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West Maitland, N.S.W.: E. Tipper, August 28, 1898

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THE AUSTRALIAN BEE BULLETIN,

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

VOL. 7. No 77. AUGUST 28, 1898. PER COPY, 6D

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The Australian Bee Bulletin.

A JOURNAL DEVOTED TO BEEKEEPING.

MAITLAND, N.S.W.—AUG. 28, 1898.

WORK FOR THE MONTH.

This is a very important period of the year for beekeepers. Colonies in a normal state will be starting to breed. If you note them carefully it will be seen they are gathering whatever pollen they can get, and are great hunters after water. In a short time the frames will have abundance of brood, and the queen must have space given her, otherwise, especially if a honey flow is on, the hive will become crowded as the young bees emerge, and swarming will take place. Here the advantage comes in of taking care of frames of comb over from last fall. In giving the queen room it should be done very carefully, as little as possible at a time, so as to avoid getting the brood chilled. Weak hives should be strengthened by a frame of uncapping brood from a hive that can spare it, but only as much as the bees in the weak hive can cover and keep warm may be given. A frame with a small amount of brood may be taken from one hive and a frame with a larger amount given that again from a still stronger hive. Queenless or very weak hives had better be united.

Should there be a scarcity of stores and no honey or pollen coming in, the former may be supplied in various ways. A syrup—half sugar, half water—may be poured from a height of several feet on to an empty comb and then placed in a hive. A pickle bottle filled with same tied with muslin at the mouth, two small sticks tied tight to either side, reaching an inch or two above the top, and then the whole inverted. A frame converted by the addition of two sides into a sort of bucket, with a slip as a float for the bees to rest on while feeding, and which falls as the liquid decreases, or other devices advertised by the supply dealers Open air feeding has been recommended by some, but it has been urged against this that the weak colonies don't get their share and it sometimes leads to robbing. Look over your combs carefully to see there are no moths. Should you desire to raise queens yourself, place drone comb in the centre of the brood nest of the hive you wish to rear drones from, and after a week or so get your queen raising hive in good order for same, according to instructions given by the different queen raisers, and which have appeared from time to time in our pages.

If you do not desire to raise queens yourself, or you wish to improve your breed of bees, then get your queens from any of the breeders who advertise in our pages. This is a good time also to change from box to frame hives before the swarms get too strong. Place empty hive on box hive stand. Get strings or tapes long enough to go over frame and tie on top. Turn box hive upside down, smoke bees into a corner. Then proceed to cut out comb. Having laid an empty frame on a flat surface with aforesaid strings or tapes underneath, fit the cut-out comb in same, tie the strings tight over and hang in empty hive on old stand, being careful to place brood in centre. All the bees will find their way to new hive. There are several other ways of doing it, but this is the one we have adopted and recommend.

Look well after spiders and moths.

Keep worker comb in the brood nest, drone comb in the super. A frame of drone comb will hold more honey than a frame of worker comb. Young queens and weak swarms will make all worker comb. A vigorous young queen will do her best to avoid laying in drone comb.

We acknowledge receipt of several catalogues—Messrs. Pender Bros.', West Maitland; Mr. A. A. Roberts', Muswellbrook; (both printed at our office); Messrs. Hebblewhite & Co.'s, Sydney;

also Mr. H. L. Jones' Queen Circular, and Book List for 1898-9 We should advise every one to send and get copies of all.

In our last issue an error crept in Convention report. We stated Mr. Cadden made a remark about "honey from the rivers." It should have read Mr. James not Mr. Cadden.

We have received from Messrs Hawken and Vance, circular of their Jadoo fibre. It seems a wonderful thing to place at the roots of plants, etc., to speedily develop them. We should certainly recommend our readers to try it. Also Wm. Brooks & Co's, 1st certificate Tests in Arithmetic.

FIRST IMPORTATION OF BEES INTO N.S.W.

We have very great pleasure in acknowledging receipt of following correspondence from Miss Bradley, of Appin. Also to express our regret that we did not have the pleasure of meeting Mr. Bradley at the late Conference :—

Appin,
28th July, 1898.

E. Tipper, Esq.,
Editor *Australian Bee Bulletin.*

Dear Sir,—As there has been some interest shown by beekeepers lately with regard to the first importation of bees to the colony, I wrote to Mr. T. M. Mowle, a relation of whose I knew had in some way taken part in the introduction of bees to the colonies. I enclose his communications to me on the subject, as they may be of interest to some of your readers, and if published in your columns prove a public record of past events in reference to the introduction of bees to Australia.

My brother intended taking the papers with him to the Convention, but was prevented by sudden and severe illness from attending.

I am, Dear Sir,
Yours faithfully,
Sophie A. Bradley.

Parliament N. S. Wales,
28th June, 1898.

Dear Madam,

I had to go through my scrap books at home last night to obtain the information I sent you, and so I could not give it to you in my first letter.

I had forgotten the interview I had with you at the Exhibition of 1888. We were always under the impression that the produce of the bees imported into Tasmania by Dr. Wilson found their way to Sydney, and that the originals were the first introduced to the colonies. In looking through the old *Gazettes* some two or three years ago, I was quite surprised to find the auctioneer's notice and the paragraph, copies of which you now have. We cannot ignore these facts, and those contained in Mr. Ross's letter, and we therefore must conclude that bees were numerous in N.S.W. long before Dr. Wilson brought them to Tasmania.

I am puzzled to think that in his numerous voyages to these colonies, from 1821 to 1836, he was not aware that bees were acclimatised here, and that he should have taken the trouble to have imported them from England, instead of sending them from Sydney to Hobart.

It is possible, as I have said, that the N.S.W. stock might have perished, and that it was necessary to replace them from England.

The vicissitudes of this climate favour the idea.

In my early life among the Murrumbidgee mountains I never met with half-a-dozen kangaroos; subsequently they appeured there in almost countless numbers.

The snuff-box, to our great disappointment, was never recovered. He must have been a most contemptible thief who stole it, for its intrinsic value was not 2/6. Dr. Wilson settled at Braidwood, the town of his own creation, in 1836, or soon after.

Believe me, yours truly,
T. M. Mowle.

Information for Mrs. Sophie A. Bradley about the Importation of Bees into the Australian Colonies.

Government Gazette, 21st June, 1822.

"Hive of Bees for Sale by Mr. Parr. Bees "imported by Captain Wallace, or Wallis."

Sydney Gazette, Friday, November 1, 1822.

"We congratulate our readers upon the com-
"plete establishment of that most valuable in-
"sect, the bee, in this country. During the
"last three weeks, three swarms of bees have
"been produced from two hives, the property of
"D. Wentworth, Esq., purchased by him from
"Captain Wallace, of the Isabella, at his estate,
"Homebush, near Paramatta."

In a letter published in the *Herald*, and dated Moruya, 10th August, 1863, and signed by John Ross, appears the following :—

"In your paper of the 28th July I see it stated at a meeting of the Acclimatisation Society of New South Wales that bees were first brought to this country by Dr. Braidwood Wilson, from Hobart Town, in the year 1831. This is evi-

dently a mistake. Bees were brought from England to Sydney in the year 1824, in the ship Phœnix, which sailed from Portsmouth in March of that year.

"The bees were in charge of Dr. Quede, Surgeon Superintendent of that ship, of which I was junior officer, and it was understood on board that they were sent by the Home Government. However that may be, I have the most perfect recollection of being one of the boat's crew who conveyed the bees, accompanied by Dr. Quede, from the ship in Sydney Cove to Parramatta, where they were landed near the factory, in presence of Sir Thomas Brisbane. I returned to Sydney in February, 1825, when I again visited Parramatta. I was then informed that the bees had greatly increased, and were doing well. Soon after I left for India, and did not return to Sydney until 1828, when I found bees common in gentlemen's gardens, and was given to understand that they were the produce of bees imported in the ship Phœnix."

Dr. Thomas Braidwood Wilson, R.N., as Surgeon Superintendent of convict ships, in one of his voyages came to Hobart Town in the ship John, in 1831, and brought with him two hives of bees, and for his services was presented with a silver snuff box, which bore this inscription:—"To Dr. Thomas Braidwood Wilson, R.N., &c., &c., &c.—Sir, We, the undersigned, request you will do us the honour to accept this box, manufactured in the colony, as a mark of the sense we entertain of the important services which, in a long series of voyages, you have rendered this colony by introducing to it some of the most valuable plants and animals, but especially the honey bee, which are in a manner become indigenous to it. That you may long live to enjoy and participate in the advantages which your exertions have thus conferred on the colony is the earnest wish of, Sir,

"Your obedient servants."

[Here follow 39 signatures of principal Tasmanians.]

Dear Madam,—You must come to your own conclusions from the above statements. The bees early imported may have died, as they died in vast numbers years ago. Dr. Wilson, who first came to the colonies in 1821, might have known this, and brought a fresh supply. He settled at Braidwood in, I think, 1838. He was my children's grandfather.

Believe me, yours truly,

T. M. Mowle.

Mr. W. Daley, South Woodburn, Richmond River, sends us the following:—

An old resident of this town says:—I arrived in N.S.W. in the year 1838 and settled at Jervis Bay. In 1840 I purchased two colonies of bees, paying £2 each for them, and had to engage aboriginals to carry them on their heads a distance of 40 miles. At this time there were only a few colonies of bees in N.S.W., but I believe bees had been imported into Van Dieman's Land prior to this, and were afterwards brought to N. S.W. from there. I do not remember the man's name who owned them in Van Dieman's Land, but a shepherd was one of the first to own bees in Sydney. When asked if he thought that the honey bee was a native of Australia, he said certainly not; they were imported from England, but they have since been improved upon by the Italian.

NOTES.

BY LOYALSTONE.

Tarred Felt.—With regard to the kind of tar I use for this felt for anti-foul brood founda ion. I do not tar the felt myself, but buy it in rolls already tarred. It can be procured from a firm in Sydney, and the price is 30/- a roll of 50 yards, 33 inches wide. Using this felt over the frames of the hives in the winter time, in no way interferes with the flavour of the honey. Of course you take this felt off as spring approaches. The easiest way is to have your foundation impregnated with the smell of it, which is done by enclosing the foundation in a thin box, surrounded by this felt and place in a warm spot from three to six weeks.—Reply to J. S., Gunning.

Long Ideal Hive.—Page 75, July *A. B. B.*, you ask the kind of hive I use. Well, the main lot I have contain 20 standard Root Hoffman frames, and division board. The entrance I have at one end, 12 inches long, and § of an inch high. I use no excluder now as I find them only in the road. In another part of same article it says, "As a rule the brood is spread too much in them. In a honey flow there would be none takeable, as there would be brood in every frame." This is not so. At the begin- of the season, prolific queens will fill up one frame after another with brood until you have from 15 to 20 frames of brood. As these bees hatch out and become honey gatherers, the hives begin to get full up of bees, consequently when the honey flow comes on, you reap the benefit of this large number of bees, and

they bring in honey so fast, fill up the cells, and so restrict the queen to only a few frames. In one of my hives last season when I opened it, there was only one frame of brood, the other 19 were full of sealed honey. Though you might get more honey in the beginning of the season with 8-frame hives, or a Heddon hive, the Long Ideal hive pulls them up and passes them later in the season, from sheer weight of the number of bees there are in these hives compared to others. In a district where there are only short honey flows, the long ideal hive is no good at all compared alongside a Heddon hive. But where there is a continuous honey flow, the long ideal hive leaves all others far behind as regards honey yielding. Re Mr. Bolton in July *A. B. B.*, page 78, I will answer his questions in full when he finishes his interesting articles on the utility of the Heddon hive. But as to his not examining frames when strengthening or equalising his hives, I can't see how he does it. Suppose I have three Heddon hives numbered 1, 2, 3. No 1 is a strong hive, No 2 middling, No 3 weak. I want to equalise them. I open No 1, I can see plenty brood in the frames, but can I lift a super of these frames after smoking them, and place it on No 2 without knowing whether I am taking the queen with me from No 1 or not? I have to take another super of brood from No 1 to put on No 3, again in this super the queen might be planted. Would I not have to look at the frames to make sure? You know queens sometimes hide themselves in queer places when disturbed.

The long ideal hives are the best for wax production, giving more bees, and more clustering room. Should anyone use these hives, they will find by using frames with a stick across the middle that it is much better than wire, and are handier for wax production. At extracting time, you put these frames through the honey extractor, and when you have emptied the honey out, cut away half the comb from the top bar, and half the comb from the middle bar, so as to leave a starter on each bar. I am not going to tell you how much wax per hive per season (average) you will get this way, but just try and see if you don't surprise yourselves.

COMPOSITION OF HONEY.

J. J. PAREY.

There has been of late a great deal of talk about "Liquid Honey at Shows." Our friends Wilsons say that the more honey is faked up the better, and the more will it be relished by consumers, and consequently the greater sale. Well, I beg to differ. First, because I believe in getting, or rather eating, honey just as it comes from the laboratories of the bees and nature. Second, because if we heat honey to prevent it from candying, do we not drive off some of the fragrant quality of the plant or flower from which it is gathered away. Thirdly, because I believe that most of its medicinal properties have been lost by the time this fermentation, heating and straining process has been gone through, for the manufacture of honey of a paler and brighter colour. Fourthly, the sale will be injured, because the consumer will not receive the benefit they otherwise would do if the honey had been allowed to ripen in the hive, instead of being ripened artificially in the honey tanks. This is the "Age of Tinsel," I know, also I am quite aware of the public having to be humoured, with regard to colour, &c. But we must bear in mind not to lose its medicinal effects for its appearance. I don't think the general public are capable of judging the value of real good honey. Their knowledge of honey is only by its appearance, the label, or jar in which it is contained.

In answer to the query, "Sugars of Flowers" by Friend Reid, I will answer it briefly by describing "How Plants Grow." It is found by chemical research that the greater part of a plant consists of carbon and water. A plant derives most of its mineral ingredients from the soil which is dissolved in the water which enters its roots, under the influence of endosnose; this fluid passes upwards by capillary attraction and evaporation, which is the only satisfactory explanation I can give for the sap flowing upwards against the laws of gravitation. This ascending fluid having reached the leaves, exhales much of its water in the form of a vapour through their pores. In the daylight, when the leaves are exposed to the sun, they are engaged in imbibing the carbonic acid from the air and in utilising it. They store up the carbon, which is needed for their tissue and secretions, and they set free the oxygen into the air. The result of these interchanges of gases is the formation of vegetable acids, starch, turpentine, resins and sugars. The term sugar is applied to a group of bodies re-

sembling each other, by a number of striking properties, partly chemical and partly physical. But sugars are not the only bodies, however, possessing a sweet taste. Glycol and glycerine are sweet, as well as some metallic salts, notably the acetates of lead. Sugars are mostly of vegetable origin, though a few, as inosite and dextrose, are found in animals.

Composition of Sugars.—Are composed of carbon, oxygen, hydrogen.

Formation is derived from the starch existing in the plant, which is converted by the action of diastose or a similar ferment into the soluble form, or dextrin, and then into sugar by the fixation of the elements of water. All immature parts of the sugar cane contain starch, while at maturity there is not a trace of it. Starch has the same chemical composition as cellulose—carbon and the elements of water. It is found largely in all the organs of the plant, where it accumulates to serve for nutrition, but like cellulose, starch is insoluble in water. In order to render it assimilable, it must be made soluble, and this is effected by a peculiar body, diastose, which exists or is formed under certain circumstances in all organs containing starch. This diastose possesses the peculiar property of converting starch into a saccharoid, and soluble matter dextrin, which is dissolved and carried by the juice to all parts of the plant. Now this dextrin combining with one equivalent more water, is changed into cane sugar. The latter may be modified in its turn, combining with additional water, and producing dextrose, or grape sugar.—*Payen on Sugar*.

These natural transformations of the juices of the plant into the various sugars are caused by the influence of light and heat.

At the season of maturity fruits contain cane sugar, fruit sugar and acid.

The nectar of flowers contain invert sugar, with a considerable proportion of cane sugar, the latter amounting in some flowers to three or four times the quantity. In-vert or fruit sugar is a mixture in equal equivalent of dextrose, and levulose, produced by the action of heat, ferment and acid on starch, or cane sugar, and is an uncrystallisable syrup of sweeter taste than cane sugar. This mixture of dextrose and levulose is identical with the dextrose and levulose in honey.

I cannot describe fully the various functions in this article, but by this time we shall understand some of the changes, that takes place in the sap, as it is carried onward through the cellular tissue and then finally secreted by the nectar cells which are generally in the receptacle of the blossom. This nectar producing tissue is usually made up of small thin walled cells ; these cells often contain small spores or stomata, which pours out, the sap or juice of the tree, on to the surface of the nectary, there to be gathered by the bees. Bees are seen sometimes working on the leaves, but as is generally known, more often on the flowers. I believe in some plants these mouths (or stomata) which regulate evaporation and respiration, is to be found some of the sap. These mouths communicate with the inter-cellular tissue or channels, by which the nutriment is conveyed downwards, by the bark, depositing in its course its various contributions to the growing structure of the plant. Honey when taken from the hive should not contain any cane sugar. This will disappear owing to a chemical change taking place, if our friends will leave it long enough. I may in conclusion state that the nectar of flowers will be of various compositions according to the actions or ferments, taken place when gathered, caused by the light and heat of the sun.

QUESTIONS.

165.—Linoleum on top of frames under cover. Which should be next the bees, the absorbent or non-absorbent side?

W. REID.

166.—The best hive for a man of small means. How made, resulting in profit?

W. TODD.

167.—Is it best to have hives on the ground, or on stands?

W. S. & H. J. WILSON.

168.—On page 38 appears an extract from the *Canadian Bee Journal*, by R. C. Aikin, where the question is raised whether ready made combs cause the storing of any more honey than when the bees have to commence on starters?

AUSTRALIAN YANKEE.

169.—Have you used reversible frames, if so, what kind, and with what results?

QUESTIONS NEXT MONTH.

A. C. FRASER.

170.—What is the best timber to use in making hives? I use redwood, some beekeepers won't use it, because it splits and must be well painted.

171.—Would brackish water make any odds to bees?

CHAPMAN BROS.

172.—Could you inform us the best methods of squeezing wax out of melted combs; we find it difficult to get the refuse thoroughly dry or free from wax?

J. J. PARRY.

173.—What is meant by the term "ripened honey?"

QUESTIONS.

G. H. ARKINSTALL.

165.—The non-absorbent side for two reasons. 1st If the absorbent side is put next to the frames it absorbs and holds the moisture, just what we want to get rid of. 2nd. The absorbent side being composed principally of ground cork, which is a non-conductor of heat or cold, should be placed up to keep those elements from striking through as well as absorbing any wet from leaky covers.

166.—I don't know.

167.—On stands just high enough to handle the supers with comfort, about six inches.

F. W. PENBERTHY.

165.—The moisture cannot come up through in either case. The absorbent side if down would be fully charged with moisture in a few days.

167.—On four pegs about six inches high.

168.—Fully twice as much in ready made comb.

169.—Get them built out in the upper story; and there will be no need to reverse them, or if old brood combs are not built down to the bottom bar, wedge them up and invert the hive for a week or two when honey is coming in. The breeding capacity in most brood chambers can be increased 10 per cent that way.

JOHN GALE.

165.—The non-absorbent side. The absorbent is too quickly gnawed through and thus the quilt rendered useless. A bee quilt enamelled on both sides, if placed on the market, would be in great demand by apiarists.

166.—Years ago I began to make all my hives of the material of the ordinary kerosene case, except the bottom boards, and for economy, accuracy of measurements, and general utility, I don't even yet know anything to answer the purpose in view.

167.—Not quite on the ground. Sufficiently elevated to secure ventilation underneath the bottom board, and to faciliate cleansing from spider's nests, &c. I have just perfected a plan which gives immunity from ants, spiders, &c. keeps the hives dry and ventilated, and yet close enough to the ground for all practical purposes. These are for manipulation, and the comfort of the home coming heavily laden bees. It is thus:—10 bricks make a base 21x18 inches. This base is covered with Portland cement, with a shallow channel running round it on the surface to hold water. A couple of bricks placed inside this channel to rest the bottom board on, answer every desirable purpose.

WILLIAM PACEY.

165.—The absorbent side next the bees, summer or winter. I don't believe in linoleum of any kind being next the bees, especially in winter. I use empty sugar bags, cut to fit the top of hive. I don't wish for anything better.

166.—There is a diversity of opinion on this hive question, as to which is the best, and it is a matter that will not be readily settled. For cheapness some beekeepers convert kerosene boxes into hives, but they won't stand the weather long, and are poor protection to the bees. I use the ten frame hive made from redwood.

167.—On stands by all means, where ants are troublesome, say 12 inches from the ground, with the legs of stand in vessels of water. Bees could not live one day here in summer time if they were on the ground, the little black ants are so troublesome. Some people will tell you that the bees will keep the ants out of the hive. When the ants assail the hives, the bees are put to confusion by trying to keep the ants down. This evil is overcome by having them on stands. How can a hive of bees prosper when they are surrounded by an enemy. Just fancy if the Spaniards surrounded the *Bee Bulletin* office. You, Mr Editor, would have to make an effort to protect the hive, and of course under the circumstances we should have no issue of the *Bulletin*. And so with the bees, if they work in peace the colony will prosper, as well as the Editor of A.B.B.

VICTORIAN NOTES.

R. BEUHNE.

Molly-Coddling Bees.—I cannot agree with Loyalstone that we make our bees too comfortable in winter unless someone goes to the extent of foot warmers and mittens for the bees. A comparison between bees nests in trees and colonies in hives is no point in favour of the assertion. Bees' nests in trees are usually of the black variety, which breed up earlier in the spring, and I doubt whether the best hive in existence, will enable the colony to maintain the temperature so evenly as one located in a tree, particularly in a growing one. The entrance may be much larger, but the surrounding walls will rarely be as thin as those of a hive not subjected to the same fluctuation of temperature, being part of a greater bulk of wood than the walls of a hive. We should also bear in mind that the bees in trees referred to are most likely exceptions, and that they have all their stores left them, which greatly tends to uniformity of temperature. The apiaries are responsible for spreading disease among bush nests. It is no credit to the apiarist, but most beekeepers will agree that quite the reverse is the case.

Entrances.—The size of the hive entrance is on the upward grade in America. It has now come to 60 square inches. With an entrance of that capacity bees should be able to fill a two story hive in eight hours. I find an entrance 9 inches by $\frac{3}{8}$ inch large enough for any flow, and any temperature up to 110 in the shade. With an entrance of that size, bees control the

inside temperature better than with a larger one. Combs without bees will melt down as well as those of weak colonies during hot weather, while those of strong colonies are safe. The hive raised one inch all round is now supposed to be the correct thing, according to *Gleanings*. The Atchleys of Beeville, Texas, have no bottom to some of their hives, just stand them on a smooth surface of sand. By combining the two systems you get the cheapest hive yet produced. Four stout stakes driven into the ground representing the four corners of the hive is all that is needed, strips of wood nailed to them in the right places to carry the different sets of frames and a cover on top.

Bees and Fruit.—The question whether bees injure fruit, I had assumed to be settled long ago in the negative. In my experience with bees, grapes and all other fruits, the bees never interfere with fruit unless previously injured by birds, insects, cracks, or other means. I have grown grapes and soft fruits for many years, keeping from 100 colonies of bees upwards on the same ground, and never have I found them to touch sound fruit. Many others have through making only superficial observation arrived at an opposite opinion.

Beekeepers in America have tried to settle the question by putting bunches of grapes into a hive. This I consider no test at all. Of course the bees didn't touch the grapes, neither would they touch flowers if put into the hive, although working on them freely in their natural place. If anyone wants to settle the point for their own satisfaction cover some bunches of grapes with wire netting fine enough to exclude the smallest birds, such as silvereyes, and shelter from rain to prevent cracks, and keep a lookout for insect marauders which would still have access in common with the bees.

Bees will often extract all the juice from grapes and other fruit, leaving only the skin and although they are quite able to do so, for some reason or other they never do break the skin themselves, but only attack fruit, the skin of which is already broken. At the same time in establishing a new apiary it is best to keep as far away from orchards and vineyards as possible, as much loss occasionally results to apiarists from the spraying of fruit bloom with poisonous compounds, and if bees occasionally work on damaged fruit it is often difficult and sometimes impossible to convince the aggrieved party. When grapes are used for wine production some slight loss through bees removing the juice of damaged fruit cannot be denied, when it takes place just at the time of vintage. At other times I consider the operation of the bees an advantage, as mould and souring would follow the damages of birds and the bursting in wet weather.

NOTES.

J. T. Adams.

As Messrs W., Ligurian Apiary, wish to know if my apiary is in the same locality as my vineyard? Yes, a 20 feet headland divides them. Do they injure the fruit? No, on the contrary they benefit it. Bees cannot injure fruit unless assisted by birds or rain cracking them. Then they clean the broken berries and cracks up of juice, and they are the only ones lost. Whereas, if left, they rot and cause the sound ones to do likewise. Fruit may injure the bees with its juice fermenting, but the bee is a necessary evil to all successful fruit growing in every country.

If they could eat the fruit they would have done so this year, with it hanging at the hive door for months and they starving for a suck at something, for the apiary is fruit trees and vines at the hive for shade *a la* Root's A. B. C., so I get two crops off that little bit, but I dig the apiary over every year. The Government expert told me once that to make the Raisen de Dame grape set its berries properly I should rub my hand down the bunch when in flower in the morning. So, next morn at 5 a.m., I went out to try some and the bees were tumbling over one another like ants on them. I calculated they were well rubbed over before I got there, and I left them to it to return no more to that game. But this question has been proved often by Professors in England and America, who had the time and appliances at their hands.

Re Loyalstone's Notes. I cannot agree with his remarks in the latter portion, page 76, July Number, covering bees up, &c. To make it short, if I have the time, which is not always, I like to tuck them in as it were. Bees tucked in dry (oat hull) chaff never have sour honey to eat to start cholera, which is my opinion of spring dwindling, or what name you may call it. Then he says apiaries are the spreaders of disease to bush nests. There were no apiaries here when I started 15 years ago with three hives I bought in gin cases, and five years after I had only two, cleaning them time after time (of course I transferred them into frame hives.) Then I made a little box with feeder in and glass top to slide (as in Root's A.B.C.) and a bottle of syrup. I sailed out to find bee trees. The first day I started five times and found the trees. The second day four times and found the trees. Third day felled and took the first five hives; got four tins comb (dry), 7lbs honey and bees. Well, the lot would not cover two frames. Fourth day felled the other four, got three tins dry comb from three of them—a few bees. The last one of all, the only one that had any brood or queen, I got 30lbs honey, 11lbs wax (melted) two frames of brood comb. Bees and queen got smothered in the smash up of the tree. All but this one had no brood healthy, no queen and the comb was just a mass of diseased and rotten matter, and my bees were carting this home every day, as mine were Italians. The first tree

I felled I thought I had a hive of Italians, but when all was dark, I had a cupful of blacks ; the yellow washed out by night. I then cleaned and boiled again and next year increased to nine and have had but little trouble since, and then twice it was through a bee tree being felled and left open that I got a case, but happening to see it soon after falling helped the man to take the bees and fired the rest. It ended with only one and although there are more apiaries here now and I have seen several trees fallen I have not seen any with F. B. since.

My honey house is on the plan but differs in material. The walls are built of mud. The roof iron, not straw. And inside I've built a ripening kiln, to heat fifty hives of combs for the extractor. It's almost an Irish cabin on the hill.

J. A. B., Glad to hear you struck it, but think of us unfortunates, when you spring bombs on us like that, and write it "aisey" and see if we can stand it. Tons going to waste for want of bees to gather it. Well, we had the other extreme. Hives overflowing and nothing to gather. Och hone. Next time we will federate.

PRICES OF HONEY.

The Garden and Field (South Australia) says:—Demand for honey is not now quite so heavy, the cheapening in the price of butter accounting for the easing in value. Brisk sale for all beeswax forward. Honey 3¾d to 4d., beeswax 1s 1d.

Messrs Hawken & Vance, Sydney, report:—The honey market is quite full, stocks are very large and sales dull. Prices are very low, from 1½d to 3d, and now that the price of butter has been lowerered to a 1/-, sales are sure to decrease.

The Melbourne *Australasian*, August 13.—Honey 5d to 6d.

Melbourne *Farmer & Grazier*, 4½d to 5d.

H. W., Leadville, August 17 :— Herewith I enclose postal note 5/- for another 12 months A.B.B. I enjoy reading it very much, and get many a good idea from it. My bees have come through the winter well, and will swarm early this year. I am joining the N. B. K. A., and am sending the Secretary my 5/- by this mail. Wishing you success.

F. W. Penberthy :—I feed my fowls on wheat siftings, which is very smutty. The bees worked two days on that smut. The wattle is out in full bloom here, bees building up strong. I see by last A.B.B. Loyalstone is advising a skillion 9x16 ft. for a honey house to extract and store honey from 500 colonies. The floor space, after the tank benches are put up, will not leave more than 5x14 ft., with a hot stove in the centre. In a skillion in summer what a little hell it would be.

H. J. G, New Zealand, July 11 :—I receive the *Bulletin* alright every month. We have not had enough honey to extract, and we have not had to feed the bees through the winter. I am sorry to say some one got into the place where we have the bees and helped themselves to some of the honey that we had left with the bees for the winter. Broke up some of the combs, and left the lids and mats anyhow. Very annoying, last week the wind blew one of my hives over, but I think the bees will be alright. I received a tested queen from Australia last season, and introduced her. Her wings were clipped. I saw her before the winter came on proper; her first bees were one and two bars, but no more now; they are all blacks. I do not think there is much Italian about her. I bought an untested queen when I was in Sydney, and they were something like what I should call an Italian, two and three bars of yellow and no black. I have one box of black that can supply all the other nine hives with honey for the winter, in a bad season, which they say we have had. How do you account for that? The queen is a slow going sort of a queen on the combs, and she is a dark brown all over. She does not like the brood chamber. I have two supers on this hive, and she stays in the first super, about half way up the frame. I do not think a colony could do better, call them what you like. The entrance of the hive is opened about 6in x ½in all through the summer.

Bees look darker in winter time, also when they get old.

P. S., Echuca, July 27 :—Past season has been very fair for the off year, prices having made the lesser flow about equal to a full season. The prospects for next season look promising, the red gums being loaded with buds.

P. A., Ashburton, Canterbury, N. Z., July 11 :—I have not extracted a single pound of honey this year, owing to the dryness of the season.

W. J. P., Glenorchy, Vic., July 30 :—I am this day sending you my yearly subscription for the *Bee Bulletin*, viz, 5/6 in postal notes. Hoping your little book will always be up to date as in the past.

T. M. H., Lismore, July 16 :—I make it a practice to make bees pay their own way, having quite enough to manage outside them. This year I held the honey for a better market, but am at last forced to unload at 2½d. I have just received proceeds of first shipment.

A. A. C., Golden Vale, July 22nd :—All the honey that I have extracted this year, candied and fermented, and went bad in fact. It has got a bitter taste. Can you tell me the cause of it. I wish you would ask the question through your paper. It was the best year that ever I had for honey.

[You either extracted it unripe, or left it exposed where moisture could get to it.]

A. F., Darke's Forest, August 1st :—I am forwarding by train, sample of honey that is tinned in Sydney, and I should be much obliged if you will let me know at your earliest what you think of it.

It may be honey right enough, but the taste and smell is abominable. It might have been fermented, but has no signs of it now. Send a sample to the Chairman, Board of Health, Sydney, and let us know the result. The man who puts it up to retail must be in a conspiracy to set the public against buying honey.

C. U. T. B., Loyalstone, Lyndhurst, 15th August, reports :—There is every prospect of a good season before us here. Every hive is fine and strong. Queens laying all the winter, and plenty honey gathered late last autumn to carry them through. Our new member for Cowra, Mr. Waddell, M. L. A., promises to support beekeepers in any of their grievances to the best of his ability, which means a lot, as he is a real "live" member.

G. S., Warrah Ridge, August 2nd :—I came from New Zealand to above, and was satisfied with the place ; it is better than New Zealand for apiculture, indeed the whole of Australia. I believe is better than New Zealand in that line, but it is the only line. If you know anythink about Cape Broom, whether it spreads or not, that is whether it would be troublesome or not, you might kindly let me know through the *A. B. B.** Our bees are doing fairly well, the colonies are very healthy though rather weak. There is no foul brood in the apiary here. I believe every apiary in New Zealand has it.

*Can any of our readers give this information ?

C. W. W., Kilkerran, S. A., July 20 : The three years' drought has just about knocked me out of time. Fruit and crop failed completely two years in succession. Bees also, no honey, no swarms, only one hive reared drones last year, and then killed them off. Have lost half the darlings, but am better off in that respect than any other beeman within 20 miles, as all the other bees within a 20 mile radius are dead, starved clean out. But every cloud has a silver lining ; we now are having a splendid wet winter, and things look well for ensuing year.

H. St. J., Telegraph Point, July 25 :—Last season was a bad one here for the bees. I took no honey after November, but the bees got enough to carry them through the winter, at least I thought so, but on looking over my boxes I see three have died out, one of the three having a large heap of dead bees in it. I notice one of my strongest hives is always damp. On lifting the cover off, although all are quite free from leaks, I put this one higher from the ground, but still the same dampness like dew inside the cover. None of the others are like it. Can you tell the reason the two centre frames are the most damp, and all my other boxes are always dry, but so far it does not seem to hurt them?

Damp arises from the bees themselves. You should have some absorbent on top of frames under the cover to receive same.

J. C., Tooborac, Vic., August 6:—Did very little with my bees last season, the flow came too late for box hives. Moths pretty bad. They are a new plague to me these last two seasons, and getting worse. They want close watching. I have been keeping bees for thirty years, and never saw them in a box before. I have lost heavily this last year. I have 100 hives left, and I hope to do well yet. We have had an epidemic of measles visiting us, very few families escaping. The last of mine got well over a month ago. I wish success to the *Bee Bulletin*, it is a grand little paper.

J. Le. S., West Tamworth, August 8th:—My bees have abundance of honey, but I have no time lately to rob them and when I have leisure it is too cold. I see a good deal of talk on the method of making honey vinegar at lightning speed. I daresay I have a little experience in that matter, as I sell a lot of vinegar, and also make a lot of pickles and sauce, of which I can hardly supply myself with vinegar, as it takes a lot of casks, and the vinegar beetle is always boring into them and letting the vinegar go. Honey vinegar, to have it good is like wine, it must have age. You may sell it at 6 or 7 months old or even 12 months, but it is too sweet or tastes too much of the honey, and it is no good for pickling purposes under two years and wants racking off about 4 times during that time, and then it is equal to the best wine vinegar, and more to the taste.

G. W. H., Bega, August 2:—The honey flow in this part has been fair, considering the dry weather, notwithstanding a fall of 28 inches last February in four days. My sales of honey increase month by month. Ten years ago it was a luxury, and not a beekeeper; now there are about six beekeepers within a radius of 30 miles, and all seem to dispose of their produce. The majority of them are not dependant on the industry for a livelihood. The past season has proved to me that "unity is strength" in regard to our loved insects. I commenced with ten hives, and have now nine, but they are strong, which I can see (as a novice) is essential to honey gathering. How is it that one can send to one agent in Sydney, and only get 2½d lb for honey with 6/- freight and commission, whilst another agent returns 3d per lb and only 2/- freight and commission? With best wishes for your prosperity.

J. C., Bulli, August 18:—The last season was a very good one in this district. I started spring with 26 colonies and increased to 50 with a yield of one and a half ton of honey, which is a very good result for this district. This winter has been a very mild one, and my bees are in splendid condition for the coming spring. I wintered down with about 30lbs. of honey in each colony, and most of them have added to their store during winter. The ironbarks and mahogany have been in bloom all the winter, and the mountain ivy, which blooms in July. It is a climbing plant, with a very small yellow flower. The bees work very strong on it on fine days. I have sold my honey locally, realising fourpence per pound for extracted honey and sixpence for comb honey. I had three very bad cases of paralysis last summer, and I tried your remedy of re-queening, which I found a complete cure in each case.

J. F., Chatsworth, August 17:—The past honey season here has been very good, with exception of the latter part which was rather wet, but I did not get nearly as much from my hives as D. J. R., Mumbil got from his. Honey is selling in Sydney at a low price just now, but this is not to be wondered at, when one representative at the late Convention stated that river honey was not worth 1½d per lb. I would like to know his grounds for saying so, as I consider that honey can be obtained on the Northern Rivers equal to any in N. S. Wales.

N. S. WALES CONVENTION.

The Seventh Annual Convention of the N.B.K. A. of New South Wales, held on June 29th and 30th and July 1st, 1898. (Continued.)

THURSDAY AFTERNOON (continued.)

Mr. Pender's paper having been read,

Mr. Penberthy said that many drones in the yard had very little effect on the queen's progeny. All the queens in the yard would be pure. A queen will please herself whether she will be mated or no by throwing but a smell A queen wants to go away so as to be mated away from her own drones. Mr. Doolittle found that quite a number of his got mated five miles away. He could not fall in with Mr. Pender's paper in reference to queens being mated within a mile. His experience was that his queens went two or three miles away to where there were black drones. The strongest queens were mated furthest away.

Mr. Seabrook said Mr. Pender spoke of 95 per cent. being purely mated He (Mr. Seabrook) could never get that percentage. Mr. Pender also conveys his drone brood to the out-apiary, a mile away. He (Mr. S.) generally rose his drone brood on the spot, and by keeping down brood in stocks he did not want them to mate with selected drones reared in hives set apart for that purpose. Carrying queen cells was a great mistake, as you have to be most careful in carrying them, and the least jerk often produced deformed queens.

Mr. Abrams said the subject was not new. He had called attention to the fact ten years ago. The selection of drones was an important point. The trouble, however, was in selecting. It was not at all comparable with cattle, poultry, or animals, for the simple reason that there the male and female were brought together. We had no proof what the drones were, therefore are never sure that one stock would invariably produce their own to perfection. We cannot prove the reasons controlling the mating of the queen and drone. It was a great mistake to go for colour alone. Beauty was not the most important matter.

Mr. Gee said some queens have drones from black to yellow, with very little difference in honey gathering. When we have queens who rear all yellow drones these were the proper ones to select from. It was very hard to get rid of black drones. Had had no trouble in mating last year, having had 100 purely mated.

Mr. Niven said the drone was as important as the queen. In mating the strongest and most active was the successful one to meet the queen.

Mr. Ward said the question was one that could be carried on by those who think they are practised in queen rearing, and it was a loss to the Convention that Mr. Pender was not there himself to reply to suggestions that had been made. Some things that had been said by way of criticism put more thought in the investigation, notably what Mr. Penberthy had said, that the queen selected the drone.

Mr. Ayling, re Mr. Pender saying it was not necessary for the drones to be so far away. He had saved eight of ten pure with any amount of black bees within a mile. If the queen selected her mate she would have a very quick eye, at the speedy rate at which they travel.

Mr Gale had written about it ten years ago, and often since. At Goulburn referred to the care breeders of other animals took in the production of the sire as of more importance than the dam Beekeepers had not that opportunity. In the paper now read the subject had been put in at his suggestion. Some points in it he would say "Amen" to; others he would not. Mr. Pender says some are sleepy, some are lively. Kill the sleepy ones The drones with wings more powerful, the antennæ longer, more smell; his compound eyes again show better. He is qualified for reproduction, and the weak, sleepy drone has no chance. The race is most to the swiftest Amongst wild animals it is the same —fight, fight to the last, and the drone has the same duty. Relating to distance, the paper said one mile. Gave an instance where Italian bees were first introduced to a district, and three miles was proved. He would only keep select drones. In the vegetable kingdom the male are the reproductive portion, and in far greater abundance than the female, and a grain of pollen only is required to fertilise the plant. When we

take the millions of flowers on the pumpkins, there are thousands and thousands utterly incapable of being put to use, and the great number of drones was for the same purpose. In the drones the one that is the strongest is the one generally selected by the queen. Another question—a drone-laying queen from the beginning. He would like to know whether her drones are fertile. It would be well if some one could keep note of such. In selecting our drones then we shall have the best of them, and get some standard by means of which we shall be able to control or select them. In agricultural shows there were prizes for queens and honey, but as yet we have no prize for best drones. He should like to see such, and a standard be drawn. Mr. Abram had struck the right nail on the head when he spoke of colour. Take our poultry breeders. A bird of no use would get a prize so long as feathers and colour were right. Our prizes should be for the best honey gatherers. It was time that we had a national strain of bees. It rests with us whether we shall have a type of bees we shall know as Australian bees, and this Convention, with the aid of our country members, ought to do something in that matter. Did not think it was the queen selected the drone. If a drone makes up his mind he has to change it when a better drone comes along.

Mr. Abram did not think a drone from an unfertilised queen would be reproductive at all. It has been tried over and over again. The drones produced by a fertile bee are capable of fertilising. Had proved it himself.

Mr. Fred. Ward followed with a paper on

PAST EFFORTS AND PRESENT POSITION WITH RESPECT TO ADULTERATION.

"Much has been written and said about the sale of adulterated honey. Its bad influence on our industry has been discussed again and again, and measures recommended to check it. Heads of government departments have been approached and urged to protect us. We have demanded justice—for it is certainly not right that those who have been led by government representations to enter upon the industry should have their produce discredited when the administration of an existing Act of Parliament would prevent it almost entirely. We have gained what we have worked for to a certain extent. The Board of Health has taken up the matter, which is good so far. Of course that body will have to be supplied with information, and it would be well, before referring to its officers, to have good grounds for complaint. For if frequent analyses are made by them without any adulteration being detected you may be sure they will soon lose interest. I mention this because the opinion is rather prevalent that the practice of adulterating honey is carried on to a much greater extent than has been the case of late years. When this opinion becomes so wide that statements are allowed to appear in print, as has been the case lately, that pure honey is almost unobtainable in Sydney, more harm is done to us, more discredit to our honey, than all the adulteration that has ever been carried on has done. I have never known a time when I could not get pure honey in Sydney, and generally plenty of it. Much of our honey is not pleasant to take until you have acquired the taste for it, and some is so disagreeable that no one would care to try and get used to it, even if such were possible.

"It is with honey of this kind that most adulteration is practised, because it is less in demand and consequently cheaper, and can be profitably reduced in colour and flavour with sugar syrup. It is only when honey is scarce that much of this is done, for a good article has very little to fear in competition with an inferior, whether adulterated or pure.

"Adulteration has certainly done much harm, and it will require constant watching and care to keep it checked. Do not make it worse by spreading and magnifying the evil to the public. I do not think that the practice has had much to do with the low price ruling. Our production of honey is very large and reaches the markets in quantities far in excess of immediate demands. If honey rises above a certain figure it can be brought in large quantities from abroad, so we must make up our minds to be content with the prices as they have been lately, unless they can get nearer the consumer. Honey with most people is not a favourite every day article of food. I would recommend less reliance in the Government to foster the industry, and more in individual enterprise."

Mr. J. D. Ward, said the last honey analysed under the auspices of the N.B.K.A. there was no adulteration in it. Through the action of the committee some adulterators had been frightened. We could not get a bottle with the small label on the back so readily now, because they found out we were about to start prosecutions.

Mr. Seabrook knew for a positive fact one man who was supplying hawkers of honey, was at present supplying three or four cwt. of sugar to these men. Adulteration was still going on.

Mr. Gale thought it was glucose more than sugar they adulterated with. Thought that the adulterators would kill themselves by creating a dislike for the stuff they sold.

Mr, Cadden was hoping great things from this paper, but it did not go far enough. He could walk out from there, and in five minutes could produce a gross of bottles labelled, "This is a mixture of honey" and so and so He could get adulterated and unadulterated. Until something was done by the committee there would always be a lack of members. There was too much said about adulteration. The very first remark of ten out of twelve was that they could not get good honey in Sydney.

Mr. Gale called attention to a sample on the table. He alluded to a paragraph in last number of the *A. Bee Bulletin*, where it was stated a

German had so imitated heather honey, no scientist could tell the difference between it and the genuine honey. He had applied to Mr. Walters, the chief chemist of the Sugar Refinery Company, who told him that such could be done, and the sample was the result. There was not a grain of honey in it of any description. The flavour and the aroma could be changed to suit the palate. It could not however be manufactured for commercial purposes. It could be detected by the smell and look, but chemists could not detect it. Mr. Gale stated if the N.B.K.A. would subscribe to a prize list the Royal Agricultural Association would largely subsidize it and recommend the getting up of a great trophy with a prize worthy of it—a show worthy of the beekeepers of N. S. Wales. Would like to have a pavilion or a tent set apart for bees and bee products only, that should be as attractive as any part of the ground. We ought to get £50 to offer in prizes.

Mr Cadden moved that we take steps to induce the Royal Agricultural Association to provide such a schedule. Mr. Lord seconded it.

THURSDAY EVENING.

At the evening session Mr. J. D. Ward read a paper on the "Work of the Association," printed elsewhere.

Mr. Cadden spoke disparagingly of the work done by the N.B.K.A. He was replied to by Messrs Pemberthy, Niven, Seabrook, Tipper, Gale, and Ward, who spoke of the apathy of the beekeepers generally to their own local association.

Mr. Pemberthy said the N.B.K.A. had done more good for the beekeepers of N.S.W. than all the local associations put together.

Mr. Gale spoke of the great importance of beekeeping, as without it there could not be fruit growers. The Government looked at the fruit grower as an important factor in N.S.W., but would not look at the beekeeper. They look after crops and their enemies and fruit, but not the beekeeper. There was not a more important body in N.S.W. for the production of crops than the beekeepers. He replied warmly to remarks by Mr. Cadden re the different prices of honey and queens now and seven years ago. The Foul Brood Bill was not wanted for the intelligent beekeeper, but for fellows that would not understand foul brood. When he had taken up a position of lecturer, he did it at a loss of £20 a year. Re tops of trees, he was one of the cranks that did not succeed He had sent in his resignation because he did not want to be running about the country. Spoke of the conscientious way he had discharged his duty. The country associations were our great trouble. He hoped the country members would rally round them. Send down to our secretary your troubles and you will get answers. He did as much work now for the industry as when he was lecturing. If the country members would support the N.B.K.A., it would support them.

Mr. Ward also replied strongly to Mr. Cadden, contradicting the statement that the proposed Foul Brood Act would necessitate a paid inspector. The committee had said over and over again that the local association would make such provision for appointing inspectors themselves, that the government would not lose a penny over the subject.

Adjourned till next morning.

FRIDAY MORNING.

Proceedings commenced by Mr. Seabrook reading a paper on.

BEE ENEMIES.

"Diseases are, of course, the greatest bee enemies, but my paper is confined to enemies other than diseases. If I were asked to furnish a paper on the Bee Enemies of Britain, I could readily respond with very full information, as in that country observations have been carefully made and recorded for many years. But in Australia no systematic effort has been made to place on record the results so far obtained, and in my opinion the writers in our official organ (the A.B.B.) have not given as much attention to this subject as its importance demands. It is a good thing to know bee enemies, and it is a better thing to tell others what they are. I do not know what the complete list of enemies is, but I know some of them and suspect some others, and I hope we shall soon have a fairly complete list.

"Bee Moth.—The greatest enemy of all is the moth and, as it is well known, I may leave it to the wisdom of those present to deal with. To any beginners present I simply say, Keep good bees and strong colonies.

"Brown Hill Ants.—In some places these are a great pest. Destroy their habitations, or kill the ants themselves by any of the approved methods.

"Bee Martin.—A bird somewhat like the swallow in appearance. Devours worker bees in thousands. A good shot gun will afford practice in shooting, as well as exterminate this pest. He generally keeps near the hive, and always takes the bees on the wing.

"Green Oriele.—This bird comes in flocks, and in some parts of the country does much harm. He also takes the bees on the wing. I am informed, but I don't know of my own knowledge, that he is still more destructive in the flowering trees, taking the bees as they light on the blossoms. Observations of the habits of this bird, and its destruction of bees, are very much needed.

"Lizards are said to eat bees, but whether in any great quantity is not determined.

"Toads are very fond of worker bees, and a single animal will do quite a lot of mischief.

"Spiders.—There is a very voracious spider; he has a bright black body with a red spot or red streak on it. He will take up his abode on top of the quilt, or under the bottom board, and grow very fat by sucking the juices out of bees. This pest is very destructive, and needs constant attention.

"Amongst animals I suspect are—

"The English Sparrow.—In England this bird destroys enormous numbers of bees, and I have no doubt he brought his bad habits with him, but it may be that the great quantities of other insects and of grain at his disposal, render him not very harmful. I advise, however, that he be treated as a suspected person, and given no quarter. In dealing with the sparrow the fruit grower and the beekeeper have that fellow-feeling which should make them kind to each other.

"I am sometimes inclined to suspect also the domestic fowl. I have found their crops full of bees. My belief is that generally it is dead bees though appearances point to the possibility of their not rejecting live ones occasionally.

"In these remarks I have purposely avoided speaking too positively or very fully, as I have not made a special study of these pests, being quite content to destroy them.

"It is my intention, however, to make closer observations, and I recommend a similar course to all beekeepers In order to compile a list of bee enemies it would be wise for all apiarists to keep on the watch, and to send to Sydney for classification all known or suspected bee destroyers, whether bird, insect, or reptile.

"The President of the Association will be able to give you directions how and to whom to send these specimens. The results of all examinations of bee enemies should be recorded by the committee and also published in the A.B.B.

"I recommend this subject to the very earnest consideration of all present, and I hope my paper will result in collecting and putting into shape for practical use, all that can be learnt of Australian Bee Enemies. Let all observations be thorough and do not report as a fact anything you have not yourselves proved to be a fact."

Discussion followed.

Mr. Packham said the bee moth was a friend. It destroyed the bees in the bush and was therefore a blessing to the beekeeper. Had seen 150 bee martins shot in an hour. Did not think fowls interfered with bees.

Mr. Cadden said the beekeeper who allowed spiders to accumulate were very careless men, indeed. He didn't consider fowls or spiders enemies.

Mr. Niven agreed with Mr. Cadden the spider was no enemy. He had lost bees very much through the bee martin in dry seasons. Some bees stung the martin to death. His bees had suffered from what he thought was a swift.

Mr. Penberthy thought the martin would be a worse enemy than the spider. It had been said the martin required his own weight in food every day.

Mr. Gale said amongst the enemies Mr. Seabrook had mentioned were toads. The toad was nocturnal, the bee diurnal, so the toad could not be an enemy of the bee. The red spotted spider was not so injurious as the grey spider. Had seen scores of dead bees in spiders webs. The bee moth was no enemy to the beekeeper but to a duffer. The oriel was a confirmed bee eater. The wood martin had a bad name and he would not take it from him. Could not remember cases where the sparrow was troublesome. They might under scarcity of food. Fowls will eat live bees. Parasites attacked bees making them lose their wool. He would be very glad of all live specimens of any bee enemies, as it was his intention to have illustrations of them. There was a long list of enemies that we know little or nothing about.

Mr. Niven said the worst enemies to bees had not been mentioned—the small black ant.

Mr. J. D. Ward said if you looked at your hives every few days you would find spiders under them. Re the bee martin, beyond a doubt he was all that was said about him as a bee exterminator. The same of the green oriel.

Mr. Tipper said the bottom of the hives required constant looking after to keep spiders down. As to fowls, when he opened the fowl house of a morning, a lot of the fowls would make a rush for the dead bees in front of hives. They would not be among the hives much during the day. When confined to a small yard had known fowls to become bee eaters. In such cases he killed the fowls.

POINTS IN JUDGING.

Mr. Abram brought up the report of the committee on above, appointed on previous day, and moved it be received. Seconded by Mr. Tipper. Discussion then ensued. Ultimately, on the motion of Mr. J. D. Ward, seconded by Mr. Packham, the following scale of points was unanimously adopted:—

Hive Bees.	
Purity of Strain ..	30
Colour of Queens ..	10
Strength of Stock ..	10
Temper of Bees ..	10
Quantity and regularity of brood ..	20
Evenness of Combs	10
Utility of Hive ..	10
	100

Queen in Observatory Hive.	
Purity	40
Colour	20
Form	20
Size	20
	100

Honey (Candied.)	
Flavour	50
Colour	30
Regularity of grain	20
	100

Comb Honey.	
Evenness ..	20
Fulness	20
Appearance ..	20
Neatness ..	20
Flavour	20
	100

Hives & Implements.	
Utility ..	.. 50
Workmanship	.. 20
Other Merits	.. 30
	100

Honey (Liquid Extracted)	
Flavour ..	.. 40
Density ..	.. 30
Colour ..	.. 10
Aroma ..	.. 10
Clearness	.. 5
Brightness	.. 5
	100

Wax (White.)	
Color ..	.. 40
Clearness	.. 40
General Appearance	20
	100

Wax (Yellow.)
Same Points.

Comb Foundation.	
Impression	.. 40
Quality of Wax	.. 20
Colour ..	.. 20
Tenacity	.. 20
	100

On the motion of Mr. Penberthy the committee were recommended to consider the following :— "That it is desirable to alter Rule 2 of the Rules of Affiliation by providing for one delegate for every five members. That the committee be invited to bring the matter before the members of the N. B. K. A. or otherwise deal with same."

The following questions were asked :—

Has anyone tried the foundation press ? One member said he had, but it made too heavy foundation for him, and he did not think it could be made thinner.

Can anyone give the probable number of beekeepers in New South Wales ? No answer.

In what way would the proposed bee legislation benefit beekeepers ? Mr. Packham said it would benefit him. The man selling bees cheaply would suffer and he thought the Foul Brood Act should be passed. Mr. Gale said the Act did not provide for paid inspectors. There would be no expense to the beekeepers.

Don't you think it would be a good plan to block up all entrances to hives of a cold night ? General answer, No.

What is the best means of rising the price of honey ? Educate the people to the use of it. Mr. Penberthy said too much honey was being sent to one firm, and they could not dispose of it all. The supply should be spread among different firms.

What is the best knife to use for uncapping ? The Bingham.

Leaving out the question of adulteration what is glucose used for ? Jujubes and such like lollies were made from it. Brewers used it much. It improves leather. It has many legitimate commercial uses.

Have you had any experience with the new Hoffmann frames with staple in ends, and have they been successful in your hands ? Mr. Fred. Ward had 200 of them, and they to him were satisfactory. There was a slight objection. To those who were in the habit of handling frames by the top bar, with the staple driven underneath it was not so convenient to handle.

Do you wire your frames horizontal or perpendicular ? Mr. Niven said the shorter you have the wire the less it will stretch.

Is linoleum good for covering of frames under cover ? Mr. Tipper used it absorbent side down. Mr. Gale used it that way in winter, changed in summer, oiled side down.

Mr. Ayling always had a hole in the centre of the hive for ventilation. The bees would always stop it up if they wanted to. He used no sheets in summer time.

The Convention then adjourned, there being no afternoon session.

Owing to want of time several papers prepared were unable to be read. We will however print them in future issues.

AT QUONG TARTS.

In the evening, at the invitation of the committee, the attendants at the Convention were invited to a tea and musical evening at Quong Tart's Rooms, King Street, Sydney. Some 80 ladies and gentlemen sat down to an excellent repast. After which Mr. Gale, as president, gave an address formally closing the Convention. Mr. Tipper a short historical sketch of the different Conventions held, and Mr. Halloran called for a vote of thanks to Dr. Morris, for the use of the rooms at the Technical College, where the Convention was held, to which Dr. Morris replied in a humourous and pleasing strain. A capital programme of vocal and instrumental music was now rendered by the Meistersingers, the most talented combination at present in Sydney, supplemented by Recitations by Mr. Gale, junr., and Mr. J. D. Ward. At the close a hearty vote of thanks to the committee of the N. B. K. A. was called for by Mr. Halloran, which was most enthusiastically responded to.

The following paper was sent by Mr. Rien, to be read at the recent Conference. Lack of time, however, prevented its reading, so we give it here :—

HONEY TOFFEE.

E. J. Rien, M.H.A.C.

Questions are often asked by beekeepers, "Why my honey toffee goes sticky, or else goes back to sugar ?" As the question is of importance to some beekeepers, I propose in the following paper to give the reasons, and give such directions that any one can make their own honey toffee, also make it for sale and so help to dispose of their honey in a profitable way.

Honey Toffee is at the same time one of the purest sweets, and a remedy for colds. The base of honey toffee is of course honey and sugar, and its qualities in a great measure depend on the ratio in which they are combined as well as upon the qualities of the honey, and the sugar. It is not possible to make a good toffee out of honey alone, but there are some

h onies which make good toffee with two tablespoons sugar to one cup of honey. Again there are some sugars totally unfit for lolly making, *e.g.* The common household white, known as "pieces" company's 1*c*. The company's "Snow drop" 1*w*. on the other hand is the best that can be obtained. Now, if you take 1lb of crystal sugar and boil it with water until it is done, you will have a hard block of grainy sugar, on the other hand if you add 3lb of honey to the sugar, the effect will probably be a sticky mass which soon runs when exposed to the weather. There are two difficulties, the causes are sugar in refining loses albuminoids, other impurities, also glucoses in the form of treacle, and the more perfect the work of refining is carried out, the harder the grain of the sugar, and the better its quality. In making toffee this hardness of grain must be overcome, hence honey, glucose or some acid is added to counteract the effect of the grain, unless a sufficient quantity is added. It follows, the toffee will turn back to sugar more or less when poured out; if on the other hand too much acid or glucose is added, the other effect is seen in a sticky tacky mass.

Honey as you are aware is a glucoside, containing as it does over 30 per cent each of dextrose and levulose, and it has a similar effect on the hard crystal of sugar as the glucose of commerce. There is then a "happy medium" a right quantity, neither more nor less, which should be added to a given amount of sugar of a given quality. As honey however differs in its composition, containing from 1 to 14 per cent of cane sugar, from 32 to 38 per cent of dextrose; 31 to 37 per cent of levulose; .03 to .42 per cent of ash (F. B. Guthries' anaylsis), it will be seen no hard and fast rule can be laid down. This explains why a recipe will turn out in one person's hand, and fail with another, or a person will at one time make good toffee, and at another it will not be up to the mark.

Another cause of failure is in being boiled too much or not enough, caused by boiling to time without regard to the fire. To state an extreme case, I could boil a pot of toffee all day and turn it out as good as if I boiled in half hour, which later is the better time.

I will now go through the proceedure. First, the pot should be copper, though an enamelled saucepan will do equally well. Then, the fire—this should be good so that it will boil briskly. We now come to the making up. Put 1½ lbs. of crystal sugar into your pot with one cup of water and add 1 lb. of good honey; put this on the fire and let it come to the boil, stirring the while (after it boils it must on no account be stirred) take off any scum that arises and put on the fire again, boil until it is done. This may be told by taking a portion up on a stick and putting in cold water, when if it cracks it is cooked, or if you have a thermometer registering 300° Fah., boil it to 264° Fah. It must be taken off immediately it reaches the temperature or justs cracks in the water, otherwise it will be too hard. Pour into buttered tins, and cut to any shape before it gets cold. If this becomes sticky, from the foregoing it will be seen there is too much honey; if grainy, it requires more honey to sugar; thus the quantity of honey required depends upon the acidity of the honey, if I may use the term, and can only be found by experiment. A little butter improves the toffee. This should be added in small pieces before taking from the fire.

I trust the foregoing remarks may prove of service to my brother beekeepers and regret my business prevents me meeting them in Convention.

WORK OF THE N. S. W. NATIONAL BEEKEEPERS' ASSOCIATION.

J. D. WARD, READ AT CONVENTION.

The history of our Association up to the present eminently justifies the hopes entertained by its founders. Much valuable work has been done, and the way is clear for future efforts on a larger plan. The Association since its inception, has provided a channel for the interchange of valuable information, and to many its educational influence has been of considerable benefit. The Annual Conventions have undoubtedly done much for practical beekeeping, and the bringing together of honey producers must continue to add to the general knowledge. But the most important function of the Association consists in its being a living and working agent on behalf of those who make their living either wholly or partly by beekeeping. The Association must be a line of defence at all times, and must also carry on aggressive work where and when aggression is called for. It cannot be expected that every battle will be won, nor that fresh duties will cease to present themselves. Disabilities great and small strew our path. In so simple a matter as railway freights fresh duties constantly arise. It is no later than the present month that a question of freight was brought under the notice of the Association, and by it referred to the Commissioners, with satisfactory results. The Association has continually to deal

with matters relating to individuals, and probably this duty will last, practically, for ever.

But in the larger matters, the matters of general interest, much has been done and much remains to do. Proper recognition by the Government is not yet attained. Assistance of a special nature has been afforded to many classes of people obtaining their means of subsistence from the soil, but it cannot be said that any special assistance has been given to beekeepers. It is true the Government supplied an instructor, as in other pursuits, but in our case there has not been the assistance in finding a market that has been extended to others. I am a great believer in private enterprise, but I am selfish enough to ask that if there is to be any coddling that I shall have some of it.

Government Recognition.—I place therefore in the forefront of our policy for the immediate future an effort to obtain a larger share of Government patronage. The fruit men have had a lot of help, and it should be the endeavour of the Committee of the Association to get a like assistance for the bee men.

The Question of Prices.—Closely associated with the question of Government recognition is the matter of prices. It is known to most of us that recently the market was glutted, and prices fell very low. An export trade will regulate the prices in the home market, and prevent those fluctuations which are so disastrous to the producer, while being of little or no advantage to the consumer. The Government spent money to open up an export trade in fruit. Why not in honey?

Destruction of Bee Forage.—It should be the work of the Association to endeavour to provide an efficient check against wholesale ringbarking. As we stand at present every case has to be fought singly. A public common or reserve gives a large yield of honey. Interested parties apply for leave to ringbark. Instantly there arises a conflict of local interests, fire-wood contractors are interested in getting the dead timber, others interested in a monetary sense, take sides against the beekeeper, and it is difficult to protect the bee pasturage We must strive for regulations which shall protect the timber on these public grounds. The vandals who destroy our forests should have their power clippped. Things should be the other way round, and instead of beekeepers being compelled to fight for the preservation of the forests, the Government and the public should see that this valuable heritage be properly protected. Moreover on sheep runs there are many ridges clothed with good bee timber, that should absolutely remain for ever. The Association must endeavour to get some permanent protection in these matters.

Bee Diseases.—The work of getting a law to stamp out diseases must not be allowed to rest till we have a full measure of protection from careless and incompetent men, but as another paper will deal fully with this matter, I will merely enumerate it as one of the great things to be striven for.

Adulteration.—At present there may not be much adulterated honey on the market because of the low price of the genuine article, but immediately a bad season comes, the adulterators will be well in front, so we shall lose the usual and natural accompaniment of short crops, viz., high prices. Sugar syrup is the principal adulterant to be found now. We must endeavour to obtain an amendment of the "Pure Food Act," as its operations are altogether too complex.

Unfair Competition.—Besides having to compete with men who *make* honey in factories, bona-fide apiarists have to put up with the unfair competition of subsidised growers. By the term subsidised growers I mean the men in Government and other billets who keep bees, and undersell those who have to support families by raising honey. I do not object to anyone who likes producing as much honey as he likes, but it is unjust

that men enjoying fairly easy Government appointments or bank appointments should sell for what they can get on the spur of the moment. A case that was recently pointed out to me, was as follows :—"A Government servant was retailing good white sections at 4d each in opposition to men who had nothing but honey to depend on ; when objected to he replied it was all a section was worth. I told my informant to ask the man, if he got the sack from his billet whether he would consider then that 4d retail was enough for good sections.

MARKETS.—The committee of the N.S. W. Beekeepers' Association may be able to get information as to the state of the markets, stocks held, etc., and where possible, issue warnings against too much honey being sent forward at the same time. To enable the committee to be in a position to do this all large growers should be members of the association, and keep in touch with the executive.

INFORMATION OF GENERAL INTEREST.—I am of opinion much good would follow the establishment of a Bureau of Information, by which the committee would be placed in possession of up-to-date information on all subjects of importance, both technical and practical. Under this head would come such items, as the state of the markets in the various months of the year; exact information relating to those birds and other animals that destroy bees ; and such particulars as to the relative values of our indigenous flora, as bee pasturage, that can be procured.

PAST WORK OF THE ASSOCIATION.—While advocating a plan of action on definite lines for the future, we must not forget the good done by the Association in the past. Amongst things accomplished I enumerate the following : —

(1) Scale of judging fixed by the Association has become the standard for the colony.

(2) For purposes of meeting in Convention, the committee has on many occasions obtained special railway facilities for delegates.

(3) Representations by the committee resulted in great concessions in freight charges, thus directly benefiting every one who has sent a tin of honey on the railways of the country.

(4) Valuable information has been disseminated amongst beekeepers on Foul Brood, and other matters of special importance.

(5) The Pure Food Act is largely the result of efforts by the committee, who kept the matter constantly before the proper authorities, till the Act became law.

(6) Numerous analysis of adulterated honey have been obtained by the committee.

(7) Trial shipments of honey and wax have been made to England and India.

(8) The stoppage of ringbarking on military reserves has been accomplished.

(9) The committee has successfully resisted ringbarking proposals in different localities.

The committee has also been, at all times, the vehicle of information to beekeepers in all parts of the land on subjects of individual and local interest.

CONSTITUTION OF THE N. S. W. BEEKEEPERS' ASSOCIATION.—The present constitution provides for direct membership, and for members by affiliation from other societies. Many objections have been taken to the present constitution. It has been observed that if you want to know how to bring up a family, go to an unmarried lady, or to a bachelor for directions. They can tell you exactly how it should be done, but of course, those who have the responsibility of bringing up a family know nothing about it. Similarly, it is well known that beekeepers who belong to no society at all, are far better judges of the manner in which a society should be conducted, than those who pay membership fees, and it is therefore no surprise to find a whole book full of suggestions, each of which would suit no one but its author. The constitution under which

we work is an admirable one, and the only change necessary, is that it should be allowed to expand as the industry expands. At the present, conditions are different from those existing when the society was first formed. In many places local bodies have sprung up, and while our association is representative of the whole country, it is not as closely in touch with those local bodies, as would be good for the industry, and I suggest that provision be made for a majority of the committee of the central organization being elected by the local bodies, instead of being elected in Sydney, as at present. And with this change should be brought about as far as possible the formation of a society in every locality where there are enough beekeepers, and every local society should affiliate with the National Beekeepers' Association.

SOLDIERING & SURVEYING IN EAST AFRICA.

By MAJOR J. R. MCDONALD.

In the neighbourhood of Wakamba Settlements the trees are hung with hollow logs, used as beehives, and the Wakamba bee is as pugnacious as the coast variety. The caravan marched close under one of these trees and the angry bees swarmed down and attacked the rear; the result was the usual stampede. I was behind with a small party surveying and on arriving on the scene discovered that one unfortunate sick Msoga, who had been riding a donkey was missing. The donkey without its rider had rejoined the rear-guard, who had halted well out of reach of the swarm. My gun-bearer and I went back past the fatal tree to see if the poor fellow was there, but there was no sign of him, and we hoped that he had slipped into the grass and got out, but on rejoining the rear-guard we discovered he was still missing. Two natives volunteered to go back with me to search for him in the grass. We set to work quartering the ground near the tree; the bees swarmed down on us, and it was quite impossible to avoid being stung; all we could do was to keep the brutes out of our eyes. After a short time it became too hot for my companions and they left. It was becoming too hot for me too, when I stumbled on the Msoga, and picking him up, ran for it. Some of the rear-guard then dashed in to our assistance, and the sick man was carried off about 300 yards, when the bees relinquished the pursuit. The poor fellow, who wore only a loin cloth, was terribly stung. His body, owing to the innumerable stings left in him, instead of smooth black skin, appeared covered with close brown fur. We dosed him with brandy, removed the stings and carried him to camp, some two miles distant, when he was placed in the hands of the hospital assistant. But all the latter's care was of no avail, and in about five hours he died. While halted here determined to ascend Nzoi peak, from where it was evident that a valuable round of angles could be obtained. The natives told us there was one possible track from this side, or else make a detour of one day's journey north or east. After a good deal of talk and a handsome present, two daring men agreed to accompany us. The summit of the peak was about 2,400 feet above the camp. For the first thousand feet the ascent was over a steep slope strewn with enormous boulders, but above this rose sheer precipices of 12 to 1400 feet. We made an early start and after surmounting the first slope were glad to rest in a cool cave at the foot of the precipice. Pringle and I were making the ascent with a few men carrying a theodolite, etc. While resting in the shady cave we heard a familiar sound above us, and looking up saw a swarm of bees, streaming in and out of a large hole in the cliff. As the hole was close to one of the worst portions of the ascending ledge strict silence was enjoined on all. We Europeons removed our boots, to get a secure foothold, and the whole party crept quietly along the face of the precipice. But cautious as we thought we were, there was enough noise to attract the attention of the suspicious bees, and soon an angry cloud swarmed out. Pringle and I with a couple of gun-bearers were in front, then a gap, and a little behind the party with the instruments. The bees cut us in two, and the rear party beat a hasty retreat, while we in the van made the best pace we could up the steep ledge. A false footstep meant a fall that must have been fatal, but there was no time to think of our footing, with the angry buzzing swarms at our heels. Fortunately for us, the retreating made so much noise that the bees devoted the main portion of their attention in that direction, and we succeeded in reaching the protection of a patch of vegetation growing in a cleft and here lay still to regain our breath. It was, however, rather disconcerting to think that there might be similar foes above us, and that we had not yet accomplished one-third of the precipitous ascent. Luckily our fears were not realized, and in due course we reached the top of the cliff and found ourselves on a flat ridge, waist deep in genuine bracken. To attain the actual summit was now easy. It was getting late, and we had to think of the descent. Our guides said it would be madness to attempt to pass the swarm of bees until after sunset, when they retire indoors; on the other hand it was clear that it would be equally insane to descend certain parts of the ledge in the dark

We thought of making a detour, but were assured it would mean two days marching, for which we were hardly prepared. A compromise was finally decided upon, and we crept down before sunset to the friendly clump of bush near the bee cave, and waited there till after sunset. One man then went softly forward and returned with the welcome news that the bees had retired for the night. With unshod feet and the greatest care that not a stone should be dislodged, we glided past in the fast gathering darkness, and were one and all glad to stand once more amid the boulders at the foot of the cliff.

HONEY.

F. W. Smith.

As a result of the peculiar conditions of its formation, honey constitutes a rather complex mixture of several bodies; indeed its exact composition is a matter of some doubt. The chief ingredients are levulose and dextrose, accompanied by a small amount of cane sugar, and inconsiderable proportions of pollen, wax, and mineral matter. According to Dubrunfant and Soubeiran, genuine honey contains an excess of levulose mixed with dextrose and some cane sugar. In the course of time the latter is gradually converted into invert sugar and a crystaline deposit of dextrose forms, the levulose remaining fluid.

The substances generally supposed to be employed in the adulteration of honey are, water, starch, cane-sugar, and glucose syrup; the last mentioned is undoubtedly most commonly used. Hager states that by treating corn starch with oxalic acid, a product is obtained which on standing two or three weeks, acquires the appearance and taste of genuine honey; and samples of commercial honey not infrequently wholly consist of this or some other form of artificial glucose. The season for the collection of honey by the bees is a limited one and any existing deficiency in their natural source of supply is sometimes remedied by placing vessels filled with glucose near the hives. Occasionally the bees are also supplied with a ready made comb, consisting, at least partially, of paraffine. It has been asserted that in some instances, this factitious comb is entirely composed of paraffine, but that if the sophistication is practiced to a proportion of over 10 per cent. the bees do not readily deposit the honey in the comb.

Owing to the complex composition of honey and to rather incomplete analysis of the genuine article at hand, the detection of some of the forms of adulteration resorted to is a matter of considerable difficulty. The presence of starch is best recognised by the microscopic examination of the honey. This will likewise reveal the absence of pollen, which may be regarded as a certain indication of the spurious nature of the sample. There appears to exist a difference of opinion in regard to the presence of cane sugar in genuine honey, but it may safely be accepted that the detection of a considerable proportion of this substance points to its artificial addition. In all cases of suspected adulteration with cane sugar or glucose, the determination of the sugar present by means of the polariscope and by Fehling's method (both before and after inversion) is indispensible. It is commonly stated that unsophisticated honey polarises to the left, and that a sample possessing a dextro-rotary action is necessarily contaminated with glucose or cane sugar; but while in the great majority of cases this is doubtless the fact, it is equally certain that honey of known purity has been met with which polarised to the right. Upon the inversion of honey containing cane sugar, the dextro rotation is changed to a levo-rotation.

According to Lenz, the specific gravity (at 17 degrees) of a solution of 30 grammes of pure honey in exactly twice the quantity of distilled water is never less than 1·1110, a lower density indicating adulteration with water. Hehner states that the ash of genuine honey is always alkaline, whereas that of artificial glucose is invariably neutral. The proportion of phosphoric acid present in honey varies from 0·013 to 0·035 per cent, which is considerably less than the proportion contained in starch sugar. Honey contaminated with starch sugars will generally show about 0·10 per cent of phosphoric acid, and artificial honey, made from cane sugar, will usually be free from the acid.

The addition of commercial glucose may often be detected by the turbidity produced upon adding ammonium oxalate to a filtered aqueous solution of the sample. This is due to the presence of calcium sulphate, a common impurity in the commercial varieties of glucose. If the glucose employed for admixture contains much dextrine, as is very often the case, this fact can be utilized in its detection as follows:—2 c. c. of a 25 per cent solution of the honey are introduced into a narrow glass cylinder, and 0·5 c. c. of absolute alcohol is cautiously added; with pure honey, the point of contact of the liquids will remain clear or become so upon allowing the mixture to stand at rest, whereas in presence of artificial glucose a milky turbidity will appear between the two strata. Genuine honey may, it is true, contain a small proportion of dextrine and exhibit a slight cloudiness when treated with alcohol, but the difference in the degree of turbidity caused is very considerable and sufficient to render the test of service.

The test may also be applied by dissolving 20 grammes of the suspected honey in 60 c. c. of distilled water and then adding an excess of alcohol. Under these circumstances pure honey merely becomes milky, while if commercial glucose is present, a white precipitate of dextrine is formed, which can be collected and weighed.

If the sugar in the sample is determined by Fehling's solution, both before and after inversion with a little sulphuric acid and an estimation of the amount of dextrine present is made by precipitation with alcohol, it often occurs that the quantity of the latter substance is proportional to the difference between the amount of sugar found.

According to the late investigations of Sieben fairly satisfactory methods for the detection and determination of glucose syrup in honey are based upon the following facts :—

1st. When genuine honey undergoes fermentation, the substances which remain undecomposed are optically inactive. Glucose or starch syrup, on the other hand leaves a considerable amount of dextrine, which is strongly dextrogyrate. The test is made by dissolving 25 grammes of honey in about 160 c. c. of water, and adding 12 grammes of yeast (free from starch.) The mixture is allowed to ferment at a moderate temperature for two or three days, after which aluminium hydroxide is added, and the liquid made up to 250 c. c. and then filtered 200 c. c. of the filtrate are evaporated to a volume of 50 c. c. and a 200 m. m. tube is then filled with the concentrated solution and examined by the polariscope.

2nd. The substances remaining unaffected by the fermentation of pure honey are not converted into a reducing sugar by boiling with diluted hydrochloric acid, as is the case with those obtained from starch syrup under the same conditions. 25 c. c. of the solution employed for the polarisation test, as just described, are diluted with an equal volume of water, 5 c. c. of strong hydrochloric acid added, and the mixture is placed in a flask and heated for an hour over the water bath. The contents of the flask are neutralised with potassium hydroxide, then diluted to a volume of 100 c. c., and the proportion of reducing sugar estimated in 25 c. c. of the solution. Honey containing different proportions of starch sugar gave the following percentages of reducing sugars :—

Starch Sugar Present per cent.	Reducing Sugar Obt'd. per cent.
5	1·472
10	3·240
20	6·392
40	8·854

3rd. If the cane sugar originally present in genuine honey has been changed into invert sugar, and the honey solution is boiled with a slight excess of Fehling's re-agent no substances capable of yielding sugar when treated with acids will remain undecomposed. Starch syrup when subjected to this treatment yields grape sugar in about the proportion of 40 parts to every 100 parts of the syrup used. The test is applied as follows :—14 grammes of honey are dissolved in 450 c. c. of water, and the solution is heated over the steam bath with 20 c. c. of semi-normal acid, in order to invert the cane sugar present. After heating for half an hour the solution is neutralised and its volume made up to 500 c. c. 100 c. c. of Fehling's solution are then titrated with this solution, which may contain about two per cent of invert sugar (in case the sample examined is pure from 23 to 26 c. c. will be required,) ; 100 c. c. of Fehling's re-agent are next boiled with 0·5 c. c. less of the honey solution than was found to be necessary to completely reduce the copper. The reduced liquid is then passed through an asbestos filter, the residue washed with hot water, the filtrate treated with a slight excess of concentrated hydrochloric acid, and the solution heated for one hour on the steam bath. Sodium hydroxide is now added, until only a very little free acid remains unneutralized, and the solution is made up to 200 c. c. Upon well shaking the cooling liquid a deposit of tartar sometimes separates. 150 c. c. of the filtered solution are finally boiled with a mixture of 120 c. c. of Febling's re-agent and 20 c. c. of water, and the proportion of grape sugar estimated from the amount of metallic copper obtained. When pure honey is submitted to the preceding process, the copper found will not exceed two milligrammes.

The detection of paraffine in honey comb is easily accomplished. Genuine beeswax fuses at 64°, paraffine usually at a lower temperature. The latter is not affected by treatment with concentrated sulphuric acid, whereas beeswax is dissolved by the strong acid, and undergoes carbonisation upon the application of heat. The amount of potassium hydroxide required for the saponification of one gramme of beeswax, as applied in Koettstorfer's method for butter analysis, evidently differs from the quantities consumed by Japanese wax and paraffine.

CORRESPONDENCE.

W. C., Gilgai, July 29 :—Bees have have had a splendid winter here, so far, white box in bloom all the winter, and wattle coming out now.

R. G. B., McLaren Vale, July 19 :—It has been a very bad season for bees this way, but we hope that the coming season will make up for it.

W. P., Marrar, August 8 :—We have had three very bad seasons in the past ; a change is very desirable. I don't think I will have many hives left after winter is over.

Article on "The New Management," by Mr T. Bolton, in our next. Also reply of Mr. Kerr to Mr. Helms on "Bee Recognition."

A. C., Dubbo 13th July:—Just a few lines to let you know I am alive and still in the bee industry. We have had a very good winter for the bees and every prospect of a good season. I expect a very heavy honey flow shortly from the gum trees, as they are heavily laden with buds. The best flow I ever got was from them three years ago, and I expect something similar this spring. The next difficulty will be to find a market. I have kept all my honey back this year till lately, expecting the market to improve in winter, but I see by the produce reports that honey is very low still in Sydney. I am selling most of mine by hawking it around the country towns, but there is great competition in this district, and, strange to say, we have no Association here yet. We have bee-keepers enough to form a very strong one, but you cannot get three of them the one mind. I am quite sure if they would all unite that it would be much better for all concerned.

S. T. M., Canley Vale, August 12.—Last season was a very good one for bees and honey, best we have had for years; ti-tree, apple tree, and white box, good flow from each, and plenty of scrub blossom. I took from one colony 180 lbs extracted honey during February and March alone. Bees have wintered well; a fair flow on most of time, from stringy bark. Our little friends are now paying special attention to the wattle blossoms, from which they bring in a quantity of pollen. So the prospects for a fair seasonare very good; bees strong and hives full of honey; must extract by first of September if fine warm weather; expect early swarms. Some of the gums in heavy bud, little iron-bark in blossom, and stringy-bark, and the orchards and vineyards soon to come on, so with fine weather a good time is assured, up to Christmass at any rate. Wood cutters are ever busy in the district, and even the Government reserve is not spared the woodman's axe, so that it would not be worth while risking to build up a large apiary. Wishing your ever welcome journal much success and a wide circulation, which it well deserves.

E. P., Fernbank, August 13:—I have had one of my children stung by a bee to-day (a little girl about one year and nine months old.) It commenced to swell at once, and very dangerous symptoms followed. At one time I feared a fatal result. I had ippecac powder in the house and applied a poultice made from it at once. It had very little effect on the poison. I then tried hot fomentations over the swollen parts, and kept renewing them for two hours. It reduced the swelling a good deal, and all went well until night; a nervous fever set in and she was as bad as ever, and cried a good deal. My wife was away at Bairnsdale for the day, and was bringing some ammonia (liquid) with her. Can you tell me if it would be any good, and how it is used, or can you tell me what would be the best thing to do in a similar case, for this is the second time the same thing has happened the same child. I would also esteem it a favour if you would publish this letter and also ask our friends if they can give a sure remedy, or any treatment they may have used in a case like it.

We trust your little one has got over the trouble. We have read that the most effective thing you can apply at the time of the stinging, is a poultice of mud.

G. H. Arkinstall, Inverell, August 11: Since writing you last I have established an out apiary 1½ miles to the south of my home apiary. It is situated at the junction of the McIntyre river and Middle Creek, and has the following timbers within easy access to the bees: Yellow box, white box, and red gum all around it; cabbage gum, iron and stringy bark to the south; ti-tree, and oaks up and down the river and creek; farms scattered all round, except on the town side, which has a good lot of ornamental trees such as poplars, elms, acacias, willow, etc., dotted all over it. Bees are very strong for the time of year; have had drones flying all the winter, every warm day the bees have been working strong on white box, I

am happy to say I have topped last year's average by 9lbs per hive. My average for the last three years counting from the 1st August to 31st July has been 291, 226, and 234 lbs per hive spring count. Everything seems to point favourably to a good flow this season from white box, yellow box, and red gum, all of which are very heavy in bud. I am working Mr. J's apiary on halves. This is situated about 1½ to two miles to the west of me, so that I will have exceptional opportunity of getting queens well mated, from my home apiary, with my own out apiary 1½ south, and Mr. J's about 1½ miles west.

A. U., Aberdeen, 1st August 1898 :—Enclosed please find 5/- year's subscription for *Bee Bulletin*. I wish to again become a subscriber, as I find it contains much up-to-date information. The experience of our prominent bee-keepers, as contained in it, is of very great assistance to novices. I have eight colonies, black and hybrids, having started last season with two and obtained over five cwt. of honey, so did not do too badly, although mine mostly are the generally despised black bees. Unfortunately, paralysis is very bad in a couple of the hives. I have tried sulphur without any apparent effect. My experience seems to prove that the disease is hereditary and I believe the best cure is to get rid of the queen, although she is very prolific. I intend to do so this season. Mr. Munday, I think, some time ago recommended closing the hive for about a week, considering it was owing to the honey then being gathered. In my case, the original colony which had paralysis two seasons ago, and its descendants, are the colonies which now show signs of it, so that I consider Mr. Munday's theory does not hold good. I have not seen the *Bulletin* for about six months and am anxious to learn the latest opinions concerning the disease.

At the Northwestern Beekeepers' Convention, held in Chicago, Nov. 10 and 11, 1897, Mr. Whitcomb said :—Having been in charge of the apiarian department of Nebraska the past 14 years, I have taken pains to follow this matter up pretty thoroughly. We offer in that State a premium for the largest amount of honey stored by a colony during a year, $25, $15, $10, and $5, making four premiums. This is verified under oath, showing how the colony was wintered, what kind of a colony it was, how it was built up, what the bees were, etc., and then a detailed account of the amount of honey taken. These, together with the premiums awarded on comb honey, etc., I followed up, and I find that in 99 cases out of 100 they have been taken by hybrid bees. We talk Italians in our apiaries and at home all the year round, and then when we go to our State fairs we find that the mixed blood has taken off the premium, producing the better honey, storing more of it, etc. These matters are really significant. While the Italian bee is nicer to handle, is less easily alarmed, etc., and less pugnacious, at the same time we find that something else is doing the work everywhere. At every turn we run across the hybrid bee. —*A. B. J.*

Suggestions on Rendering Beeswax. —C. P. Dadant, in *A.B.J.* :—There are really only four months usefulness in a sun wax extractor, and when a beekeeper has a hundred dollars' worth of beeswax tied up he does not usually wish to wait till the sun gets high enough in the sky, especially if there is any process by which he can render his beeswax and have it clean and good without loss. The sun extractor is available during the busy month of the apiary when you are likely at any time to have a few small pieces of comb, new or old, or a few scraps that would either be lost or dragged about, or be eaten by the moth. With the sun extractor, usually in close reach of the apiary, it takes but a minute to put those scraps where they will at once, mechanically, be rendered into very good beeswax by the rays of the sun. If the sun extractor is kept, as is the custom with the careful beekeeper, with neat-

ness, the beeswax that will come from it will need no rendering unless residues or dark combs have been melted. Care must be taken that such residues as have been rendered up with acid be kept separate, as these are sure to have some effect upon the metal, and damage the colour of the original beeswax. Old combs usually are not worth putting into a sun extractor. They are so thick and loaded with foreign matter that it absorbs all the wax that would otherwise run out. These combs must be crushed as near to a pulp as possible, then put into water to soak for a week or so, loaded down so as to be under water, and then melted with plenty of clean water. When old combs are melted without having been previously crushed, it usually happens that some of the melting wax runs into the empty cells which still remain in shape, being held to this shape by the cast-skins and cocoons of the bee-chrysalis, and it is next to impossible to remove any of it. The soaking for a few days ahead thoroughly saturates the cocoons and cast-skins, as well as other residue of whatever nature, except the propolis, and the beeswax becomes much more easily liberated if properly melted. The cappings are most generally rendered during the winter, and when the matter is attended to intelligently, the beeswax is as good as that from the sun extractor. The main advantages of the sun extractor are its availableness at all times during the summer, as above mentioned, and the slight bleaching of the beeswax which remains a few days in it. In this connection it is well to mention that it is not advisable to leave the beeswax too long in the sun extractor, unless the extractor is so made that the liquid wax runs into a pan sheltered from the light. Beeswax that has been thoroughly bleached loses its nice bee-smell, and takes up an odour resembling that of the old-time wax-candles. This is certainly not desirable. But the best service of the wax extractor is to prevent the water damaging of beeswax by inexperienced beekeepers, or to return such damaged beeswax to its proper condition. In any beeswax that is rendered by water, a small amount, more or less, of this water-damaged beeswax can be found. But if this is allowed to separate by a slow cooling process, it will be found that most of the impurities are dragged to the bottom with this beeswax. What must be avoided is the damaging of the entire mass by careless heating, and as sudden cooling of the mass. It is a very peculiar fact that water may be held in suspense in a large amount, and yet not perceptible to the touch. We have seen beeswax that was thus damaged, and seemingly dry, lose 20 per cent. of its weight by sun-rendering, which was evidently due to the evaporation of the water.

S. M. Keeler, in *The American Bee-keeper*, says :—During a good honey season we are liable to have some late or after swarms issue, when we would much prefer to have them remain together in one good strong colony. But out they will come, making old and young too small to be of much use. I have adopted a plan of getting them back so they will stay. This may not be new to some. When hived right back they will not stay there. So I hive them in a temporary box, and the next day (on the second morning is my choice), run them back. They have then become established as a swarm, and commenced comb-building, so when put back they will take full possession, destroying all queen cells, and are ready for business. I aim to catch all the young unclipped queens at the entrance when the swarm comes out the same as I do the clipped queens. Then I can, if I have hives that need more bees, divide these new swarms and use a portion, or all of them, if need be, to strengthen other swarms, and run those that are left from the box back in their old home with the queen. Now, if I fail to catch the queen when the swarm comes out, I empty the bees a little back from the entrance, and as they commence marching in, the queen is very soon seen walking right over the top of the mass of moving bees ; then I cage her and keep her caged until the swarm is disposed of.

Prof. A. J. Cook, says:—Bees do not carry the disease-germs to flowers, watering-troughs, etc., or that if they do the germs are impotent to develop seems obvious from the fact that the disease spreads so slowly from apiary to apiary and from colony to colony in the same apiary. With a little care on the part of the apiarist, foul brood may be kept in certain colonies for days and weeks, and yet no signs of it appear in other colonies close along side. If the bees of the affected colonies carried the germs as they went out to flower or pool, surely the disease would be sown broadcast, and all the bees in the region would very soon show the malady, and become doomed. There is little if any danger of foul brood being communicated from a watering-trough visited by bees from a diseased colony. I believe the same would be true regarding transmission of the germs through the visits of the bees to the flowers. I think it is generally conceded teat foul brood germs are not transmitted in wax, and so foundation from comb that has harbored the disease germs is entirely safe to use. If the sunlight theory of destruction is true, then probably honey from a foul-broody colony would not be likely to bear the fatal germs. It may be possible that the immersion in the honey would protect against the sunlight, or tend to do so. It is presumable that the visits of robber-bees to diseased colonies, which are from their very depletion through the effect of the microbes specially liable to attack, are generally responsible for the spread of the malady.—A.B.J.

Yellow Carniolans and Their Origin. — I remember we had quite an animated controversy some years ago in regard to what the Carniolan bee should look like. Mr. H. Alley asserted that it was originally a yellow bee, and he advertised his golden Carniolans at the time very largely. Breeders from Carniola assured me then that, in a Carniolan swarm, perhaps one in fifty bees might show a trace of yellow on first band. Mr. Benton has travelled all over Carniola, and his explanation of the yellow admixture appears quite reasonable. He says, from south of Carniola, where yellow(Italian) bees predominate, the peasants have for ages past been in the habit of moving their bees northward at certain seasons of the year into the richer pasture-fields of Carniola. From the north part of the province the peasants there have come southward with their gray bees, and so the yellow bees have come in contact with the greys. Very often the peasants would sell out, and neither buyers nor sellers being very particular as to the colour of the bees, they became more and more mixed. As a natural consequence, the further south one goes in Carniola the more of the yellow blood the bees show. In North Carniola the bees are a pure gray. Mr. Benton selected for his breeding-stock among the bees offered for sale by the peasants such as were most typical, and at the close of the four years he remained in Carniola he had what he claimed, the finest lot of Carniolan bees anywhere. Now, although Mr. B. tested all sorts of bees after that it is surely a feather in the cap of the Carniolan bees that his present stock consists entirely of such. I want to mention further that it is possible to breed out their swarming propensity. Mr. B. has succeeded in this to such an extent that he can notice but little difference between his Carniolans and other races in this respect; and as to their business qualifications, he thinks the y are second to none. Speaking of the best business bee reminds me of what Mr. Weygandt, of Flacht, Germany, says on this point: "Have we not made a mistake in importing a southern race of bees, a bee naturally not so well adapted to our climate? It seems to me it is going a step in the wrong direction. Should we not rather go to the North, where bees have to endure greater hardships, where conditions are less favourable? The bees in Norway, for instance, must of necessity be a hardier race. By them we may infuse stronger blood into our own race of bees." I want to ask, is this not a point worth considering? I should like to see such a bee from a northern clime *imported*. I should like to try them.—F. Greiner, in *Gleanings*.

Dr. Miller's Wagon-Rack for Hauling Bees.—My wagon-rack is quite a simple affair. A common farm-wagon box rests on heavy springs that are detachable, and I can't tell what the springs are called. It's a pair I borrowed from a fruit-dealer who hauls on it heavy loads of melons, etc., and all that's necessary is to raise up the wagon-box and set the spring on the bolster. The wagon box itself is filled with hives, so the rack must be high enough to accommodate that. The width of the boards used for the sides and ends of the rack of course determines its height. For side pieces use boards long enough to project back farther than the end of the wagon-box, for you may as well have two or four hives on the rack back of the box. These side pieces sit edgewise on the sides of the wagon-box, a board of the same width being nailed on the front end, also at the back end, and for greater security one at the middle. Short boards 12x6 inches are nailed on the sides projecting down on the wagon-box, so there's no possibility of this frame-work slipping off. Strap or band-iron is nailed on at the joints where the end pieces are nailed to the sides, for fear the nails might work loose. Now boards six inches wide are nailed across the top to support the hives. These are long enough to take two hives, the hives standing back to back, but not near enough to touch, the entrances of the hives facing toward each side of the wagon. Nail the first board on the front end, and nail on the front edge of the board, a strip ⅞ or an inch square to prevent the hive slipping forward. Now lay on loosely the second board about where you think it ought to be. Before putting on the second board, nail upon the middle of it, that is about 2½ inches from each edge, two strips about ⅞ inch square, these strips not meeting at the middle by perhaps six inches. Lay this second board loosely about where you think it ought to go, and then put on two empty hives. Push the board up to place, and that will show you just where you ought to nail it, only it would be too tight a fit, so have a little strip of ¼ inch to lay beside the hive so as to allow ¼ inch play. Now fasten the second board and go on with the third, and the rest in same way, only the last board will have its strip at one side instead of the middle. From end to end is now put on each side a strip perhaps an inch or more wide, and in the middle a board wide enough to keep the backs of the hives from touching. If you are to drive over a very rough road, it might be necessary to have the strips that hold the hives from sliding off, more than an inch thick. The wagon-box I use holds nine eight-frame hives, and the rack 22, making 31 hives at a load. This is much less than some others haul at a load. It would be an easy matter to have made my load 42 instead of 31 by making the cross boards longer, so as to take three hives abreast instead of two.—*A. B. J.*

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