The Australian bee bulletin. Vol. 6, no. 4 July 24, 1897

West Maitland, N.S.W.: E. Tipper, July 24, 1897

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THE AUSTRALIAN BEE BULLETIN.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

VOL. 6. No. 4. JULY 24, 1897. [illegible] COPY, 6d

Per Annum 5s, booked 6s 6d; in Australasia, outside N.S.W., fa[illegible]

Pastor Fleischmann, in the *Leipziger Bienenzeitung*, reports that Professor Beckmann, of Erlangen, at a convention of Bavarian chemists, gave a method of detecting 10 per cent of glucose in honey by successive tests with three simple chemicals. The tests are as follows :—(1) Pure honey dissolved in water is not altered by the addition of a few drops of tincture of iodine, but almost becomes clearer ; honey adulterated with glucose turns darker. (2) Pure honey dissolves in methyl alcohol so as to give an almost clear result, with only a few flakes ; when mixed with glucose a thick precipitation is formed, which, when the honey is warmed, adheres firmly to the surface of the glass, and can not be dissolved in any way. (3) "Barytwasser," when added to a solution of honey, gives no reaction, but with a mixture of glucose and honey causes a thick precipitation of "baryumdextrinat."—*Beekeepers' Review.*

HAULING BEES.—If you pick up a hive having its frames run from front to rear (most of them run that way in this country, although many across the sea run the other way), if the frames are hanging loose you can shake them from their places by swinging the hive from side to side, but can do little to stir the frames by swinging it from front to rear. You can break a comb out of a frame much more easily by swinging it endwise. In a railroad car there is a gentle rocking from side to side, but often a terrific bumping front to rear. A car is bumped on the end, not on the side. So place the hive in position to stand the bumps. See, in a waggon it's different. The jerking and jolting is from side to side, principally, just the reverse of the railroad car.—*A. B. Journal*

MR. H. R. WHITTELL.

AT the Annual Convention held in Sydney, June 23rd and 24th, it was decided to acknowledge the valuable services rendered to the Beekeepers of New South Wales by the late secretary, Mr. H. R. Whittell, by an illuminated address, the cost of such to be raised by a Shilling Subscription. We think it needs only reminding beekeepers of the service rendered at the time of the Bathurst Convention by Mr. Whittell to ensure a ready response.

Subscriptions will be thankfully received by

MR. GEORGE BLOXHAM,
Hon. Treasurer National B.K.A.,
374 George-st., Sydney.

N. S. WALES CONVENTION.

Held at Temperance Hall, Sydney, on June 23 and 24, 1897.

The above took place in the Temperance Hall, Pitt Street, on Wednesday, and Thursday, June 23 and 24. Some forty persons were present.

The chair was occupied by Mr. Albert Gale, Vice-President.

Mr. H. R. Whittell apologised for the absence of Mr. Sydney Smith, Minister for Agriculture, through indisposition.

Mr. Gale in the opening address alluded feelingly to the death of the late President, the Rev. John Ayling, and the services he had rendered to the industry. Alluded to the progress beekeeping had made. Not many years ago there was not a beekeeper hardly in the colony, now they were pretty well distributed everywhere. The good the Conferences held during the past six years in different parts of the colony had done. He himself had been a beekeeper since a boy, and derived such pleasure from it that he was still one, although he had never received any profit from it. He alluded to the work to be done at the present Conference, and hoped the results would be for the mutual benefit not only of those present, but those who were away.

Mr. Cadden moved and Mr. Whittell seconded a vote of sympathy with the relatives and friends of the late Rev. Mr. Ayling. Mr. Whittel said whenever his official duty required it, it was always a pleasure to confer with him, and there was no mistaking the genuine sympathy he had with the beekeeping industry. He used to say that a clergyman ought to be as much material as spiritual help to his fellow creatures.

Mr. John Cadden, of Windsor, read an interesting paper on, "The Past, Present and Future of Beekeeping." In this paper he urged the beekeepers of the colony to become united, and said that the low prices to which honey and queens had fallen demanded attention. In 1890, 1891, and 1892 honey was selling for 4½d to 5d per lb wholesale, and queens from 15s upwards. For a long time past however, honey had been selling at from 2d per lb, and queens from 2/6. He believed the real solution of this difficulty was to enlarge the demand and consumption. A larger demand could be created by placing honey before the consumer at a price which he could afford to pay, and the consumer was the poor man. A different style of marketing would have to be discovered. He considered that there were five causes of the low prices :—(1) the stoppage of the wheels of industry; (2) the glutting of the city markets, which ruled the prices; (3) the perfect helplessness of the producers, who were entirely at the mercy of the commission men; (4) lack of union and combination among beekeepers; (5) adulteration which had disgusted the people with honey, or, rather, with the foul imitations. He thought that an intelligent union of the beekeepers, the establishment of a honey exchange, and the establishment also of a fund for the prosecution of adulterators would do away with many of these causes. The California exchange started with the shares at 10s, and now they were up to 20s. The speaker also contended that beekeepers, if they were honest in their desire to settle people on the land, could not legally object to ringbarking.

Some discussion ensued, it being asserted that some of the directors of the Honey Supply Company that had fallen through were not business men.

Mr. Whittel disputed the assertion, and said the cause of its failure was the want of education. Alluded to the success of the Bathurst Wool-growers' Co-operative Company, started as the result of his endeavours, by several men who were more intelligent than those around them. It was the duty of the state to educate in the different directions, and by the Technical Department. Alluded to the efforts made by the Agricultural Department.

Mr. Ward spoke on Co-operation and affiliation. He as assistant secretary had communicated with every beekeepers' association in the colony, with regard to affiliation and had received most encouraging replies. One matter was not to rise the price of honey so much as to save all the money lost between the time honey leaves the apiary and it gets to the consumer. He strongly urged the advantages of co-operation. It would prevent unwise and unfair competition amongst producers, would destroy the competition of inferior products, and place genuine producers in a position from which they could strike a deadly blow at adulteration, increase the consumption of honey, and consequently maintain fair rates of return without injury to the consumer. A beekeepers' Co-operative Society ought to be formed, but under present circumstances he recommended joining in with the Co-operative Wool and Produce Company.

Mr. Abram approved of Mr. Cadden's paper. Co-operation at the present time was non-existant. More than ten years ago the matter of a honey exchange was taken up. Till now nothing had been done, and he had come to the conclusion it would be useless to try for some time to come. The fault lay with the beekeepers themselves, who kept away from the society. We should try and test the English market. Twelve years ago he had sent home some honey which was retailed at 1/- per pound in London.

Mr. Foster, of Wattle Flat, said the more beekeepers there were, the greater influence they would have when co-operated.

Mr. Lord and Mr. Gale spoke on the subject, and—

Mr. M'Master, Secretary of the Woolgrowers' Co-operative Society, was introduced to the Conference. He spoke of the success which had attended that society and distributed a number of copies of *The Co-operative*, its organ, as well as some leaflets, and stated the co-operation had saved as much as 4/- a bale to the producer.

Mr. Cadden replied and the Conference was adjourned till two o'clock.

Mr. Whittell read the following paper by Mr. Grant of Muswellbrook, on Foul Brood :—

Mr. Chairman and Gentlemen.

The paper I am about to submit to you is lengthy. In excuse I must plead the importance and magnitude of the subject.

It is also, I am quite aware, very incomplete. I have written it during the very little spare time that my preparations for removing my home and apiary into the bush leaves me, and probably many important points have escaped me that I might have noticed had I been able to devote more time to the task.

Foul Brood, both as a disease affecting bee life, and as an important factor in the advancement of apiculture as an industry, has always interested me, and as many of you know, I have constantly urged that the existence of this scourge should be officially recognised, and protection, in the shape of a good, sound, workable Foul Brood Act, provided for those who, no matter how careful they may be, are, as things stand at present, utterly at the mercy of ignorant, careless, or sometimes spiteful neighbours.

After describing the symptoms, cause and treatment of the disease, I propose placing before you a few facts in proof if any is needed, of the want of such an Act.

FOUL BROOD.

Foul Brood, as the name implies, is a disease which attacks the larval bee.

The symptoms, at an early stage are that here and there, among hatching brood, an odd cell remains sealed, showing that the inmate is dead, while the surrounding cells are filled anew with eggs and larvae.

The capping of this cell, instead of projecting slightly beyond the general surface of the comb

is flattened, and later, becomes sunken with sometimes, *though not always*, a small hole in the centre.

As these symptoms are sometimes present in perfectly healthy brood, it is necessary to examine the contents of the cell by opening it with a splinter of wood, a match or a pin, anything handy in fact.

If this is a case of Foul Brood, the larvae will be of a yellow, or light brown colour, turning as the disease advances, to a darker shade, becoming finally of the colour of a roasted coffee berry. The larvae will have lost its shape, and will be lying at the bottom or lower side of the cell. To further satisfy yourself thrust the toothpick into the corrupt mass, and after stirring it round draw it slowly out, when you will notice the matter adhering to it in the shape of a thread. If the point is withdrawn to the extent of breaking this thread, which will sometimes stretch an inch or more, the ends will fly back like elastic. If this takes place, *it is undoubtedly Foul Brood.*

The smell one would expect to find is not always present, and is usually faiat. It resembles that of a glue-pot; sometimes it is almost unbearable.

These are the leading features of Foul Brood. The disease is generally confined to the sealed brood, but in bad cases the unsealed larvae sometimes shows the brownish colour. The capping does not always sink, but the toothpick test is always conclusive.

This disease, like all other infectious diseases, such as small-pox, cholera, typhoid-fever etc, is caused by a minute organism.

The variety we are dealing with is called *Bacillus Alvei*. It is really an inconceivably small plant, which grows in the juices of the larval bee, these being a favourable medium for its development. It can be grown artificially on certain substances, such as beef tea jelly, gelatine, potato, and others, and can be seen by means of powerful microscopes, when it appears in two distinct shapes. One is that of of rods, (hence the name *Bacillus* from *Baculum*, a stick,) composed of a succession of small cylindrical objects. This is the complete or growing form. The other shape is that of minute isolated grains called *Spores*, which bear to the rod shape the same relation as a seed does to the growing plant.

The bacillus is very easily killed ; a sudden change of temperature, or a very weak disinfectant kills it instantly. The spore on the other hand is of the most extraordinary vitality.

Experiments which would take too long to detail have proved that intense and long continued cold, a severe Canadian winter, in fact, had no effect whatever on the spores ; boiling heat does not destroy their germinating power unless continued for an hour or more, nor yet such a powerful disinfectant as a 1 in 50 solution of carbolic acid. This seems less strange when we remember that a grain of corn for instance, does not suffer from a severe frost or exposure to a scorching sun, either of which will kill the growing plant.

It is impossible to realise the extreme smallness of these spores. It has been calculated that a single egg of a bee could contain *one hundred millions* of spores, the spore standing to the egg in the same proportion as a single drop of water to a 1500 gallon tank. It requires a magnifying power of at least 600 diameters to see them as mere specks in the field of the microscope, a power so high that the egg of a bee, could the whole of it be seen at once, would appear under it as an enormous lump about 3 feet long and 8 inches wide, or a hair from the human head as a great bar of horny looking substance about an inch thick. It is easy to understand that in a Foul Brood hive there must be millions of millions of these spores, countless numbers of seeds, any one of which, given a suitable medium such as the body of a larval bee, germinates into the bacillus which through a complicated chemical process kills the larvae, causing it to putrify in the manner described.

As long as nourishment is present the bacillus grows and multiplies. This word barely expressing the enormous rate of increase, which is effected by the segments of the rod breaking in two, each part developing to a certain size, and again breaking in two, this occurring every 20 minutes under favourable circumstances, and so on until the nourishment is exhausted. Then each segment shrinks up to about half its size, and becomes a spore, or takes the seed shape.

The dried brown mass in a Foul Broody cell is composed largely of spores, the number of which is beyond conception.

In the hive these spores can be found everywhere, floating in the honey in the cells, mixed in the pollen or bee-bread in very large numbers, imbedded in the wax and propolis, among the rubbish at the bottom of the hive, and undoubtedly in millions on the ground round the front of the hive.

Experiments have proved that when freely exposed to the air, spores of Bacillus Alvei lose their vitality in from 36 to 48 hours, while if protected from atmospheric action they retain their germinating power for any length of time, years if needed, and it is evident that when floating in honey or imbedded in wax or propolis or bee-bread they are thoroughly protected and form a perpetual source of danger to bee-life.

In dealing with Foul Brood it must be clearly understood that the dead brood is merely the result of the disease, nothing more. Cutting out the piece of comb containing dead or diseased brood will no more kill Foul Brood than burying a corpse would stop an epidemic of small pox or cholera.

The disease is in the hive and while the seeds of the disease remain in it, in the shape of spores

whether in the honey, pollen or wax, all treatments must necessarily fail or be at best but temporarily successful.

These treatments, of which there are quite a number can be divided broadly into two classes; medicinal and non-medicinal.

On the first I have very little to say, and while I admit that in the hands of an expert they may be successful, the margin of security is so narrow, the risk of failure so great and what is worse, the danger of spreading the disease to other hives so unavoidable that I should strongly advise against their use. When such men as D. A. Jones, Root, and many other bee-masters have failed with drugs, it is safer to resort to other and happily simpler methods.

The simplest and surest of all is to sulphur the bees after dark, taking care that not one escapes, then making a big fire, consign hive, frames, bees, brood and honey to the flames. This though rather a costly cure is undoubtedly the best if the beekeeper is sure that only one hive is affected.

The next best, when it is desired to save the bees is the "Starvation plan" recommended by D. A. Jones. This consists in shaking the bees into a ventilated box, closing them up and keeping them thus in a dark place for two, three, or even four days until it is noticed that they are beginning to drop dead at the bottom of the box. They are then put back on foundation in a new hive and sparingly fed. The old hive and its contents are burnt at once.

The idea in this treatment is to force the bees to consume the honey they have in their honey sacs which may contain spores, while exposure to the air destroys any spores clinging to their hairs or bodies. This method of curing Foul Brood is sound in theory and fairly easy of application, but it presents some drawbacks, as the bees take some time to recover from the effects of the starving and it necessitates the use of special appliances.

The last and to my opinion the best cure is that known by the name of its originator, Mr. McEvoy of Canada. I give his directions verbatum: "In the honey season, when the bees are swarming, shake the bees off their combs in the evening. Hive on starters of foundation and let them build comb for four days. On the evening of the fourth day, take out these combs and hive again on full sheets of foundation. The cure is complete. Destroy all the old comb as well as the comb built during the four days."

He says it is not necessary to disinfect the hives, but I think as do many others better qualified to express an opinion, that this is a great mistake, for, as I pointed out, it is more than likely that any scraps of comb or propolis in the hive will contain numbers of spores which may at any time become liberated and start the disease again.

One word of caution suggested by my short personal experience of Foul Brood some years ago is to use an entrance guard to the hive the bees are shaken into to prevent them from swarming away by detaining the queen.

It hardly pays to attempt disinfecting frames, but hives, bottom-boards and covers can and should most decidedly be disinfected. Baking in an oven for a few hours would do it, but the safest plan is to boil the hive bodies for at least one hour in a strong solution of washing soda or soft soap; of course the whole hive must be immersed.

Other disinfectants such as carbolic acid, salicylic acid, mercuric chloride etc, may be used, but some are dangerous and they are all less easy to apply and the risk of missing some portion of the hive greater than with a big tubful of boiling soda water.

A point on which in my opinion sufficent stress is not laid by most writers is the disinfecting of the ground the diseased hive stood on and for a yard or two round the entrance. This can be easily and quickly done by setting straw on fire thickly strewn over the space.

That a very real danger from that source is present is fully proved in a case stated by Berlepsch in which a clean colony at once developed foul brood when placed on the ground a foul broody hive had been removed from two years before. I think further proof could be found very much nearer home

The great danger of foul brood is very imperfectly understood by many who are acquainted with the disease and the ignorance or scepticism displayed by a few would be almost amusing were the possible results of such gnorance less serious. One man I spoke to on the subject some years ago (he was a bee-keeper on a fairly large scale too and not an ignorant man by any means) said when I told him that the germs could remain in the honey for years "What rot! How could the things live in honey? Why, *they would smother* !!!"

Unfortunately however they do *not* smother, and a drop of honey from a foul broody hive if it contains spores, as it probably does, taken to a clean hive will sooner or later start the disease. In handling a diseased colony the bee-keeper picks up on his finger numbers of spores which he unwittingly carries to the next hive, giving it the disease, and when it happens that a beekeeper, so called throws out the combs of a colony killed by foul brood for the bees from far and near to clean up, well the least said the better, imagination can best grasp the possibilities

That this can be done without risk of punishment is as much a disgrace to the country for not providing laws to meet the case as it is to the man guilty of the action.

To those who have yet to make the acquaintance of this dangerous foe a few hints and cautions may be of value.

When handling foul broody hives always take the greatest care that no robbing is allowed to

start, neverleave any combs exposed nor even the stickiness of honey where bees can get it. One bee taking one lick of infected honey is enough to ruin a hive.

Put every hive in your apiary, clean or foul, into strict quarantine as regard the others.

Never under any circumstances exchange combs in the apiary ; a hive may seem quite clean and yet contain germs of disease. When extracting take one hive at a time and return the combs to the hive they came from. Have your hives as far apart as possible to avoid bees crawling to the wrong hive when shaken off at the entrance.

Examine your bees closely and often so as to detect the disease at its commencement and be able to take steps for its cure before the hive is rotten and you have unavoidably spread it to half a dozen more.

Don't risk a hive worth a pound for three pennyworth of honey or comb or wax and don't try short cuts to save time and labour. Be content to follow the lines that have led to success in other peoples apiaries.

Burn old comb and brood and do it carefully. Foul Broody honey may be may be fed back to bees but it must be boiled, actually boiled, for at least one hour, with the addition of half or an equal quantity of water.

Wash your hands thoroughly after handling foul brood, also any knives, brushes, smokers, etc., you may use.

When scalding hives and frames do it carefully. Warm water is useless It must be boiling, with a pound or so of washing soda to each gallon. Remember that it takes some time to warm the timber of the hive, and make allowance for that. If the diseased stocks are weak, unite with three or four treating them as one.

Don't be afriad of a little trouble, an hour's extra work may save you and your neighbours pounds worth of work and outlay later on. Never forget that you are dealing with the infinitely small and be correspondingly careful and never forget that careless treatment, especially if you allow robbing to start may mean not only the loss of your own bees but serious loss to others.

Having thus dealt with foul brood as a disease, I must ask your further indulgence and attention while I place before you a few facts illustrating the danger to which careful and painstaking bee-keepers are exposed at the hands of careless or unscrupulous men.

Something over three years ago a bee-keeper of this town destroyed, after a great deal of persuasion on my part, five colonies of bees. The brood, he cut out and burned, but the frames, honey and comb he absolutely refused to destroy. The comb was cut out of the frames, melted in a couple of kerosene cans—melted mind not boiled—and poured into the strainer of an uncapping can. About *two years* after I showed to Mr Tipper, who if he his present will no doubt corroborate this statement, this identical honey and wax and dross of comb, just as my bee-keping friend had left it, not in any way, protected from discovery by robbing bees, being simply in a closed shed. Since that the moths have absolutely destroyed all the wax and dross in the strainer, but the honey, about ½cwt of it, *is there yet* and will be I presume for some time to come The only reason that this honey has not been bottled up and sold about town, with the probability of bees getting a taste of it from empty bottle is that it too dark and filthy to standa chance of being sold while consumers can buy the honey my fellow producers and myself can supply them with I have spoken to this man more than once about this matter and the answer I generally get is this "Oh yes, I must fix that up some of these day when I get time ; the time never comes, and what "fixing up" would consist of I am afraid to guess. This is an illustration of the careless individual. What the unscrupulous one will stoop to the following incident will show.

A certain party in this district brought some bees in from the bush about 20 miles out, and these bees pretty far gone with foul brood, when he brought them in, eventually died right out, leaving him with a lot of combs built on foundation and which he was rather loth to destroy. After on reflection he concluded it would pay better to sell them and let the next fellow destroy them if he thought fit. So he interviewed one of the members of the B.K.A. He did not go to Mr Paul or Mr Roberts nor even to your humble servant ; they might not take the bait, but he looked up the latest recruit to our ranks, a new chum at bee-keeping, and explained that he was giving up bee-keeping and had a fine lot of combs, most of them containing honey, for sale *cheap*, and got the novice to go and inspect the bargain. Unfortunately however, for the retired bee-keeper, the deal did not come off, for the novice happening to notice some dead brood in one of the combs put his nose to it and smelt—rotton glue—. He had been reading the A. B. C., and never even stopped to enquire the price of these "cheap" combs.

There were other matters I intended bringing before your notice, but as my paper has already far overstepped the limits which I intended keeping it, I must leave them for the present.

In concluding I wish to express the hope that this Convention will be the means of securing at no distant date, good sound legislative measures which will assist the genuine beekeeper to keep in check, and finally eradicate the most treacherous disease he has to contend against.

Mr. Tipper said he had noticed the reports of what was called Foul Brood seemed to come from the colder parts of the colonies. In places such as the Richmond and Queensland no complaints

seem to come. We have a mild climate and while in North America and the north of Europe the winter problem was one of the greatest troubles, here it was entirely ignored. He was sorry not to see among those present any of those who had been most persistent in writing on the subject and against the present bill that was prepared for presentation to the Assembly. Nothing was left therefore to be done but to urge on the passing of that bill. He contended a general government scientist could carry out the work, in a way he exemplified by a visit he had gone with Mr. Helms, to inspect a vineyard supposed to have phyloxera, which had been reported to the police. He moved, "That this Convention is of opinion that the speedy passing into law of an Act to prevent and stamp out Foul Brood and other diseases is imperatively necessary in the interests of the beekeepers of New South Wales, and that this Convention appoints a deputation to again wait on the Minister for Agriculture to urge immediate legislation."

Mr. Abram seconded the motion. The spread of Foul Brood was due to the ignorance of beekeepers. With the use of the bar frame hive every intelligent beekeeper could cure it readily and effectively, as scientific men had spared neither time nor money to investigate the disease. The disease was only a terror to the amateur. If only experts were keeping bees Foul Brood would be extinct. He denied that Foul Brood came with the introduction of the Italian bees. It was here before. This government so far had done nothing to assist beekeepers. If they had, the disease might have been checked. They had done a great deal to make people become beekeepers, but nothing in the way of curing diseases. The matter ought to be in two hands, connected with the Richmond Agricultural College. One should be a thorough scientist, to take up the investigation with the microscope; the other to go about and see that the disease should not exist in any place.

Mr. Cadden supported the resolution.

Mr. Ward said the government business had been so blocked they had not been able to carry out their programme. That was the reason the bill had not been passed.

Resolution carried unanimously.

Mr. Tipper then read his paper on adulteration, viz.:—

In the middle of Summer, when the fruit season is in, and on account of its quantity is of very little worth, then also is the time of plenty of honey, and many ready beekeepers are glad to realize. The result is, honey becomes very cheap.

Gradually the fruit season closes, honey comes more in demand with cold weather, and the price rises. Possibly before winter comes it is very scarce in the market. Some speculators who have bought largely while it was cheap, now make a good profit. Others there are, who never kept a bee or bought any large quantity of honey are busy selling what they state to be honey, from house to house; or as bottling merchants selling what they also call honey, in tins or pickle bottles with nice labels, at a low rate per dozen to storekeepers and others.

This happens in Sydney and Newcastle. The ordinary country beekeeper knows nothing of it. He would like his honey to get a better price than the 2½d or 3d at the outside, but takes what he gets, and does not bother his head why it should not be more. Neither does he join an association of his fellow beekeepers whose aim should be to know why the price should not be higher. And why does he not get more? Because when honey gets scarce Adulterated Honey is put on the market. That keeps the Price down.

What is Adulterated Honey?

Back in the time of the Napoleanic Wars, when the English ships were bombarding the ports of France, and sugar from the West Indies was unobtainable, the French people found a substitute. It was only three parts as sweet as sugar, but it did for a time. It was manufactured from Corn Starch by being boiled in dilute sulpheric acid. When those wars came to an end, and the French ports were opened, the manufacture ceased for a time, but within the last few years, in the United States, syrups and molasses having become more scarce and dear, through changes in the method of sugar making, the glucose industry has revived. It is generally associated with starch making, the product being used as starch, or converted into glucose, in accordance with the demand of the market. It is claimed that the promotion of the glucose industry has been the main agent in reducing the price of cane sugar to consumers, and that it has thus been an important factor in giving the people cheap sugar. Commercially

the term "Glucose" is confined to the thick syrup made from corn starch, while the solid product from the same souree is known as "Grape" or starch sngar. Glucose is a thick tenacious syrup, almost colourless, or of yellowish tinge, its spe4ific gravity at 20 degree being 1.412. The degree of sweetness depends upon the extent of of the chemical change in the conversion of starch into sugar. Glucose is used chiefly in the manufacture of table syrups and confectionery, the brewing of ale, improving the look of leather work, photography, and unfortunately for us in the manufacture of artificial honey. Possibly sugar adulteration as well.

There is no doubt much of it contains large quantities of free sulpheric acid, and possibly other injurious ingredients. Its prodnction has now become a most importont American industry. Its use in table syrups and confectionery has greatly reduced the consumption of cane sugar in America, with considerable detriment to the sweetness. In the more solld form of grape sugar it is used to adulterate table sugar. There are two very serious objections to the work of adulteration of honey with glucose. In the first place it adds largely to the supply of presumable honey in the market, and so lessens the demand for the genuine article; and in the second place the product is so inferior in quality that its sale must prove deleterious to the honey market. Glucose being a tasteless substance not only tends to lessen the peculiar honey *flavour, but it leaves a metullic taste in the mouth, which is not only very disagreeable, but must in everycase tend to destroy the appetite or desire for the geniune article.*

That this is a most important and vital matter for the consideration of beekeeaers, more so now than at any previous period, we have only to look at the returns of amount of liquid Glucose imported into New South Wales during the past three years, viz:—1894, 5,936 cwt; 1895, 7,101 cwt; 1896 13,842 cwt. Why this steady and great increase?

It has been stated that adulteration is difficult of detection. I will show you how that originated, and to what extent it applies. The nectar yielded by the great majority of flowers is what is termed cane sugar, the same as from sugar cane or beet-root. After being gathered by the bees, by means of the racemose or clustering glands in the head of the bee, together with perhaps the action of the first or honey stomach, it is converted into grape sugar or honey. Cane sugar is said to be actually poisonous to the blood, while grape sugar acts within it as a normal producer of heat and blood. Thus the difference between common sugar and honey, which latter needs no further digestion. Bees when gathering nectar very freely do not complete this transformation, and the honey consequently includes an amount of cane sugar. This is proved by the fact that the queen and drone, which are fed by the other bees, and do not gather nectar, also possess those reducing glands.

DETECTION.—There is an instrument used by analysists called a polariscope, a ray of light passing through which turns to the right or left accordiug to the kind of sugar the rays fall on. Fine honey turns the honey to the left. The sugar of glucose in cane sugar, therefore, if the ray is tnrned to the right, it is a sign either that the honey was gathered in a hurry by the bees, and had not been reduced (a matter that cannot happen to a great extent), or that the honey has been adulterated by the addittion of canc sugar in the shape of glucose.

Professor Cook, of California, collected samples of honey from various kinds of nectar, and produced in widely different localities, with the hope that by exteuded analysis they might arrive at certainty regarding the ability or inability to distinguish genuine from spuricus honey. Some of the honey was gatherod very rapidly and from all the most valuable honey plants. Besides these honeys, other samples were adulterated with $\frac{1}{8}$ or $\frac{1}{4}$ glucose, and still others were stored in clean empty combs exclusively from pure granulated sugar syrup, and partly extracted the next day, and partly after it was capped over. There were 56 samples and were all analysed by Professor Wiley, Department of Agriculture, Dr. Kedzie, Michigan Agricultural College, Professor Sorrell, Director Experimental Station, Lexington, and as there was reason to suppose would be the case the results were surprisingly alike. All the chemists detected the adulteration, but could not distinguish honey-dew-honey frem adulterated honey, nor could they detect honey produced by feeding syrup made from granulated sugar, but classed it with some of the best genuine honey, as suspicious. The analysis showed conclusively that these chemists can easily *distinguish honey adulterated with glucose,* the only adulterant (they say), that is likely to be used.

If you, as a body choose to let the adulterator carry on his work, it is at your loss. He makes profit, for glucose is now only £14 per ton (14/- per cwt. in 5 cwt. packages, in Sydney. A very little honey added suits his purpose. He can afford to sell that mixture at a very much lower figure than you care to sell your honey. At the same time by the inferior quality of the stuff weaning the general public from true honey, and thus spoiling your market. You beekeepers suffer, and the colony suffers to the extent of the cash sent out of it to pay for the mischievous stuff.

A way of detecting adulteration is as follows: If the suspected honey is dissolved in some distilled water, and an excess of alcohol added pure honey merely becomes milky, but, if commercial glucose is present, a white precipitate of dextrine is formed, which can be collected and weighed.

If the Australian workmen knew when buying his little treat of a Saturday night, how he was being cheated, how his fellow colonial strugglers were being injured, and the country impoverished by the money it costs being sent away to a foreign country, he would look well for the beekeepers label to be certain of what he was buying.

A recent American writer says. Every use to which glucose was put was a fraud or a cheat.

Beekeepers should never be afraid to ask for a price for their genuine article. I have taken honey where the made up stuff was being sold. The difference between good and bad was too apparent, and I have got my fair price from private customers where I could not from stores who had stocks of adulterated. The wholesale merchant is to blame. He must make his profit, and if he can dispose of an adulterated article at a better profit than pure honey, the country beekeeper has to suffer.

I will now come to the laws by which adulteration can be controlled. Last year a Pure Food Act was passed in Nsw South Wales, from which I will read some.

[Mr. Tipper here read a number of extracts from the Pure Food Act, and which appeared in our February issue, showing how the law provided for the dealing with those who were guilty of adulteration.]

The evil of adulteration exists. Beekeepers are sufferers. But they have a remedy. The evil exists in the large centres of population, Sydney and Newcastle. You want to make use of your remedy. Individually it will pay no man te leave his home in the country and come and fight it out. Therefore choose a good committee of for the N. B. K. A. Men that will act and work and from amongst themselves choose an executive that being near to or in Sydney can look after your vital interests.

In addittion to the legal weapons, I have read I would also recommend the registration of apiaries and a quarterly or monthly list of such apiaries issued in circular form to every such registered apiary in quantities so as to give the public an opportunity of knowing if the honey they purchased was the product of a genuine apiary by the label on it, and the central comcil chosen by yourselves to have the power of leaving any name off the list that were guilty of adulterating.

Mr. Cadden said adulterators had purchased his bottles with labels on and put adulterated stuff in them.

EVENING SESSION.

Proceedings commenced by the reading of the annual report, by Mr. H. R. Whittell, as follows:—

The Committee have held six meetings during the year, and, the sub-committee have held two meeting.

Owing to the great progress made during the previous year in pushing forward matters of legislation affecting the industry, viz. :—The passing of the Bill relating to adulteration of honey and other foods; and the pushing forward of the Foul Brood Bill to its present stage—that of being ready to be submitted to Parliament as you are all aware—the past year has called for vigilance rather than action, and your committee have been carefully watching the course of Parliament business with a view to urging upon the Minister the pressing necessity of themeasure and also being ready with any data that might have been called for during the progress of the Bill.

We regret that the Bill has not yet passed into law, but we feel assured that as the Minister for Agriculture is distinctly anxious to further the interests of the honey industry, it will not now be long before we have the necessary enactment to check this great scourage

Your Committee have also during the year fought the last stage of the great *Ringbarking Question* before the Land Appeal Court. Unfortunately the Beekeepers, as represented by your Committee, had no locus standi, and therefore were unable to win. The Chairman of the Land Court however very kindly stated that he had no doubt the representation made that day would be conveyed to the Minister for Lands by whom he had no doubt the matter would receive the attention which the importance of the subject demanded.

This was followed up by a deputation to the Minister for Lands who expressed himself in sympathy with the objects the Association had in view, and your Committee hope that, as the present Convention is considering this very important subject, something tangible will shortly result in the way of protecting our native honey producing trees.

Efforts have also been made during the year to further the scheme of affiliating with the country Societies and it appears that a successful issue will shortly be arrived at, as several Societies have already expressed approval and notified their attention of affiliating.

In conclusion we have to thank The Hon the Minister of Agriculture, The Hon the Minister of Lands for their kindness and courtesy to your representatives on all occasions. We also have to thank the press generally for the publicity they have given to our work in the interests of producers.

H. RAWES WHITTELL.

Mr. Bloxham read the Treasurer's balance sheet, which showed a slight balance.

To be continued in our next.

The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEEKEEPING.

MAITLAND, N.S.W.—JULY 24, 1897.

THE work of the N. B. K. A. Committee for the ensuing year :—To foster affiliation with country societies ; Co-operation ; urging on the Foul Brood Act ; Mr. Taylor's excellent suggestion, that the Government while leasing land for wool raising, also lease the same land for bee-farming—one not to interfere with the other ; the Government giving the squatters the grass, the beekeeper the tops of the trees and a radius to which he would be protected from other bee farmers.

WORK FOR THE MONTH.

This is very little. See that all covers are weighted so they cannot be blown off by storms. Be careful the edges of bagging or other material on top of frames do not hang over the outside of hives, as we have seen in several instances. When rain comes these overhanging ends absorb the moisture and carry it into the hive, causing mildew to the combs, and death in the shape of what is often mistaken for foul brood, to the bees. After wet weather it is well to look to all coverings. Be sure there is plenty of food in the hives. If you have any doubt give a frame with honey or syrup (sugar and water blended, half and half) poured into the cells from a height of a foot or so ; or you might place in a vessel containing food, some 20 yards or so away ; or use the Boardman feeder or a device to place at the entrance, so that only the bees in the hive can feed from it, and no robbing is likely to ensue. It should be remembered in a month or so the queens will start laying, and if there is not plenty of food for the young larvæ to be reared, what is termed Spring Dwindling will have a very bad effect on the future of the hive. Some give candy made as follows :— "Add one pint of boiling water to each 4lb or 5lb of sugar in a saucepan. Stir carefully, and boil for a few minutes. Try if it be stiff enough by cooling a drop or two on a piece of paper, or by plunging a little of it in a spoon into cold water. In a few seconds it should be tough enough to draw out into threads. If not, continue to boil. When right stand it in a vessel of cold water, stirring uninterruptedly so as to keep the crystals (the grain), very fine, and these between them hold the saturated syrup. When the mass is getting into a pasty state, pour into saucers or soup plates in which thin paper has been placed. In half an hour the cakes will have set, and may be turned out by turning the moulds over and giving them a tap on the table. Place the cakes under the quilts on top of frames." Another very important matter not only now, but at all times of the year, is to provide water for the bees. On a strong windy day if bees have to fly a distance for water, of which they require a great deal, numbers are lost. A trough containing charcoal and water, near the apiary, saves the life of many a bee. A little salt sprinkled about same, will be of great service. Another matter. For several mornings lately, in front of one hive there were a great many dead bees. Inside the bees were getting fewer. What was the cause? Was it paralysis? No. We turned up the bottom board, and lo! more dead bees!! And three black spiders, red on backs, with their webs, and little white bags full of eggs!! We quickly killed them. Moral.—Look out for spiders under your bottom boards.

Fill up spare time by reading up, and getting ready empty hives for the time when they will be needed.

We were told of a beekeeper who was extracting last week in June. He had Foul Brood in his hives. He had been selling his honey (good white) at 12/6 the 60 lb. tin. What is to follow?

An excellent article on rearing queens from drone cells by Mr. H. L. Jones, unavoidably held over till our next.

Mr. A. A. Roberts, of Muswellbrook, has (per advertisement elsewhere), joined the ranks of N. S. W. supply dealers. His circular, printed at our office, is now being issued.

When the N. B. K. A. deputation to the Legislature takes place we would recommend the Hon. Sec. to apprise all Secretaries of country associations, so they can send members to help the deputation. Also inform and get the help of their local members.

Quite a number of complaints of non-receipt of copies by Victorian subscribers We take every care, and cannot account for it. We would be glad if they are not received within a reasonable time after publication, to be commnnicated with at once.

We call attention to advertisement elsewhere in which 1/- subscriptions to a testimonial to Mr. H. R. Whittel, late Secretary of the N. B. K. A. We feel assured all those who know the value of his labours, notably those who attended the Bathurst Convention, will be only too happy to forward their small donation to the purpose, to Mr. G. Bloxham, 374 George Street Sydney.

The committee of the N. B. K. A. will meet early in next month (August). The Secretary of every local association the Secretary of the N. B. K. A. (Mr. F. Ward, 129 Pitt St., Sydney), knows of will receive notice of same. We beg of the members to make arrangements to pay expenses of representative to Sydney on the occasion, to back up what is trying to be done. Should any association be omitted, please don't stand on ceremony but send.

We have received from Mr. C. C. Paul on behalf of the Muswellbrook Beekeepers Association, a photo of their late apicultural exhibit at the local show. It is a splendid picture, most distinctly brought out, and fully justifies all we have said previously about the excellence of the work of the Muswellbrook B. K. A. Unfortunately we did not receeive it in time to place on the table at the Sydney Convention. We also acknowledge receipt of an excellent photo of Mr. G. H. Arkinstall's apiary, Inverell. This we had in time for the Convention. Also another from Mr. J. F. Munday, from Woodville. Also one fsom Mr. Alick Campbell, Spring Vale Apiary, Dubbo.

QUESTIONS.

GIPPSLANDER.

112.—Have you experimented with the long idea hive through the past season, and how do you like it? Is it an advantage over the other system?

EVERTON.

113.—Which is best for bees; to contract entrances to hives during winter and other cold days, or leave the full entrance open? I see Roots *A. B. C.* speaks in favor of full size entrances.

114.—Give your ideas on Loyalstone's Suggestion, page 58

115,—While in Melbourne we were told that a great quantity of honey is adulterated there, and sent to Western Australia. Do you know anything of this, Western Australian beekeepers?

JOHN MOODIE.

116.—What number of hives is sufficient for an apiary in a district where there is no other bee forage except white clover?

GIPPSLANDER.

113.—Make them cosy on top and leave entrance full width if bees are strong, contract if weak.

J. KERR.

113.—Would not contract the entrances of strong hives during winter in mild climates. Would contract the entrances of weak colonies during winter, and would advise that a few squares of carpet be placed in addition to the quilt on top of the frames.

J. G. C., SOUTH AUSTRALIA.

112.—Have had no experience. It seems reasonable enough but would prefer double storied Langstroth.

113.—Never close entrance unless in very weak stocks.

114.—A very good idea, but as I am unacquianted with Foul Brood only by reading reports concerning it, cannot speak with any certainty.

116.—Cannot say, as this part of the globe is not favourable for white clover.

ELLIOT J. RIEN, M.H.A.C., WYEE

112.—Have not tried this hive.

113.—Contract entrances.

114.—It would fall into the hands of the "few" and the result in all probability would be laboured productions going over old ground, and advancing nothing new or very little. Let beekeepers use this column freely, and let us hear of their difficulties and how they were surmounted in short concise terms and a greater number will be benefited.

116.—Depends on extent of clover fields. Is there no other forage?

H. J. RUSSELL, VICTORIA.

112.—Have not tried it.

113.—Given a fair sized entrance and I don't think anything is gained by altering them at any time.

114.—A very good suggestion, but I fancy we have had as good as we are likely to get on the subject mentioned by Loyalstone.

115.—No knowledge on the subject.

116.—No experience of clover country. I should conclude it depended on the acreage of bloom.

J. WILSON-GREEN, QUEENSLAND.

111.—Re new oil drums. I notice the majority have some objections to their use, but expense I consider it to be the only feasible objection. I have tried every package including iron jacket drums but there is none as cheap in the long run as oil drums for shipping and rough handling, but they should be emptied as soon as opened and then cleaned before the air forms a crust on side of drum with any oil that may not drain out. Even Root in his catalogue some years ago advised customers to get linseed oil in new honey tins. Of course it is useless to wax drums; they do not require it if new, as they have a thin coating of tin and will keep bright with honey.

GEO PACKHAM.

112.—Have used the long idea hive side by side with others and find it to come out on top every time.

113.—Contract the entrance it seems to me that the bees ought to be the best judges as to their comfort and if the entrance is not contrailed they will frequently do it themselves.

114.—A very good suggestion but unfortunately I have had no honey croy worth mentioning this three years therefore not sufficiently in funds to assist.

115—Do not know a beekeeper there.

116—Pass.

C. WILLYAN, VICTORIA.

112.—Yes. No better than I do the ordinary supering hive. I am of of opinion that were a number of beekeepers to be placed in the same district, each expert in working any of the modern styles of frame hivos that, taking one year with another there would be very little difference between their respective crops.

113.—I think that entrances should be full width if sealed covers are used. If porous covers are used then I think that entrances are better contracted. The latter is my own practice.

116.—Just so many as you can attend to properly. But, I think that if I were keeping bees in a locality with only one source of supply for honey, and that one so uncertain as clover has proved to be in Victoria, that I would move to some more favoured spot.

AUSTRALIAN YANKEE.

114.—I am surprised at what Loyalstone suggests. We don't want fine essays. Why it is the easiest thing in the world for anyone to write an essay; he only need read up the American text books. No, no, Mr. Editor don't offer prizes for essays, it will only cause a lot of arm chair beekeepers to write flowery essays when perhaps they don't know a queen bee from a red tailed hornet. We have good remedies for Foul Brood, any apiarist can cure it and why pay for essays on it.

115.—Don't know, do you?

116.—I have seen districts where there was white clover enough to keep 200 colonies, and again I have seen hundreds of acres of white clover, and bees would starve for want of honey although there was not two colonies to the 100 acres of clover. I have only secured one crop of clover honey in 12 years, so like Dr. Miller, I had better say "Don't know."

NO NAME.

112.—To the extent of half a dozen hives for one season, I have tried it and so far as such a very limited test will enable me to judge, I like it. As to being an advantage over other styles, that depends entirely upon the bias of the individual beekeeper. All hives possess advantages or disadvantages and in pretty equal proportions. If a person favours a particular style of hive, when he comes to the difficulties connected with it, he will work night and day if need be to overcome them. If on the other hand he does not fancy a certain style, he will go out of his way to invent difficulties in order to show the utter uselessness of such a contrivance. I am not adopting the Long Idea hive because I think it better, or because I expect more honey from it, but because I think it will fit the method I wish to follow a little better than the hive I have hitherto used.

113.—I have hitherto left mine wide open the year round. I am ashamed to confess however that I have never tried partly closing a few for comparison, so I can't tell which is the best plan. Try for yourself half open, and half partly closed. The experience gained will be far more valuable to you than anything learned from others.

114.—Our knowledge of Foul Brood is of the most slender description and I am quite of the opinion that a batch of essays however meritorious from a literary point of view, will add nothing to the sum total of our knowledge,

What we want more—very much more—than essays, or Foul Brood Acts either, is patient investigation.

116.—Nobody knows. Experiment for yourself.

QUESTION NEXT MONTH.

JOHN RUSH, MELBOURNE.

117.—Is Freetrade beneficial to bee-keepers ?

(As this is such a vexed question we must restrict all replies to 40 words.)

THE APIARIAN DISPLAY AT THE BRISBANE EXHIBITION.

The display of honey, &c., at the Brisbane International Exhibition, was certainly not up to expectations, considering the magnitude of the exhibition, and the natural advantages that Queensland undoubtedly possesses as a honey producer. Messrs Spry Bros., and H. L. Jones were the largest exhibitors, the former having a very creditable trophy of comb honey in 1 lb, and 2 lb, sections, and Langstroth frames, and extracted honey put up in fruit bottles and tins, neatly labelled. H. L. Jones had a fine display of comb honey in 1 lb. sections, beautifully filled and put up in 24 lb. shipping cases ready for market, and extracted honey in glass jars of various sizes and shapes suitable for the retail trade. In connection with the Warwick District Exhibit, Mr. J. W. Dumigan has a few nice sections on view, and some jars of extracted honey of excellent quality. Mr. John Carey had also a neat display in 2 lb. and 7 lb. tins, in connection with the same District Exhibit. Mr. H. L. Jones was the only one to exhibit apiarian appliances and he had a most comprehensive collection of the various utensils, from the old straw hive to the latest 1897 dovetailed hive with Hoffman end spaced frames, honey extractors of several designs, electrical wire-imbedding outfits, and all the various other articles that go to efficiently equip a modern bee farm. Mr. Jones has also on view his fine library of bee books and journals, which is perhaps the most complete in the colonies, containing as it does work from the year 1691 up to the present, and included in the collection are such rare and valuable works as those of Warder, Wildman, Reaumur, Huber, Huish, &c., &c.

LATE REARED QUEENS SUPERIOR, AND WHY?

Geo. L. Winal, in *Gleanings*, says : Not to tell what my grandmother knew, but she often used to say to me, when a boy, "A swarm of bees that comes off in buckwheat time, the swarm that is left will do better the next spring than any of the others." Her knowledge was from observation. She used the box hives as almost every one did then, forty years ago, and it was partly her observation that led me to experiment on late-reared queens ; and I have frequently noticed that, whenever I have purchased queens late in the fall, they invariably proved better, longer-lived, more prolific, and gave a larger and stronger bee, than one purchased in the early part of the season. I do not guess at this, or *think* it is so, for I keep a record of every hive, of every pound of honey that comes from each hive, of every swarm, when the queen was introduced, whom purchased from, how many new combs each colony builds, and have for a number of years ; and as I look back over my records I am convinced more and more every year that for me, at least, late-reared queens are the most profitable, and why ?

1 I find them larger, as a rule.

2 They do not seem to want to swarm so much, at least the first season.

3 They build up quicker in the spring, all things being equal.

4 The bees seem more hardy, and are better workers.

5 When they swarm it is generally a rousing big one.

6 With me they winter better.

The tariff on honey in France is 4½ cents per lb., in Germany 1½ cents a pound.

QUEENSLAND NOTES.

A. F. BURBANK.

The past season has been a pretty fair one as far as this district (Upper Tingalpa), is concerned, but taking it on the whole, I think it has been a bad one for bees in Queensland. The forest is looking well about here now, and I think the coming season will be a good one, or the early part of it will at any rate, as both the red and grey ironbark, white gum, weeping gum, and blue gum are all loaded with flower buds. At the present time the forest oak is giving a splendid supply of pollen, and the spotted gum is giving a good flow of honey.

I am glad to see that the Victorian beekeepers are going ahead with their Foul Brood Act. We must have some kind of law made, if it is only to stop people who cut down bee trees, from leaving the brood combs lying about to rot, instead of burning them. It is wonderful to see how paltry and mean some beemen are. Here is an example:—A few years ago, I took a prize for extracted honey at the Wellington Point Show, and I had the result printed on the honey label that I use. Last year I sold a seven pound can of honey with one of the above mentioned labels on it, to a party. When the tin was emptied she sent it to another bee-keeper to be refilled, and he evidently saw that I had 1st prize printed on the label, so he wrote in pencil, where there was a little space, the words, *no competition*, and stuck his own label on the other side of the can; he was a bit out in regard to my having no competition at the show because there was one against me at the time I took the prize above mentioned. The party that I sold the honey to, returned the can to be refilled, to me the other day, and that is how I found the *dirty little trick* out. If you want to get nice soft yellow beeswax, get brood combs that are pretty new, and put them in your solar wax extractor; and as soon as the wax is separated from the refuse, put it in the shade at once so as to stop the sun from bleaching it white. Always melt wax slowly, and remember that the more times wax is boiled the harder and more brittle it gets.

TAMWORTH B. K. A.

A Meeting of local beekeepers was held on Friday, July 9th, for the purpose of forming an association, and transacting other business in connection therewith. A code of rules was drafted, and after very lengthy discussion was finally adopted and ordered to be printed. The subscription is to be 5s per annum, and an association label for the use of members is to be procured and later on to be registered. In order to afforh every facility for discussion of matters relating to apiculture, provision is made in the rules for hon. members and visitors to attend meetings, and it is hoped that the formation of the society will give an impetus to the work of the little busy bee, not only in our markets but also at our agricultural shows. The association label on honey tins will also carry with it a guarantee of purity of the contents, and afford purchasers a certain amount of protection against being had. The election of officers resulted as follows:—President, Mr. G. H. C. MacDouall; vice-president, Mr. A. J. Pankhurst; treasurer, Mr. J. G. Grayston; secretary, Mr. A. C. M'Leod; committee, Messrs. F. Dean, T. Peek, J. Brogan, E. Warner, A. J. Johnston, F. Smith, and W. Jacobs. The year commences on July 1, and committee meetings are to be held once a month.—*Tamworth News.*

MUSWELLBROOK ITEMS.

So far present winter has been very mild, bees doing remarkably well. Box in splended bloom for the last few weeks and plenty to come. The narrow leaved ironbark I also notice is in full bud. More rain is needed, otherwise I am afraid we will have a dry spring. Friend Grant has been busy packing up his traps; he is removing to the Goulburn River beyond Denman, which by all accounts is a beekeeper's paradise—no

neighbours too handy, a splendid variety of timber etc. He goes away with the best wishes of all his beekeeping friends, or I should say pupils, for I think all of us can thank him for very many lessons in our new chum days. I had a look through friend Roberts' apiary last week, and was fairly astonished, the honey bees are bringing in. He is very busy preparing for the coming season.

We are anxiously waiting full accounts late conference, which I dare say we will get in next issue A. B. B.

Our next show is to be held in March. This should be a better time for beekeepers. The matter of having a conference here will be gone into as soon as we can get some definite information how things are going below.

MUSWELLBROOK B. K. A.

The usual monthly meeting of above was held on June 12, 1897.

Mr. Ellerton, President, occupied the chair. Good attendance of members.

Minutes of previous meeting were read and confirmed. Correspondence was received from Mr. Whittell re question affiliation. Accounts amounting to 5/- passed for payment.

Mr. Roberts moved that owing to the unsettled state of the National Beekeepers Association it would be advisable to let the question stand over till next meeting. Seconded by Mr. Budden and carried.

Mr. Grant, the Hon. Secetary tendered his resignation owing to his leaving the town. Mr. Paul moved that although he was sorry to see the Secretary resigning it could not be helped and that the resignation be accepted. Seconded by Mr. Budden and carried.

Mr. Budden moved that Mr. Paul be appointed Secretary, seconded by Mr. Clarke and carried.

Mr. Hill moved that a vote of thanks be accorded the returning Secretary, for his past services to the association adding, at the suggestion of Mr. Paul, that Cheshire's work "Bees and Beekeeping", be presented to the retiring secretary as a memento of his connection with the association. Seconded by Mr. Roberts and supported by Messers Paul, Clark, Wiedman, and Ellerton. The retiring Secetary returned thanks. He was glad that the little he had done had been appreciated.

Mr. Hill then read his paper on Wintering, which proved a most interesting one. After the paper had been criticised by most of the members, a vote of thanks was tendered Mr. Hill for his paper.

The paper for next night of meeting was taken by Mr. Roberts, the subject being wax.

This concluded the business of the evening.

The monthly meeting of the Muswellbrook Beekeepers Association was held on July 10th 1897.

Present:—J. Ellerton, President, in the chair and almost a full number of members.

Minutes of previous meeting were read and confirmed. No correspondence or accounts.

The chairman said he regretted to say that since our last meeting we had lost one of our members who at last meeting had read a most valuable paper. He referred to the sudden death of Mr Hill, though only a new member amongst us, he gave promise to be a great help to the association and it was with much regret that he moved that a letter be written to Mrs. Hill expressing the sympathy of the members of this association with her in her late bereavement, seconded by Mr Budden and carried.

The president states he had another duty to perform which in one sense he regretted namely, presented to Mr. Grant, their late secretary, a small token of their esteem on his departure from amongst them. He had, however, much pleasure in seeing that the services rendered by the late Secretary had been appreciated by the members. Mr Grant was the first to have frame hives in the district. He

was also the originator of their association and who had done his level best to further the interests of the association. He was glad Mr. Grant was not going very far away and hoped to see him at our meetings when possible. He then presented Mr. Grant with two handsome volumes of Cheshire, "Bees and beekeeping" suitably inscribed, wishing him every prosperity in his new home. Mr. Grant who on rising to respond came in for a very cordial reception from the members, said he was deeply grateful to the members for the handsome present and the very kind words spoken by various members. He had always done his best for the association and would always take the same interest as formerly. He regretted having to give up the secretaryship but living so far away it was impossible for him to carry on the duties. Mr. Robert's paper was the next business but he having been so busy he had not been able to give the matter his attention. He promised to have it ready for next night of meeting.

This concluded the business.

On the invitation of Mr. Grant the members adjourned to brother Hill's where the health of Mr. Grant was drunk and a few complimentary speeches made.

WELLINGTON POINT A. & H. & I. ASSOCIATION.

The above named show was held on 3rd July in the newly erected building. The display of fruit, bees, honey, and beeswax was splendid, but the judging was very poor, especially in the Horticultural section. The following were the awards in the Apicultural section. :—

Best Italian queen bee A. F. Burbank 1.

Hive of working bees, W. E. Burns 1 ; A. F. Burbank commended.

6 pounds of yellow beeswax, A. F. Burbank 1.

6 pounds white beeswax W. E. Burns 1 ; A. F. Burbank commended.

Three bottles of extracted honey, W. E. Burns 1. ; ".

Sample of honey in comb, A. F. Burbank. 1. and commended.

CORRESPONDENCE.

J. T. H., Lismore, June 17th 1897 :—Beekeepers generally have had a fairly good season up here, although it has been dry weather (for this part.) I was in Sydney not very long ago and will be unable to attend the Convention. Hope good results will follow.

F. L., McLaren Vale, S. A. June 19th 1897 :—Thanks for the regular way you have been sending my *Bulletin*. I like the *Bulletin* very well, but to my idea there is rather too much about shows and Conventions, but I am not going to condemn the paper on this account. I am a subscriber to *Gleanings in Bee Culture*, and have been for a good few years. We had a good season here last, but we do not get the price for our honey as they do in some parts of Australia. I don't think we average 3d for our honey Wishing you every success.

G. P., Molong,—After a total absence of rain for a period of 140 days we have been blessed with a bountiful supply of the much needed element, which has put quite a new life into every branch of the industry that exists in this locality, even to the beeman. White box is in full bloom and yellow is just beginning to burst forth. The Parrakeets have returned in thousands after an absence of three years. During the warm days the bees are rolling in the honey in grand style, and their hum of satisfaction during the evening is quite soothing to the brain of a beekeeper, whose hopes have been disappointed for three years. At present there is every appearance of a good honey flow during the rest of the year. The queens are still laying away, and do not seem as though they intended to take their usual mid winter vacation, and from the present strength of the colonies early swarming may be anticipated.

J. P., Wingham :—It has been a good season on the Manning River for honey this last year. I think there has been an all round average of about 200 lbs per hive. We have had beautiful rain this last few days, in fact everything look

like spring. I am going in to winter with 100 colonies in splendid order. I have lately selected a piece of land. I don't know whether I have a mistake or not as far as locality is concerned. Do you think it is any drawback to bees to be situated on the bank of the river, one side is all maize land and paddocks, and the other side is a mixture of maize land, forests and bush. Would you advise me to go to such a piace. Of course if I don't go on it, it can be forfeited. There is another place near me that I think would be a good place for an apiary, nothing but forest and bush land in every direction. What is your advice on the matter.

That position beside the river ought to be a good one; bees work well on maize, and I presume you have plenty of clover too. The bush at the back ought also to be a great help. The other place ought also to be a good one, plenty of forest and bush land. We wish you success in whatever your choice is.

P. E., Echuca, Victoria, June 18th :—This last season has been very fair for honey, both red gum and box having bloomed. The honey from the red gum is more palatable than the box honey. Some of the customers have noticed the difference in the flavour, and of the two prefer the honey from the red gum. There seems to be a certain sharpness to the taste in the box honey. Of course the clear colour of the box gives it first place for selling readily. About two months ago some of the bees of one hive only, came rushing out of their hive. This occurred about half past eight in the evening, and nearly all of them died except a few that recovered in the sun the next morning; working bees only were effected. I conclude they must have been working on a bad source, as this colony is quite healthy. Possibly there was some other cause. The *A. B. B.* comes to hand regularly.

A. J. F., Warrah Ridge:—I have 50 hives now all in tip-top order, and box blossom all around so expect to turn out a ton or two before Christmas. I was away on a three weeks trip lately, and spied out some splendid bee country with long summer flows, splendid honey equal to box, and I am thinking of going down as soon as it will suit me to leave here. I suppose you do not know of any one among your bee friends who would like to shift into good country as a partner, but a young lady will suit me better, think I will put an advertisement in the *A. B. B.*

Quite right; success to you.

H. L. Jones, Goodna, Queensland, says :—Have you ever known bees to swarm with a laying worker instead of a queen? Well I had a very small swarm do just that silly trick a few days ago. Th ey settleon a small bush, and to find the queen I hook the bees on to a-board, but could find no trace of her. I noted, however, one worker that they paid particular attention to, and which they treated exactly as they would a queen by circling around her and moving out of her way as she went about. I watched her for some time and from the respect and attention paid her, it was evident that the bees treated her as a queen. I then placed her in a *new* cage and set her down about a foot away from the cluster of bees, when they immediately started towards her and clustered around the cage. I then removed the queen and killed her, and on carefully opening her, I found a single egg in her body. I am positive there was no other queen connected with this swarm, and that the bees recognized this worker as a queen.

R. H. Jervis, Moss Vale:—A word to those that have to feed if bees are weak, so as to prevent robbing. Put supers on a few of the strongest colonies, and feed as much warm food every night as they can take and when stored take away and give to the weak ones. If a cold locality cover hives that are being fed with bags to keep warm. Re friend Bolton's out apiary which he proposes to run without frames for wax, I would suggest a good hollow tree sawn up in lengths, then add a tree super when necessary, then there will be a chance to increase from 10 to 40 960 in two years as per "Crystal Mountain" without expense.

A NEW DISEASE AMONG BEES.

BY HERR SCHONFELD, LIEGNITZ.

From the Reinische Bienenzeitung, of November, 1896, & March, 1897.

Kindly translated by Mrs. V. Kelly.

On the 15th of August I received some brood combs containing dead nymphs and young bees, which were sent from C—. The bee-keepers in that district had noticed early in June many young bees rush hurriedly from the hives and fall in heaps on the ground, being apparently unable to fly. This was evidently not caused by "May-sickness"; the stomachs of the bees were quite empty, and on examining the affected hives, a very great number of nymphs were found to be dead and dried-up without any diminution in size.

I, too, found in the combs sent to me a very great number of dead nymphs in various stages of development, some quite uninjured, some more or less injured by the bees having tried to carry them out of the cells. Their original form and their white colour were perfectly preserved, but they were slightly reduced in size, the younger more so than the older. In none was there any trace of the dampness of the living body to be found. The most remarkable thing about them was their excessive hardness. They were so brittle that they could not be cut with a knife, but flew in pieces like crushed glass.

There had been no putrefaction after death. On the 29th of August I received from Herr M. a frame of brood precisely similar to the first, containing mummified brood and a number of almost mature bees who had begun to gnaw the covering of their cells; also some living bees, and in a bottle some dead bees from the affected hive. An examination of all these with the microscope left no doubt that death in every case had been caused by a noxious fungus in the alimentary canal of the bees and brood. Death occurred in different stages of their development, but always when the growth of the fungus had completely stopped up a part of the alimentary canal. An examination of the hardened brood showed the almost inconceivable extent of the growth of this fungus. With the exception of the outer skin they consist of nothing but fungus, which, in some instances, has burst through between the rings of the lower part of the body and spread over the surface. Some pieces of this fungus (about the size of poppy-seeds) I picked out with a needle, and examined under the microscope, when they looked exactly like a number of short threads rolled up between the hands into a tangle. The fungus from the alimentary canal presented the same appearance. The senders of the brood comb said that the stomachs of all their dead bees were perfectly empty, and this can easily be explained, for the fungus and its spores cannot be seen by the naked eye, the diameter of the threads found in the stomach only amounting to 0,002 to 0,0035 millimetre. The fungus, however, had completely blocked up the canal. In those specimens which I examined I did not find much of the fungus in the stomach, but I found a very great accumulation in the narrower part of the alimentary canal, in the duodenum, and the gut which joins the honey stomach and the chylus stomach, and this accumulation of fungus caused the death of the bees. Now, at first, I was very much inclined to think that this fungus was the same which had been described by Professors Hoffmann and Leuckart, and which they had named *mucor melittophthorus*, or *Oidium Leuckarti*. This also attacks the intestines, but has never been known to attack any other part. It might possibly have been that the excessive growth of the fungus in the hives in the neighbourhood of C—— might have been caused by circumstances there being peculiarly favorable to the growth of the fungus, or they might have been unfavorable for the bees, who were consequently unable to resist its attacks. But a communication from Donhoffs-Orsoy, and an account by Leuckart of the culture of his fungus from the spores which was carried out in that place,

made it seem clear that my fungus was not *Oidium Leuckarti*. Yes, after I had succeeded in cultivating in a preparation of sugar and gelatine a quantity of my fungus taken from the hardened body of a nymph, it was possible for me to study the growth from the spores. I had no longer any doubt that we had before us an entirely new fungus, one which had never before been mentioned in any of the books about bees. Let us now compare Leuchart's fungus as he himself shows it in Fig. 19, with an exact picture of our fungus in Fig. 20, and the difference between the two is easily seen. The fungus in Fig. 19 in the form of a tree with branches, the round spores or seed vessels are at the ends of these branches and the empty threads are separated and lie apart from each other. In Fig. 20 we see at first only long, straight, or slightly bent threads with a few very short branches, but the interior of the thread is full of empty cells or of spores. The seed vessels are placed —and this is an essential difference—not on the side branches but, without exception, at the end of the broadest and ripest threads. Moreover, they are not round, as in Leuchart's fungus, but tulip shaped or a long oval, and give out as soon as they open, an immense number of spores which at first arrange themselves in the form of a wreath round their birth place, but soon fall off and some singly, some in irregular heaps, some in rows, begin to reproduce themselves. Finally, these spores are fundamentally different from the spores of Oidium Leucharti which are one half smaller than the spores of the fungus which I discovered. So, we may take it as proved that two parasitical fungi are to be found in the alimentary canal of the bee, one of which has been known for 40 years, and is not injurious, the other has proved itself a destroyer of bees. These two fungi are nearly related to each other, but our fungus is yet more nearly related to the Oidium Albicans, better known as Thrush, which is found in the mouths of young

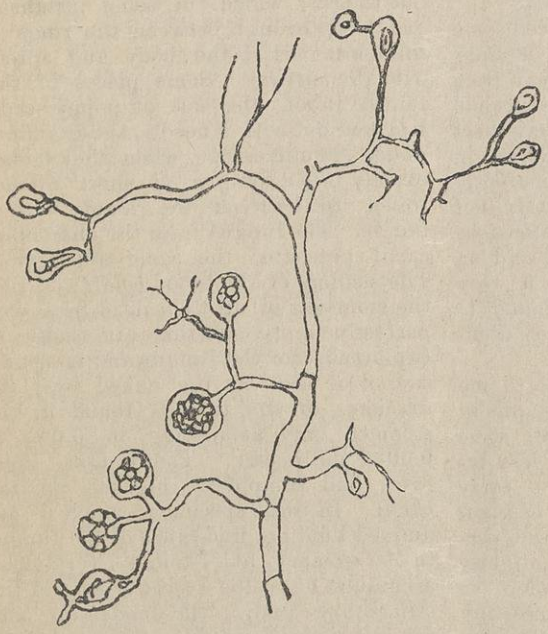


Fig 19

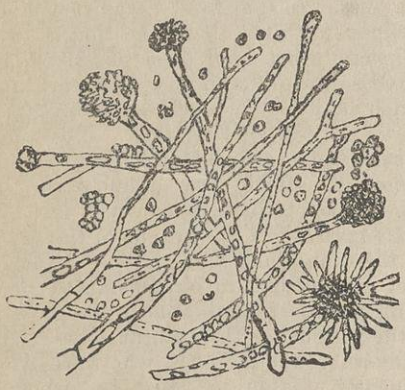


Fig 20

babies. The threads of each present the same appearance and the only difference is that the spores of Thrush fungus occasionally sprout from the sides of the threads.

Admitting that we have found the cause of the disease the best way to cure it and prevent its spreading is by using borax. The bees should be fed for eight days on a carefully prepared mixture of honey and borax, 100 parts honey to 3 parts powdered borax, which must be dissolved in 15 parts boiling water before mixing with the honey. Care must be taken that this is used at once as food and not stored in the cells. It would be well to try this first with a few frames of brood containing no honey, but having some dead nymphs that you may be quite sure that the disease is present and that the food is used at once. You may if you wish add a few drops of Condy's fluid, permanganatic of potash. It is perfectly harmless. One drop to 100 grammes of food.

Since the above was written I have read in the *Leipzig Bienenzeitung* that Dr. Howard in America had discovered a fungus which destroyed all the larvae in the hives which it attacked. Through the kindness of Herr Fleexman, I received a few days ago the September number of the *American Bee Journal* in which Howard describes and illustrates the fungus which he had discovered. Now we can compare his description of his fungus with that which I found in the dead brood sent to me from C——— and that which I afterwards cultivated from that fungus. Howard took some frames partly filled with pollen from two hives, the bees of which had died during the winter, and gave them in the spring to some healthy hives. The brood in all these hives died. The greater part of this brood being almost ready for covering over, An examination revealed the existence of a fungus which Howard calls *Aspergillinus Pollini* in the dead and an inoculation with this fungus established the fact that it caused the death of larvae attacked by it and also showed it first attacked the brood when they were old enough to be fed with honey and pollen, and that they died before they were shut in the cells, very few dying after they were covered over. This is quite different from my *Oidium Indurrans* which only kills perfect nymphs and young bees. Dead larvae not yet covered over were never found in C—— and Howard never found young bees aitacked by his fungus. I had found in the four frames sent to me on the 25th August, both dead and living nymphs, but no dead larvae, and the idea that the dead larvae may have been thrown out by the bees, cannot be entertained, for in that case they would also have thrown out the dead nymphs, but these were there in regular rows in partly uncovered cells, just as if they were alive. Howard also found that when his fungus attacked a larvae it set up a fermentation which caused it to swell and which finally burst the alimentary canal through which the fermentation poured out as a thin white watery fluid, so that death occurred from the combined effects of the fungus and the fermentation. All this is quite different from the way in which my fungus works. In those nymphs and young bees sent from C—— there was no fermentation, no swelling of the body, no bursting of the gut, and no exuding of thin watery fluid. On the contrary, death seemed to be caused, by a drying up and failure of all natural moisture. The stomachs of these young bees which came out of the hive and fell dying on the ground were dry and empty. The fact that the perfect nymphs retained their perfect form and that no fermentation or trace of putrefaction could be found together with the quantity of the fungus found in the young bees proves that death was caused by the excessive growth of this fungus, and as Howard says that the brood which died of his fungus were pickled in their own price, and he never says that he found any dried up or hard, which he certainly would have mentioned had he seen it. The effects of these two fungi seems to be totally dissimilar. However, I cannot say positively that we have discovered

two distinct species of fungus, for it is possible that the fermentation which Howard found may not have been caused by the *Aspergillus*, but may have come from something else and may have simply provided a suitable food for the fungus, which arrived on the scene later. But were this the case it would sometimes happen that the fermentation would kill before the appearance of the fungus. It will require much careful observation to settle whatever Howard and I have at the same time discovered, one fungus or two of the same family, but apart from this technicality lies the unwelcome fact, that the beekeeper has to contend with a new and very dangerous enemy. Let no one console himself with the thought that it has never attacked him yet. It was not born for the first time last year in America and Europe, but is it not possible that various diseases which have puzzled us all and which we know as Spring Dwindling and many other names may be caused after all by our fungi.

VICTORIA.

L. T. CHAMBERS.

REGISTRATION OF ASSOCIATION.

Application being made by the Secretary to the Registrar-General for information under this head, reply was received that under one of the clauses of the Limited Liability Companies Act, we could be enrolled as a registered company, but such registration would cost £5 per 100 members. The Central Committee will deal with this matter at its first sitting.

FOUL BROOD ACT.

The honorary solicitors of our Association (Messrs Cole and Morris), have carefully drafted the clauses adopted by our Conference and have embodied in them various clauses relating to the duties and control of Inspector or Inspectors as the case may be.

At an early date the Central committee will be called together to arrange for the presentation of the proposed Act to the Government of the day.

There is little apparent opportunity of doing anything with it at this, the last session of the present parliament, but we must be prepared to have all ready for the next assembly of parliament.

If country members will carry forward the work of formation of district associations, pressure may be brought to bear in and through such associations upon the legislative representatives of their districts and thus hasten the carrying of our Bill through parliament.

Our hon. solicitors think well to alter the title of the bill and call it, "The Beekeepers' Act of 18—," which title will allow room for any future amendments or adittions of matters concerning the beekeeping industry.

Herewith the Statistics of 1894-5 and 1895-6, showing the number of beekeepers in this colony, and estimate of honey production as supplied by the Government Statist's Office.

Season.	No. of Bee K.	No. of Hives.	Produce. Honey	Wax
1894-5	4482	42619	1323982	32752
1895-6	4089	31982	381683	16873

These figures are of course only rough estimates so far as they relate to product. As a matter of fact the season of 1894-5 far exceeded this estimate as showed by the fact that the export of wax from the port of Melbourne amounted to 97328 lbs to end of 1895 and 23184 lbs in 1896.

The numbers of beekeepers named is probably near the mark and is a good enough basis upon which to calculate our probable revenue for the carrying out the provisions of our Foul Brood Act.

It is apparent that we need to take steps to embrace within our membership a larger proportion of the beekeepers of Victoria.

To this end I am now issuing a circular letter (as per enclosed copy) to some one known member of our associa-

tion resident in each country of the electoral districts of Victoria, urging steps towards association.

THE BEEKEEPERS' ASSOCIATION OF VICTORIA.

Dear Sir,—At a Conference of Beekeepers' Association held at the Melbourne Town Hall on May 25th and 26th last, it was agreed that, for the better working of our Association and especially with a view of carrying out the provisions of the proposed Foul Brood Act, and in the interests of honey production generally, it is necessary that we strive to embrace within our membership all at present engaged in this industry.

To accomplish this object, the formation of District Associations within the electoral boundaries of the colony of Victoria was decided upon.

Each such association to consist of not less than three (3) members, whose business it shall be to endeavour to secure the co-operation of all at present engaged in honey production in their district, and to impart information and assistance to all associated.

It is further proposed that, when these District Associations are thus formed, they shall be affiliated to the parent association, and shall have granted them such definite representative voting power at all meetings of the general Conference as may hereafter be decided upon.

The annual subscription of two shillings and six pence (2/6) shall be paid by each member of the association towards the funds of the parent association (known as The Beekeepers' Association of Victoria), which amount must be remitted to the Secretary of the Central Committee. Any sum required for local expenses of district association to be levied and expended as agreed by such association. Any further adjustment to be made at the next General Conference.

This circular therefore appeals to you asking that you will endeavour to form within your county (————), a local district association of the B. K. A. in accordance with the before named condition.

Will you therefore be good enough to put yourself into communication with all local beekeepers known by you with the object of discussing all local interests and securing a complete return of all beekeepers within your boundaries.

When you have fully covered this ground please let me have a list of the names and addresses of all beekeepers in your county, that I may enrol them for future reference, and, if necessary communicate with them in the event of their failure to join our association.

Be good enough to fill in the particulars in this form.

The name of your county.
The number of persons keeping bees.
The number of colonies.
How many colonies in frame hives.
How many colonies in boxes.

Yours faithfully,
L. T. CHAMBERS,
Hon. Sec. B.K.A. Central Committee,
Franklin-st., Melbourne.
21st June, 1897.

GLUCOSE IN VICTORIA.

Our thanks are due to Mr. R. J. Ellery for sending us the following :—

Quantity and Value of Glucose Imported into and Exported from Victoria, 1894 *to* 1896.

Year	Imports.		Exports.	
	Quantity.	Value	Quantity	Value
	cwt.	£	cwt.	£
1894	6587	3863	421	337
1895	8995	5137	771	590
1896	16190	7801	1121	801

JAMES J. FENTON,
Assistant Government Statist.
Office of the Government Statist,
Melbourne, 17th June, 1897.

W. G., Queensland, June 29th '97 :—Last season was a bad one for honey. I also lost some hives owing to the long winter.

CRUMBS.

AUSTRALIAN YANKEE.

SPACERS FOR HANGING FRAMES.

Many, like myself, prefer loose or swinging frames and still at times wish them to be accurately spaced. I devised a simple contrivance whereby I space my frames and at the same time secure the advantage of a queen excluder and yet in a moment I can have any frame loose. My frames are made from ⅞ lumber. To make my spacers I get out a number of strips of deal ½ x ⅜ x 3 in, I then cut a number of strips of queen excluder zinc, ¾ inch by the length of the top bar of my frames. I cut them so that there is always a row of holes run along the centre of the strip. I now nail one of the pieces of wood on each end of the strips of zinc, letting the end of the wood and the end of the zinc come even with each other. The wood is nailed so that the half inch slide lies on the zinc. When I have twelve strips or as I call them spacers finished I take them to a hive and put one between each two frames, of course putting the wood side down, as the pieces of wood are to do the spacing the zinc laps on top of the frames. My frames come even with the top edge of the hive, therefore the zinc or the spacers at the sides of the hive rests on the edge of hive. Where the frames are a bee space below the top of the hive the zinc on the outside spacers would want to be trimmed down level with the wood spacer on one side. Where the top bars of frames are one inch wide the wood strip should be cut ⅜, that is where we want the combs spaced 1⅜ in. from centre to centre. The above is, I consider, the best and cheapest way of making a queen excluder. We can take out any frame that we may desire without disturbing the rest, as all we have to do is to pry up the spacer and then the frame is as moveable as an ordinary swinging frame, and above all there is no burr combs. We all know what a sticky mess it is when we lift a honey board from loose frames. Ugh, 'tis enough to keep one from using honey boards. Those bee-keepers who do not want to use the queen excluding part can make them as follows: Cut the stick as long as the top bar save two inches, tack on a strip of tin near each end, on the ½ inch side of the strip allowing them to project over at each side say ¼ of an inch so as to rest on the top bars of the frame on each side. This will make them virtually a "Munday" frame.

HOW TO SPACE THE BOTTOM.

If you will gently tip up a hive that has the frames spaced ever so nicely at the top you will see that they are all widths at the bottom, except where they are touching each other. Well, to remedy this I use the zig-zag shaped wires recommended by the Dadants in the revised edition of "Langstroth on the Honey Bee," page 168. If you have not got the book I would strongly advise you to get a copy at once as it is well worth the price. With frames thus spaced we have *exact* spacing, no burr combs and with the metal a perfect queen excluder. I trust many will try it the coming season as it is really a good thing. In practice it works even better than in theory, i. e., not as much fussing as it appears.

SIZE OF BROOD CHAMBER.

I often think what a pity it is that so few of our intelligent apiarists do not study the size of Brood chamber, required to give the best results in honey. In my opinion backed up by years of experience it is the brood nest that should rule the queen not the queen rule the brood nest. I was once speaking with a beekeeper who uses the eight frame dove-tailed hive. He complained about them being too small for his queens "Why," said he, "I had to tier them up four stories high to accomodate some of my queens." He said that he had not enough eight frame hive bodies on hand or he would have tiered them all up to four stories; some of them only had two stories. I asked him if he got twice as much honey from those tiered up four high as he did from those that had only two bodies. He was forced to say he

had not and he said, come to think of it, he got *more* from those with the two stories than those with the four. This is just in a line with my theory and experience. If we allow a queen to go on depositing her eggs as fast as she may desire and the bees rear the young bees, we lose the best part of our harvest. The size of brood chamber I use is one holding 11 Gallup frames. The Gallnp frame as I make it contains 112 square inches of comb, thus in 11 frames we have 1232 square inches of comb. This is quite sufficient for the average queen to keep filled with brood. To show that it is large enough one of my colonies last year gave me a surplus of 500 lbs of extracted honey, and two years ago a colony gave me a little over 700 pounds of extracted honey. They were both in 11 G frame hives, queens kept on the 11 frames by excluding zinc, and did not receive any assistance by way of brood, bees, &c. Last season was not a really good one and my locality is not the best, as nearly all the best timber is ring barked. About 50 colonies fully stock this locality. I mention this to show that it was not the super-abundance of nectar bearing flowers that was the cause of them storing so much. With small hives our queens retain their vigour to a greater number of years, which is an item on the right side of the ledger. It requires less combs, less timber in making hives and above all if they are properly worked they give a much larger crop of honey and that is what we are looking for. Think the matter over, brethren and see if I am not right. My remarks are perfectly unbiassed as I have no interest in the manufacture of hives, &c., or the selling of queens. I write this in the hope that it may benefit someone. If it does it will amply repay me.

BEES SUPERSEDING QUEENS.

On page 31, Vol. 6, I see you wish some of your readers to have a say re two queens in a hive. Such an occurence as Mr T mentions there is not rare. I once came near losing a valuable breeding queen through two young queens being in one hive. I sent to a queen breeder in the spring for a breeding queen. When she arrived I took away the queen from a hive that I knew to contain a young queen of that season's rearing (she had only been in the hive about two months.) I then caged the new queen and placed her in the hive, and left her for 48 hours, then liberated her. The bees appeared to receive her all right, so I closed the hive. In about an hour's time opened the hive again and found that the bees were balling my choice queen. I then examined the combs and found a queen depositing eggs, further search revealed the cell from which she had hatched. I know this was the young one as the one I removed had her wings clipped. The queens both lived to a good age. Although the clipped queen was not a first class layer, and before long she had a daughter to assist her. In changing queens we want to be very careful to see that there are not two queens in a hive.

VICTORIAN NOTES.

R. BEUHNE, TOOBORAC.

The Convention is a thing of the past now, but still the world goes on as before (even the drought continues).

It was very nice but not as I expected, rather solemn. To the majority who did not take part in these little skirmishes, it must have been rather dull. Some little diversion should have been provided, say a Kinetoscope Magic Lantern showing the various operations in beekeeping, such as a man shaking the bees out of two supers (one in each hand) at one time.

Personally I was greatly disappointed at not meeting Mr. Russell and Mr. Adams, as I came prepared for a great triangular duel and primed my nerves up (for 6d.) before entering the Town Hall. Then there was that beautiful sample of Foul Brood I offered round. No one wanted it, some would not even touch it for fear of contamination, and

yet I could cut chunks fully as good out of some of their hives.

I think Mr. Tipper will agree with me that we had the best time at those little after supper meetings which ended when the candle was burned out.

Much was expected of the Convention but not very much has been achieved so far. As for the Organization it remains virtually as it was. The proposed Foul Brood Act has been put into some shape and is now undergoing the process of being put into legal language, after which we shall possibly not understand it.

I hope the Ringbarking on Crown Lands question will not be allowed to drop, for so favourable an opportunity as the present does not often present itself, as owing to a demand for Australian hardwoods for export, the reckless destruction of timber trees by ringbarking is being brought to light.

Honey is now up to over 4d. and glucosing will be in full swing, and proof alcohol and the test tube should be applied to all doubtful samples.

In one respect we may be well satisfied with the Convention; if somewhat dry, it was thoroughly business like, and not the mutual admiration society of former occasions. If we have not done everything to our satisfaction, our little Bismark should certainly be satisfied with, and shake hands with himself.

As there is not likely to be another Convention for 12 months or more I should like to ask the Secretary to report from time to time what is being done, so that we outsiders can have a finger in the pie. I am sure the Editor will find space, and unless more is done than before it will not cost much for paper.

Not to be behind the times we (Toboorac) have formed a country association, square No 17 on the map. We have elected myself Secretary and I have appointed our committee. Our rules are identical with those of the V. B. K. A., only more explicit. The objects are (1) To increase the production of honey by inducing every inhabitant over the age of six to become a beekeeper. (2) To reduce the price of honey. (3) To give advice free and gratis to all interested or not interested in apiculture. (4) To render assistance (at 25 per cent on good security), to all engaged in beekeeping.

These rules cannot be altered or rescinded excepting at the monthly meetings. Meetings will take place at such times and places as the Secretary may direct. Two to form a quorum. Should the voting on any subject be equal the Secretary will give his casting vote.

Pending survey of the district of our association the wire fences will be taken as the boundaries. The *Sunday Beekeeper* has been appointed our official organ, but as that paper may not be known to many, I shall report occasionally in the *Australian Bee Bulletin*.

J. E., Armidale, July 2nd 1897:—I am sorry to say that Foul Brood has almost cleared me out. I have only two colonies left, but intend to make a fresh start next month by getting some box hives and transferring.

J. H., Brogo, June 28th 1897:—The past season has been a good one for bees about this part, and those which were not killed out by Foul Brood, have stored a considerable quantity. I think I have successfully cured Foul Brood in mine after fighting against it for two years. However as most of the bush nests were affected with it last year, (I have not felled any lately) it may break out any time.

Gippslander writes:—Referring to Mr. Beuhne's note re Peppermint. I am not acquainted with the Botanical name. I am sending a few leaves, you may be able to supply name. Very little bee news at present, they have been taking it easy lately, the weather being damp and cold with heavy frost. There are a few stringy bark trees in bloom and the red box will start to bloom in about six weeks. Prospects look well for next season, all kinds of Eucalypti heavy with bud. In your last you advise reading bee literature; one can't do better than go through the old numbers of the *A. B. Bulletin*.

J. C., Tooborar, Victoria, July 2nd.—I am losing a few of my bees since the weather broke. I had 145 hives. I know some of them are pretty short now. They could get a little from Ironbark if they get the weather. I am very thankful for the rain we have had. We want now a little sunshine for the bees.

W. F., Bungowannah, July 1st.—The past season has not been a very good one in this district, the only flow being from yellow box early in the season. I only extracted 2500 lbs from 50 hives, several hives gave no surplus, and the highest yield was 135 lbs from one hive. Most of the hives are in fair condition for winter, being well supplied with stores.

J. C. H., Lismore:—We have every prospect of a glorious spring here for the bees, in the shape of stock. Red gum and Booyong are in bloom and honey is coming in freely. My bees are two months earlier this season than last which of course is due to the very mild winter we are having.

J. A. B., via Cumnock: The drought broke up here about a month ago when we had 4½ inches of rain. The white box are in full bloom, so the bees are doing well; they don't get many working hours on account of the cool weather and short days. The queens are laying and the drones are hatching, so I suppose there will be plenty of increase this year. I think the white box will continue to bloom for about three months yet; it has been blooming for about three months now. No more at present. I will send you a line or two when the hum increases.

T. C. A. P., Burraga, via Rockley, June 30th.—I did not get any honey last season owing to too much dry weather. Thousands of acres of white and yellow box and other honey trees have died out about here for want of rain. Trees that are still alive are making a good show of buds, so I anticipate better results next season. My bees are doing well in winter quarters. We are never troubled with Foul Brood or other bee diseases about here, so should think ourselves lucky.

A. C., Dubbo, 12th July, 1897:—I have no bee news worth sending, as things have been pretty tame this year so far, but I am glad to say that bees are better off than other stock in this district.

H. B., Wilmington, S. A., July 4th:—We have had a fearful drought here for two years, extending for several hundred miles around and most of the stock have died and most of our bees have starved to death. The blossoms did not come out properly. I have been feeding the ones we have left about nine months on sugar but having had splendid rains I think things will soon mend. Honey is 17/6 per 60lb tin just now, but comes down to 10/- in good seasons. The best honey here comes from box and sugar gum. We have also red gum, blue gum, and peppermint wattle and jacko and the bees fly almost all the year round. There is no Foul Brood about here, but plenty spring dwindling.

F. L., McLaren Vale, S. A., July 7th:—Yours to hand. Refering to the Bee Associations there are none in South Australia that I know of, but there are plenty of beekeepers in S. A. North of Adelaide where most of the honey comes from I think. I live in the South. A beekeepers' supply store is wanting in Adelaide Perhaps what you write about the A. B. B. is right and you would have your work cut out to please everybody. I have only beekeeping 7 years, but I know a good article when I see it. Loyalstone's suggestion is a very good one and might be worked. Are you a beekeeper as well as the A. I. Root family? There is a lot to learn in the little bees and they are interesting:

A beekeeper, but not a supply dealer or queen seller.

Dr Miller, writes:—Does sweet clover spread rapidly by means of seed? and does it thus readily get a foothold upon cultivated ground at some distance? No burrs or wings are attached to the seed as with some other plants, and the ripened seed falls directly to the ground carried if carried at all, after its fall to the ground. Its chief means of spreading

is by means of sticking to the wheels of vehicles when the ground is in a muddy condition, and in this way it may slowly be spread to some distance. And that's perhaps the only way in which it can spread more than five feet in a season. Not far from my home I can find where sweet clover has been growing for 40 years on the roadside without crossing the fence to encroach on cultivated land. Let a patch of sweet clover be growing on one side of the road and it may not cross to the other side for 10 years, although it will gradually travel further along the one side. Scarcely a weed that grows will do less at spreading upon cultivated land.

T. B., Holmwood.—Just a few lines of bee news as I never had the pleasure or sending you a line before. The *A.B.B.* arrives very regularly. The past season was very poor. I commenced the spring with 18 colonies, scarcely any swarms From the 18 hives I extracted 1380 lbs of honey and left 10 frames of sealed honey in top story to winter on. The white box is out beautiful and bees are bringing in pollen like spring time. I have a swarm of hybrids that are all day hanging on to each other at the entrance and trying to fly away with each other and yet none are killed. Perhaps you could tell me the reason. I won't trespass on your valuable space any more for fear "Sparrow" has a peck at me. He is like the dog in the manger, don't want the bee industry to advance any more. It is a good job he is not editor of the A. B. B. or a beginner would not learn much from it.

A Mr. Harding has invented another non-swarming device. He places two hives together and immediately over the entrance of each he places a tin tube 6 inches long, one inch in diameter. Just before swarming time, close the main entrance to hive No. 1. All the workers come out through the tube, and cannot get back, consequently they go into the adjoining hive. In about four days unclose the entrance to hive No. 1, and close up hive No. 2. This throws all the workers back into No. 1. You will readily see that this discourages swarming, and if queen-cells are sealed, they will be torn down, etc. The workers will store honey very rapidly—in fact, just as fast in one hive as the other. One can transpose the worker force and all young bees that come out for their first flight, and, I think he said, about twice changing was sufficient to discourage swarming for the season.

H. R., Thurgoona:—We are experiencing what I fear will prove a severe winter for the bees. The nights very cold, but the days so warm that the bees are lively, and as there is no honey to be gathered I fear they will run short of stores. I was rather unfortunate in moving this time as the combs broke down and smothered five out of sixteen swarms. Hoping for a good season next spring, and wishing you great success.

C. P. Dadant, in *American Bee Journal* says:—If it is desirable to make the hive last as long as a colony of bees can occupy it, the underside of the bottom and the blocks may be painted with heated coal tar. We painted some 40 hives in this manner in 1870—27 years ago—and those bottom boards are all good yet.

J. B., Palmers Island, July 3rd.—Mr. Tipper, Dear Sir,—I have just got your card re thin honey. It was not got from lucerne as there is only a few small plots of it grown around here. It don't do well at the lower end of the river, I have about half an acre and the bees don't seem scarcely to look at it. The thin honey I referred to in my letter was got from white clover right enough as the paddocks were white with it from September to November. I always keep a sample of honey that is gathered from different sources and I have a lot of them before me as I write this and the thin honey I referred is much whiter than any of the others, and nicely candied now just like lard and I find out that people like it much better this way. I tried crimson clover but it would not do here. I made

three different sowing of it but died off when the hot weather came in. We have had another light flow of honey in the end of June from ti-tree and I had to take my half super out again and put them on after having them all stocked away. We are getting nice fine weather here and the spring is with us already the country is beautifully green-July 3rd clover flowering everywhere.

J. G. C., writes:—We are having a very mild winter this year, more like spring weather than winter. Bees seem very busy in the middle of the day messing about around the wattle which does not bloom till next month. Sand hill and blue gum are still in bloom in some places. The bees seems very free of that scourge, paralysis, this winter, though I was troubled by it all through last winter, leaving a good many weak colonies in the spring when it disappeared very suddenly from every hive affected. Wishing you and the A. B. B. every success.

Mr. J. Wilson-Green, Queensland.—I heartily endorse your footnote Mr Editor (on page 65) to "Sparrows" protest against so much *rubbish* you publish monthly and am glad to see you encourage beginners to publish their successes or failures. I don't see that is rubbish, if so the American papers are full of it. In the first instance referred to Amateur states his experience and requests advice from your readers. The second relates his experience in curing a colony of foul brood and in the latter part he gives an instance of how Foul Brood is allowed to spread unchecked. I consider every encouragement should be given to beginners to state their experience and encourage them to write. That is the way to get information or any short cut they may discover. Shortly after I commenced beekeeping I wished to make some frame hives myself but had only ⅞ inch thick timber, so I made frames similar to the present thick top, as it was too much work to saw by hand at the time. I was afraid it would not do, still I noticed they prevented burr combs to a great extent, so I rode over to a prominent beekeeper and asked his advice. Why, said he, you have struck the very thing I am going to try and am glad to see they do so well with you. At that time they were greatly discussed in the American papers. I still have similar frames, only standard size. The first were made to fit the box in all lower stories of my apiary of 220 hives.

E. H., Quirindi, June 26, 1897 :—I have a small apiary of 50 colonies all black save one, which proved themselves to be experts at honey gathering. Honey coming in freely at present, from white box. Lovely warm weather for winter, bees at work almost every day,

J. B., Palmers Island, June 20th:—I will try and give you some bee news. We had a fair flow last spring from clover, but the winter and spring was too dry for it. I found it was a very thin honey, and the people that I had been selling good candied honey to did not care for it. I wondered why they were not coming as they had been in the habit of doing with their billy can, and sometimes with a bucket for honey, and I came to the conclusion that it was the thin honey that was doing it. I did not take this honey from the bees for over a month after it was brought in, so that it should have been well ripened. I will never sell thin honey again to my customers as they won't come back for more. We got a very good flow from bloodwood at the end of January and beginning of February. Then the Ti-trees came out for a week in the middle of March and we got a good flow from them. They came out in bloom again about the first of April, and we got a splendid flow the second time. I left this lot with them for a couple of weeks to get well ripened, as I did not expect any more. I had just got this lot extracted and all supers put on, and combs cleaned up nicely and taken off again and stacked inside and everything made snug for the winter. But to my great surprise the Ti-trees came out in bloom again the first week in May, and

I had to put the supers on again, and I got a splendid flow the third time, even the brood chambers were chock full of honey. Most of them had little or no brood in them. I have 18 nuclei mostly three frames, and I got some fine combs built out by them. I had to take the full combs away from them and give starters to give them room. It is wonderful how soon these little colonies will build you out nice combs when there is plenty of honey coming in. I have just finished six more three frame boxes. I make them all at night and paint them nicely both inside and out, and nearly all different colours outside. A kerosene case taken carefully to pieces and cut to proper size, and the ends rabitted for frames, makes a very nice box, and four bits of wood about ⅝ square and four inches long nailed on ends and sides for handles. I sent a few 60lb tins of honey and two dozen very nice looking sections to Sydney on the first of May, and got the cheque back for it last week The extracted honey brought 2½d and the comb honey 2½d each. What do you think of that, Mr. Editor ? I sent this small lot for a trial to see what comb honey would bring. But no more for me ; we will eat them ourselves after this and if I have any to give away it will be to the people and children that we are acquainted with, not to the people in Sydney that I don't know. I see by the January number of *A.* B. B. that only just came to hand about the same time I got the return for this honey, you advise not to send comb honey till the winter as it is scarce then and will bring 6d or 8d each ; mine didn't anyhow. You will remember that my January number went astray along with many others, and you sent me another one about the end of May. I would like to say a lot more, Mr. Editor, but I am afraid Sparrow won't like it.

F. C., Bingara 19th June 1897 :—I commenced beekeeping as a pastime in Oct. 1894 by giving 10/- for a black swarm in a box. They remained in the box with another smaller one on top with small connecting hole for 16 months. When tiring of this unsatisfactory way, I obtained a framed hive with sections to which I transferred, following instructions in a small guide book. After that feat matters became interesting, the swarm soon gained strength again, sections were more or less filled, acquaintance with queen was first made, moths were successfully mastered. I then obtained a text book (Quinby's), and with sundry scraps from various papers, I ventured on obtaining a swarm of Italians, but these proved a loss, the queen dying in the winter. So next spring I obtained an untested queen by post from Queensland and succeeded first attempt at introducing. I now have 9 hives, 6 being filled with the Queensland Italian queen and her offspring, some being equally as well marked as the mother colony, others darker from crossing with black drones. The remaining three are black. I intend obtaining two more Ligurian queen next spring and hope to better my breed and make all hives Italian. I find they gather much more honey than the black ones, though the blacks here work better during cold weather. I think mine must be the yellower Italian. I have no extractor, simply cutting out comb from frames and straining. I use all Hoffman self spacing frames with two stories, 8 frames, or half stories with sections or shallow frames. My best hives have given me 80 pounds of honey ; I expect to get that next season from each of the nine. I am endeavouring to induce all I can to commence keeping some bees in frames and show mine to all who care to see them, and sold one of my own Italian made swarms, and several require some next spring. Having no extractor I have all my hives full below and several I have left the top story all for the winter. Your May issue satisfies me they are safe. I placed a board between the two stories with one or two holes. They all appear very snug. I think an apiarian would do very well here, as with attention and

appliances the 300lbs spoken of by others in your valuable paper per hive could be gathered. Prickly pears are abundant, apple trees, orange, and peach ; pepper trees and Ironbark, box and other bush. I'm told the narrow leaved Ironbark is now in full bloom and box are I know. I never regret commencing keeping bees. They are very interesting, have returned me all my outlay. I keep account of each hive and find them a most profitable investment. I have had losses in queens and swarms, but on comparison with many of your correspondents seem to have done well. Ants are a little annoyance at times, moths none to the Italians ; the blacks are more or less always troubled with them. No disease is here that I can see except perhaps slight paralysis which I gather is the inbreeding which I'll remedy in spring. I find advice gathered from your paper most useful, never having seen an apiary or framed hive till I purchased my first.

J. K., Sydney, June 14th 1897 :—I have known a virgin queen to kill a worker bee, and as my experience differs from that related by G.E.J., I will state particulars : I had occasion to cut out queen cells from a hive of blacks ; these cells were just about to hatch and the reigning queen was piping as well as those enclosed in the cells. I cut out five cells, three of which I carried indoors. I left two temporarily on the ground and when I returned to pick them up, I found that one still contained a queen and the other had hatched, but she was not to be seen. Shortly afterwards I heard a queen piping outside the hive and quite close to me and no matter where I went I could hear the sound of Zue ! Zue ! Zue ! but no queen was visible. I proceeded indoors and removed my hat and veil, and would you believe it, there was her majesty perched on the portion of the veil that had been close to my ear. I was greatly amused at her rare musical talent displayed outside the hive, and I placed her in a cage with candy and procured a few bees from her hive to keep her company. I then let one worker into the cage, when both queen and worker dashed at each other on the instant. The worker was stung to death at once. I then passed a second worker in and both dashed at each other when suddenly they seemed to realise that a mistake had been made and ceased fighting. The worker seemed the worst for the encounter but soon recovered, when both caressed. Strange that the queen then returned to the dead worker and examined it carefully and carressed it, showing unmistakable signs of her regret. I have observed other instances of affection and attention displayed by working bees to each other and to their queen, which would shake entirely the statements of at least one great writer who states that bees show no regard or affection for each other. As I have already occupied too much of your space I shall hold over (until another time), examples which would clearly prove that the little busy bodies are not deficient in kind attention to each other. On page 38, May number, I recommend *Tecoma Velutina* as a good tree or *shrub* for beekeepers to plant. Now why do you call it a *scrub* as I wrote the former word. Your compositor has evidently a fertile imagination.

CAPPINGS.

From American and other Bee Journal.

Electrolyzed Sodium Water—Salt water into which electricity has been conveyed by an electric battery—is recommended by G. A. Golden, as a cure for both Foul Brood and Paralysis.

Sprinkling pulverised borax is recommended as a remedy against ants.

To keep insects out of sections, wrap in slightly waxed paper. Dip the paper in melted wax and close up around the sections before it cools.

The Codlin moth lays its eggs after the blossoms fall, so that spraying the blossom when in bloom does no good, but also destroys bees who do the fertilising at that time.

Chas. H. Thiers, in the *American Beekeeper*, says he has experimented for a number of years, and finds the late fall reared queens far superior to the spring bred queens.

Before the Christian era the Jews in Galilee made hives five feet long and eight inches in diameter, out of mud baked in the sun.

Bee editors are sometimes asked funny questions. Recently the editor of the *Southland Queen* was asked:—"Could I start by buying a queen or would I need a colony of bees?"

L. A. Aspinall in the *Beekeeper's Review* says, when a colony becomes queenless in winter or early spring, it can be detected by the bees not carrying water. The water carriers can be detected by tteir distended abdomen as they enter the hives.

Ed. Jolley in *Beekeeper*, says:—I consider it not warmth but dryness that is the absolute requisite to successful wintering, and I argue that bees can be kept dryer in a *single* walled hive with a *good top packing* than they can in the best chaff hive ever made.

G. M. Doolittle says:—If you have much experience with bees, and many good colonies, or as many as you think you can handle properly, it would pay better to give the good colonies the needed care, and let the little ones take care of themselves, uniting them in time for the honey harvest.

To clean kerosene tins, take the cap off and put the can into the stove oven and heat moderately, being careful not to heat so hot as to open the joints. Leave it in the oven till the odour has all disappeared. All the refined mineral oils are very volatile, and very little heat will evaporate them.—J. W. Beckworth in *A. B. J.*

Isaac Lundy, in the *Beekeeper's Review* puts drawn comb in the first super for raising sections. When that is fully occupied by the bees he adds underneath another super of sections containining foundation only. He has had better results in getting the foundation drawn out properly, by exchanging the first or top super when the sections get nearly full, for one only partly full of honey, rather than allow more than two supers for the bees to work on at one time. He says "a few colonies in the right condition, and with the proper manipulation, will supply a large apiary with all the drone combs for surplus honey that the bees can seal properly."

G. M. Doolittle, says:—I do not pretend to be an authority in this matter, but my experience would indicate that those who argue that bees must be set right down in the very centre of the honey-producing flora do this more from theory than from actual knowledge; for I am quite sure that there would not be enough difference in the results, at the distance named, to pay for moving the apiary up to the bloom during the time of blooming of the flowers, and back again for the rest of the year. Bees fly very rapidly, and the exercise seems to be invigorating; and if those who argue depopulation of hives could have been here last season when my bees worked for eight days on basswood from four to eight miles from home, and seen how the honey in the sections grew as if by magic with hives gaining in number of bees all the while, I think they would not put forth such fallacious claims. I am convinced that bees go from one to three miles from home from choice; and I would not give to the amount of ten dollars in sacrifice, in changing a position a mile and a half from the honey flora to one right in its midst. I have had good crops of buckwheat honey stored when there was not a square rod of buckwheat in sight of the apiary, and not to exceed 13 acres within the distance stated (a mile and a half), while hundreds of acres lay from three to five miles away. This, with tons of basswood honey stored from the top of the heights, seven and eight miles away from my apiary, during the past 25 years, leads me to think that the centre-location parties have not had any practical experience along the lines they are talking about.

A writer in the *Southland Queen* says there is no smoker fuel equal to sunflower stork, stem, leaves, and crown.

The *Southland Queen* says :—A firm in Pittsburg, purchases bee stings, from five to ten thousand a year. We hang a comb of bees up in front of us, pick the bees off one by one with the left hand, and with a pair of watchmaker's tweezers extract the stings, mashing the bees at the same time and drop the stings in vials of sugar. We usually get bees from colonies that have laying workers, when we have them, as such bees are not much good. One person can extract 5,000 in a day.

Paint for Hives.—Take ½ bushel of unslacked lime, slack it with boiling water, cover during the process to keep the steam in ; strain through a fine strainer, and add one peck of salt dissolved in warm water ; three pounds of ground rice boiled to a thin paste, and stirred in while hot, ½ pound of Spanish whiting, and one pound of clean glue previously dissolved. Add five gallons of hot water to the mixture ; stir well, and let it stand a few days well covered. It should be applied hot. A pint will cover a square yard if properly applied to wood, stone or brick."

Holyland Bees.—In colour they resemble Italians somewhat, only the yellow bands are narrower and the third band does not show as plainly as in the Italians. The underside of the Holyland bees is the best side to judge from, as the hair on the bees is of a grayish blue or ash colour, and they look a little like they had been walking through flour and got some of it on them. The Holyland bees, when pure, are more slim than Italians and more pointed. Their actions are very much different from other races of bees, very fast and quick upon the wing, fly almost like bullets, and Holylands seldom fall in front of their hives and pant before entering, notwithstanding they seem to carry just as heavy loads of pollen and honey, but they are stronger. —*Southland Queen.*

A Remedy for Moths.—Put some strong vinegar in a pot and set it under the combs in a closet. Then put a red hot bolt in the vinegar and shut the door quick. The fumes kill the worms.

The editor of *L'Apiculture*, says if extracted honey is allowed to stand four or five days, and then drawn off below, it is as clear as if it had passed through the finest strainers, which he considers useless.

Carson von Blaricum relates how he saw a queen bee stung, and drew the sting from the underside of her thorax. She appeared dead. Placed her in a water bath thickened with saliva ; she recovered. When returned to the hive, the bees cleaned her, and she did well after.

Carson von Blaricum cures pickled brood. He uses an ear spoon, containing one teaspoonful of honey, diluted with five drops of water, adding three drops of phenol or carbolic acid. Moisten the ear spoon and introduce it into the cell, and extract the dead brood. He says, taken when first discovered, it can be executed with rapidity.

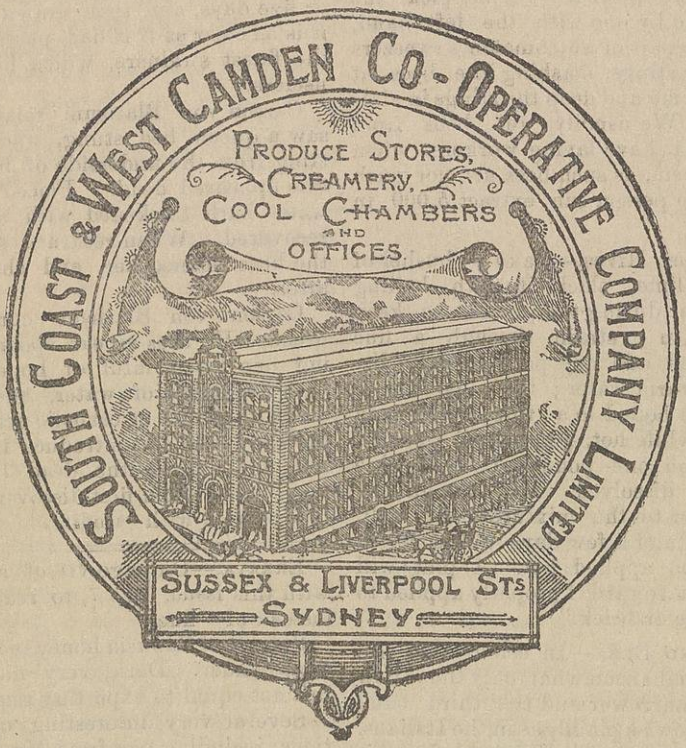
Errata.—On page vii of supplement with this issue, line 7, to read "pure" instead of "fine."

Sample of Banksia honey received from Gippslander. Dark, very nice flavour, but not equal to exporting requirements.

Several very interesting communications, including one from Mr. T. Bolton, H. H. Davey, and others, unavoidably held over till our next.

We acknowledge receipt, from A. I. Root and Co., of their annual catalogue of beekeeper's supplies. As usual it is as complete and well got up as ever. From G. M. Doolittle, circular and price list.

Honey Sales a Specialty



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