago, when my colonies averaged 70lbs. of extracted honey for the season, three hives I kept solely for the wax production, yielded on an average 17lbs of refined wax; showing clearly that this season it took a shade over 4 lbs. of honey to produce a lb of wax. If my method can in any way be improved on, I have no doubt that it will pay to produce wax in place of honey; as there is less trouble with me in refining wax, than there is in extracting, canning, and placing honey on the market. Were I in parts of N.S.W. where tons of inferior honey are produced every year, which brings from 1½d to 2d per lb., I would run the apiary for wax alone, and gain a better profit thereby. In extracting one ton of honey we get from 30 to 40lbs. of refined wax. But run for wax production only, in the way I will describe, the amount of wax received from one ton of honey would amount to a shade over 400lbs, valued at 1s per lb., would amount to £20; whereas, the inferior honey sold at, say 2d per lb, would only amount to £18 13s 4d, leaving a credit

balance in favour of beeswax of £1 6s 8d. I suppose my remarks are "eye-openers" for some beekeepers. I have half a mind to close this article now, and leave them to guess how this amount of beeswax is produced. It would not be a bad idea but I will not keep them in suspense. I have not tried the method on a large scale, because my locality is not suited for it; but I have tried it year after year for four years, on various colonies of bees, and have always had the same return of wax in ratio to the amount of honey produced. You will notice that it takes (according to my estimation) about 5½ lbs. of honey to produce 1 lb. of wax. Only one kind of hive in my opinion is suitable for wax production, and that is the "Long Idea" of 25 frames, 20 would do but 25 frames are better. I use the ordinary Root-Hoffman Standard frame. The "long idea" gives the space required for clustering room, a thing absolutely necessary for wax production. The clustering-room is too cramped in 8 or 10-framed hives. I have all frames with a small stick across centre, in place of wire. At extracting time I take out all frames containing honey, extract the honey, then cut out all comb save about one inch attached to top bar for starter. To describe it better I will take a case of one hive, "long idea" 20 frames. I have to fit this hive a queen excluder, which I use on the first time I open the hive to extract. I find all brood comb, place together at the front of the hive and place queen-excluder behind them to prevent the queen from getting to the back. Should there be more than eight frames of brood in the hive, I place the oldest of them behind the excluder. I keep the hive this way till the approach of winter, when I withdraw the excluder till next season. Occasionally I remove two frames from the brood-chamber, replacing with empty ones from the back. At first extracting I take, say 10 frames of honey-extract, and cut out all combs, leaving a starter on each and replace frames in the hive. On the top of this hive I have a kind of super three inches deep with canvas cloth on the

bottom. After replacing frames I place this super on top and pour into it two-thirds of the honey extracted from the frames, place the lid on top and the bees are forced to consume the honey as it comes through the cloth, and commence comb-building. At the end of four days I open up hive again and find combs built again, with a fair amount of fresh honey in them; I go through the same process, extracting the honey, cutting out the comb, and returning to the hive, this time returning all honey extracted, together with the ⅓ left from last extracting, to be sucked through canvas at the bottom of super. After the second process, I generally wait from five to seven days, according to the weather, and again proceed as before, giving back all honey extracted each time to the end of the season. You will notice I always leave two frames at the back. This is to keep the bees in a contented frame of mind. It seems to upset them a lot if the whole of the frames are cleared from the back each time. After extracting the honey I run it into a watering can with the rose off, and after replacing frames I place super on, pour the honey in and replace close fitting cover. I have tried this experiment with ten frame two story hives, queen-excluder between, but with little success, as I could not feed sufficient honey through the super. The extra weight of honey forced it through the canvas too quickly, and the bees could not get sufficient clustering room without over-crowding one another; in fact any other hive but the "long idea" proved failures for wax production. As I said before I have experimented on this plan on various colonies of bees, and find the return of wax is 1 lb. for every 5½ lbs. of honey returned to the hive. Queensland should be a first-class State for wax production, as it is warm all the year round. It would prove rather a failure in cold climates. At the swarming season is the best time to keep the bees going as they have rather an over supply of wax at this time, and if not given ample space for clustering will waste a lot. I would like other bee-

keepers to comment on this article, yourself among the number, Mr. Editor, and show or suggest any improvements in my method; also an improvement in the style of feeding honey back to the bees, as, after a while the canvas appears to allow the honey to drain through too quickly and has to be renewed.

THE USE OF EXTRA COMBS.

L. STACHELHAUSEN.

A correspondent asks the following question: We have 2500 good, empty combs which we desire to use in the best manner possible, for increase the coming season. How would you use them to the best advantage for this purpose?

Answer—You could use them for natural swarms, but I do not think this the best way, because natural swarms will build combs or finish foundation at very small cost. My plan is to prevent natural swarming, especially in out apiaries, and I have tried two different ways which I will describe. The first one is the best way but causes considerable work.

As early as possible I commence to rear queens and to form nuclei, in which the queens are to be fertilised. As soon as the main colonies in the apiary are strong enough, I commence to spread brood, that is, I set empty combs between the brood combs.

This must be done carefully and with an understanding of the nature of bees. When we look in the brood nest of a colony we may find empty cells in the centre and around them hatching brood. Around this, in larger circles, we will find young brood and the farthest away from the centre will find eggs. If the centre combs of the brood nest are in this condition I set empty combs on both sides of the centre comb. Probably the next day the queen will commence to lay eggs in the centre, and will fill them in about twenty-four days, after which the brood nest is in the same condition again.

If we see that the queen is laying eggs near the outside of the globular brood nest we set the empty combs on the

outside of this brood nest next. Very probably we find the outside combs of the brood nest containing capped brood and the next combs on the outside of these with pollen. Then we set the empty comb or combs just between these two. As soon as the colonies are strong enough we remove the outside combs, just when they contain capped brood nearly ready to gnaw out, and give them to the nuclei, and at the same time insert empty combs in their exact place in the colony from which the brood was removed. The rule is to give the empty combs just where the queen will naturally be laying eggs, in the next few days.

The reason why we read so many different reports about the spreading of brood, and why sometimes more damage is done thereby than benefit derived, is because the brood nest is in disorder. Sometimes the empty combs are not used at all by the bees because they are put in the wrong place, where the queen does not expect, in the nature of things, to find empty cells. If the combs have been improperly inserted, and some honey is coming in, the bees fill them with honey and afterward the queen probably does not pass the comb anywhere, and a large part of the brood nest is entirely neglected.

The purpose of the manipulations is to get a large lot of capped brood to strengthen the nuclei with, and in this way to get them to full colonies before the honey flow commences, and at the same time to keep the old colonies from swarming. In this way an apiary can be increased very largely and all the colonies are and remain in good working order.

The other way I mostly use in my out-yards, and the work is done at swarming time, that is, when swarms may be expected from some colonies. But if we have prevented swarming the plan can be used a short time before the honey harvest or even during the same.

I fix up a new ten-frame hive with nine empty combs and set them on the stand of a strong colony. From this I select a frame containing open brood only, and set it in this new hive for the tenth comb in the middle of the hive. Now I

shake or brush all the bees (queen included) of the colony into or in front of this new hive, and I hang the now beeless combs of brood in the same order in another hive—B. This hive B is simply set on the stand of another colony—C—and the colony C receives a new stand in the apiary. The colony A is in better shape than a prime swarm, having a laying queen and more field bees comparatively.

The colony B has all the brood, but old or field bees only, and no queen. This is a condition which harmonises quite well. In would be a bad plan to rear a queen in this colony, because at first not enough young bees are present, and it would take too long before the young queen would lay eggs. To requeen this colony we use different ways, i.e., the second day after forming the colony we give it a fertile or unfertile queen in a queen-cage closed with candy, or a capped queen cell. In the latter case it is necessary to cut out all other queen-cells on the ninth day after forming the swarm. Sometimes I introduce a fertile queen at the same time that I form the swarm and she is accepted. A young virgin queen we may let run in with the alighting field bees and she will probably be accepted. If a fertile queen can be given from a nucleus with the bees, combs and brood, I think that it would be quite safe but have not tried it enough to be quite sure.

The colony C will lose all field bees, and we should give them some water in one of the combs, so that the young brood will not suffer, unless there is fresh, unsealed honey in the hive, and in that case it would not be necessary, probably, to give the water. In this way we make three colonies out of two, that is, we increase the apiary fifty per cent. I think this way the safest and less work is required. If the season is good and the honey flow lasting for some time, we can safely increase one hundred per cent. in the following way:

The bees are shaken or brushed just the same into the new hives with empty combs, but we are especially careful that the bees have filled themselves with

honey and have had plenty of time for that purpose. This new hive is not set on the old stand, but on an entirely new one in the apiary, while the hive with all the brood combs, but with no bees will occupy the old stand. The most of the field bees will return to the old stand and a queen is introduced the same way as before. The swarm on the new stand should get at least one comb with thin honey or sugar syrup. To this kind of swarm some open brood can and should be given. It makes less danger that they will swarm out, as a brushed or shaken swarm, getting all the bees will probably do if we give them combs of capped brood. Open brood will keep them in the hive.

It is hardly necessary to say that the colonies divided in this way must be strong enough and in the highest development, so a swarm may be expected from them in the next few days. Sometimes I will find a colony that has already made preparations to swarm, having open or capped queen cells. Of course these cells must be destroyed at the same time the divisions are made. If we should not have enough queens or queen-cells from our selected stock we can use these cells like other ones. If we examine a colony on the ninth day after making the divisions and find a single cell torn down by the bees with a side opening, everything is alright, and it is only necessary to watch and see that the young queen commences laying. If, however, capped cells are seen on the ninth day and none torn down and the young queen is present, the colony made preparations to swarm before we made the divisions and all queen cells should be torn down.

—*Lone Star Apiarist.*

The reason given why drugs will do more to cure foul brood in Europe than in America, and why they are more immune to the disease, is that they have had the disease longer, and it has lost something of its force. A disease is likely to be at its worst in a locality where it has never been before.—*Gleanings.*

Experiments to Test Whether Bees Injure Sound Fruit.

BY JOHN FIXTER, OF THE EXPERIMENTAL FARM AT OTTAWA.

For many years the question as to whether sound fruit was injured by honey-bees has been under discussion, but last year special attention was drawn to this question by a lawsuit between a fruit-grower and a bee-keeper, the former claiming that his fruit had been seriously injured by the bees of his neighbour, while the bee-keeper brought evidence to show that not only was this not the case, but that it was impossible. The question was of so much interest to bee-keepers that the following experiments were undertaken to determine whether bees, even when deprived of food, would attack fruit placed within their reach. The results here given indicate that such is not the case, which merely confirms the conclusions arrived at many years ago.

On Sept. 7, 1901, when there was no honey to be gathered on plants outside, ripe fruit of four different kinds, viz., peaches, pears, plums and grapes were exposed in different places near the Experimental Farm Apiary, where it was easily accessible to the bees.

A. Inside the bee-hives.

B. On branches of trees in the apiary enclosure.

C. On shelves in a workshop, to which the bees had access through an open window.

Every care was taken that all the fruit used in this experiment should be perfectly sound.

A. Inside bee-hives: The fruit was exposed in three different conditions, (1) whole fruit without any treatment; (2) whole fruit that has been dipped in honey; (3) fruit which had been punctured in several places with the blade of a pen-knife.

Four colonies were selected for this experiment, all of about equal strength. Each of these colonies was in a hive upon which was placed a super divided in the middle by a partition. From two of the hives all the honey had been removed;

in the two remaining hives five frames were left, each having considerable brood honey around it. The former two weighed, on an average, 27 pounds, the latter 34½ pounds. In each one of the four hives the whole specimens of fruit not dipped in honey were hung within three empty frames tied together as a rack. The whole specimens of fruit dipped in honey were placed in one compartment of a super, and the punctured specimens were placed in the other.

The bees began to work at once both upon the dipped and the punctured fruit. The former was cleaned thoroughly of honey during the first night; upon the punctured fruit the bees clustered, thereby sucking the juice through the punctures as long as they could obtain any liquid.

At the end of seven days all the fruit was carefully examined. The sound fruit was still uninjured in any way, but had the surface polished and shining as if the bees had been travelling it, trying to find some opening through the skin. The dipped fruit was in a like condition, quite sound, but every vestige of honey had disappeared. The punctured fruit was badly mutilated and worthless, and beneath each puncture was a cavity, and in some instances decay had set in.

The experiment was continued the following week, the undipped, sound fruit being left in the brood-chamber. The dipped fruit was given a new coating of honey and replaced in the super, and a fresh supply of punctured fruit was substituted for that which had been destroyed.

At the end of the second week, the condition of this fruit was entirely similar to that of the first lot.

For the third week fresh samples of fruit of all the above kinds were used, because some of the sound fruit had begun to decay; this fruit, however, had the skin unbroken, and in no case had the bees done any damage. The result was the same as before.

After the third week the bees belonging to the two hives which had been deprived of the honey appeared to be sluggish,

and there were many dead bees about the entrances of the hives. These colonies had lived for the first week on the punctured fruit, and on the honey of the fruit which had been dipped.

As there were at that season few plants in flower from which they could gather nectar, these bees had died of starvation, notwithstanding the proximity of the ripe, juicy fruit. This supply of food, which they were urgently in need of, was separated from them only by the thin skin of the fruit, which, however, this evidence seems to prove they could not puncture, as they did not do so, although they kept crawling over it continually.

The mean weight of each of these two hives Sep. 7, when the experiment was begun, was 27 pounds. At the end of the experiment, four weeks later, each had lost $3\frac{1}{2}$ pounds.

The mean weight of the two hives in each of which were left five frames with brood and honey, was, at the beginning of the experiment, $34\frac{1}{2}$ pounds. The mean loss of each of these hives was 2½ pounds.

B. Fruit exposed in the open air hung from the branches of a spruce tree in the apiary enclosure: In this experiment two sets of whole fruit were used, one being dipped in honey, the other punctured as before. The bees worked exactly as in the hives and with the same result.

C. Fruit exposed on shelves in a workshop adjoining the honey-house: This, like the preceding experiment, consisted of dipped fruit and punctured fruit, although the bees did not work so freely inside the building as they did on the fruit hung outside on the trees and that in the hives; still, the results were practically the same in every case.

He had conducted experiments with the different sizes of hives, foundation and putting out bees. — *American Bee Journal*.

FOUL BROOD.

Prof. F. C. Harrison, bacteriologist, who has recently returned from a year or more of study at the leading bacteriological institutions in Europe, gave the result

of his work during the season with foul brood. He stated that the work undertaken with foul brood at the Ontario Agricultural College during the past year has been rather limited. The only thing attempted this year was some means of destroying germs of foul brood in combs. One remedy had met with good success; that was, disinfecting combs and hives with the vapour of formalin. Pieces of comb had been taken containing wax and comb several years old, dead brood, capped brood, and cells of honey into which had been put foul-brood germs. These were placed in a box the size of the ordinary hive, the lower entrance in the box having been plugged, leaving only sufficient room for the entrance of a rubber hose coming from the disinfecting apparatus, similar to that for disinfecting plants, etc. The formalin gas apparatus was follows:

An alcohol lamp, and upon it a reservoir with a 40-degree solution of formalin. When the alcohol lamp was lighted the gas was soon generated. At the top of the box a one-half inch opening had been left; out of this the atmosphere passed as the box filled with formalin gas. When the box was full the gas would pass out of the upper orifice, detected by the odour. The apparatus was then withdrawn, both openings plugged, and the comb left under the influence of the gas for one hour, after which exposure no growth was obtained, four tests in all having been made. The honey-cells known to be affected gave no growth. The pressure obtained in generating the gas might in a measure account for the results. This cure would be practical in a large apiary. Other appliances used in disinfecting would answer.

Prof. Harrison also mentioned that some years ago he had taken a lot of cells or spores and placed them on glass in semi-darkness. He had tested them about every six months and had made a test very recently. Although where the cells had been placed nearly four years ago and exposed as per above, the last test showed they were still alive, showing that the spores were extremely resistant.

In conclusion, Prof. Harrison said he hoped that the method of disinfecting he had given would be tested during the coming season.

Mr. Evans—I believe that this is one of the most important statements yet made in connection with foul brood.

Mr. Hall—Are the capped cells you mentioned, capped larvæ, or capped honey?

Prof. Harrison—Capped larvæ.

F. A. Gemmill—I think that the method given should be tested, and, if found better than the present, adopted.

Mr. Hall—We often have doubts about the surplus combs on infected hives, and other combs; these could be disinfected in the method given. I am very glad to hear the report.

J. K. Darling—How about bees and brood?

Prof. Harrison—Any in the box would, of course, suffer the same fate as the germs.

Mr. Evans—Would it not be well to shake the bees off the combs, then treat the combs and return the bees? An experiment in this direction might be tried.

R. H. Smith—Does the treatment make the combs objectionable to the bees?

Prof. Harrison—it does not injure the most delicate fabric.

Mr. Smith—Will the bees, if there are any dry scales, remove them from the base of the cells?

Mr. Gemmill—Do you think, if the scales were dry, they would be disinfected in the scales.

Prof. Harrison—Those I tested were moist, and it would doubtless be better to moisten them.

A. Laing—Why not turn the bees back to the combs, and after ten days repeat the operation? The bees would then be practically clear?

Prof. Harrison—As long as I fed carbolic acid, although growing millions of spores, no foul brood could be produced; but as soon as I left off feeding, foul brood developed.

Mr. Holtermann—It would not do to return the bees to the combs, and after ten days repeat the operation, because the

bees, when disturbed, take up perhaps infected honey and return this to the comb, and there is no guarantee that they may not repeat this operation the second time.

A Member—What about McEvoy's method?

Mr. Holtermann—The combs are taken away, and the bees cannot store the infected honey in cells. I am afraid that bee-keepers, in their attitude, are rather inclined to despise scientific help and investigation—not in words, perhaps, as much as in attitude. Remedies and results are given such as this, and yet bee-keepers go on just as before.

W. F. Clarke—No wonder bee-keepers despise science when the inspector had drilled into them to despise science, and they are taught to hold to the theory of spontaneous generation, which no scientist to day holds.

Mr. Clarke read the Chehire remedy, and wanted to know why this remedy had been ignored on this side of the Atlantic. Was it national jealousy, personal feeling, or what?

Prof. Harrison said considerable work has been done in this investigation. Carbolic acid will not destroy the germ; 2 per cent solution will not destroy the germ in six days; 1 in 500 will prevent the germination of spores. The carbolic acid, in the strength mentioned by Mr. Cheshire, will not kill the spores, but may prevent their growth. Formic acid has a much greater value in disinfecting. Some honeys have more formic acid than others! buck-wheat has almost that of clover honey. Bee-keepers had ever noticed the sting more severe when the bees worked on buckwheat honey. He (Mr. Harrison) had spent several weeks with Mr. Bertrand, in Switzerland; he had also studied the disease in Austria. In those countries they had a race of bees which had a natural immunity from foul brood; for this reason, he believed, the bees here, not being immune, the remedies which were a success in Europe were not such in this country—the bees were not immune to the same extent.

Mr. Clarke—Is phenol and carbolic acid the same thing?

Prof. Harrison—Yes.

Mr. Clark—Was 1 to 500 not a success?

Prof. Harrison—Only as an antiseptic; not to destroy the germs.

Mr. Holtermann—I would like to ask another question; Under what conditions does the germs grow again, which has been treated with carbolic acid 1 to 500?

Mr. Harrison—When you cease feeding. As long as you feed it is all right. The bees object to carbolic acid; formic acid is Nature's remedy.

J. E. Frith—Have you been working on foul brood experiments just for one year?

Prof. Harrison—No, for four years.—At the Ontario Beekeepers' Convention. —*American Bee Journal*.

Exportation of Honey and Wax from Cuban Ports during 1901.

COUNTRIES.	HONEY.		WAX.	
	Pounds.	Value.	Pounds.	Value.
United States	1,317,222	\$ 50,956	176,384	\$ 40,446
Spain	15,040	500	882	150
France	1,009,775	42,559	204,352	58,350
Germany	1,500,790	58,263	619,240	166,214
United Kingdom	246,847	3,894	7,761	1,215
American Countries			600	200
European Countries	695,871	27,642	13,378	3,913
Other Countries.....	10,075	529		
Total	4,795,600	\$ 189,349	1,022,867	\$270,488

In several respects the above statistics are deceptive. While the aggregate amounts are correct, the amounts credited to different countries are wrong in this respect: The greater portion of the 1,317,222lbs. shipped to the United States was first shipped to the port of New York, and from there re-shipped to Germany.

It is the same, only in a little less degree, with the honey shipped to France. Germany at last gets the bulk of it.—*Gleanings*.

McEVoy's FOUL BROOD CURE.

In the honey season, when the bees are gathering freely, remove the combs in the evening and shake the bees into their own hives; give them frames with comb-foundation starters on, and let them build

for four days. The bees will make the starters into comb during the four days, and store the diseased honey in them which they took with them from the old combs.

Then in the evening of the fourth day take out the new combs and give them comb foundation to work out, and then the cure will be complete.

Some inspectors modify this plan by hauling all the hives boiled; others recommend painting the inside with a strong solution of carbonic acid.

My plan is to boil hives and frames in a big vat of salt water and I switch the bees off of the frames with a feather. By so doing you won't knock out any honey from the half-filled cells.

The frames containing combs from the diseased colonies treated should be destroyed by burning them.

PAINTING HIVES.—With the general tidying-up necessary in a well-ordered apiary, the painting of hives must have attention. On a fine day, have all the wood-work rubbed down clean before starting to paint. See that the paint is of a quick-drying nature. Begin painting in the afternoon, when most of the bees have ceased flying for the day. The flightboards, entrances, and part of the hive fronts should not be touched until the bees stop work, when these may be gone over. The morning will usually find all the paint dry, so that the bees can proceed with their labours unimpeded. When a few hives only are kept, a spare hive or two is handy, being first painted and dry, to transfer the combs and bees into, when the old hives can in turn be painted and made ready for future use.—WILLIAM McNALLY, in *Beekeepers' Record*.

My bees fairly tumble over each other working on sweet-corn blossoms (tassels), and I am satisfied they were after something else than pollen.—F. W. Hall of Iowa in *American Bee Journal*

One per cent of sulphuric acid to water in rendering wax.

VICTORIA

VICTORIAN APIARISTS' ASSOCIATION.

ANNUAL MEETING, JUNE 9.

Beekeepers please notice that the circular in this issue is an invitation for you to attend our Annual Meeting which is already promising good things.

Come let us reason together (scriptural, and all the better for that). There are many things of importance to all beekeepers needing attention, reasoning and united action, therefore put the apiary under lock and key for a few days.

Cheap Excursions are available including your wives (don't forget it), and I am endeavouring to arrange a price for meals at so much the dozen at the one place, so that we can have right merry time.

Come and bring your wife.

Come and bring your half-crown.

Come, all seats free, (three each if you like.)

Come early and avoid the crush.

W. L. DAVEY,
HON. SECRETARY.

VICTORIAN NOTES.

R. BEUHNE

THE SEASON.—Judging from the receipt of honey by rail in Melbourne, the price, and the reports from different parts of this State, the season appears to be, generally speaking, a pronounced failure. From the fact that 4d to 4½d has ruled for prime extracted, for weeks now, I infer that the production of good quality honey must also have been small in other States. In some districts, grey box

has yielded fairly well, and apiarists who happened to have, or managed to have their colonies strong, have had the advantage of remunerative prices, and a ready market. The fact of the flow such as it is coming so very late, the latest in my experience, accounts for a greater shortage than would otherwise have been experienced because a good percentage of the honey still comes from box hives, and many box hive men have thought it too late altogether in the season to rob their hives without the risk of losing them through the winter. It is one of the great difficulties of apiculture in Australia, or at any rate parts of it, that we can rarely foretell the exact time of some of our honey flows, we may get a flow almost any month between September and May, and we may get none at all. To meet the case we have been told to keep our colonies strong all the year round. That sounds alright, but we know from experience that it is almost impossible and that in some instances it is positively harmful to attempt to have them strong through nine months out of twelve. Excepting the case of a continuous honey flow, bees will slacken breeding at some time or other notwithstanding any stimulating such as can be economically practised and this re-action after stimulation may take place just about the time when they ought to be in the heights of brood-rearing. This state of affairs can of course be avoided by leaving them alone altogether and trusting to luck and natural stimulation before a honey flow to bring them into a proper condition. Having personally no faith in luck, this latter course does not commend itself to me. I have on a previous occasion stated that a colony with a good queen will work up, or keep on brood rearing as the case may be, if the number of workers is somewhat below the normal figure, whereas a colony above the normal strength will take things easy and decline during a protracted spell before a honey flow, when bees gather little or nothing more than a living. It

is upon this fact that I base my practice, an explanation of which I must hold over for another occasion.

WAX PRODUCTION.—The Editor's remarks about wax secretion on page 3 of last issue together with articles on wax production in the *Australian Beekeeper* of April 15th, make it appear to me that we are moving in a circle in Apiculture. Sometimes this circle takes in something new; but in regard to wax production it does not. The same theories have been put forward and the same arguments used years ago. No amount of theorising and arguing will settle the question as to whether it would be profitable to run bees for wax rather than honey; but a season's patient experiment will, as I know to my cost, convert the most pronounced wax enthusiast into a honey man. Of the articles on wax production in "*A. Beekeeper*" I should certainly place Mr. Munday's first. As for some of the others they indicate that the writers have no faith in the theories they propound, for it is the other fellow, the fellow with the nasty honey they want to experiment. The facts upon which the advocates of wax production build their theories are: 1. That it is natural for bees to secrete wax. 2. That only from 4lb. to 6lb. of honey is required to produce 1lb. of wax.

That it is natural for bees to produce wax is beyond question, but that it is produced at a cost of only 4lb. to 6lb. of honey is mere guess work. Those who accept 1 of wax to 4 or 6 of honey as correct have in my opinion been misled by the production of wax by newly hived swarms. They have overlooked the fact that when bees intend to swarm they instinctively prepare to build combs in the new home and the elements of wax are probably accumulated before the swarm issues, the resulting combs therefore are not necessarily solely the product of the small amount of honey carried in their honey sacs. A comparison of analysis of honey with that of wax shows

that the component parts of 1lb. of wax are contained in not less than 5lb. to 6lb. of honey. Practical experiment, however, reveals the fact that there is great waste somewhere when feeding honey for wax production. The Editor of the "*A. Beekeeper*" thinks that thirteen pounds of honey (the amount which according to Cowan and Simmins is necessary) is an excessively high estimate.

In my opinion it is a very low one, and I have never been able to get below 20 in my wholesale attempts some years ago to convert inferior honey into wax; notwithstanding that the attempts were made under the most favourable conditions of strength of colonies and of temperature, and a dogged determination on my part to succeed. I finally gave it up and got rid of the inferior honey by shifting away from it. The only satisfactory outcome of the experiments was the wax press. I first made them for pressing the honey from the cut out combs which has since then been in continuous use for pressing honey out of cappings and wax out of old comb.

Unless we feed back the honey, which is a ruinous proceeding, we cannot get more than 1lb. of wax to every 25lb. of honey in running bees for wax. Box hives produce as high as one to twenty, when they have been allowed to become choked up, resulting in endless swarming.

If anyone will go to the trouble of picking out a number of colonies as nearly alike as possible, and work half of them for honey and the other half for wax, they will find that at the end of the season those run for honey have produced nearly as much wax as those run for wax and vastly more honey. Now this is not theory but fact, I have done it. (Still it is not quite conclusive, as I will show further on). At first it appeared that the wax colonies would have a chance of coming near the honey colonies in the value of their output, but the longer it went on the further they fell

behind, for every time combs were cut out the queen would be restricted, whereas in the honey colony the extracting would stimulate brood-rearing, so that the honey colonies left the wax makers further and further behind in number of workers and output. In this respect the wax producers were worse off than box hive colonies, in which the queen keeps on laying on the edge of the comb as it is built. Therefore, to keep a wax colony in condition the comb should be cut away at the top while the bees keep on building below, so that brood have hatched out of and the cells have been filled with honey afterwards of every piece of comb removed. To produce this result the hive would have to be of a novel and peculiar shape and construction, just such as would induce a maximum of swarming. It is here that labour comes in as a factor to be reckoned with as well as in the cutting, pressing, etc.

The amount of wax asserted to be wasted when bees have no opportunity to build combs is greatly over estimated. Has any one ever found half ounce on the bottom board of a hive in which a swarm was hived on sheets or combs? Let it be wasted, it is paid for many times over by the honey stored if combs are given, and after a few days it will take all the wax they produce for sealing cells.

It is said that during a good flow as much comb honey (or nearly so) is produced by a colony as would be extracted. My opinion is that the man who performs this feat does not manage his extracting colonies so well as he might do. A colony good enough to produce first-class sections requires at least two supers. They may use but one till some warm day when honey is coming in extra fast, when they will put a little honey into almost every cell of the second super, because the bees will not put fresh honey on top of that in the cells in the first super which is not sufficiently ripened. It is under this condition that bees will secrete wax, because they cannot dispose of it when no empty comb is available to

them, although not a cell of their combs may be sealed. I have often in such cases had a whole set of foundation partly drawn all over, and a little honey stored in each cell in 18 to 24 hours, although it was placed on top of a first super of only half filled combs.

I will now explain why running an equal number of colonies for honey and wax is not conclusive. I am indebted to Mr. Bennett for pointing this out to me some time ago. In effect he said, "Supposing the nectar available for 100 colonies of bees if gathered would amount to five tons of honey if extracted, when running the apiary for honey, it would require 200 colonies to gather it if the apiary was run for wax production." I quite agree with him. But there still remains the question, can 200 colonies comb-building (and swarming) be attended to with the same amount of labour as 100 worked for extracted. Another point is, during a dearth when 100 would just live would not 200 starve? And when 200 live, but build no combs, would not 100 store a little? This is altogether apart from the question whether the value of the production of wax and honey of the 200 would equal the value of honey and wax of the 100.

The working out and clearing up of these points by actual practice I feel compelled to leave to someone else.

VICTORIAN APIARISTS' ASSOCIATION.

As announced elsewhere, the annual meeting takes place June 9th. The season has been an unfavourable one, and many may feel disinclined to attend. I trust, however, that they will strain a point and be present. I have strained a good many, as I have attended every annual and other meeting since 1890. We all depend upon one another to some extent, and I have always picked up hints and useful information whenever I have come into contact with others of our calling. I have not only picked up hints, but I have given them too. I will give you one now. Everybody goes to Melbourne once in a while, if not oftener. Now let this be the

time. You will find some excuse if you try, and if it does not profit you in the long run then you are not a beekeeper.

QUESTIONS.

1. Have you had any experiences as to the influence of nurse bees over young bees? Or will the bees of a savage swarm have any influence over the offspring of a new queen given them in place of their mother?

W. B. MCINTYRE.

2. Has any one experienced trouble in Root's Foundation Rollers with cell-butts sharp and square at corners, instead of round—it is one of the latest. If so can it be remedied?

3. What time does the box of Victoria bloom, especially in the Wimmera? Is its honey producing quality certain?

4. Does the Victorian mallee give good honey, and is its blooming regular.

GEO. COLES.

5. Will foul brood germs die on combs if left off hives six months?

6. Do you know of any way of treating combs to kill foul brood germs, so that combs may safely be used on a clean hive without any danger of infection?

7. How would you go to work to cure, by McEvoy's cure (an apiary of 100 hives) of foul brood, work to be done in spring when a small flow of honey is coming in?

F. W. PENBERTHY

1. I don't think they have any influence over the new generation.

2. I have had a lot of trouble with the same sort of machine, it took me several hours with a scrubbing brush to smooth them down before they would work, which the maker should have done before sending out. The round cell mill is the best. Soap the rolls for every sheet. I have two padded small rolls to do the soaping now. If inclined to stick, use a little lye, say one of lye to ten of water. Don't use it any oftener than you need it, as it affects the wax, and I think the rolls too, a little. Don't have your bath for warming the sheeting hotter than 90 degrees, if much hotter the sheeting will stick to the rolls, and the foundation is more liable to sag in the hives. Don't go for too much cell wall as it is more trouble than it is worth. If you want foundation for the Show, put in two thin sheets of sheeting at once, and you will be surprised at the result.

3 & 4. Move into a good place while you are about it, among basaltic hills west of the dividing range or ridge, where you can get the best crops and best quality. See the geological map of the State you intend to settle in.

J. THOMPSON.

1. Don't believe the nurse bees will have any influence at all on the young bees any more than black bees would have on the colour of the young of an Italian queen.

5. If exposed to the air—so I am told. Never tried.

6. Melt them down and make into foundation.

7. Get all fresh hives and frames, and put the bees into them. Melting old combs and scorching the old hives.

R. BEUHNE.

1. The only influence savage bees exercise over the progeny of another queen raised by them is that of inciting them by example. You can test the point with differently marked bees. Let bees of a gentle strain be nursed by a savage colony, remove to another colony the brood when sealed, and the result is, bees will act no different than if they had been raised anywhere else.

2. Have had no trouble. It will remedy itself with a little wear of the rollers.

3. The question is too general to be answered effectively.

4. No knowledge of same.

5. Certainly not, the germs will keep alive for years (they are seeds not eggs.)

6. There is no effective and sure way of treating infected combs, none worth the trouble involved and the risk taken.

7. Start with the strongest of the infected colonies giving the brood (unless very badly infected) to the next strongest to hatch out. On the 15th to 20th day some of the combs containing the most of the sealed brood, may be transferred to the weakest infected, and on the 21st or 22nd day all may be treated. Of course, I am speaking only of infected colonies, not rotten ones, the combs of which should be boiled down at once, but I can hardly conceive an apiary so badly infected if looked after.

QUESTIONS NEXT MONTH.

8. Loyalstone's system of wax production.

9. Suggestions or remarks re late convention in Sydney.

FOUNDATION.

HOW MUCH SHALL WE USE IN OUR SECTIONS?

(By G. M. Doolittle.)

"How much thin comb foundation shall I use in the section boxes this year?"

How we answer this question will depend quite largely upon two things. The first, and it seems to me the most important is, have we the necessary means to indulge in all the foundation which will be needed to fill our sections, without

depriving ourselves or some of the family of the necessities or comforts of life? If we have not, then my way would be to use triangular starters, the same having each of the three sides about two inches long, in three fourths of the sections I was to use; and when the season opens, put in starters of white new comb, which it is always easy to find or procure during fruit-bloom in almost any apiary, in the remaining sections.

To get the triangular starters, cut the thin foundation into strips a little less than two inches wide, then turn the cutting knife at an angle across this strip each cut, thus giving the desired shaped piece. And to get the white comb, remove a frame of honey from each populous colony, and put in a frame having a foundation starter in it, about half an inch wide, and every two days remove what comb the bees may have built in it. Cut this comb up in the desired pieces and attach one to the top of each section by drawing a hot iron between it and the top of the section, the section being bottom side up, when by setting the piece of comb down on the section wood at the same time the iron is removed it will become a fixture. I know of nothing which will entice bees into sections so quickly as will new comb of the same season's building. In this way we are apt to secure even a better yield of honey than by any other plan, especially if the sections containing the starters of comb are scattered uniformly among those having the foundation starters. The only drawback when so working will be that the sections will not contain all worker comb, or present quite as fine an appearance, nor the combs be attached to the wood of the sections quite so firmly, as where the foundation in full sheets is used; still, very little difference will be made in the selling price for lack of the full sheets of foundation. Again, if I thought it best to hive my new swarms on frames filled with foundation, so that wired frames filled with worker combs would be a certain result, which is a thing greatly to be coveted, then I would use only starters in the sections as above.

When a prime swarm issues, they go forth, as a rule, with wax already secreted in their wax-pockets, so that they may at once commence to build combs in their new home, and if the new home is already supplied with all the necessary combs this wax is wasted or, what is often the case, worse than wasted, it being added to the foundation already in the sections, so that, instead of drawing out the side walls of the foundation they build with their own wax the cells of the combs, thus leaving the foundation in the sections the same as it left the mill. This causes the grumbling we have heard so much about, regarding the "fishbone" in section honey. Now, where I hive swarms on full combs, or frames filled with foundation, I use only starters in the sections, and find that the bees will build the combs in the sections while they are drawing out the foundation below, and thus a saving is made. But, as a rule, unless we are very short in the family, I prefer to fill the sections with foundation, that I may have handsome saleable sections of honey, and use only starters of foundation in frames below, having the starters in the frames, say from one to one and one half inches wide. By contracting the brood chamber to so few frames that a part of the swarm is forced at once into the sections, the bees go to work there storing honey and drawing out the foundation, while during the same time they build all straight worker comb in the frames, so that by the time the frames below are filled with comb and brood the sections will be nearly completed also. In this way there is no detraction from the amount of section honey, so far as I can see; and we have worker combs built that are nearly or quite as perfect as those from foundation.
—*American Bee-keeper.*

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LAYING WORKERS.

(BY ARTHUR C. MILLER.)

In looking over the January Beekeeper for a hint as to a suitable topic for this article, I ran across the letter of Mr Geo. H. Mobley and noted his queries about "laying workers." As I have made quite a study of that subject, perhaps I may be able to enlighten him and also interest others. "Laying workers" are developed from mature and previously normal workers, the development taking place when the bees are in dire need of a mother, and when they have no eggs or brood from which to rear one. But there appears to be an exception to the statement in regard to having eggs or brood, for sometimes laying workers make their appearance in colonies having brood in advanced stages. We have not as yet any exact record of the physical changes in such bees. We know what constitutes a normal worker and what a laying worker, but of the transition stages I believe only little is known. Also but little is known as to what properties in the food and what "mental" or "nervous" states may serve as stimulants to produce activity of the ovaries. Special foods are prepared and given to larvae destined for queens, and these foods particularly stimulate the development of the ovaries and associated parts. It is probable that mature worker bees in dire need of a queen, and producing such elaborated food, get it from each other, as there is no brood to receive it, and thereby have their ovaries particularly stimulated, and as the eggs develop, proceed to lay them.

In connection with the remarks on food, I wish to ask attention to the probable fact that under normal conditions bees seldom get chyle or digested food from each other (except as above stated). I am not absolutely sure on this point, but thus far all evidence tends to confirm such belief. Foods and food influence in bee life are interesting problems and are deserving of more attention than has previously been accorded them, but they

are subjects beyond the ken of most of us, and must be left for the scientist to investigate.

Let any bee-keeper who wishes to satisfy himself that laying workers arise from mature normal workers and not from larva having a bit of "royal food," try the following experiment:

Move to a new stand any fair colony having a young queen which has been with them for at least two months. Provide for the old bees returning to the old location as may be most convenient; they concern the experiment only in that they are not wanted in the moved colony. In ten days or more take the queen and all the brood and eggs away from the moved colony, leaving only the bees, to which give combs of honey and pollen. To be absolutely sure no eggs are given these, combs should have been away from the bees for several days—weeks would be better. Now watch for results. Ordinarily in four or five days a few eggs will appear and the number will increase daily until the colony begins to decline. The reason for selecting a colony having a young queen and for getting rid of the old bees, is to be certain that all bees subjected to the experiment are raised under such conditions that there can be no likelihood of any of them receiving "royal food" while in the larval stage.

If the queen-less colonies have eggs and brood, the conditions are not such as to create the abnormal desire or to cause or enable workers to get the special foods. On the other hand, if all the bees are very old, it may be impossible for any change to occur in their ovaries, but I can only judge this by analogy.—*American Bee-keeper.*

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1. The careful watching of the interests of the industry.
2. To arrange for combined action in exporting honey to relieve local glut when necessary.
3. To advise members as to suitable localities for establishing apiaries.
4. Any beekeeper can become a member on approval of committee, subscription 2/6 per annum.
5. That every member with more than 50 hives shall be allowed an extra vote for every additional 50 effective hives.
6. No member be eligible for office who has less than 50 effective hives, or his subscription is in arrear.
7. The Association to consist of a central body and district branches affiliated with it.
8. The principal officers be such as will undertake to meet each other in committee at least once in twelve months.
9. The officers shall consist of President, Vice-President, Treasurer and Secretary, and Executive Committee.
10. After the first election of officers, arrangements to be made by the Secretary to call for nominations for office-bearers, and issue ballot papers prior to the next annual meeting.
11. Supply dealers or commission agents cannot become members.
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