The Australian bee bulletin. Vol. 13, no. 2 May 30, 1904

West Maitland, N.S.W.: E. Tipper, May 30, 1904

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THE AUSTRALIAN Bee Bulletin.

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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N. S. W. BEE-FARMERS' ASSOCIATION.

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RULES & OBJECTS.

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.
12. Members unable to attend meetings or conventions can authorise or nominate any member they know will be present to vote for them on any subject brought forward. Such vote or votes to be in addition to the member's present own vote.

Printed and Published by E. TIPPER proprietor, High Street, West Maitland, N.S.W.

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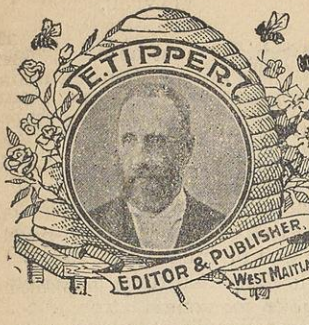

MAITLAND, N.S.W.—MAY 30, 1904.

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

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WE would again remind our many friends we are not supply dealers, and the income of the *Australian Bee Bulletin* is entirely derived from subscribers and advertisements. We are honey raisers, and our interests are therefore in accord with other honey raisers. We want to get the best price we can for our honey, and want others to do the same, and we seek out and publish whatever information will tend to this end. In their own interests we ask our friends to put in a word for the A.B.B. to advertisers and beekeepers who do not subscribe to the A.B.B. whenever they can.

Since 1898 the Victorian Government have paid bonuses for honey to the extent of £507.

NOTICE.—The next (June) issue will appear on the 16th inst. We issue it thus early on account of the Victorian Convention, which takes place on the 29th instant.

OMISSION.—We regret to have to mention that the following names were omitted from list of committee of N.S. Wales Bee Farmers' Association in our last issue: Messrs. W. Ager, Latimore, and Hewitt.

It will be very interesting to beekeepers to notice the evidence being taken at the Royal Butter Commission in Melbourne, and the way the butter producers are being treated by the buyers. We have had a little bitter experience ourselves, both with honey and wax.

Both carefully weighed before leaving the apiary, weighed again at the railway station, yet returns showing big disappearance or evaporation! Where? No satisfaction.

For several weeks past our bees have been gathering - what? And we made up our mind to have one more extracting before the winter set in. We went to work, but what we extracted was very dark, and had a peculiar flavour. We decided to let it stop for the winter food. Strange there was no trees in bloom. The leaves and branches of many of the trees were covered with a sticky substance, apparently exuding from them. We have concluded it is what has been known in America as honey-dew.

A neighbour of ours has on several occasions complained of his bees disappearing, and he had put the cause down to paralysis. We had seen cases of this before; several years ago had a couple of cases of it ourselves. We have noted this: In one apiary of 50 colonies in several rows, the diseased hives were in the lowest row; in our own case they were in the lowest row, and under a tree. In the present case of our neighbour, they are close under the house, or surrounded by shrubs, etc. The query to us is: Are not the natural homes of the bees in the tree tops? And, when man dwells in houses in low situations, or too closely surrounded so as to stop the freest circulation of air, is the health rate good?

VICTORIAN APIARISTS' ASSOCIATION.

ANNUAL MEETING.

W. L. DAVEY.

Members and friends are kindly requested to read the circular through, which accompanies this issue. The subjects are not only very interesting, but highly important to the industry, and no opportunity of being present should be lost.

The Association is now in its 5th year, and is becoming stronger, more useful, and is gradually exercising an influence in many ways, which must be of great assistance to beekeepers of Victoria, and the confidence which beekeepers have in this organisation are becoming much more manifest. The number of new members is steadily growing, even in such bad seasons we are continually increasing, and therefore in good seasons our expansion will be much more rapid.

The subjects presented for discussion fully merit your personal attendance, therefore make up your mind to come. Our meetings grow larger every year, they grow more interesting, more useful, just as in proportion to the interest taken in them by the beekeepers themselves.

If you allow your interest to flag, the Association and what it represents will be the loser, but once all beekeepers throw their enthusiasm and energy into this union the result will be of immense value to the industry in general; we shall then gain the day, in all our just and lawful demands from those in authority.

Come one, come all and help us in building up this organisation, which is even now leading nobly in the Southern Hemisphere. See advertisement June 16th in "A.B.B." and weekly papers.

N. S.W. Bee-Farmers' Association.

I acknowledge receipt of the enclosed letter from Mr. A. E. Sheather, Gundagai. Immediately forwarded copies to our President, Mr. Hassell Hall, and to Messrs. Dight, M.L.A., and R. H. Lalor, Seven Hills, President and Secretary of the Chamber of Agriculture, with request they take immediate action in the matter:

E. TIPPER, Hon. Sec.

Gundagai,
April 28, '04.

E. Tipper, Esq.,
Hon. Sec., N.S.W. B.F.A.

Sir,—I wish to bring under the notice of your association that 1645 acres of land, No. 19051, situated westerly of the town of North Gundagai, lately taken up by Mr. James Robinson, as an annual lease, the lessee having applied to ring-bark the above, which came before the land board last week and was recom-

mended to be ringbarked. Would your Association bring the matter before the Minister for Lands, with the view of preventing this forest from being destroyed, as it will be the means of staying the downfall of the bee industry in this quarter, to say nothing of the harm it will do to splitters and fencers which have used timber from there for the last twenty-five years to my knowledge. If a petition would be of any use in pushing the matter, I can secure a great number of names. And I believe others would be satisfied if the lessee were allowed to cut any undergrowth, &c., but leave any useful timber, or say, leave 4 or 5 trees to the acre untouched. By your Association bringing this matter before the Minister for Lands, I have not the least doubt that you would save the forest and also the bee industry in this quarter. Thanking you in anticipation,

I am, etc.,
A. E. SHEATHER,
Flower Hill, Gundagai.

Pelerin, Singleton.
May 6th.

E. Tipper, Esq.,
Willow Tree.

Dear Sir,—Yours, enclosing copy of Mr. Sheather's letter, to hand this morning. With reference to the matter complained of, some of those who are interested in the area of land referred to should appear before the local Land Board when it is under consideration and object to permission being granted to ringbark, as it is mainly in the hands of the Board, and the Minister would not be likely to take any action while it is under their consideration. I notice that Mr. Sheather says it was remanded, so that it will come on again I presume. He speaks of a petition, if he gets this he should send it to the local member and ask him to present it to the Minister, in fact, any action that he wishes to take in placing the matter before the Minister, he should do it through the member for the district. If another member were to move in it he would most probably refer to the local member. You will understand that one member does not care to interfere in another's electorate. Mr. J. F. Barnes is the member for Gundagai, and if he wished me to assist him I would willingly do so.—Yours sincerely,

C. H. DIGHT.

[I wrote a copy of this letter to Mr. Sheather same day I received it. Mr. Sheather has since informed me that he has brought the matter before the Municipal Council, with the result that the lessee has been instructed he has to leave a certain number of trees to the acre.—E. Tipper.]

Echoes from Continental Journals.

(*Specially translated for A. B. B. by J. R. Gaggin.*)

A GOOD STYLE OF BRUSHING BEES OFF COMBS.

A veteran American beekeeper, Mr. Poppleton, employs the following method for ridding combs to be extracted, of the bees which cling on so tenaciously:—

After having shaken a frame so as to free it from the greater part of the bees upon it, he rests it upon the other frames of the opened hive, and Mr. Poppleton himself on the one side of the comb, and his assistant on the other, quickly brush the bees down into the hive. In brushing both surfaces of the comb *at the same moment* the bees that can slip from one side to the other must be very smart indeed. The frame is thus promptly cleared of all troublesome "clingers," Mr. Poppleton hands it to his assistant who places it in the comb-cart, and so on to the next which is handled in the same way.—L. Viaux, in "Révue Electique."

THE WAX INSECT OF CHINA.

In the celestial empire there exists a strange tree which the Chinese call, in their figurative language, "the tree which cracks like a flee," and which is a species of privet.

In spring this tree is covered over with minute excrescences about the size of peas,

filled with a sort of floury substance composed of myriads of the tiny eggs of a peculiar insect the "white wax worm."

These eggs are collected in bags made of leaves, having an infinite number of holes, which the wax-grower hangs on the branches of another tree, the *fraxinus chinensis*. This latter is the tree on which feeds the wax-worm, in the same way that the silk-worm feeds on the mulberry. The larva attain their full development in a fortnight, and then, while the females set about laying their eggs, the males secrete a fatty matter, and in less than a month will succeed in depositing on the trunk and branches of the tree a layer of perhaps 3 to 4 inches in thickness.

When the time of harvesting this crop arrives, the Chinese gather this substance, which is nothing else but an excellent white wax, quite comparable, it is said, to that of bees. It is sold on the spot for from 5 to 6 francs the kilogram (say about 2s per lb.—Translator.)

These curious facts are extracted from a recent American consular report, and there is not the least doubt but that the Yankees will quickly take advantage of them, by endeavouring to acclimatize the wax-worm, as has formerly been done with the silk-worm, likewise of Chinese origin.—Le Chercheur, in "L'Autorite"

THE GOLDEN RULE.

All sciences are summed up in some general principles from which, as from a fountain-head, flow by inevitable consequence all the other truths or applications whose recital may form a great volume.

It is so in the science of apiculture. All precepts converge towards one grand principle which sums them all up, and which has very fittingly been called "The golden rule of apiculture." This is that rule, viz:

"*Keep all your colonies strong.*"

This grand secret I leave you as the summary of my teachings. Never lose sight of it. Without it, the more you expend the greater your loss. On the contrary, with strong hives you will reap handsome profits if God gives you sunshine and blossoms in abundance.—L'abbé Jean Volpelier, in "Révue Etrangéne d'Apiculture)."

WINTER—WHAT TO DO.

Among th hives.—Nothing! Nothing!! Nothing!!! All is dead . . . or at least everything appears dead! Let us rake the ashes over the fire while awaiting the coming of the new season.

In the Workshop.—Hum! ! ! That depends. If your workroom is quite primitive as regards appliances and fitting up, if the keen winds can disport themselves there as if quite at home, one must avow that it is no great charm, and when the tools freeze one's hands, I well know someone who would quickly make a right-about turn, and, in such a case, would instantly vote for a strike to the last extremity.

Let us bethink Ourselves.—It is devilish cold in your work room; it has no chimney and it is out of the question to build one; further, you cannot reasonably pay for the luxury of a stove, or, again, you consider that it is too expensive to keep two fires going in your establishment. That's all very rational, and I am quite of your opinion. But it is in just such a case that Necessity, the ingenius goddess, should come to your aid. What hinders you from making yourself, or, if you cannot, of having the wheelwright make, a small bench about a yard long or so? It need not be too light. In the evening, after the work of the day, or during the day when one can't work outside, install your bench in your own house, and you can do your work tranquilly, agreeably, and in the company of those beings whom you love most upon earth. Ah! of course you won't think of making an abominable dust to be diffused over all the furniture in the room . . . no, no such thoughtless doings as that—you will prepare the heavier part of the task without; in your house you will go through the lighter details of your work.

In the Chimney-nook.—That's the snug spot just now! It is the season for visit-

ing one's neighbours, and family reunions are pretty frequent. But what to do to kill time? Some take a pinch of snuff, others light a cigarette, or gravely suck at the stems of their old brown pipes. Others, again, by way of precaution, prop up the chimney piece with their heads, a few take a hand at a game of euchre or whist, while those nearest it, keep up the fire. The housewives alone, if they don't join the game of cards, bring their sewing and *work*.

As I have kindly neighbours, who often come to see me in the evening, and as, on the other hand, I don't care much for cards, and still less for the pipe or taking snuff, I reasoned thus with myself: "There are worthy people who really don't know what to do, and yet ask nothing better than to be occupied; I'll proceed to give them something to do then.

In the day-time, accordingly, I cut out the frames in the flat, and in the evening I distribute to everyone according to his skill the piece of work which falls to his lot. One nails the frames, another pierces them, a third threads them with the wires, a fourth stretches and fastens the wire, a fifth puts in the sheets of comb foundation, another imbeds it with the spur wheel. If there is any one left out one employs him by setting two at the same task.

When enough work has been done I read an apicultural article, an interesting story, or the newspaper, and make comments on them In the meantime chestnuts are crackling on the fire, and we wash them down with a glass of strong honey beer, or, for a change, when there are no chestnuts, everyone has a glass of wine heated for him by the fire and sweetened with a little honey; we gaily absorb it, its a good specific for sore throats and colds; it destroys all your microbes for you; then the company say "Bon soir!" and everyone races off to their respective dormitories.

I have from 1500 to 2000 frames to make. For one person alone it would be an endless task. With the "go" it will receive from the high spirits and good humour of these *soirees* my work will be well ready by spring, and calculating everything, I shall have gained a year in advance.

What do you think of this idea? Before everything one must be practical!

ADIEU.

(Co-editor of the "Rèvue Eclectique" is writing--Translator): Now I have finished my task. In these monthly chats I have tried to put a little gaiety and animation so as to be agreeable to you. Constitutionally I hate grumblers. Even the most irritating things have almost always a pleasant if not a ridiculous side. Might one not as well bear this in mind instead of eternally whining to no earthly good? In closing and handing my pen to another confiére, I leave you as a legacy, with my earnest wishes for your success, these two proverbs that one should never forget:

"Help yourself and heaven will help you."
"Before everything one must be practical"

Equally the bee and your friend.—E. Laglaine, in "La Rèvue Eclectique d'Apiculture."

A GALANT BEEKEEPER.

A lady is dreadfully alarmed at the sight of a bee which settles on her dress. The gallant apiculturist, "Bees, madam, only alight on flowers."—Fine Mouche.

FOUL BROOD.

BY C. H. WEBER in *American Bee-keeper*.

In 1875 Hilbert discovered that bacteria are the originators of many infectious diseases.

In 1854 Cohn proved the vegetable nature of bacteria, and showed that foul brood was caused by those bacteria.

Dr. Kolbe advocated salicylic acid for curing foul brood. Since then, it has been proven, that the treatment of foul brood colonies with antisceptics is insufficient, and that a successful cure is only to be expected of the colonies of bees themselves and of their natural treatment and development.

In 1883 the creator of foul brood was described by Cheshire & Cheyne as a thin

bacillus, slightly rounded on each end, having a length of 3-5 to 4 thousandths millimeter, and only colored with difficulty; they named it "Bacillus Alvei." The temperature most favorable for its development is 37, 5 degrees R. or 115 degrees F. (Maximum 47 degrees R; minimum 16 degrees R.). The spores, which are thicker than the actual bacillus are formed on the ends of the bacillus which assume the form of a spindle during the formation of spores, they can be killed on being boiled for three hours.

Professor Harrison discovered, that development of the bacillus alvei is stopped by betanaphtol, also by formic acid, formaldehyde and thymol. On adding 10 per cent. of formic acid to the food in the cells for the larvæ the formation of the bacillus alvei is prevented.

By my own experiments and trials with the foul brood germ I learned that the fumes of formaline will kill the bacteria and spores on coming in contact with them. Thus far it was thought, that bacillus alvei was a particular variety of bacterium only found in colonies of bees; but September, 1902, Dr. Lambotte, of the University of Leige, published that by careful examination he found, that the bacillus alvei is identical with the bacillus mesentericus vulgaris, so plentifully found in Nature.

From Fluegge and Migula we know, that, first, the bicillus mesentericus vulgatus is found on potatoes and milk, especially in the ground. Second, that the bacillus mesentericus fuscus is found on potato pealing and in the air. Third, that according to Globig, the bacillus mesentericus ruber is usually found on potatoes. To these three varieties Dr. Lambotte adds as a fourth the bacillus mesentericus vulgaris, which specie appears especially upon ill-kept bread, and which is said to be identical with the originator of the foul brood. It is expected that other bacteriologists will confirm Dr. Lambotte's statement.

The observations of Lambotte explain why so many bee-colonies become affected with foul brood, where any contagion from other colonies is excluded or absolutely impossible. They also prove, that the destruction or burning of the affected colonies is insufficient for the successful extermination of the foul brood. Of what avail will the destruction of affected colonies be, when the cause of the disease is spread oves the entire universe, in the ground, in the air, on the plants and fruits?

Mehring writes in his book, that foul brood of the worst form can be produced by feeding a colony with the juice of dried fruit, which had been cooked and sweetened with sugar. This shows that the bacteria must be on fruits.

Phil. Reidenbach says: "The foul brood bacteria have not such destructive peculiarities that a larvae, coming in contact with it must get sick and die." Then he says, that he made an one per cent. solution of foul brood combs in water; this he added to the food for the larvae of different ages, in the cells by means of a camel's hair brush. In spite of this, all larvae developed into bees in due time, only when he introduced the pure foul brood to the food in the cells, the larvae died, but the colony did not become affected with foul brood on that account, for the dead larvae were removed by the bees and the colony had been primarily a strong one.

Some bee-keepers claim, that they gave frames affected with foul brood to strong, healthy colonies in order to reclean them, without any sign of sickness or disease being perceptible later on. Formerly it was customary to fight against the foul brood by means of disinfectants, however without any satisfactory results being obtained; finally, the bacteriologists came to the conclusion, that the bacillus were merely killed but not the spores, for whose extermination the disinfectants would have to be so highly concentrated that the bees were unable to endure it If weaker substances, for instance a solution of formaldehyde were used the malady was checked for the time being, but reappeared when the treatment was discontinued. These

failures created a feeling of discouragement, and it was considered as foolish to try to cure the malady on these principles. But it is not quite so bad as it seems to be, for the hard work, the bee-keeper undertakes by trying to disinfect his bees, the bees themselves willingly relieve him of, because Nature has fitted them out to best perform this work themselves. The bees are best adapted to free themselves most rapidly of foul broody nymphs and larvae; for this purpose they produce special substances, for preventing the development of the bacillus and spores and for keeping them in a latent condition.

We are encountering a new miracle of the apiary. The keeping of the bacillus from further doing harm, in other words, the disinfection of their homes, is executed by the bees themselves by application of substances, which the human intellect first discovered after many years of research and which at present are accepted as the most effective disinfectants for our homes. First, the secretion of the salivary glands and the foodchyle of the bees contain abundant vinous acid, which is analogous with the acid in grapes and wine.

Second. A long time after the newly hatched bee has left the cell the brood cells still produce gasious formic acid. Third. The larvae contain plenty of concentrated formic acid, which as a free acid from the vinous acid of the food chyle oxidation. Fourth. The etherial oils, which the bees gather with the nectar and pollen, serve as disinfectants and act as a stimulant or spice for their food.

Phil. Reidenbach claims, that on chemical analysis of thymolatic Ajowan oil he found it to be a first-class stimulant and antiseptic, nearly as effective as snblimate. This, Dr. Lambotte endorses emphatically, saying, that he arrived at the same results by microscopic investigations. That the larvae contain substances of an antiseptic nature which prevent the development of bacillus, for which reason bacteria may appear in healthy larvae. The transsubstantiation in the bees and larvae, the formation of formic acid from vinous acid of the food-chyle by means of oxydation is of great value for keeping foul brood, out of the colony. If the bees are to be energetic and ambitious, so that they clean up their brood frames and carry out all their dead larvae and nymphs; if they are to produce antiseptic substances in abundance, and if they shall be healthy and resistible against foul brood the following conditions must be complied with under all circumstances:

1st. A good ventilation of the hives.

2nd. Good food, honey and pollen.

3rd. A normal queen which produces strong, healthy population.

The results of poor ventilation of the hives are known: In winter a wet colony, moldy combs which are unable to produce formic acid, scarcity of air, increased wants for food, setting on brood in unreasonable season, scarcity of water, dysentry, chilled brood, foul brood. In summer, overheating, dullness, poor quality and scarcity of food, dying of the brood and again foul brood.

[To be continued.]

A VERY INTERESTING LETTER.

Our next Conference takes place in June. I hope as many of our members as can will be there at the Meeting. It has been a very hard season I know with most of the beekeepers. It has been so in Gippsland. Just a matter of a few cwts not tons with most of us.

To illustrate the good results from being united and having an Association, I will just mention a case of my own. Shortly after the last meeting I wrote to our Sec. complaining of the amount of ringbarking going on in this district on leasholds. A week or two afterwards I was asked to call on our forest officer at Bairnsdale. I called on him and stated my case and pointed out that it would be only fair to me if I was notified whenever any permits was applied for, so that I would have a chance to object. He promised if any one applied for permission to ring within 5 miles from my place I would get notice. At

the same time I told him we as bee-keepers did not object to the crooked and useless trees being destroyed as long as the straight and useful were left. He agreed with me that all good timber should remain, and I think it put a stop to wholesale slaughter here. I have to thank our Sec, who is a good worker for our interests, for the prompt manner in which he acted in this matter. I just wrote to him and he did the rest and the thing was stopped and hundreds of pounds worth of timber saved for future use.

Our President said something at our last conference about a social evening the last night of this Conference I think our Sec, said something about it too. We are looking forward for something good. I hope he is practising hard for it.

Bee matters are on the up grade again I think, my bees gathered enough this last six weeks to winter on, and they are rearing more brood now than they did at any time during the season. Queens are laying well yet. Early swarms next season, trees commencing to bloom. Hope on Hope ever.

E. T. PENGLASE.

Cause of Pickled Brood.

The cause of pickled brood ? In short I don't know, but certain conditions seem to produce it so that with a series of experience on those lines we can draw some conclusions as to what that might be. A shortage of proper food for the larval bee and a lack of proper temperature, are the two main causes. Now to upset that, in one of the counties on the take shore up here, where every colony had pickled brood, it was as serious as if it had been foul brood. The colonies were reduced down badly. I fed every other colony, strengthened them and warmed the hives up by outside wrappings, and it disappeared in these and not in the others. The next year, in the same yard and in the same locality, I asked them, between the time of fruit-blossom and clover—there was about ten days' lapse of no honey-flow—that each day these bees be fed a little, so that they never knew the lapse between dandelion and clover bloom. It kept up good, and they had no pickled brood, but the others that were not treated did have. It was there at the time when we got the honey-flow. You must go back to the time when it began. Pickled brood will dry down in the cell and it will be lost. The bees will probably take care of it themselves.—N. G. France in *American Bee Journal.*

Mating of a Superseded Queen.

"If a queen is superseded in the fall and not fertilized then, will she be fertilized the next spring ?

Mr. Hutchinson—I don't know.

Mr. Moore—She may be sometimes.

Dr. Miller—The Atchleys reported a number of cases in which the young queen superseded in the fall laid in the spring, but I think they claimed the queen would be fertilized in the fall and didn't lay until the spring. For myself, I wouldn't give very much for the chances of a queen being a good queen if she didn't lay in the fall.

Mr. Abbott—The probabilities are she will not be a good queen. If she is superseded she will not be. She will be dead.—*American Paper.*

MAKING AND SELLING HONEY-VINEGAR.

Pres. York—Some want to hear from Mr. Muth on the manufacture and sale of honey-vinegar. How is it done? And is it profitable?

Mr. Muth—It pays if we can develop the trade, just like developing a home-trade for your honey. I made four or five barrels of honey-vinegar two or three years ago. I told my good wife, "Well, this is pin money for you, and if anybody wants honey-vinegar you can sell it to them at 40 cents a gallon." The first barrel we gave away to the neighbours. I told my wife to talk about it. We gave away a barrel of honey-vinegar, the finest in the world. I never had anything like it. Well, I believe some of the neighbours came in for two cents' worth. But I would rather let somebody else develop that trade. Years ago my good father made lots of honey-vinegar. I recall on Freeman-street. Our lot ran down about 140 feet on one street and about 50 or 60 on another. We occupied a corner lot. Early in the spring we put out barrels and barrels of honey-water for vinegar, and by August we had the finest vinegar you ever tasted. In those days we had a retail grocery, and the people were coming and going, and we gave them a sample of honey-vinegar once in a while, and thereby developed a wonderful trade in that line, and it created a trade that took it all for 40 or 35 cents a gallon; and it also created a trade among the rich nabobs on the hills at 35 cents a gallon. It can be done if you have the people coming in. I have no retail store. I am a wholesale man, and people don't come to my store. It can be made, and if I had a little retail store, and had bees where I lived, that would be one of my hobbies. I would knock out a profitable time having fun making honey-vinegar and selling it at 40 cents a gallon. The more honey the better. Put 3 pounds of honey to a gallon of water; or if you put in 2 pounds you will get good vinegar. If you put in 4 pounds you would get the finest on earth; but I would call it about 15 or 20 cents a gallon cost. The sweeter you get it the sourer it will get.

Mr. Wheeler—I have had it stand around in barrels and not ferment.

Mr. Muth—If you would make your honey-water real sweet, put in a little cake of yeast and it will ferment.

Mr. France—If you make it so very sweet it will ferment quicker, and be stronger, and it will eat your pickles. The housewife prefers vinegar that is not so strong.

Mr. Muth—I agree with you. Take about 3 pounds to a gallon and that's a whole lot.

Mr. Wheeler—Did you ever try it after your honey was heated to the boiling point?

Mr. Muth—I did not.

Mr. Wheeler—I have had honey, the melting from cappings, the honey gets hot. I have had a great deal that was unfit to sell—water and honey that ran out of the wax-extractor. I have tried all sorts of ways to get that to sour, except by adding the yeast. I have put in the "mother of vinegar" even.

Mr. Muth—That ought to work. In the first place, have a vinegar-barrel or a wine-barrel, a barrel that fermentation has gone through. A whisky-barrel won't do so well. It should be a vinegar or wine-barrel. Bore two holes at the top of the ends. I take a piece of tin for each hole, and punch holes in the tin. Lay that aside until you put the honey-water in. After that is in, put it in a place where it can stand from spring until summer. Then put the honey-water in, and nail on the tins, rough edge up. The reason of that is to keep the little gnats and such things from getting into the barrel. "That's all there is to be done. Use rain-water; no well-water.

Mr. Arndt—How does he clarify the vinegar? I have three or four barrels, and it is not quite in condition to market, and I have more orders than I can fill. The reason is that my vinegar is not quite sour enough yet and I have sold out all that was marketable, and there is

a demand. I can sell any quantity of vinegar in Chicago. I could go out to every customer and sell 500 gallons of vinegar in two or three months, but it costs so much to put it in jugs and ship. It is the cost of marketing.

Dr. Miller—How much a gallon ?

Mr. Arndt—50 cents including the jug.

Mr. Meredith—The clarifying of vinegar is done by packing a barrel with beech-shavings procured from a vinegar manufacturing company of the city. In connection with their works they have what they call the roller system of the manufacturing of vinegar—the roller presses, where the particles of vinegar or sweetened water come into contact with the air most often. I have also made a German vinegar still, where the air circulates from the bottom, and circulates through as the particles of sweetened water are dropping down, and then a pump brings it to the top, so that I have produced good vinegar from sweetened water in eight days. I think the quick process of making vinegar would be quite a help if they want to get into the detail of manufacturing vinegar in a small way. Take a barrel that will hold 165 gallons of liqnid. Pack the shavings. Arrange the air-vent and the means of distribut ing the water through. Roll the barrel half over at different intervals, and it continually goes down through the shavings by what is called the quick process of manufacturing vinegar. Here the air goes through the barrel by allowing it to pass through.

Mr. Arndt—Is vinegar made that way just as good as that which takes two years to make?

Mr. Meredith—The manufacture of vinegar is the formation of acetic acid due to the changes that the vinegar comes to by the process of coming in contact with the air. Perhaps some others can give more information on that matter.

Mr. Arndt—My vinegar, although it is very sour, they can eat it by the spoonful and it never gags them.

Mr. York—It is very good vinegar, but most of the honey-vinegar is made in less time than two years.

Mr. Meredith—Vinegar can be bought in the Chicago market anywhere from 4 to 40 cents a gallon; and if they can manufacture good vinegar for that amount of money there must be some quick process.

Dr. Miller—Pres. York may be well enough satisfied with Mr. Arndt's vinegar, but Mr. Meredith has given the thing necessary—the exposure of the liquid to the air. When you have a barrel with a hole in it and perhaps a bottle in that hole, there is no chance for the air to get at any of that except the surface, and the air is coming in slowly; when it passes down through the shavings there is a very much larger surface. Take that barrel of sweetened water—liquid honey—and put in a small quantity. Put it in a shallow dish and that will sour very much quicker. The change will be much more rapid than if it were in a large body with only a small surface exposed. The shavings are the same thing. Every shaving is a surface when wet with that liquid. There would be, probably, in a barrel of shavings, I don't know how many square feet; the same amount would be exposed that there is in a great many barrels in the ordinary way, so that the chemical change can go on very rapidly, and that is all there is to it; and I don't see why the rapid change will be any detriment, and why it wouldn't make just as good vinegar one way as the other.

Mr. Abbott—The Doctor touched a good idea. If you will set out a small dish it will sour, and take that full of microbes and ready to go to work, and the barrel will sour quicker, too, and the microbes get to work. Get enough started and it will work.

Mr. Duff—And those microbes only get those conditions favourable to growth on account of the temperature. It must be 80 degrees, Fahrenheit.

Mr. Meredith—A vinegar still, in a cheap form, consists of a barrel—you also

need a faucet. Fill up one-third full with corn-cobs. Before that there is a hole bored so that the air will pass down, and the liquid from the top will pass down and up without going out. I made mine from shavings of basswood, and filled that up to the top. On top of that was set a tub that had a small hole bored through the bottom, with a string. That was the thing. In the centre there is a two-inch tube so as to allow a passage of air to go down through these holes in the side of the barrel, and then up through this tube, and charging the still was done by saturating the entire corn-cobs and shavings with cheap vinegar.

Mr. Abbott – I suppose you all know that the cheapest vinegar is not made by fermentation. The white vinegar isn't vinegar really at all. It is made by a chemical process, and is far inferior to ordinary vinegar made in the family, and it is a question whether it is injurious or not to the health. The general opinion, I believe, is that it is, but the manufacturers are forcing it on to you all the time. You can hardly get pure cider vinegar made by fermentation, and that's the advantage of honey-vinegar.

Mr. Johnston—The matter of fermentation is by ferments and germs, and it is the same way if you can a jar of fruit. If no air gets into the jar it is impossible, but as soon as a little air gets into the jar, fermentation takes place, because it is the same as the oxygen that gets into the barrel. The more surface you have the more microbes you get, and they could be at work on that and fermentation would take place much faster, and besides, the degree of 98 Fahrenheit is the favourable degree for any kind of fermentation.

Mr. Meredith – I would like to say that the cheap vinegar, or white wine, as it is generally called, is given the name of distilled, and I also understand that the pure grades of malt vinegar are worth 40 cents, and they are also distilled, so that if they can manufacture both by one and the same process – fermentation—why can't they by some other means?

Mr. Wheeler—One word of warning to you people. I have used, I suppose, a barrel of honey trying to make vinegar, and I have taken the recipes I have read in the bee papers for making that vinegar, and I have wasted my honey. If you want to try it, try it on a small scale, and find out what you can do.

Mr. Meredith – I accidentally made a gallon of vinegar superior to any I ever had, and I tried making a quantity and I couldn't get it as good. I sent it over to my brother-in-law and he thought it was very good sour wine.

Mrs. Stowe – Can you make vinegar with sour honey?

Dr. Miller – Sure; it is that much on the way. – *American Bee Journal.*

Mating 300 Queens by using the Bees of One Colony.

[BY W. H. LAWS, IN *Beekeepers' Review.*]

In the first place you must get out of your head all idea of having or maintaining *permanent* nuclei. Instead, there are used a great number of small boxes, weighing, when empty, only a few ounces each, and holding only one small comb of honey to each box. Equipped with as many of these boxes, already prepared, as we have virgins in our nurseries, we proceed to shake all the bees from the combs of a populous, *queenless* colony (after making the bees fill themselves with honey), putting the beeless combs into an empty hive, and setting it on the old stand, to which enough bees willl return to care for the brood.

NUCLEI WITH ONLY 100 BEES IN EACH.

Now move the old hive, containing the honey-laden, queenless bees, to some shady, convenient spot, and, with a small tin cup, dip from the cluster a small wad of bees, say about the size of an unhulled walnut, containing about 100 to 150 bees, never more than 200, open one of these little boxes, and pour the bees right into the box, upon the comb of honey, close the box, snap the hook and

lay it aside. Keep on dipping and filling until all the boxes are filled. The bees, being loaded with honey, dip nicely, and, not being able to climb the smooth inside of the cup, they handle about like so many beans.

Soon the bees in the boxes are all buzzing and roaring, and thus lamenting their queenlessness and confinement, when we are ready to introduce the virgin queens, which is done by running them into the little, 5-16 inch, round entrances to the boxes.

When the virgins are all run in, and the entrances closed, the boxes may lie in the shade until the evening of the next day, or even 48 hours, and no harm will come.

The bees, being queenless and confined, always accept the virgin given, regardless of her age, or from whence she has come. I believe that the general acceptance of these virgins by the bees is not so much because of their queenlessness as it is because of their *confinement*. Long ago I discovered that almost any *confined* bees will accept any kind of a queen, provided she is given *immediately* after the bees have discovered their confinement.

Within 24 hours the bees in each of the baby nuclei have concluded that their escape is impossible, and, resolving that "what can't be cured must be endured," they accept the situation, together with the queen, and quiet down. Later the nuclei may be carried out 300 or 400 yards, and the entrances opened as the nuclei are scattered under the brush, lodged in the forks of trees, hung on a wire fence, or pitched into the weeds—anywhere in any position, any side up, only be sure they are in the shade, where they remain a few days until the queens are laying.

These little miniature swarms with virgin queens behave very much like newly hived swarms. Queenless when caged, and remaining 24 hours with a virgin queen, every bee seems to consider the box as its home, and one or two bees are always on guard at the entrance.

The next day after distributing the nuclei, we expect the queens to be mated, because they are of the proper age to do so. After the third day the little zinc slots can be turned over the entrances so as to prevent absconding.

As soon as another batch of virgins is ready, these little boxes, when emptied of bees, are ready to be refilled and used as before.

I have mated 150 virgins with the bees from one colony, at one operation, and left enough bees in the colony to maintain the home. I have seen colonies with the bees of which I think I could have mated 300 or 400 queens! Now I have told you how to mate the virgins of five colonies with the bees of one!

NO TROUBLE FROM ABSCONDING.

Did you ever notice what a rare occurrence it is for the bees and queen of a nucleus to abscond before the mating of the queen? In my experience it is after she retures from her wedding flight, and plans are being laid for a perpetuation of their home, that dissatisfaction and desertion step in. The room is too large; or the larder empty; or after egg-laying and brood-rearing have begun, then comes unrest, and, consequently, absconding. With our little boxes, and small, fat combs of honey, there seems little disposition to seek new quarters—much less than with the stronger nuclei and standard frames.

After the queens begins laying in the baby nucleus the little zinc slot is turned across the entrance, and the queen is safe. Many is the queen I have tested as to purity of mating in these little boxes.

Comb or Extracted Honey—Which?

In my experience, the production of comb honey is more expensive than that of extracted honey, that is, there is more labour required for the same result. When you produce comb honey you have a fresh lot of sections to prepare every season. They must be put together, the foundation must be inserted in them before the crop. They must be put on at

the right time, neither too early nor too late, for the bees will soil them if they are put on too early, and they will swarm more than ever if they are put on too late.

In order to avoid what is called "travel-stains" on the honey—made by the bees travelling back and forth over the sealed sections—they must be removed as quickly as possible when fully sealed. The practical comb-honey producer watches his bees daily. and is ever ready to take off sections and put on more. He is tied down to his bees.

When the crop is over, the sections must be scraped, sorted or graded, and put away in shipping-cases.

As there is more swarming than with the production of extracted honey, there is more labor on that score and more watching necessary. With the production of extracted honey, after the first year or two, when you have fully supplied your bees with the needed extracting frames, you have those extracting frames and supers all ready, at the end of the season, for the next crop. At the beginning of the new crop or a little before, you place the supers on the hives—one, two, three supers to the colony as the case may require. After that only an occasional visit is needed, until the crop is over, to add more supers if any of the hives get crowded. The crop over, you extract all at one time, and two or three days will suffice for an entire apiary of 100 colonies.

It is true that at this time you need help, but this help does not have to be skilled help, though persons who are accustomed to the work do better than novices. But we have never yet seen the hired man who could not do his share when extracting honey unless he was so afraid of the bees that one sting would drive him away.

There is an additional work, however, in the production of the extracted honey, if one wishes to reach the top price, and that is, putting it up in small packages. Cans, jars, bottles, pails, and wooden or paper packages help the sale. But the price at which the honey sells when put up in these different retail packages is increased to such an extent that we may well spend our time in preparing it in this way. The intrinsic price of extracted honey is much less than that of comb honey.

Too many of our apiarists send their honey crops, whether large or small, to the great centres, where they glut the market and are afterwards redistributed among the very same consumers to whom these apiarists might have sold the product in the first place, with much better results.

An objection which we have to comb-honey production, that does not apply to extracted honey, is the necessity of keeping many combs that are partly filled, from one season to another. In a location where good crops are the rule and poor crops the exception, these combs are always a small percentage of the entire amount. Usually the same sections do not stay over more than one season. But in a secondary location, it is sometimes necessary to keep your stock of unfinished combs and sections over two or three years. They then become so stale and shopworn that they are unfit to be used, and must be destroyed. This is an item we do not find in the production of extracted honey.—C. P. Dadant, in *American Bee Journal.*

Simplicity in Hive Construction.

One economy the beekeeper can practice to his great financial advantage, is greater simplicity in hive construction. Is it not a fact that the accepted orthodox styles in hive construction were established by the supply manufacturer rather than the practical beekeeper? Is it not time that many of the features of the "standard" hives that cost money but add nothing to the real efficiency of the hive, might be cut out, thereby simplifying and cheapening the hive, without impairing its utility?

Our ideal hive would be divested of every feature that added to its cost, but does not pay a profit on the investment

in increasing the quantity or bettering the quality of the honey secured. We would extend this to every article of apairian equipment. To use a popular slang phrase of the day "cut out the gingerbread."

To specify more particularly, why not omit rabbeting the super? The bottoms of the section holders may just as well be plain slats, with the scallops to correspond with the sections omitted. Do not be shocked at this heterodox statement, but try a few this summer. They will not cost half as much as the other kind, and any planeing mill can manufacture them out of native timber. The short top bar for brood frames is the worst nuisance ever introduced into the apiary. Make the top bars a little longer and save the expense of the staples and the labor of putting them in. Personally, we regard the Hoffman frame as little less than an abomination. The plain, thick top bar frames are preferable, and they may be made at any planing mill, at a cost not much exceeding half the cost of the Hoffmans. Knotty lumber is alright for a bee-hive, provided the knots are tight, and it costs only about half the price of clear lumber. Plain cleated bottom boards and plain telescope covers roofed with painted muslin, are just as good as the complicated contraptions that cost a lot of money. Planing the lumber on both sides adds to the cost, and is a doubtful necessity.

This is not a plea for slip-shod, inaccurate, botched-up hive making. All the various parts, however plain and uncouth must be accurately cut, and the bee spaces throughout must be exactly right. There is a demand for a cheaper hive, not at the expense of its actual utility, but along the line of eliminating every element of cost that is not a profit producer. —*Rocky Mountain Bee Journal.*

WESTERN AUSTRALIAN BEE-KEEPERS' ASSOCIATION.

Report of meeting held on 16th March at which a large number of beekeepers of the metropolitan districts were present:

The secretary read the minutes of the previous meeting, which were confirmed; also several communications relating to the honey market, which showed that, although honey was badly wanted by the provision merchants, scarcely any was forthcoming owing to the season being very late and little or no nectar being obtainable from the trees in blossom.

Mr. Sutton, Government advisory expert, informed the meeting that, having travelled over the greater portion of the honey-producing portion of the State, he had noticed that practically what was being obtained in the Southern districts, Bunbury to Wagin, showed fair prospects, whilst further South along the line to Albany things gradually brightened at the latter place, no great cause for complaint *re* scarceness existed.

Communications were received from the branch associations at Wagin and Albany expressing a desire for the appointment by the Department of Agriculture of an expert in apiculture *vice* Mr. Sutton resigned, and considered that in consequence of the poorness of crop this season, advice would be more required by beekeepers than in a good season, as in all probability before the next spring arrives much disease amongst stocks may be expected.

This Association decided to give all the assistance in its power to these branches in their endeavour to secure the services of an expert, the secretary being instructed to write a minute to the Minister of Lands; and further, a deputation was appointed to wait upon that gentleman if this course was found to be necessary.

The secretary stated that it was his desire that beekeepers should make better use of the *Journal* of the Department of Agriculture, and to further that object he was willing to devote a certain amount of time to assist the editor (if necessary), providing the beekeepers would forward instructive subjects, whether original matter or clippings from other journals on the matter of beekeeping. The beekeepers present promised to assist in this movement, and considered that our country friends should assist also. —

"Journal of the Department of Agriculture of Western Australia."

What they are doing in America.

Lately our association decided to try and induce the authorities at Washington to increase our forest reserves for the preservation of moisture. The government has already done much to stir us to action. On the map that I show you, you can see that four areas are at present reserved; each of contiguous land. But in these four are six: The San Isabell Reserve; on the Sangre de Christo range, of 120 square miles; the Battlement Mesa Reserve, including Grand Mesa, of 1850 square miles; the White River Reserve, of 1830 square miles; the Pike's Peak Reserve of 279 square miles; the Plum Creel Reserve, of 1086 square miles and the South Platte Reserve, of 1086 square miles, making a total amount that is equivalent to the area that we have under ditcehs. We propose, in addition, to ask for a reservation beginning at Wyoming and going clear down the range. We cannot have too many reservations at the headwaters of streams. Our petition to the Secretary of the Interior recites, first, that agriculture in this state is dependent almost entirely upon irrigation; second, that that portion of irrigation which comes from the high mountain ranges is dependent for the quality and quantity of its flow on forests and the preservation of forests; that the effect of the careless removal of forests of these mountain areas has already tended to dry up the streams and fill up reservoirs and canals with sediment; and therefore asks that all territory in the basins of rivers and creeks, beginning with the Medicine Bow Range, and continuing south to include the Sangre de Christo range and the Saguache country, and especially all areas above 8,500 feet, be set apart as forest areas, and tracts reforested except such as are necessary for mining ranges. —*Rocky Mountain Bee Journal.*

POISON HONEY.

In my practice of many years I have never heard nor read of a single approved case that the bees had gathered poisonous honey from the nectar of any plant. I never observed any poisonous honey in my apiaries; nevertheless they have gathered honey from the following poison plants in Germany: Daphne, mezerum, atropa, belladona and euphorbia. Here in Texas are hundreds of acres of mountain laurels quite close to my home apiary, and the bees gather honey from these plants nearly every year, but it never had any poison honey. More than this, I know of one approved case where little children eat a large quantity of this mountain laurel honey without any bad consequences. I do not know the scientific name of this mountain laurel, but I believe it is the same as is growing in Mexico and that Dr. W. K. Stell was experimenting with. The bush is blooming in early spring and some years so abundantly that the whole plants seem covered with bouquets of violets, and the flowers have the same odor as the violets, but so much stronger that it sometimes causes headache. According to this experience I am of the opinion that no nectar of any plant, not even a poisonous plant, will ever be poison. While Dr. Stell takes without proof that the nectar necessarily contains the same alkaloid as the sap of the plant, I think it is not necessarily so. Now we know that all plants secreting nectar need the aid of insects for fertilization, and these insects are mainly attracted by the nectar. If this nectar should be poisonous it would be quite against the purpose of the whole organ, and the plant will die out sooner or later. A few days ago I read in a German bee-paper another confirmation of my experience. In the "Lagomaggiore," Italy, is an island called "Isola Bella," and there grows (introduced from America) a mountain laurel, and the bees gather honey from it, but nobody has found it poisonous. That persons sometimes become ill after eating honey may be traced to a variety of causes. In very rare cases bees may have gathered

poisoned sweets—poisoned by accident or purposely. In some instances a person would become ill after eating honey which would be healthy to any other person. I know a lady who cannot eat even a small quantity of honey without feeling indisposed. The same was the case when she ate cakes containing honey, though she was ignorant of their ingredients.—L. Stackelhausen, in *Southland Queen.*

[Several years ago, the American bee papers published an account of a medical man experimenting with laurel honey on a negro lad employed by him. The doctor had great difficulty in saving the lad's life.—Ed. *A.B.B.*]

CAPPINGS.

From American and other Bee Journals.

The Railway station-master of Changli, China, has been very successful with his bees, he bought a tree growing about fourteen miles away, in the trunk of which a swarm of bees had made their home; the tree, when cut down, being about 15 ft. long and 4 ft. in girth, and this tree was carried the whole fourteen miles by twenty coolies during the night, when bees were supposed to be asleep! The wax-moth is very troublesome. The honey it is very dark in colour. The Chinese value bees-waxmore than honey; they bargain to sell the bees' honey, etc., but you must return the wax. The price is 4d. to 6d. per lb.—*Exchange.*

Not one of the men who once quit section honey has gone back to it. We were ourselves large section-honey producers several years ago, but have been converted, and have disposed of most of our section-honey supers, and to-day have a large pile of them awaiting a purchaser. H. Hyde, in *American Bee Journal.*

Destroying Ants Around Hives.—Mr. H. Potter, in the "British Bee Journal," gives his method of getting rid of ants, as follows: "I mixed some bee-candy with arsenic, and put it under the hive, placing a piece of perforated zinc over the candy, and a small box over all, to make sure that the bees could not get at it. The effect was surprising! On the first day the candy was black with ants; second day, only two or three to be seen; third day, ants all gone! I have had no more trouble with them this season. Ants eat their dead, and therefore a wholesale poisoning had been set up by them devouring their dead comrades." *American Bee Journal.*

It is pretty generally known among large honey producers that a cross between two good races is much better for profit than a pure race of any strain. This being a fact, I think it very foolish for a practical bee man (a honey-producer) to fuss too much trying to keep bees all straight and pure, as a cross will give just as good results, or better, and at the same time save a lot of worry and bother, to say nothing of money lost in trying to acquire all pure stock, either by purchase or otherwise. My experience says, and I would advise that honey producers introduce a few new blood bees into their yards every year or two and then waste no more time or money trying to keep the bees pure in markings.—*Southland Queen.*

I measured lots of bees' tongues with a micrometer. You can take 10 bees out of a hive and there will not be two tongues alike. We have them all the way from 13, 17, to 20 one-hundredths, just according to how hard you press on their heads. You can make them any length you like. I have been in families where the husband and wife had a good many children, and there was a great big, long-armed fellow, the laziest man in the family; and there was a little bit of a runt, and a cripple may be, and he did all the work. So it was not always the long-tongued bee that does the most work.—Mr. Muth, in "American Bee Journal."

When using the standard Hoffman frames, I don't use the wedge for fastening the foundation. Melted wax poured on with a sharp nosed tin spoon is much better and more rapid.—*Exchange.*

Honey and hourhound remedies have a world wide reputation. Why not beekeepers made their own? None is so pure and none more helpful. A handful of the herb boiled in a quart of water until the strength is extracted and strained, after which boil low and add honey to taste Any other ingredient known to have a healing or soothing effect can be added, a few drops of oil of tar being one of the best.—*Progressive Beekeeper*

S. J. Richard reports in Revue Internationale that for three consecutive years a colony with it's entrance at the top of the hive did not swarm, while a colony beside it with the entrance below swarmed. He then changed the lower entrance to the top, and since then, six years, neither colony has swarmed.—*Gleanings.*

"When one realizes that St. Louis has already expended $10,000,000 on grounds and buildings, some idea of the greatness of this undertaking can be formed. The sum of $5,000,000 additional contributed by the government has been paid out by the supervisor of the treasury. The St. Louis Exposition has 50 per cent more roofed area and 100 per cent more ground space than was the case at the Chicago Columbian Exposition. During the year 1903 there was expended by St. Louis over $3,000,000 upon new fireproof hotels. It is claimed that before the opening of the Exposition there will be completed 15 new apartment hotels, representing over $4,500,000. Inside of the Exposition grounds there is now being built a hotel with over 2,300 rooms. The rate here is fixed by the commissioners and will be from $1 to $5 a day for rooms. Near the grounds are other large hotels of a temporary character of from 500 to 2000 rooms. So far there does not appear to be any excessive charges at hotels, and all managers have entered into agreements that no exorbitant charges will be made. The street car companies are purchasing new cars and equipping new lines at a cost of over $1,000,000. Thus some idea can be formed of the gigantic scale upon which everything is being done. The great Chicago Exposition will look like a side show, the Paris Exposition will be lost in the spacious grounds, while the Buffalo and Charleston Expositions will be recalled to institute a comparison with this mammoth undertaking.—*Progressive Beekeeper.*

I never knew of more than one case where the bees had nothing but drone-combs, and they swarmed out rather than to try to keep house with such furniture. But I have known more than one case in which workers were reared in drone-comb. I *think* that in every such case the bees thicken the outward extremity of the cell wall so as to make the diameter at the mouth the same as the diameter of a worker-cell.—*Exchange.*

RED ANTS.—Florida beekeepers are having trouble with big red ants. They come as nocturnal marauders into the hives, locally the 'bull-dog ants,' and attack bee victims with true bulldog viciousness, savagely biting off wings and legs of the terrified workers, crushing between powerful jaws. It is no extraordinary event in the South Florida apiary to find with the coming of the day a writhing mass of dismembered bodies of bees, drabbled in honey, where stood the previous evening a prosperous nucleus or promising colony of valuable stock.—*Jamaica Times.*

We put starters in our frames now with a regular table knife. Have a little fire near by and keep the blade or point of the knife warm, and turn frames bottom up on a bench, hive cover or table, and lay the starter on the under side of the top bar in such a manner as to allow one edge of starter to come about the centre of the top bar. With the hot knife touch the farthest end from you enough to make it adhere firmly, then in the middle, then at the end next to you. Now draw your knife clear through from one end to the other and catch a little bit of the starter and press hard enough to make it stick, and all is done. Now turn

the frame down flat and run the finger along the starter to smooth it and hang in hives or boxes till you have enough. When you get used to the work you can put in several thousand a day. Some use a foundation roller, but it is not as good for me as a warm knife. Don't be afraid to press hard on the knife, for to make a good job you must press the wax hard and fast. Have the frames dry as the wax will not adhere to wet wood sufficient to stay.—*Southland Queen.*

A Good Way to Make Honey Mead: 30 lbs. honey, 30 gallons water, ½ lb. hops, 1 lb. raisins, brewers' yeast a small quantity. Mix the yeast with a gallon of the liquid and pour in. Let the whole stand for 8 to 10 days with the bung wide open until nothing but a white froth escapes. Put in the bung, leaving a small opening for froth to overflow. All waste caused by frothing over to be replaced with boiling water.—Mr. Halloran, in *Exchange.*

The following is a sample of what some writers say about the habits of bees. It may read nice, but is opposed to facts: It is not till she has accomplished her wedding flight that the Queen is capable of producing female working bees. The bride's return is the signal for a universal slaughter of the drones. As each lazy male demands the unceasing labor of five or six female workers to maintain him in idleness, it is small wonder that the patience of these daughters of toil should become exhausted, and that the queen, having found her consort, the rest of the males are condemned to death. They are assailed by an army of wrathful virgins, mutilated, and left to perish. The next morning the scavengers will clear away the corpses, and the memory of the idle race will fade away.

CORRESPONDENCE.

R.H.G., Mountain View, 9th May.—The past season has been a very fair one in this district.

P.F., Greensborough, Vic.—As far as I see at present I shall not have any bees left by the end of the winter. I have not had any honey for the last three years, and I am tired of feeding bees for nothing. This is not a good district, as most of the old timber is cleared off.

E.B., Eden, 19th May.—It is very quiet here this year with the bees. Very little honey, plenty of bloom, but nothing in it. The season started fairly well but it went flat in a very short time. I am afraid I will lose some of my bees before spring. I hope you have had a better season.

W.S., Goulburn, 13th May.—I must discontinue my subscription to the "A.B.B." as I am now taking up some work which will not allow me sufficient time for beekeeping. I will always recommend your paper, as I think it is the best bee-paper in New South Wales at the present time.

J.H.M.—Please could you send me a book that would give me all information about bees, if you would send me word what the book would cost I would send and get it.

[We are not supply dealers. The A.B.C. of Bee Culture is what you want. Send to Anthony Horden's, Haymarket, Sydney. The price is 6/6. Do you take the *Australian Bee Bulletin.*]

A. D., Mulgoa.—Would you kindly let me know through the *A. B. B.* whether the honey or pollen from Yellow Jasmine is poisonous for bees. We only have one yellow jasmine tree. Would it be advisable to take it out, also if white jasmines are poisonous for bees?

[Have had no experience. One tree ought not to make any difference.]

C.H., Christchurch, N.Z., May 7th.—I intended to write to Mr. Root for some of his long tongued Italian queens but was told that I could get them as well from Queensland or other part of the Commonwealth. Will you kindly supply me with the address of some reliable breeder where I could get pure long tongued queens. The queens ought to arrive here early in September.

[See list of queen breeders on first page of "A.B.B." We can recommend them all.]

J.T.A., Mooroopna, 31st April, 1904.—My bees have not been too bad this time.

Instead of no honey, as other off years, I got 5 tanks full and a little over, close on to 60 tins. Last swarming season was a record for swarms. The whole apiary swarmed in October and November. Never before had more than 60 per cent; then January had 30 per cent again, though three tier high. If I had wanted increase, I could have had my fill, but as I only want honey and wax they were not so welcome, as some were hard to get at work.

C.G.R., West Australia, 10th May.—We have had a bad season here. The Redgum has not bloomed this year, except an odd tree, so that there was no autumn flow. I had one only from Christmas Tree (which also was not up to the mark) from 35 hives. They are in good condition and plenty stores for winter mostly from swamp banksia, which is now finishing. I had no increase this past spring, for although there was plenty of blossom the rain kept up so late that bees did not try to swarm till the flow started, when they were stopped by taking queen cells.

H.C., Orbost, W.A., May 12th.—Our honey crop this past season was almost a failure. At the time our flow arrived it was nothing but rain. My diary shows about six days in two months. There is evidence though of a bumper harvest season. Can you recommend me a queen breeder that I can rely on to send me a first-class queen for queen raising purposes. I mean first-class in every good quality. Price will be no object. I want to introduce fresh blood into my apiary. My queens are good but I want to improve them if possible.

[We can strongly recommend any of the advertisers in our pages. See first page.]

A. S. C., West Australia.—Season here has been very bad, and though stocks are now fairly strong and well supplied with stores, and indications point to a fair season next time. Your quilt, ruberoid, do you lay it flat on frames? Inside walls of hives? Do the bees glue it down? Any quilt we use is quickly made one mass of propolis, and tops and ends of frames are smothered. Propolis here this year has been about as plentiful as wax. Would be glad if you will kindly explain fully how you use your quilt, size, etc. We use 10-frame Langstroth hive.

[We cut the ruberoid that when laid on the frames there is a little space all round, say about half an inch. It is laid flat on top of frames. We have never had the propolis experience you give. We take the bees propolis for their winter protection. Don't disturb them now.]

H.S., Bandon Grove, May 13th.—For the past six years I have been working on a new place, clearing and planting an extension orchard, which up to the present has returned me nothing. I have also worked my apiary up to 90 hives which have done fairly well, but as honey has been so cheap, the return from the bees has not been great, I have also gone in for dairying to make ends meet, which is only now beginning to bring in any return, as the expense in buying cows was great, but I am happy to say the future looks very much brighter than it has hitherto done. I have also obtained for you another subscriber. I shall try to send in future a little bee news for your paper, as I am very much interested in both bees and paper. Wishing you every success and prosperity.

Extracting and Marketing Unripe Honey.

One of the things—in many cases it may be said *the* thing—that has done more than all else to injure the sale of extracted honey, is the putting upon the market honey that is not well ripened. Such honey does not improve in quality after it leaves the hands of the producer; generally, if not always, it deteriorates, sometimes so much that the producer would not recognize it as the honey he extracted. It becomes thin, inclined to sour, with a flavour so vile that it is not fit to put on the table. If the one who puts such honey on the market were the only one affected by it, it would be less matter. But the whole market is to

some extent affected. The consumer who gets a sample of such honey is easily persuaded to believe that it is no longer possible to get honey that is pure, or if he believes it pure he concludes that he is not fond of honey, and does not care for more.

What are the inducements to extracting unripe honey ? One is, that it saves labour to extract before the honey is sealed. But the mere saving of the labour of uncapping would be but a small inducement were it not for the other and greater inducement of the larger quantity. To get just a little more honey by extracting before uncapping, some are willing to spoil the future chances of themselves and others for the sake of the present gain.

Now comes Editor Hill, of the American Bee-Keeper, saying *there is nothing gained in quantity* by extracting before ripening. Ninety per cent. of the total evaporation occurs during the first night in the hive, and the further improvement is not so much a matter of evaporation as a matter of influence caused by the presence of the bees, an influence subtle, but positively known to every experienced apiarist, whereby the honey slowly but surely attains that degree of body and flavour that makes the consumer who samples it wish for more. It can hardly be too strongly emphasized, that the gain to the man who puts unripe honey on the market, if in any sense a gain at all, is overbalanced by the resulting loss to himself, besides doing an irreparable mischief to all other producers. *American Bee Journal.*

HONEY COMB.

In the design of honeycomb there is a radical departure from the principle of construction employed in building a house, wherein a perfectly upright position of the walls gives the greatest support to the structure obtainable. Honeycomb being a suspended structure, the cell walls must necessarily be of such form or shape that will give substantial support while overcoming their own tendency to elongate, there must be an equal distribution of the weight of its lading, not permitting any part of the comb being taxed beyond endurance. The embodiment of that feature—which we do find to exist in honeycomb—makes the system a very fitting one for the purposes of its creation. It is, therefore, a practical system, too, and one that honey producers cannot well afford to ignore in the use of comb foundation. Taken in any other way, the power of the comb to resist the specific gravity of honey is greatly lessened. There is not a vertical wall in the make-up of honeycomb, even the septum that forms the bottom of the cells is shaped to assist in overcoming the tendency to sag. The effect of adjusting the comb in all its parts so that each wall will contribute in an equal manner to the support of its neighbour, makes the structure exceedingly strong, and enables it to remain firm and true under all conditions of natural usage. Now, in the manufacture of comb foundation, or rather, in the manner of using it, one-third of the cell walls are vertical walls, thus breaking the symmetry of the comb and resulting in an abnormal lengthening of those walls. By losing their true relationship with the surrounding walls, they no longer possess the strength of the union of all the walls, but that of a divided structure. The supporting power of the comb is, therefore, no greater than that represented by the vertical walls, for nothing is stronger than its weakest part. The fact of the comb being suspended in the hive positively forbids the use of any plan or mode of construction wherein a true vertical line or wall would form any part of the comb. If you will get a sheet of comb foundation and hold it up before you in the manner in which it is customarily used in the comb-frames, and then turn it up the other way, you will see the difference at once. By reversing the order of construction as it exists in natural honeycomb, the vertical walls of comb foundation serve best to promote any tendency to sag that combs built from refined wax may have. I hardly think

that bees ever arrange the size of the worker cells for the rearing of drones. Were they guilty of that misdemeanor under certain conditions, we should expect, at least, to see them stick to the regulation way of rearing their drone-brood along the bottom edges of the comb and not at the top, where honey is supposed to have the right of way. But since that feature is conspicuous by its absence in hives of natural-built combs, we conclude that the enlarged cells in the upper half of combs built from comb foundation are due to deficient sustaining power of those combs. Bee-keepers would better look into this matter fully, and ascertain, if possible, to what extent the sagging of comb foundation is directly attributable to having departed, in the manufacture of it, from the true architectural style of honeycomb.

Commercial comb foundation saves the bees much time in building their combs, for a tremendous large force of them can begin the work of completing it, at the same time. This tends to increase the yield of honey, but it adds nothing to the quality of honey. Ready-drawn combs are even more pernicious in that respect, for the temptation to store raw or partially ripened honey in them is, accordingly, that much greater to the bees. The results are that honey thus obtained is not so wholesome, is not so easily assimilated by the human system, and it will more surely granulate. The natural process of building comb and storing it with honey is more tedious, but it is necessarily so that the transformation of nectar might be complete.—W. M'Neal in *American Beekeeper*.

Methods of Wiring Brood-Frames.

"Why are brood-frames wired horizontally and not vertically?"

Mr. Hutchinson—I have seen a great many that were vertical.

Mr. Baldridge—I wire all of mine vertically. I never had a pupil that went to the horizontal wiring.

Dr. Miller—I have had lots of them wired both ways. One reason for the horizontal wiring is, it doesn't make any difference with the strength of the top or bottom bar. A good many have found by wiring vertically that there was a tendency to draw together. The horizontal wiring is not affected in that way. Mr. Hutchinson says put in an upright stick to hold that. Yes, some have used that and some have used a piece of tin, but that's so much more machinery. For myself, I prefer to put in several little sticks.

Mr. Baldridge—The reason, perhaps, that I wire up and down is because I commenced that way, and I found it a very good way. I don't have to have a saw-kerf. The top-bar is 5-8 thick, and the bottom-bar is 3-8 and I use only six bars in a frame. I don't fasten my foundation at the top at all. It is not necessary to fasten it at the top, and it is not necessary to have a saw-kerf to insert, neither one, if it is wired properly and I can use narrow strips. I use the standard shape of frame. I put all those strips on the perpendicular wire, and I use every particle, and when they are done you can not tell that they are made of strips. You can use a half-inch or an inch strip that way.

Mr. Whitney—Do you split those strips?

Mr. Baldridge—No, they are all woven together, and just as nice combs as though of solid foundation.—*Am. B. Paper*

Whitening Colored Honey-Vinegar.

"How can you make coloured honey-vinegar white?"

Mr. Muth—The only thing to make white honey-vinegar is to use white honey from the beginning.

Mr. Wheeler—Mr. Meredith has one way of making vinegar white. He puts horse-radish in it!

Mr. Meredith—The distilled vinegar is white vinegar, but in the process of manufacture it is all a wine colour, and it is reduced to its whiteness by some

process, and there might be somebody here who has had experience in making honey-vinegar. If so, I would like to know it.

Dr. Miller—Follow up what is in the British Bee Journal. They make dark honey white by means of electrical machines and using ozone? I should think that would be expensive, but they say it isn't. First, to make the dark honey light you put the lightning through your vinegar and make it white. I don't know anything about it in practice, but they say it is really an inexpensive process, but I very much doubt ts being a success.

Mr. Muth—In the large pork-packing establishments they clarify lard. They use all kinds of refuse to make lard, and they have fullers' earth that they clarify with. They put it in the lard, and the darkness will all settle to the bottom. In all the big establishments they clarify their products, and make them white as snow.

Mr. Meredith—At Aurora a process is used to a large extent in packing-houses, where they use the refuse and the putting on of this earth, and putting it through a press, brings it back to the whiteness which it was before it became dirty. It is done by means of a hydraulic press—pressed through cotton with pressure of 250 to 500 pounds. It is simply a matter of cleaning out the refuse and bringing it back to its original colour.

Mr. Chapman—The packing-houses don't care to get the fuller's earth out of the lard! I presume in this case we would like to get rid of the fuller's earth. *American Bee Journal.*

Sour Honey in the Brood-Chamber.

"Can the case of sour honey in the brood-chamber be explained? That is, where honey sours in the brood-chamber?"

Mr. Wilcox—I think it can be explained, but I don't see how it can be helped. I have seen sour honey because it was gathered from something that was sour before it was gathered, and also because it absorbed so much moisture from the temperature. It was a very weak colony, and it got just warm enough so fermentation would commence; but the main cause is where it is gathered from some sour substance.

PRICES OF HONEY.

Garden & Field, S. A.—Prime, clear, extracted up to 2½d. to 3½d.

Tamworth News.—Honey, 7lb tins, 2/3.

Maitland Mercury.—Honey, 1½d to 2d lb., small tins 1s 8d to 2s 3d.

Melbourne Leader.—Honey.—Trade was quiet. Prime clear garden samplas realized from 3d to 3½d., cloudy and congealed going at from 2d. upwards.

Melbourne Australasian.—Honey and Beeswax.—In honey, prime samples are quoted at 3d. to 3¼d., and choice extracted at 3½d. Cloudy and dark lots range down to 2½d. Beeswax is worth 1/2.

S. M. Herald.—Honey—Choice 2½d, good 2d to 2¼d, for tins containing 60lb. Beeswax—Choice clear 1s 2d, other sorts 1s to 1s 1d lb.

Fremantle, W.A.—From 5s 6d to 6s 6s per dozen 2lb. tins