The Australian bee bulletin. Vol. 2, no. XIII April 27, 1893

West Maitland, N.S.W.: E. Tipper, April 27, 1893

THE AUSTRALIAN BEE BULLETIN.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

VOL. 2. No. XIII. APRIL 27, 1893. PER COPY, 6d.

Per Annum 5s, booked 6s 6d; in Australasia, outside N.S.W., add 6d. postage.

BONUSES.

We have resolved to give the following bonuses to those who will procure us new subscribers:—

Any person sending us two new subscribers' names with their subscriptions (10s) for 12 months; one *Queensland Bee Book*.

Any person sending us five new subscribers' names with the amount of their subscriptions (25-) for 12 months, a *Doolittles' Queen Rearer*.

Any person sending us six new subscribers' names with the amonnt of their subscription (30s) for twelve months, *Root's A B C of Bee Culture*.

Any person sending us eight new subscribers' names with their subscriptions (£2) for twelve months, *Langstroth* by Dadant, the best, most complete and latest book on bee culture.

Contents.

TO CORRESPONDENTS

Victorian Postal notes are not payable in New South Wales. They have to be sent back to the colony from whence sent, and a deduction made accordingly. Postage stamps are more negotiable.

☞ [We shall be glad to insert in this column Advertisements of dates of meetings of the various Bee-keepers' Associations.]

Hunter River Bee-Keepers' Association.

MONTHLY MEETINGS.

—AT—

Technological Rooms, West Maitland.

TUESDAY, MAY 30.

TUESDAY, JUNE 27TH.

MICH. SCOBIE, Hon. Sec.

The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEE-KEEPING

WEST MAITLAND.—APRIL 27, 1893.

THE "BEE BULLETIN" Hive with this issue commences the second year of its existence. It started with a small nucleus that has been increasing every month. This last month added 190 names to our list, though we have to find if they are workers yet. Pollen and honey came in, but not sufficient to keep the proper warmth, and but for syrup feeding it must have died out. Many bees have brought honey and pollen nobly, but there are others who have used the hive without adding their quota to its support. Now we would like for the hive to increase, to put on another and another super, and go in for sections. To do this we need both honey, pollen, and plenty of bees. Will those bees, who have not sent in either, make a beginning. Send pollen in the shape of items of news and something to instruct your fellow beekeepers. Send honey in the shape of your advertisements and subscriptions. We will unite all stray bees that accept our conditions—5s. a year in advance. And then we will add supers in the shape of extra pages, and go in for nice sections in the shape of some good engravings and illustrations. Beekeepers, don't let us be syrup fed any more, but help the BULLETIN and the bee industry to prosperity and by so doing add to your knowledge of your little pets, increase the market for their product, and add general prosperity to the industry. In our humble way we have tried to deserve all we have asked for, and would fain do all we promise. Perhaps we have deceived ourselves as to results. Tell us if you think so. If, however, our efforts have pleased you send along your renewal pollen and honey, and we'll try and do better still. "Now beezes"—we say this coaxingly when we take the top cover off as we do now—if the BEE BULLETIN is deserving of it, roll the honey and pollen in, and may the next twelve months be bright to you and us, and may the gloom that now hangs over our beloved Australia give place speedily to gladness and sunshine.

DR. MILLER opens up a question in Gleanings under the heading of Heredity which may be summed up in the following questions. How can bees inherit viciousness from the qneen seeing she never uses her sting? How can they inherit good honey gathering qualities as she never leaves the hive to gather honey? Are not the good and bad qualities of bees due to the food prepared and fed to them by the nurse bees, during their larval period? We know a child fed by its nursing mother is affected similar to the mother through the milk and why not the food of bees in the same way. Put a clutch of eggs from a white breed of fowls under a black hen and frequently the chickens will have black spots. The question now is whether do the bees inherited from the queen the qualities they possess or from their nurses? If the qualities of bees are affected wholly by the nurses then their would be no advantage in changing queens in hives to gain qualities not already possessed by those bees, for the young bees would be fed by bees already in the hive and so receive of their objectionable qualities. We all know from experience that by superseding queens in hives whose bees are undesirable we can improve our stocks. Our opinion is the bees inherit their qualities from the queen, but the food fed to them during their larval period will affect them very much. According to this ar-arguing we do not get desirable traits into our stocks immediately the new bees have superseded the old but will do so in time the change being gradual.

If the food affects the bees do not a great many beekeepers make a mistake when they use their hybrid bees for queen raising. These hybrids, being generally more or less cross, prepare the

food for the royal cells and so give undesirable qualities to their queens which would be inherited by the workers produced by these queens. I know the argument hybred bees will build more queen cells than the pure race if left to themselves, but our aim is in the qualities of the bees, and these qualities should not be sacrificed for the number produced. In the modern and improved methods of queen rearing, as Alley's and Doolittle's, the number of cells produced cannot make this argument good, as almost any number can be produced over queen excluders by our best colonies. A little time carefully devoted to this question will decide it. Beekeepers who put it to test will please report.

THE CONVENTION.

As stated in the February number of the BULLETIN, the Convention has been fixed for the 28th, 29th, and 30th June, at Sydney. Nearly all the gentlemen requested to propose and second the various resolutions bearing upon the proposed subjects to be discussed have cordially expressed their willingness to do so.

It is not yet decided what building the Convention will assemble in, but negociations are in progress in reference thereto. As soon as this and one or two other matters are ascertained, a circular containing programme and full particulars will be forwarded to all known bee-keepers. It is expected that this assemblage of the craft will put in the shade all previous gatherings of the kind held in Australia. Let every bee-keeper make an effort to be in the crowd, and much good to the apicultural profession must ensue.

One "advanced" bee-keeper suggests that the proceedings of the Convention be wound up by a "Honey Banquet," the cost of which could be defrayed by the admissions. What say you to that, bee-keepers?

Who will make the next suggestion?

Any hint which would help along the Convention will be thankfully received by the Secretary, Hunter River Apiary, Largs, or the Editor *A.B.*B.

Thanks to interest displayed in the matter of the Convention by R. Scobie, Esq., M.L.A., President of the Hunter River Bee-keepers' Association, we are enabled to give our readers the following communications, which Mr. C. Mansfield, the painstaking and energetic Convention Secretary, has handed to us for publication:—

Government Railways of New South Wales,
Secretary's Office,
Sydney, 13th April, 1893.

Sir,—With reference to your call requesting that a concession in fares may be allowed to Members of the Bee-keepers' Conference to be held in Sydney this year, I have to inform you that the Commissioners cannot see their way to accede to the request for a reduction of rates equal to the charges made by cheap farmers' trains; but have approved of the concession of single fare for the double journey on this occasion being allowed, but it must be clearly understood that the granting of such concession does not form a precedent for future Conferences. It will be necessary for someone in authority to certify that the persons applying for the concession are delegates to the Conference. Sample certificate with authorised signature, together with list of delegates and stations from which they will be travelling, to be submitted; also date of proposed Conference.

I have the honor to be,
Sir,
Your obedient servant,
H. McLACHLAN,
Secretary.

R. Scobie Esq., M.P.,
Sydney.

Sydney,
13th April, 1893

Sir,—With reference to your enquiry about accommodation for the Delegates to the Bee-keepers' Convention, I beg to inform you that steps have been taken to secure the use of the Girls' High School from the Department of Public Instruction. The question of the Minister presiding at your first meeting has been referred to him, and his decision will be communicated to you as soon as it is known. You have the heartiest sympathy and good will of the Department, and we shall be very glad to do anything we can to help you. We have approached the Railway Commissioners with regard to reduced

fares, and I believe that with Mr. Scobie's assistance, we shall be able to get the desired reduction. You shall hear from me directly any decision is arrived at.

I have the honor to be, Sir,
Your obedient servant,
HENRY L. ANDERSON,
Director of Agriculture.

C. Mansfield, Esq.,
Largs.

The 4th Congress South Australian Bureau.

(*From Garden and Field.*)

At a meeting of the fourth Congress of the Agricultural Bureau of South Australia, Mr. A. W. Stuart Wild read a paper on "The Production and Marketing of honey." The following are a few extracts :—

He first stated that honey is digested nectar gathered from flowers, and contains water, several sugars and pollen ; it is impossible to give exact composition. The nectar is deposited in cells until it is ripe and if left uncapped or extracted and kept at a temperature below 70o it will granulate, if heated and sealed up warm it will remain liquid until exposed to air.

The sources of S. A. honey are the blossoms of the euclaypti. The quality of the honey is good, but unfortunately the peculiar flavour is not acceptable to the English palate.

In supplying the English market great care has been taken to send home the lightest colored honey, which from a S.A. point of view is the first point in judging honey, and frequent have been the complaints that the honey tastes of tallow. The light honey has been gathered from the scrub gums, and has to my taste the flavour of castor oil.

The points to be considered in judging a sample of honey are : first, its flavour ; second, the brightness and clearness ; and lastly, the colour.

It will take years before we can thoroughly introduce Australian honey on the English market. The English buyers are doing all in their power to keep our honey out, and are only too glad to seize hold of any excuse to bring discredit on it. In this they are aided very much by the following :—1. South Australian honey, when tested, shows adulteration owing (as Mr. Turner has observed) to the presence of sulphate of lime. 2. The honey we have taken such care to send home as our best sample is, although in color very beautiful, of a miserable flavour. Honey has been exported in an unripe condition, and packed in old kerosene tins. 4. Unscruplous people have mixed other honey with eucalyptus oil, to give it a distinct eucalyptus flavor, and then sold it as Australian honey.

Only the best honey should be exported, and if it could be managed it should be sent through the hands of an expert, to be graded before shipment. On the Continent our honey has met with favor. Why not unite and establish a market there, instead of selling our honey, as we have been doing, at ridiculously low prices ?

In our good seasons we have an exportable surplus of from 80 to 100 tons, which, in the past has found a market in New South Wales and Queensland, but lately the local supplies in these colonies have been almost sufficient for home requirements. The Northern Island of New Zealand produces more honey than is required, but the Middle has to import a portion of its requirements. In the London markets the value of honey has a very wide range ; what we consider prime South Australian sorts at times going begging at 3½d to 4d per pound, whilst Californian white sage has been realising from 10d to 1s per pound. This white sage is a herb similar to the garden sage ; it grows in a strip of country known as the "bee belt" in California, blooms nine months in the year, but is most luxuriant in May and June. From August to October the honey produced by the flowers is not more than sufficient to keep the bees.

Now there is a matter I should like to hear an opinion about, I mean the tin question, The producer buys new tins, for which he pays at the rate of 1s each. These tins weigh a little over 2½ lbs. Buyers not only demand that the tins should be given in, but they deduct 3 lbs in weighing. I think it would be only just and fair that they should meet us half way, by taking the gross weight, especially as these tins are made up again into two-pound tins for retailing.

Once in a while one hears of a big yield, which leaves the impression that bee-keepers are having rather a good time of it. It is a mistaken idea that all you have to do is to put a swarm into a hive and leave it to take care of itself. They need close and constant attention to nurse these colonies into a working strength. Numbers of people rush into the business with a belief that it is an easy way of making money. They soon drop out of it again, but what an amount of harm they do. Their bees, perhaps, die on their hands, it may be with that pest to the beekeeper "foul brood." He is ignorant of the disease ; he has lost his bees ; his hives and combs are thrown on one side, but how about his neighbors bees, who, bent on a foraging excursion, explore these hives and take back to their own homes this fearful plague. It is with people like these that we have asked for a competent man as an inspector, to point out to those who are ignorant on the subject what it is and how to treat it. We have asked that this appointment may be made so often that we have given up in despair. I would willingly myself pay a tax on each hive to have this protection, and I feel sure others who like myself are devoting all their attention to the industry would willingly

do the same. The inspector, after the first general inspection, would only be required a few months in the year, and he should pass an examination before he is appointed. It is quite evident something must be done to protect the beekeepers. Foul brood is very much on the increase, and other diseases have made an appearance this last season

Mr. S. J. Mitchell.—The question with regard to foul brood should be at once handled by the apiarists with vigor. The Beekeepers' Association has asked the Government to appoint an inspector, and also to make the Foul Brood Act operative, The late Government were good enough to give us some encouragement, and had they been fortunate enough to remain in office no doubt some person competent enough to fill the position of inspector to deal with the foul brood question would have been appointed. The beekeepers had the support then of the late Minister of Education (Hon. J. H. Gordon) and of Dr. Cockburn. It is the duty of the beekeepers to agitate until their views are forced upon the Government. The foul brood question has been legislated upon in various countries, especially in Germany, where an act has been passed making it a crime with a very heavy penalty to keep foul-brood hives. From inquiries I made around Mount Gambier, which appears to be eminently suited for a honey district, I elicited that foul brood had taken such a hold of the box hives that the apiaries in the district had never recovered from the evil effects. In the North, as far up as Hawker foul brood will be found, and it can be safely said to exist from Mount Gambier in the South to Hawker in the North. Honey production is paid attention to by a few careful people only. I know of one case in the North where a friend of mine started with from 20 to 25 hives. He is a most intelligent man, with good knowledge of beekeeping, and a sincere desire to keep bees and profit by the sale of the honey. He settled in a place were there are a few hives and a large quantity of honey-producing trees. Foul brood got amongst the bees, and though he went to enormous expense, and cleared out his hives, at the end of the first year his colonies only totalled seven. At the end of the second year they totalled nine, and this year he had repeatedly to throw out bees from hives which had become affected with foul brood. There is an indifference with some persons who have bees with respect to foul brood. When an offer was made by an experienced beekeeper to throw out the foul brood, the reply he got was "Buy them." It is time steps were taken to make a person criminally liable for having hives affected with the foul brood after having been made acquainted with the fact. Before we talk about markets for our honey we must have some statute on our law books that is workable. I think the reason why many old beekeepers cannot be persuaded to give up black bees for the Italian, is because the black bees can be shaken more easily off the frames. Mr. Turner has told me he uses a turkey quill for the purpose of brushing the bees off the comb. I have found difficulty with the fibre brush. At present it is perfectly useless to put South Australian honey on the English market because of the bad name it has there. An association of gentlemen should be formed here who would make it their business, not as a means of personal gain, to put honey, properly graded, and in tins or bottles with an attractive exterior, on the English market. At present it is sent home in an unattractive way. The Americans who send their honey to the English see that the tins in which the honey is have on them a most gorgeous label, whereas our labels are very ordinary. personally I would have the honey sent home in glass jars, and put up in an attractive form. In that form it could be taken round to the wholesale houses, and with a distinctive Australian label I believe it would take. The tinning of unripe honey should be guarded against. I have no doubt a number of gentlemen patrotic enough could be found to form this company. When a proper mead beverage can be made, tasteful to the public, another means of profit to the honey producer would be established.

Mr. Turner.—In the fourth paragraph there is a statement accredited to me that the polariscope with South Australian honey is valueless. That is a mistake. In England and Germany there are large manufactories for the manufacture of glucose. Commercial glucose invariably contained sulphate of lime. Every sample of Australian honey which reaches England has been declared to be adulterated. That is one of the things which has stopped the sale of Australian honey in England. In some countries the river water and lake carry sulphate of lime. What are our bees to do? They drink the water, and are bound to store sulphate of lime.

Mr. A. Molineux (Central Bureau)—In New Zealand they had much the same difficulty as that over here with regard to honey, and the New Zealand beekeepers combined together and secured somebody at home who would take their honey in hand, pack it up in glasses, and put it I think into grocers' shops, where the people would think of dealing with any middlemen. The result is that the honey is quoted at a higher figure, and has as good a reputation as Californian honey.

Mr. A. Coleman (Mount Barker).—The flavor has been the great cause of the Australian honey not taking on the English market. We have sold tons for medicinal purposes, but the complaint with regard to that we have sent home was that the flavor was inferior.

The Hon. J. Warren, M.L.C.—With respect to what has been said about the peculiar flavor of South Australian honey being distasteful to the English palate, I noticed sometime ago a paragraph appearing in the report of the Agri-

cultural Bureau referring to the New Zealand beekeepers' experiences. The New Zealand people took some means to place their honey directly to the customers. According to the report they cannot now supply the demand. Producers interested in getting a better price for the honey should endeavour to have one large place for receiving it in town, and there make the honey of one sample and place it on the English market.

H.R.B.K. ASSOCIATION.

The usual monthly meeting of the above was held at the Technological Museum on Tuesday evening, April 2. There were present Messrs. Patten, Munday, Pullen, Hudson, W. S. Pender, E. Tipper, J. Harden, G. Pender, and R. Nichols.

Mr. Patten was voted to the chair, and apologised for the absence of the Secretary, Mr. M. Scobie. Mr. Mansfield, the Convention Secretary, was not present, but it was understood that he was away from home making arrangements for the forthcoming convention.

Mr. Hudson spoke of visiting Mr. Macansh's Bee Farm near Gosford, where there are 150 colonies in Berlepsch hives.

Mr. W. S. Pender opened the subject of using honey in cookery by stating that honey could be used as a part of the ferment in cookery. Honey having an acid property, which became more distinct on being heated; if while heated a small quantity of soda be dissolved in warm water and stirred into the honey it will cause a slight effervescence; if while it has "a good head" it be worked into flour with other ingredients it will make as good—if not better—cakes than any baking powder, at the same time sweetening the cakes. If the effervescence is allowed to cease, the soda has neutralized the acid, the honey can now be used as the sweeting ingredient only, and the cookery mixed in the usual way. It is the acid property in honey that has made it objectionable; but by either making use of it, or neutralizing it as above, it answers splendidly. Mr. Pender has been experimenting and stated these facts, with the view of encouraging other beekeepers to experiment in this direction, for by so doing and publishing the recipes, we create a market for our honey. A long and interesting conversation ensued, the various members urging the need of experiments in cookery to induce a larger consumption of honey, and the superseding of sugar by it for various purposes. To increase the market of honey, we should use it regularly on our own tables, and if from home, especially at hotels, enquire for it.

The subject of mixing qualities and grades of honey; and the different densities was also talked of. Mr. Patten instancing a honey from blackwood, of which a kerosene tin full weighed 70lb., and a yellow box honey 66lb.

Mr. Munday promised to exhibit bread at next meeting, made with sugar, and the same recipe made with honey, as he maintained that that made with honey was very much the superior.

It was agreed that wiring of frames should be the discussion at next night of meeting.

Mr. Munday stated that when the bees he had saved from the flood were removing honey from the hives in which the bees had been drowned, the queens almost stopped laying. Every bee seemed to be engaged collecting honey; the queen was neglected. He also stated that when the queens diet is honey only or when she feeds herself she will not lay. To lay the queen must be fed by the bees on food prepared by them similar to the food with which the larvae are fed. This is one example of the wisdom of Providence in thus giving the bees the power to control the supply of eggs required for the hive.

Mr. William Manyard Singleton writes:—I am very sorry to inform you that I suffered very severely by the flood. I lost all my bees except one hive, and in addition to that, the principle part of my furniture and effects, excepting two pieces, namely a chest of drawers and cheffioneer.

NATIONAL PRIZES FOR 1892.

Our thanks are due to Mr. H. C. L. Anderson, Director of Agriculture, for the following :—

		100 Beehives and over.					Over 30 Hives, and up to 100.					
SCALE OF POINTS FOR JUDGING BEE FARMS.	Maximum Number of points.	J. E. Taylor, Cowra (First Prize).	W. Niven, Eugowra (Second Prize).	R. Macansh & Co., "Narara," Murrumburrah, (Highly Commended).	W. J. Dockrill, Casino (Commended).	F. A. Maxwell, Albury.	Messrs. W. Seabrook and Co., St. Ives (First Prize).	B. Carlill, Spring Grove, Casino, divides second prize with Geo. James, of Gordon.	Geo. James, Gordon, divides second prize with B. Carlill, Spring Grove, Casino.	Chas. Mansfield, Largs (Highly Commended).	H. B. McFarland, Rooty Hill (Commended).	John Halsted, Eglinton, Bathurst.	P. Drummond, Lawrence, Clarence River.
General arrangement of stocks	10	9	9	8	8½	9	9	8½	8½	7	8	7	8
Strength of stocks	10	9	7	7½	8½	7	8½	9	8½	9	7	7	5½
Handling	5	4½	4½	3	3½	3½	4½	4½	3½	4½	3	2	2
Home-made hives and barframes	10	9½	7½	8	8½	6	*4½	8½	7½	9	9	8½	7
Professionally-made hives and barframes	5						‡2½						
Home-made appliances ..	10	6	7½	6	7	6	8	6	7	7	7	8	0
Professionally-made appliances	5												
Stored honey; purity not quantity (extract 2, comb 2, section 2)	6	5½	6	5	3½	6	4½	3½	†3½	4	3½	4	3
Beeswax	4	3½	3½	3		4	2⅓	4	3	3	4	2½	3½
Nuclei for queen rearing ..	5	5	2	3½	4	0	3	4	4½	5	4	0	0
Cultivation of honey-producing plants	5	2	2	½	½	1	1½	0	1	½	1	1½	0
Arrangement of operating house	5	3	3½	4	2½	2	4	3½	4½	2	2½	2½	3
Arrangement of workshop ..	5	5	3½	3½	4	4	3½	3½	4	3	2½	4	3½
Freedom from enemies and disease	10	10	9	10	10	9½	10	10	10	10	9½	10	5
General cleanliness and neatness	10	8	8½	9	8	7	9	9	8	7	8	9	7
Extracting in presence of Judge	5	4½	5	4½	4	2½	4	3½	4	4	3	3½	2½
Total, with home-made appliances, &c.	100	84½	78½	75½	72½	67½	79	77½	77½	75	72	69½	50
Do. professionally made do.	90												

* Hives only. ‡ Barframes only. † Sections only.

FOUL BROOD.

[FROM THE CANADIAN BEE JOURNAL.]

THE FOUL BROOD BACILLUS (*B. ALVEI*), ITS VITALITY AND DEVELOPMENT.

Read at the Fourteenth Annual Meeting of the Ontario Agricultural and Experimental Union held at Ontario Agricultural College, Guelph, Ont., Canada.

By J. J. Mackenzie, B.A., Bacteriologist of Prov. Board of Health, Ont.

GENTLEMEN,—At the request of your secretary, Mr. Holtermann, I undertook for your Union some investigations on the subject of foul brood, the results of which I propose giving you in this paper. Although it is almost a year now since I undertook this work, under the auspices of the Agricultural and Experimental Union, it is by no means exhausted, and there are many points which require to be further elucidated, which I have not had time as yet to touch on, owing to the fact that investigations on foul brood had to be carried on simultaneously with my regular laboratory work. These points I hope to work at next summer, and reserve the privilege of reporting again to your Union on the results of further investigation.

The subject of foul brood is an old one to apiarists, and an intensely interesting one to Canadian beekeepers; but in reading over the Bee Journals one cannot help being struck with the great want of unanimity amongst beemen as to the disease, how it should be treated, how it is spread, and on many other points. Some would have us believe that the disease arises *de novo* whenever unsanitary conditions prevail; others claim that there is a speeific infection, and where the disease arises it must have originated from previously existing disease; some claim that the honey is the only method of transmittal, others that it is not, and so on. On every point there seems to be plenty of arguments *pro* and *con*.

I have attempted in my work to take hold of some of these controverted points from a bacteriological standpoint in order to aid in coming to some definite conclusion. Some of these points I should consider settled from the results of previous investigation, but as many beemen do not seem prepared to accept this, my work will have value as confirming what had already been done.

Before an association which includes many practical beekeepers, it would be superfluous to enter upon a minute account of the clinical features of the disease. Most of you know them better than I do. I certainly would not be prepared to "spot" foul brood in an apiary, although I certainly think I can under the microscope. The infectious character of the disease has been generally accepted for many years; but not until Cheshire and Watson Cheyne worked it out scientifically, was it definitely proved. They isolated bacillus (*Bacillus alvei*) which they found in the diseased brood, and which they cultivated on nutrient media for many generations, finally reinfecting perfectly healthy brood from these pure cultures. This evidence to a bacteriologist is absolutely conclusive that bacillus alvei is the specific cause of foul brood. Consequently, when I began my investigations on some samples of diseased brood which were sent me through Mr. Holtermann, I looked at once for bacillus alvei; microscopically and by means of bacteriological methods I had no difficulty in isolating a bacillus which corresponds in all points to bacillus alvei. It is a bacillus similar to that of Cheshire's in size, produces spores which are somewhat thicker, giving the bacillus a clubbed appearance. On agar jelly it grows rapidly, so as to cover the whole surface. In gelatine its growth is very peculiar, shooting out from the infected point in all directions. On potato it produces a yellow growth. All these characteristics show conclusively that it is identical with bacillus alvei. There seems no doubt, therefore, that the foul brood which we have in Ontario is the same disease, and produced by the same bacillus as in other places.

Many prominent beekeepers, both here and in the States, however, maintain that wherever unsanitary conditions are allowed to prevail, wherever chilled brood is allowed to putrify, or decapitated drones are left to decay in the hive, foul brood may arise *de novo*. This is not a new theory either in beekeeping or in medicine, but unfortunately it is a theory which is not supported by the results of investigation. Diphtheria naturally will develop more readily if unsanitary conditions are present, but it certainly will not develop if the bacillus diphtheria is absent.

The same is true of other diseases, and consequently when we come to consider such a decidedly iufectious disease as foul brood, and learn the facts about it which such men as Cheshire have told us of, we naturally come to the same conclusion. If I were to maintain that a Carniolan queen might lay an egg which would develope into a humble bee, beemen would be inclined to think that not only my bee knowledge, but also my scientific knowledge, was at fault, but yet in all the bee journals I find many prominent beekeepers maintaining that an ordinary microbe which produces putrefaction may become metamorphosed into the specific cause of foul brood. It is easy enough, however, to combat such an opinion upon *a priori* grounds; not quite so easy, however, to offer convincing proof.

In order to do this I thought it worth while to try some experiments. With this end in view I obtained some comb containing chilled brood, and endeavoured to isolate bacillus alvei from it, but without success.

There were plenty of other bacteria, but none

which presented the well-marked morphological character peculiar to bacillus alvei. Again I had sent to the laboratory a piece of perfectly healthy comb. I killed the brood by chilling, then I infected some of the cells from a pure culture of bacillus alvei. I allowed all the killed brood to putrefy in a moist chamber for two weeks; at the end of that time I obtained bacillus alvei again from the cells which had been artificially infected, but could find no traces of it in the other cells. I left this comb in a moist chamber for several months and again examined, but with the same results; in the cells in which bacillus alvei had been placed it was still to be found, in the others it was not present.

It seems to me that an experiment such as the above conclusively shows that there is a distinct difference between foul brood and ordinary putrefaction.

In considering the subjeet of the vitality of bacillus alvei, the first question which naturally arises is its power to resist heat. We know that bacilli which produce spores and those which do not stand in entirely different positions in this regard. The sporeless bacillus is destroyed at a much lower temperature than one which contains spores. Consequently in considering the question of the vitality of bacillus alvei, which produces spores very quickly and easily, we may confine our attention entirely to the vitality of the spore.

This is a special interest, as the question has been repeatedly raised, whether it is dangerous to use a comb foundation made from foul broody wax. Does the temperature to which the wax is raised in the manufacture of comb foundation sufficiently destroy the vitality of the spore? Can the spore germinage and infect the brood when once euclosed in the wax?

These questions have been raised by many careful thinkers among beemen, and certainly deserve attention. The second point ought to be considered first, since if surrounding a spore with a film of wax prevents its germination, we need pay no further attention to the question of heat. The crucial test of this would naturally be, supply a healthy colony with comb foundation known to contain the spores, and observe the result. This I had hoped to try with the assistance of your secretary, but other work came up which interfered with the carrying out of this experiment, and consequently it had to be postponed until next year. However, I was able to perform one experiment which throws some light on the subject. Mr. Holtermann, the secretary of your Union, sent me several pounds of a very fine wax, such as is used for the manufacture of comb fouudation. I cultivated the bacillus alvei upon agar jelly until I had a large quantiiy of the bacilli containing spores; this was carefully scraped off the jelly and dried, first in the air and then over sulphuric acid. The resulting greyish mass was pulverized with a sterilized pestle and mortar and finally mixed thoroughly with the melted wax, kept at a temperature sufficiently low to prevent the immediate destruction of the spores by heat. By this means an enormous number of spores were introduced into the wax. After stirring the wax for some time in order to insure a proper mixing, it was allowed to cool. This, as you all know, takes some time, when dealing with a considerable quantity. During the cooling I was careful not to disturb the wax.

After it had solidified I set out to discover if I could again obtain my bacillus from the infected wax. If it could germinate in the nutrient media it certainly would in the bees, and that point was to a certain extent settled. Now I obtained the following results:—

From the upper layers of the infected wax I was unable to obtain cultures of the bacillus alvei, either by melting the wax in the nutrient jellies, or by allowing particles of the unmelted wax to fall on the surface of these jellies.

From the under layers, however, the results were different; particles of wax placed on nutrient agar in an oven kept at 90 deg. F. became surrounded in twenty-four hours with a luxuriant growth of bacillus alvei. When the wax was melted into the agar or into beef tea I also obtained the bacillus. Consequently it looks as if the mere fact of enveloping the spores with a film of wax was not sufficient to prevent germination. I confess I cannot understand how a spore could germinate when surrounded with a film of wax. Spores in germinating require moisture, and if a spore is completely imbedded in wax, it cannot obtain sufficient moisture to germinate; I would rather believe, therefore, that in this particular experiment the spores had not each an envelope of wax, but that many of them were partially free from the wax. Now, if this was the case in my experiment, where I endeavoured to make the incorporation of the spores in the wax as thorough as possible, I certainly think it may frequently be the case when foul broody wax is used, and no particular precautions taken. That even when spores are thoroughly surrounded by wax they may not be freed occasionally by the workers, is a point which requires further elucidation, and upon which I intend to try some experiments next year.

In looking through tbe bee journals, however, I find it everywhere maintained by foundation makers that they never knew of a case of foul brood originating from foul broody wax; and I have yet to discover a well authenticated case where this has occurred. What explanation can we offer of this wide-spread opinion?

I explained to you above that I was unable to cultivate bacillus alvei from the upper layer of the infected wax. Your secretary also sent me a small specimen of wax which he stated he knew to be from foul broody comb. This I examined repeatedly for foul brood, but was only once unable to obtain it. I think we must look

to the physical conditions for an explanation of the freedom from infection through comb foundation. The difference in the specific gravity of the bacteria and of melted wax is so great that throughout the process of manufacture the bacteria tend to fall to the bottom. The first refining of the wax must of course remove the greater quantity, and the vast majority of the remainder will settle to the bottom during the process of foundation manufacture. But that the simple process of mixing the infected material with the melted wax is not sufficient to prevent germination, I think, is shown by the results quoted above, where simple fragments of infected wax when placed on agar jelly gave rise to a culture of bacillus alvei.

This question I hope to touch on again after I have had an opportunity of supplying healthy bees with foundation made from infected wax.

The other question is whether the temperature to which wax is raised during foundation making is sufficiently high to destroy the spores of foul brood? In order to decide this question there are several points to be noted. The first is the character of the heat. We know that moist heat will destroy bacteria and their spores much more quickly than dry heat, and Mr. Corneil, of Lindsay, has raised this point several times, claiming that the heat to which the bacteria are exposed in melted wax is not moist heat, but dry heat, consequently we must heat to a high temperature and for a long time, in order to destroy the spores. The point is undoubtedly well taken, and can only be settled by direct experiment. In order to determine the temperature at which the spores are destroyed in melted wax, I used a method which was first described by Koch. Sterilized silk threads were saturated with a beef tea culture of bacillus alvei in which there were large numbers of spores. These threads were then allowed to dry and in the dry state were preserved. These dried threads were introduced into the melted wax and allowed to remain in it for a definite time at a fixed temperature. At the end of that time the thread was introduced into melted agar or into beef tea, heated to the melting point of wax, and thoroughly shaken so as to separate the wax as much as possible from the threads; then the culture medium was rapidly cooled and the tubes placed in the ordinary cultivating oven kept at 98° F. If I obtained a growth of bacili I concluded that the threads had not been sufficiently heated in the wax; if I did not, I concluded that they had been sufficiently heated. The following are my results :—

At 212° F	(100° C.)	for	½ hour,	growth.
,,	,,		½ ,,	,,
,,	,,		1 ,,	,,
,,	,,		1½ ,,	,,
,,	,,		2 ,,	,,
,,	,,		2½ ,,	no growth.
At 194° F.	(90° C.)	for	½ hour	growth.
,,	,,		1 ,,	,,
,,	,,		2 ,,	,,
,,	,,		3 ,,	no growth.
,,	,,		4 ,,	,,

On the other hand a temperature of 122° F. (50° C.) did not destroy the spores in twenty-four hours.

(*To be concluded in our next.*)

A BATHURST BEEKEEPER.

We have received a copy of the *Bathurst National Advocate*, containing a lengthly and interesting account of Mr. J. Petersen's Bee Farm, near Wattle Flat. It commences with an account of bee culture in past times, and the recent introduction of the Ligurian or Italian bees. It then goes on :—

Mr. H. Petersen's bee farm spreads over one of the peaceful slopes of a mountainous country, commanding an uninterrupted view right across a blue-vapor filled valley of a breadth of miles, right on to the heights the other side, the purplish tinted hills, billowy with their lines upon lines of eucalypti, their heads hoary with thin white clouds pure as the driven snow against an Italian blue sky beyond. Mr. Petersen, who is a German by birth, and lives in sacred bachelordum in a picturesque little place surrounded by trees and creepers, his household pets and his music-making honey-gatherers, has not an over large area, but what he does occupy, a residential lease of ten acres, he utilizes for all it is worth, that which is under fruit bearing as heavily as fruit trees can, and that which is under hives (160), if the term may be used—producing what many would esteem a fortune, and without any risk to the employer whatever. The farm is called Nuggety Hill, and the bees at one time had their progenitors in box hives; but in 1879 a transference was made to the bar frame, which, after all, is the rational system; though in the year mentioned it was in its infancy, the first departure from the old rule, having been made at an apiary at Enmore by Mr. Dunn, in 1877. In 1884 Mr. Petersen obtained an Italian queen of the strain

imported by Mr. Charles Fulwood, Brisbane, no Italians being procurable at that time in N. S. Wales, The progeny of that queen was found to be the most quiet of any to handle, more especially the first family. Some time afterwards families were obtained from other Italian queens that turned out so cross that on any attempt being made to interfere with them they had to be destroyed, a misfortune, however, that it is pleasing to learn has not been repeated. At the present moment the colonies are very large and also very many, as may be understood when it is mentioned that Mr. Petersen has this season extracted from their hives as much as 4500lbs. in a week, and on a certain day, a particularly good one, 900lbs. Mr. Petersen has obtained as much as 22½ tons of honey from his hives in a single season, an average of 750lbs per colony, the largest that gentleman has heard of. This season a start was made with 120 colonies, and an increase got of 40, which would, doubtless, have been as much more had the summer not been so cold, wet and windy, that preventing the bees from working and at a time too when the Eucalypti bloom—principally white and yellow box—never was so plentiful.

When inspecting this property for the first time the thing that strikes the visitor most forcibly is the immense quantity of honey that Mr. Peterson keeps in stock. This, despite the fact that buyers are supplied during the season to the extent of perhaps thirty tons, amounts to no less than twelve 400-gallon tanks which are full to the brim with a product worth in its wholesale state, 3½d per lb. And possibly it is really worth much more, for here is honey in its pure condition ; honey that is rich in colour and aromatic in flavour; honey that will crystalize, about the very surest sign perhaps of its goodness. Mr. Petersen visits his hives during the season once a week, each hive giving twenty frames ready for drawing off.

THE RAMBLES OF RICHARD.

IN THE KANGAROO VALLEY.

Near the end of February, at close of day I dropped in at the house of friend Sinclair, in the Barrangarry township, in the Kangaroo Valley.

We had met at the Convention in Maitland in April last, so I was known at sight and received a bee-keeper's welcome.

Next morning, between the showers, we had a look at the bees and fixtures. There were about fifty hives, of a pattern known in that district as the "intermediate," as it is a step in the transition from the Berlepsch hive, with which so many have commenced with, to the Langstroth system. The brood frames are hung in a box which will accommodate 14 frames, the bottom boards are fixed, and as the brood frame is only about 8in. wide, a box to hold them, with requisite bee-spaces, is too narrow to tier up many stories high, and having had to tier up to as high as five stories in some instances of course I criticised them from that point.

Mr. Sinclair had just become acquainted with all the valuable points in modern hives, and means next season to have loose bottom boards, with a bee-space thereon, *a-la* Hedden, and frames flush with the bottom and a bee-space at the top, to allow the use of the flat board cover (which he uses on his present hives.) He thinks the Root-Hoffman frames perfection in a 10-frame hive ; his bees were good Italians.

I spent several days with our friend, being weather bound. There had been a very poor honey flow up to date, and not a very great prospect, with the then current weather, of gathering much more.

Mrs. Sinclair and the children,—Mr. S. has his quiver full—were busy preparing for the Show the next week.

The pony was hitched into the sulky the first morning, and I was driven over to see the Osborne Apiary, which was in course of removal to Berry, as Mr.

Naveau, who has been manager for the last two years, has just bought it and is establishing himself on the Broughton Creek. He is thoroughly progressive, and has 100 8-frame hives, with Root-Hoffman frames and followers, just landed. I hope he will do well in his new location.

I had the pleasure of meeting with Mr. Phillips, now of Nowra, who established the Osborne apiary, and who has been working with the inconvenient "intermediate" hives quite long enough for him, and is making a bold step in adopting the Heddon hive, which, for the truly scientific bee-keper, is the best extant. Mr. Phillips has made one improvement in construction, he simply mitres his corners, which does away with the necessity of filling a small gap with wood or cork under the old method—in fact all the Kangaroo Valley hives were mitred, and I liked it much.

After enjoying the warmest hospitality for four days I left *en route* for Moss Vale.

MARRAR.

Mr. William Pacey, Marrar, writes:—On Good Friday it started to rain here, and I think we must have had about 1in. 20 points, very welcome indeed. I had to feed my bees to keep them strong. I will have to feed them still if I want to pull them through the winter. We may have a good time next spring.

As it is your intention to send out a specimen copy of the *Bulletin* to new names sent in, with a view to get new subscribers, in order that the *Bulletin* may pay for the trouble and expense incurred in bringing it out as it is—an advocate in the cause of bee-keeping—I think the suggestion a good one. The adoption of it will have good, practical results. Once the *A.B.B.* finds its way into a bee-keeper's residence it will have the desired effect, and I believe it will come to stay. In future I will watch its interests, especially when an opportunity occurs you will soon hear from me. I am sending you a list of bee-keepers that I know who are working bees on the hollow log and gin case principle, and would gladly hail any information that would put them on the right way in the management of bees, also to be told that there is a grand bee called the Italian or *Ligurian*, which would cause them to do away with the black bee and their attendants—the bee moth. I am pleased with the Italians—no moth. This season has nearly done with the black bee in this part, they have no show against the wax moth. The Italians are proof against ravages of moth. Well, Mr. Tipper, I think I will tire your patience by this long epistle. *A.B.B.* is improving. I hope, before long, to see a lot of new subscribers so as to give encouragement to extend its usefulness.

[Many thanks for the list of bee-keepers so kindly sent with your communication.—Ed.]

TIT BITS.

[BY W. ABRAM, BEECROFT.]

The punctual and prompt appearance of the last number of the *Bee Bulletin* must have been a surprise to many besides myself, as according to reports in the daily press of the damage of the flood it would have been quite excusable had a delay in its publication occurred, and I am heartily glad that whatever damage the floods have caused, the consequences interfered not with the prompt issue of the B.B., and that the loss to beekeepers is not as serious as might have been assumed.

The beekeepers' exhibits at the big show in Sydney appeared to be small this year; in most classes only one exhibitor, and two competitors for the champion prize. Just fancy, eighty-two entries at Parramatta and hardly a dozen at Sydney.

What about the next Convention? The time is approaching. It is to be hoped that the poor honey harvest nearly all over the colony, and other calamities, will not stop numerous at-

tendance to this enterprising gathering. Inasmuch as the beekeeper has more leisure during the winter, such time ought to suit admirably for the Convention. It may be disadvantageous to miss the chance to see practical operations at some of the many bee farms around Sydney, but perhaps the weather may be finer then than it is now. Sydney is certainly very centrally located, though I would have preferred Parramatta. It is not for me, however, to dictate. The question re the N.S.W.B.A. might then be adjusted.

EXTRACTS.

Mr. Joseph Cooper of Armidale, writes :—Very little honey in this district this season, too much rain.

Mr. George Edwin Eastcott, of Paterson, writes us: "The spotted gum is in full bloom in this district and honey coming in fast."

Mr. James Beattie, of Gouldsville, writes, he did not lose any of his bees, his hives standing 20 feet above the last big flood.

The weather was so severe on bees in North America that in May and June one hundred thousand colonies dwindled away in spite of feeding and constant care night and day.

The following were prize winners at the Wingham Show, which took place on March 28 and 29 :—Honey in bottles, Mrs. Carey, 14 entries; honey in comb, Mrs. Carey.

The *Wingham* (Manning River) *Chronicle* says :—There is also a large crop of honey in the forest trees about here this year. It seems but little trouble to bee-hunters to procure a large tin of honey.

Mr. Dockrill, Clovass Apiary, Casino, writes :—"You will find enclosed a P.O. Order for five shillings as subscription to the "B.B." for the year. I hope your book is swelling with subscribers, as I think every bee-keeper should subscribe to it."

Mr T. H. Chapman, Mitchell Island, says, "Things are looking a little brighter just now, and my bees are storing honey fairly well from bloodwood and ti-tree."

Mr. J. D. Gaggin, of Lismore Apiary, Lismore, concludes a very valuable communication to us with—"Sympathizing with your district in its deplorable flood losses, and with cordial wishes for the continued success of the AUSTRALIAN BEE BULLETIN."

Mr. Frank Archer, of Mittagong, writes :—"Dear Sir,—Enclosed 5s for second year's subscription. Well pleased with it. Peg away, long life. Can give away some seeds of spider plant if you would like some, or any bee-keepers who like to send and enclose stamp."

From Mr. W. S. Goard, Murrurundi :—Have ten hives—blacks—but there is not a thimbleful of honey in the whole lot, in fact there appears to be nothing but starvation staring them in the face. I extracted last Christmas on an average about 10lbs. of honey from each hive, and since that time they have done nothing. The frames are quite empty, with the exception of two or three in each hive, in which the poor things were trying to raise some brood, but these are all dead. The bees, of course, are dying by hundreds, and don't seem to have either strength or inclination to remove the bodies of their dead comrades. Either there is absolutely no honey procurable in the vicinity or else my neighbours' bees (Italians) have been robbing me. Yet I have failed to discover them in the act.

[We would advise feeding your bees.—ED].

The Rev. J. Ayling, Pitt Town, says :—"There are a good many now starting bee-keeping round about here to whom I will mention the BEE BULLETIN. Moreover we have just inaugurated a B. K. Society, about which you will hear from time to time, as we have recognised the BULLETIN as our organ. My bees, after doing nothing but breed and swarm all the summer, have done well during the past month."

Mr. R. L. Studdert, Boggabri, writes:—The bees about here are dying in all the boxes. I cannot understand the reason, it seems to be the same as spring dwindling. I have examined all my frames, and cannot find any reason, everything sweet and clean, but very little honey coming in now, the blue gums are all budding for blossoms, so hope that will put them right, suppose there is nothing I could give them ?

[From what we can gather from these remarks we should infer that your bees are suffering from a somewhat common disease called paralysis. For a simply treatment of the ailment, see the March number of the *A.B B.*, page 221.—Ed.]

Mr. Albert Gale, the lecturer on Apiculture, to the Technological Department of N.S.W., writes :—I might mention to you, incidentally, what I have been watching to find out, *why* bees build burr comb, and have succeeded. The next thing was to find a remedy; the plan I thought of has so far proved successful, i.e. from reports by beekeepers who aided me to put the plan to a practical test. I will shortly publish all particulars.

Bees are more readily united in a good honey-flow time than any other. They mingle among the same flowers and have the same scent. In Winter time their instinct tells that it is time to rest, and they look for no new change. A good way to unite them is to put one hive on top of another, after removing the top of one and the bottom of another. Do it quietly. 'Tis best done late in the fall.—*American Beekeeper.*

Mr. John Pollock, of Wingham, writes to Mr. C. Mansfield, of Largs :—"I want 25 queens, not because I cannot rear them, but because everybody here has black bees, and it makes it nearly impossible. I have fourteen hives, all Italians, and then cannot get one mated pure. I have done very well out of black bees, but I have a breed that the devil himself could not put up with. They show the yellow stripe about one-third of an inch wide just where number 2 band is shown in Root's book on the Italian bee. I have had sometimes sixty stings in me from working with one hive, but as bees might as well sting an old pair of trousers as sting me I take no notice of them."

We have received from Mr. W. Abram of Beecroft, a copy of the *Australian Beekeepers Journal*, published in September, 1886, containing an article on, "Swarming," by that veteran beekeeper, and also a letter, drawing attention to its similarity to the article written by Mr. J. F. Munday, in our last. Mr. Munday says in the beginning of his article, "Among the various methods, the following has been proved to be the best." He might have been indebted to Mr. Abram or others for the account. Perhaps he will inform us in a future issue.

Mr. Richard Macansh, of Murrumburrah, writes :—"Referring to Mr. Wm. Shaw's letter in your issue for February, I must state that I agree with him that this has been a bad honey season. The cockspur is blooming abundantly, and our bees are busy on it, and we expect it will last until the end of April. Our experience of last year was that we got an abundant flow of honey from the apple tree ; but I quite agree with Mr. Shaw that the apple trees in the Murrumburrah district may be a different class to those indigenous to the Mudgee district."

Mr. W. Crawford, The Italian Bee Apiary, Wingella, writes :—"Enclosed please find 5s worth of stamps for Bee Bulletin to be continued for 12 months, which I hope will be a success and of good value to beekeepers. I have a poor crop of honey up here this season on account of so much wet and no blossoms. I will only get about 1,500 lbs. of honey from 70 stocks this season, whereas last year I took 3 tons from 58 stocks and as much as 292 lbs from one hive. My bees are all Italians and in good order for winter. Plenty of stores and no sign of any foul brood."

The following were the prize takers at the Metropolitan Agricultural Exhibition

which was opened in Sydney on March 29:—Honey: For the best 12 1lb. sections: W. T. Seabrook and Co., 1. For the best 6 1lb. sections: W. T. Seabrook and Co., 1. For the best large frame of honey: W. T. Seabrook and Co., 1. For the best small frame of honey: W. T. Seabrook and Co., 1. For the best sample of extracted honey in 12 1lb. jars or bottles; R. K. Allport, 1; W. T. Seabrook and Co., 2.

Mr. Hook, of Tamworth, late inspector in the Agricultural Department, has been turning his attention to preserving fruits by means of honey. The result is sent in a communication to the *Rural Australian*:—"At the Union auction sales my honey pickles realised as high as 14s per doz.; quince marmalade, made with honey, 12s per doz (small jars); honey sauce, 10s per doz; chutney, 18s per doz, and other articles at equally high rates. I think this combination of honey with fruit and vegetables is a question that is worthy of far more attention than it has heretofore received."

An American method of catching swarms:—The first years I had a good deal of trouble with my bees when they swarmed. They would get in clusters in the trees, where you could not cut the limb off, and in the crotch of a choice graft, so here is how I fixed them. I would take a ladder long enough to reach above the swarm, and then take a rope and put it over a rung three or four feet above the bees, then tie one end around a hive and hoist it up above the swarm, and then let it down slowly over the bees; then fasten the other end of the rope to the ladder and in a little while the bees will go up in the hive, and then I would lower the hive to the ground. In this way I took some twenty swarms and never got a sting.

At the Walkertown Convention in Canada, in January, Professor Cook read a paper on "Detecting the adulteration of Honey." Prof. Cook stated we could now detect the adulteration of honey, and therefore we could convict. From work done by Dr. H. W. Wiley, Dr. Kedzie, and Professor Scovell, honey if only one quarter adulterated with glucose, can be detected. Dr. Wiley stated that an anlysis of honey had been made, and doubts expressed as to the ability of the chemist to detect sugar. Fifty-eight samples were sent, and in every case adulteration had been pronounced. A. I. Root wanted to know if any one could tell the difference between sugar fed to the bees and the extracted and sugar honey. Mr Root stated they could."

Mr. C. Mansfield, Largs, reports,—In consequence of the destruction of all vegetation on the surrounding alluvial lands, my bees are compelled to seek fresh fields. They are now gathering well from the spotted gum in the direction of Paterson, where the bush is all aglow, and have to travel a distance of four to five miles, no flowers existing nearer in the direction of flight.

Mr F. A. Gemmill, in the Canadian Bee Journal, gives a suggestion that might well be utilised at our forthcoming New South Wales Bee-keepers' Convention,—as a way of increasing the consumption of honey, by making it more acceptable to the public.—"A three days' meeting is billed, and the evening of the second day is to be utilized for the purpose of giving a concert, to be advertised as "*The Honey Bee Concert*," the programme to consist of vocal and instrumental music, interspersed with brief lectures, by way of intermission, on the bee, honey, etc. Local talent or, if need be, something in the professional line, may be called into requisition, even going so far as to secure the services of a chemist competent to state briefly the value of honey as a food and medicine. My own conviction is, that if such a course were pursued in every town at which a convention was held, the amount of honey consumed would be vastly increased, and in such a manner as would not only produce enjoyment for the public, as well as diversity for the beekeeper."

Mr. Thomas M. Walker of Tenterfield, in ordering some Italian queens this month from Mr. Mansfield, Largs, so as to get a good start next year, says he only got 5 cwt. of honey this season from 35 colonies

Mr. J. T. Hutchison, Lismore, says :—I trust that the Convention Committee in considering the question of half-fares on the railway, will not forget the large number of bee-keepers who live in the coastal districts, and are unable to avail themselves of such service. I think that if the N.C.S.N. Co. &c., were appealed too, they would not be behind in making a substatial reduction, thus enabling many more to attend what ought to be a representative gathering, worthy of our much loved and rising industry.

Mr. Edwin E. Larcombe, Jasper's Brush, writes :—Kindly obtain answers (through your corresponding column) of these questions:—1. What is the cause of dead bees with their trunks out, found in front of the hives. 2. Why are some of the bees found staggering, and flying a few inches, then alighting, then flying again. 3. If these are symptoms of disease, what are the best remedies.

1, 2, and 3. [Your bees are probably suffering from starvation, if so give a good dose of sugar syrup, you do not describe the symptoms sufficiently to arrive at other conclusions.—Ed.]

Mr. J. Wilson Green says:—"I will send some more "stray notes" as soon as I have time, but am now busy clearing for a new apiary and orchard in another paddock, as I intend to let this one. Four or five miles of fencing to look after, and cattle, etc., is too much, and I have to neglect either bees or stock, so I intend to devote my whole time to bees and fruit. Better to do one thing well than half do two. Kindly continue Bulletin. Will send on subscription as soon as I can get M.O. or half-crowns, etc. Your colony is a regular nuisance as regards postal notes, &c. Several bee-keepers have promised to subscribe some six months ago. Have not seen them since. Believe they have lost considerably during wet weather. Will hunt them up again.

Adulterated honey can now be fully detected. A Dr. Wiley (U.S.A.) had 58 samples of adulterated honey sent him and detected in each case. The pollen in the honey assisted in discovering the source of the honey. They have never discovered an adulterated comb honey.

Mr. Duncan, Nicholson, Harwood Island, Clarence River, writes:—I have a number of colonies of black bees, and I have introduced one pure Italian Queen. Could you favour me by letting me know if this time of the year would suit for rearing a few young queens from her, to introduce to some more colonies. Is ⅜ or ¼ the proper space between frames and hive. My hives are the Langstroth. The *A. B. B.* has come to hand, and I am highly pleased with it, only sorry that I did not get the first volume.—[We shall be pleased to get the names of bee-keepers in your district.]

[If you have warm weather, a honey flow and drones flying, you may be able to raise a few young queens while the above conditions last. The space between ends of frames and hive in the simplicity hive is 7/16, and in the 8-frame hive 5/16. All hives open at the top are called Langstroth.—Ed.]

Mr. Magnus Smith of Launceston, Tasmania, writes :—I have an inquiry to-day, re a Bee publication, and am recommending the *Bulletin*. The writer sends a letter of fourteen pages of mostly questions, so that interest may be awakening. I have on exhibition at my office, two bottles of honey, one of bright amber dandelion extracted, and one of cloudy strained honey. They are placed side by side, and have been examined by consumers, box men, and others, with a unanimous decision in favour of the extracted. One box man who had a great name for bees and honey, said when looking at it "Well, Mr. Smith, we cannot get it like that." Our harvest on this side of the water is only moderate, some places scarcely enough to go into winter. We may start a beekeepers' association here shortly. If you have such a thing as a book of rules, that we could adapt to our colony, I would be glad of it.

Foul Brood. — Mr. H. Jervis, of Moss Vale, writes :—In August 1892, I commenced beekeeping with 9 colonies. in October I discovered I had F.B. in every hive, very slight. I tried Cheshire's treatment, that is phenol, which made such an improvement that I wasted all summer treating them. I next tried the fumes of Formic acid, then I tried the 48 hours, as recommended in the A.B.C., treated 17 colonies cured one. By this time it being winter bees got very weak, so I doubled them up into two strong colonies, and fed them liberally till spring. When spring came a brother beekeeeper, B. Naveau, recommended me to try Jones' starvation plan, which is to starve till the bees commence to die, which if they are kept in a cool dark place will be five to seven days. I treated three colonies this way, that had it very bad, and it was a great success. I boiled hives and frames in soda and water. About six miles from here a man has 60 colonies, all more or less affected, he is extracting and sending his honey all over the district, and some to Sydney, then whoever buys it, throws out the tin for people's bees to find and spread the disease wherever the honey is sold. A man, or rather he calls himself a man, that keeps a few bees, some in box hives and some in frames, who lives about —— yards from me, was the first to contract the disease. When he robbed his bees he used to put the broken combs about for the bees, consequently the disease spread all over the town. Out of 70 colonies in the autumn, when the spring came there were ten or twelve. We want a F.B. Act badly, not for the government to help us, but to allow us to help and protect our own interests, which could be easily done by appointing one of our number a district inspector, in the district he lives, without any expense to government.

Mr. J. T. Hutchison, Mountain View Apiary, Lismore, says :—It would be interesting to hear from some of the devotees of black bees, after the phenomenal weather which we have experienced during the past three months. I guess a great many of them have "panned" out. I have lost nine, whilst my Hybrid stocks are all in working order. Pure Italians I have not tried, but intend doing so next spring, as my hybrids have proved so much better than the blacks, after testing for two seasons.

Mr. John Evans, Casino, says :—The honey flow has been very small this year (or perhaps I should say owing to the incessant wet weather the bees have been unable to gather it), in this district. I have now 25 colonies, all with Queens from one of Mr. Abram's purest queens. I hope next season to be able to extract some honey.

OUR LETTER BOX.

(Under this heading we will publish the reports of the seasons. Beekeepers will kindly send us a post card, stating the amount of honey raised, the source from which it came, and the kind of season they have had, for publication in future issues. By so doing this column will become very valuable to bee-keepers. This is a bee-keepers' paper, not a local paper, so let us hear from all over the continent).

QUESTIONS.

To the Editor of the Bee Bulletin.

Sir,--I notice by the *Bulletin* for March, that the honey crop in many parts of New South Wales, has not been good, and as I am contemplating removing my bee farm to your colony, I would like to ask you a few questions, which you may be able to answer in your next number.

1. What part of N.S.W. is credited with producing the best quality of honey?

2. Where is the most clover honey produced?

3. Does N.S.W. export honey. To where?

4. What price is obtainable in Sydney for honey in quantity?

For the information of your readers, I would report a poor yield in these parts. Honey did not commence till after New Year, and from then only intermittently. My yield from 155 colonies, 320 60lb. tins so far, hopes of another 50 if weather continues fine, from blackbutt. Our honey comes from Eucalyptus trees only, and cannot sell beside clover honey. We have no proper market here, everyone sells for what he can get, which this year is very little, 2½d to 3d. Italians and hybrids outshine the blacks here as elsewhere. Can you tell me what the Holy land bees are. Jones of Beeton, Ontario, Canada, has them, I believe.

Foul brood bad enough in parts here, in other parts never been known. Have tried every cure recommended, with no results except from clean hives and starters—that a success when honey is coming in. Am going to make it my business to canvass among beekeepers here for orders for *B. Bulletin*. Its a splendid paper, only too seldom published and too cheap. Would willingly pay double for fortnightly issue.—

Yours,

W. D. Russell,
Mountain Garden Apiary,
Fyans Creek, Victoria.

[1. On the tablelands, where the yellow box grows.

2. As far as we know in the New England district.

3. N.S. Wales does not export any honey worth mentioning.

4. 2½d to 3½d.

Have had no experience of the Holy Land bees ourselves. Perhaps some of our readers who have such will forward theirs.

Yours is not a bad return. An average of 109lbs. for 155 colonies. Editor.]

QUESTION COLUMN.

6. (*a*) What fuel do you find best for use in your smoker? (*b*) Why?

7. Which smoker do you prefer, the direct blast or the cold blast?

8. A subscriber having fifteen colonies of bees wishes to know if it would pay him to sow seed for honey, and what would be the best kind to sow.

6 (*a*). Rottonwood (Cabbage Gum). (*b*). Clean smoke, no nicotine, etc., and never chokes.

7. Clark's cold blast.

8. I certainly say no, at least not in the bush. After numerous experiments I find it useless without the crop will pay for itself besides the honey. I have tried buckwheat by regular sowings, and find if any trees are in bloom they hardly go near it, if no trees in bloom then they swarm on it, but I have never seen any appreciable increase then from an acre of buckwheat. —J. Wilson Green, Wavertree Apiary, Logan River, Q.

6. (*a*) Dry Bark for preference. (*b*) Burns freely giving a pleasantly perfumed smoke, and lasts as well as any other material.

7. Bingham direct blast.

3. The only crop worth sowing for honey is white clover.—Mr. Leonard T. Chambers, Franklin-st., Melbourne.

6 (*a*). I generally go to the woodheap and fill the smoker about half full of clean chips. I then put in some red hot coals, and place the smoker where it can get a breeze. This I find gives a good supply of smoke for a long while. (*b*) chips generally keep the smoker much cleaner than old bag or rags, &c.

7. I like the Clarke cold-blast the best of any smoker I have yet tried. Some prefer the Bingham, but it is twice as dear as the Clarke, and I do not think there is that difference.

8. Certainly not. If you cannot keep bees without cultivation for them, then leave the business alone.—W. Shaw, Mudgee.

6 (*a*). Rotten wood. (*b*) It is cheapest.
7. Cold blast.
8. White clover, if by the acre. A few plants of even the best honey producing plants are magnificent.—W. ABRAM, BEECROFT.

---

6 (*a*). Damp wood shavings or rotten wood. (*b*) Shavings, because they produce the greatest smoke at shortest notice, and rotten wood for lasting a longer time.
7. Bingham.
8. It will not pay to grow crops for honey exclusively. But waste ground and corners may be utilized by planting spider plants and shrubs which yield honey. Lucerne (Alfalfa) would be the best to sow for honey as it is valuable for feeding stock in addition to the excellent honey it produces.—R. J. CRIBB, Brisbane, Queensland.

---

6 (*a*). Cow dropping, it must be perfectly dry. (*b*) Takes a long time to consume and produces smoke without sparks.
7. Cold blast.
8. No, unless the crop be otherwise useful. Beekeepers reap the harvest from the crops sown by other people.—ALBERT GALE.

---

6 (*a*). Dry chips, of red gum (E. Rostrata) and of white gum (E. Haemastoma) just a little decayed. (*b*) This burns clean, gives good smoke, smoulders on reserve when blowing ceases, and is alight again when wanted.
7. Clark's cold blast smoker.
8. In most cases not likely. It depends on soil, etc. If the soil should grow any of these to perfection, it is worth saving:—White clover, horehound, phaecelin, tanacetifolia, sweet Alyssum, golden rod. You want quantities, and then bees will not stay at home, if a gum tree is in bloom afield.—P. RIDDEL, St. Ives, Gordon.

---

6 (*a*). Stringy bark and tobacco leaf. (*b*). The bark lights very quickly, particulary the outer surface, and the tobacco adds strength to the smoke.
7. The cold blast by all means, as it is cleaner in its work and throws the natural heat of the weather into the hive, whereas the direct blast forces a higher temperature and carries particles of "burnt product" into the hive.
8. I know of no part of the colony where either clover, lucerne, trees, or flowers do not grow. If there is such a part then it will not be advisable to sow any crops for bee forage, for if none of the above will grow, I am sure the latter won't.—My experience is that it will not pay to grow crops for bees, but rather increase and help to preserve what is already growing in a natural state. For example take my locality and season of the past honey year:—August, wattle and willow furnished abundance of pollen; September, Acacia and fruit blossoms; October, clover opened and continued into December; January, bush trees; February, clover (second crop) running into March. In addition to the above I could name a hundred or so of other honey and pollen producing plants, &c. In the midst of all this I have had no honey whatever. Would it have turned the tables had I sown buckwheat, sunflowers, Chapman bee plant, &c., &c. I think not, because the season was against all natural forage and therefore all artifical resources would have fared no better.—JOHN S. RUTTER, Jersey Apiary, Armidale.

---

6 (*a*). For a big smoke in haste sawdust and shavings; for general use chips at wood heap. (*b*) The first will master any man or bees, second, once started keeps alight.
7. The direct blast.
8. A new chum question. It would pay to sow seed for money, at least I do maize and clover, but can get more honey than I can sell from trees of all sorts—even at 2d per lb.—JOHN CAREY.

---

6 (*a*). Dry rotten wood, chips and lumps about half inch square of dry soft pine shavings from the planing machine and other material that will subdue the bees. (*b*) To keep smoking a long time and subdue the bees without irritating them for this reason I never use rags, dry grass, etc.
7. The smoker I prefer is one of my own design direct blast, having no valve in bellows, these are now made by R. L. Pender. When once lighted they do not go out until material is burnt out.
8. No it will not pay for bees alone, if the crop is valuable for seed you may assist the bees by planting if it will flower during a scarcity of honey. I think however it is not profitable to consider the bees when putting in a crop, as the quantity of honey gathered from it will be small unless large areas are cutivated.—W. S. PENDER, Drumfin Apiary, West Maitland.

---

6 (*a*). We find or rather prefer, the decayed sap-wood of trees to any fuel that we have used yet, as it burns well, keeps alight for a considerable time, and gives a strong supply of smoke.
7. We only have used the cold blast, and have liked it so well that we have not thought of trying any other.
8. As you have not given the locality of your subscriber it would be impossible to particularise, but every beekeeper will do well if he propagates the *budhlea*, the *cosmea*, mignionette, a few lemon and orange trees, &c.—KENDALL BROS. Kensington, Milton.

---

6. (*a*) Wood. (*b*) Because it is easily got and does to perfection.
7. The direct blast.
8. Not pay to sow the kinds that are known by me, that is my experience.—R. MACANCH, Murrumburrah.

6. (*a*) I prefer dried punk, but as it is difficult to obtain here, I mostly use waste cotton rags.

7. I prefer the cold blast. Fire sparks are bad adornments for bees' wings.

8. Having tried it ! No. Though in filling up spaces in my garden or grounds I always consider adornment and honey production. For if one wants an ornamental shrub why not have one that is a honey producer at the same time. There are some crops, that may be grown with other profit than honey, will pay, and produce honey also and so doubly pay. Those who confine poultry farming with apiary, may grow sunflowers, buckwheat, and other crops.—MAGNUS M. SMITH, Freidenheim Apiary, Launceston.

CONVENTION COMMITTEE.

At a meeting of the Convention Committee, held the evening before going to press, present Messrs. J. Tucker (in the chair), C. Mansfield, secretary, M. Scobie, J. F. Munday, W. S. Pender, Patten, and E. Tipper (BEE BULLETIN), the secretary announced that the Commissioner for Railways had consented to allow persons visiting the Convention to travel at single fare for the double journey. That Mr. Anderson had secured the Girls' High School, in Elizabeth Street, Sydney, in which to hold it; that the Hon. T. M. Slattery, Minister for Mines, would open the Convention, and that Mr. John Gale had undertaken to make arrangements to secure good accommodation for the visitors at the lowest rate.

It was arranged the Convention should open at 11 a.m., in the morning of the 28th June. The Secretary was instructed to write to the Managers of the Manning and Clarence and Richmond River Steam Companies requesting them to make a reduction in fares for the occasion, and he was also instructed to get circulars, &c., printed.

Some eight leading bee-keepers and others had consented to speak on different subjects allotted them, and the Secretary was instructed to write to four others.

Re the expenses it was considered advisable to keep them as low as possible—in fact, with the assistance being given by the Government they cannot be great—and to leave it to be raised at the Convention.

THANKS FOR SYMPATHY.

THOSE many friends who so kindly sent me words of sympathy after my late heavy loss, please accept my warmest thanks. I shall ever cherish the remembrance of such kindness at such a time.

J. F. MUNDAY,

Iona Apiary,

Woodville.

Electricity as an Imbedder.

THERE is not the slightest doubt that wires imbedded in comb foundation by the electric current are secured better and more effectively than by any other possible method. The following will give some idea how it is done. A wire is capable of carrying a certain current, if we increase the current the resistance offered by the wire causes the latter to be heated. Now it can easily be seen, if we can heat a wire and lay a sheet of foundation upon the top of it the foundation will sink down over the wire, and the melted wax around the wire flows over the heated surface and effectually prevents rusting of wire if it should be stored away before use. The wire should be in the centre of the sheet of foundation, and when once properly put in can never leave without tearing the wax. In fact it is so thoroughly imbedded as to appear as if made in the sheet. My battery consists of three cells, having carbon and zinc elements in an electrolyte of a concentrated solution of bichromate of potash, with one-six of the bulk of sulphuric acid added, my plates are 9 x 2, one zinc with a carbon on each side. This battery is sufficient to fuse about two inches of the No. 30 timed wire, when connected in series. The disadvantage I found with using the battery was first its expense, i.e. first cost and in running ; second, the time it takes to imbed a sheet in a frame. The current on heating the wire caused the wire to expand so much that the latter would go away from the wax, or pass through it, necessitating the use of some implement to press it down on the foundation. I found it took from five to ten minutes to complete a frame. While I was thus experimenting I got a spur wire imbedder, and using the Root Hoffman frame with moulded comb guide I also obtained a foundation roller, by using these two little tools I can now fix sheets of foundation in wired frames at the rate of forty sheets an hour, and so strongly fixed as to leave little to be desired. The way I do it is, I place a box under a verandah allowing the sun to fall on part of the box, here I place a pile of sheets of fondation, cut to size required, viz., to fit ½ from ends and bottom of frames, on my left are the wired frames, on my right a cup of water in which the foundation roller is kept with the spur imbedder close to it, and in the centre the imbedding board. Take a sheet of foundation lay it on the imbedding board with a frame on top of the wax, the top edge of the wax lying on top of the comb guide, the foundation being softened by the sun, the roller run along once or twice firmly presses the wax into the wood, the spur imbedder is now run along the wires and the work is done, These tools are now kept in stock by R. L. PENDER, manufacture of beekeeper's supplies West Maitland. This factory is also having rollers made for fixing foundation to a fiat top bar, i.e. a top bar without comb guide.—Adv.

PROGRESS.

THE attention of bee-keepers must be attracted when they learn that a large wax purifier has been erected in the manufactory of R. L. Pender, West Maitland. It consists of a wooden flaring cask, capable of purifying about 300lbs. of wax at one time. Steam is carried from the factory boiler to the purifier, and carried through the wax in a copper coil. The wax is brought to a high temperature to destroy disease germs, and the whole kept for some hours at that temperature to allow any impurities to settle. All the wax used by him in the manufacture of foundation is passed through this purifier. He has also, "ex Dunbritton", a STEAM POWER FOUNDATION MILL, and will, before next season, have everything ready for the supply of a very superior quality of foundation made by steam power. Also a NEW FOUNDATION MILL is to hand for making surplus foundation for use in sections.—Adv.

CONVENIENCES.

THE Honey Room should be fitted up with every possible convenience among which a good pair of scales is indispensible. I have been using a fine set lately, having a tin scoop in which anything from ½oz. to 30lbs. can be weighed, and a platform 13 x 10 inches on which any weight between ¼lb. to 240lbs. can be weighed. They have also a double beam so that tare can be taken off, *i.e.*, the vessel into which the honey is to be run can be weighed on the extra beam, then the contents weighed ; the weight being indicated accurately on the other beam without having to be bothered subtracting one weight from another, thus avoiding mistakes. I can take orders for these scales at 37s. 6d each, or without beam for taking off tare, 31s. Weight, including case, 45lbs. Scales can be seen at my factory.—R. L. PENDER, Manufacturer of beekeepers' supplies, W. Maitland.—Adv.

Italian Bees and Queens.

FIRST COME! FIRST SERVED.

ORDERS are now being booked for Italian bees and queens for early delivery next season from the Drumfin Apiary, and as all orders are sent out in rotation, it is to your advantage to order early. I have already booked orders for a number of hives and queens, No charge made for booking order, the money to be sent when bees are ready for delivery.. All hives and queens sent out this season have given satisfaction. The Drumfin Apiary breeds bees and queens for honey gathering, no queen used to breed from until tested. From 40 hives spring count run for honey, 3,450lbs. of honey have been extracted, and the hives are now full, which means 1200 to 2000lbs. more. The increase was kept down to 12 colonies, and no honey was gathered before Dec. 15th owing to wet weather. Orders may be sent to Drumfin Apiary, West Maitland, or to R. L. PENDER, manufacturer of beekeepers' supplies, W. Maitland.—Adv.

Printed by E. Tipper, proprietor, High Street, West Maitland, New South Wales.