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## **The Australian bee bulletin. Vol. 3, no. I April 23, 1894**

West Maitland, N.S.W.: E. Tipper, April 23, 1894

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# THE AUSTRALIAN BEE BULLETIN.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

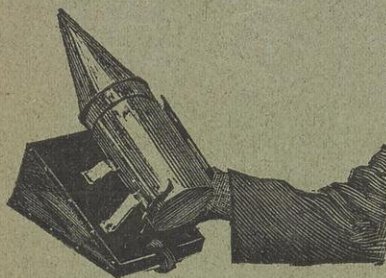
VOL. 3. No. I.

APRIL 23, 1894.

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APRIL 23, 1894]

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“I wish to acknowledge with thanks the receipt of Italian queen, which arrived in fine condition (14 days *en route*).—Nelson, 30/3/94.”

N.S.W.—“Queen came to hand O.K. She is a beauty to look at, and is laying well.—Cave Creek.

“Just a few lines to let you know how queen turned out. I am perfectly satisfied with her. Her bees started work last week. They are real beauties, and by far the brightest bees I have.—Cundletown, 21/2/94.”

“I duly received the five Carni-Italian queens, in good order, and am very pleased with them.—Sydney, 13/3/94.”

“Five queens to hand safely. Many thanks for your promptness. There was not a single dead worker in the five cages. I am well pleased with them.—Glen Rock, 26/3/94.”

“The stock from the queen you sent me are the finest I ever saw, and so gentle to handle I don't require any smoke to work them.—June Junction, Feb. 1894.

“Having tested queen (Carni-Italian) I find her very prolific, her bees very quiet and first-class workers. You will hear from me again next season.—Richmond River, 24/1/94.”

Queens (12) came to hand in good order. I examined bees in No. 86; they are the prettiest I have ever seen, and it delights me to see such bees going in and out of the hive, even if they do not bring in as much nectar. [Oh yes, but they do—H.L.J.]—Tenterfield, 17/4/94.”

Send along your orders, friends. I can send queens by return mail and deliver safely, even if you dwell in the remotest parts of Australasia.

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TUESDAY, JUNE 19TH.

TUESDAY, JULY 17TH.

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O'Connell

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ALL COMMUNICATIONS for the *Australian Bee Bulletin*, should be addressed to E. TIPPER, West Maitland, N.S. Wales.

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# The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEEKEEPING.

MAITLAND, N.S.W.—APRIL 23, 1894.

WRITER in the *American Bee Journal* states that some fifteen years ago there were some 700,000 hives in the United States, but it was estimated that at the present time there were only half that number, and the honey raised was only equivalent to eight ozs. apiece for every man, woman and child in it. These statements seem strange, but a little reflection will soon take the strangeness off. How many millions of inhabitants have been added to the population of the great republic during those fifteen years? The great forests are the principal home and feeding grounds of the bee. But during that fifteen years how many square miles and square miles of forest have been cleared to find timber, room to build towns on, as well as suburbs, and ground for cultivation? How many beekeepers in suburbs, finding the forest receding further and further from them, have given up in disgust. Is not the same taking place now around our large Australian towns? Other writers in the American bee journals have from time to time complained of the clearing away of the basswood forests. This clearing away of forests is not only taking place in America but throughout the whole of the civilised world. Timber is wanted for building and other purposes, room is wanted for towns and suburbs, and land is wanted for cultivation and must be had. And this, in an infinitely greater ratio with teeming millions than with our simple four millions and immense territory.

Here is a big hint, not only for Australian beekeepers but for Australian legislators.

For beekeepers, in the first place it gives hope and encouragement that the

foreign markets of the world must be steadily opening up for them, and that a slight depression and bad season may come, still a sure and steadily growing market abroad awaits them.

A hint to our legislators, that every acre of forest land depleted in the older countries adds to the value of the forest lands of Australia, and her present despised timbers, whose value must, in the course of a generation or two, become quite equal to those of our wool or mineral resources; and it is a solemn duty, for the sake of our near posterity, to stop the wholesale destruction and ringbarking now going on—ringbarking that only benefits the grasses some five years, and destruction that cannot be replaced.

We ask the beekeepers of Australia and New Zealand to think these matters well over, give us suggestions, and use their influence locally and otherwise to prevent the continuance of the present suicidal system of forest destruction.

## CONVENTION 1894

As the committee of the N.S.W. Beekeepers' Union will very shortly meet to discuss, among other things, the Convention for 1894, we are requested to invite suggestions from beekeepers as to points of interest to be discussed at that gathering. Will our friends forward same without delay?

## H R A AND H ASSOCIATION.

The following were the prizes awarded at the above, which took place at Maitland on April 18, 19 and 20. Mr. R. Patten was sole judge and he used the system of points adopted at the Sydney Convention last year:—

Comb Honey most attractive display, T. H. Moore, 1; J. W. Pender, 2. Comb honey, 24 lb sections, J. F. Munday. Extracted honey, most attractive display, J. W. Pender 1, T. H. Moore 2. Extracted honey, liquid, T. H. Moore, 1; Hebblewhite and Co highly commended. Extracted honey granulated, J. F. Munday. Beeswax, R. L. Pender 1, and highly commended, J. F. Munday highly commended. Honey vinegar, J. W. Pender. Comb foundation, T. H. Moore, 1; R. L. Pender very highly commended. Honey extract-



or E Tipper, 1; Hebblewhite and Co 2. Quick-est and best method to wire frames and to fix full sheets of foundation, W S Pender. Best hive of bees at work, R L Pender. Three combs built on foundation, J W Pender. Best bee-hive suitable to the district, R L Pender 1; T H Moore 2. Best honey extractor, E Tipper 1; Hebblewhite and Co. 2. Beeswax, not less than 7lbs, R L Pender 1, and highly commended; T H Moore very highly commended. Six bottles honey, J F Munday. (In this class four entries were disqualified on account of being in "jars" not "bottles") Best specimen comb foundation, J F Munday 1, T H Moore commended. National Prize, collection of apiculture and appliances, R L Pender.

## NORTHERN AGRICULTURAL ASSOCIATION, SINGLETON.

List of prizes included in Schedule of Northern Agricultural Association, Singleton, in Apiculture Section for next Show, August 1894.

Extracted Honey, most attractive display, labels allowed, first, 15s; second, 5s.

Honey in Comb, most attractive display, labels allowed, 15s and 5s.

Best six 1 lb. sections Comb Honey, 10s.

Extracted Honey (liquid) six bottles or jars, 5s.

Extracted Honey (granulated) six bottles or jars, 5s.

Best Queen and Bees, in Observatory Hive, 10s.

Best Queen and Bees (native) in Observatory Hive, 10s.

Beeswax, not less than 10 lbs., 5s and 2s 6d.

Comb Foundation, best three sheets, different grades, 5s and 2s 6d.

Best Honey Extractor, 10s and 5s.

Best Bee-hive, suitable to the district, 10s & 5s

Collection of Cakes made with honey as an ingredient, no sugar to be used, 15s and 5s.

Collection of Fruits, preserved with honey instead of sugar, 21s and 10s 6d.

Collection of Jams, made with honey instead of sugar, 15s and 10s.

## UPPER HUNTER P. & A. ASSOCIATION.

Show to take place May 16 and 17th.

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Best Collection of Apicultural product in Trophy form, to include extracted honey, honey in comb, and beeswax. First prize, £2 2s; second prize, £1 1s.

Special Prizes offered by Muswellbrook Beekeepers' Association; to be competed for by members only. Entrance free.

Best 6lbs Extracted Honey, 7s 6d

Best 3 1lb sections Comb Honey, 7s 6d

Best Frame of Comb Honey, 5s

Best 3lbs Beeswax, 5s

Best Two-story Hive, fitted with wired Root-Hoffmann frames, 5s

Special Prizes offered by members of the Muswellbrook Beekeepers' Association. Open to all comers. Entrance free.

Best 12 1lb Jars Extracted Honey. First prize 10s, offered by Mr. C. C. Paul; second prize, 5s offered by Mr. J. Hazelwood.

Best Twelve 1lb sections Comb Honey. First prize, 10s offered by Mr. T. Ellerton; second prize, 5s, offered by Mr. A. A. Roberts

Best 6lbs Beeswax. First prize, 10s, offered by Messrs F Budden and D Goant; second prize 5s, Mr W. Thomas

Best 6 bottles honey, 5s, offered by Mr H. J. Clark

Best Wired Frame of comb Foundation 5s, offered by Mr Alex. Wiedman

Best Frame of Comb built on foundation, 5s, offered by Mr S H Luscombe

## JUDGES & JUDGING.

(To the Editor of the A.B.B.)

SIR,—In the last issue of the *Bulletin* I notice Messrs. Abram and Caddan have made their complaint public to the readers of your journal. With regard to Mr. Abram—I have not the pleasure of knowing personally, but from what I have read—I look upon that gentleman as about the first bee-keeper who introduced the Italian stock to this colony, and therefore look upon him as an authority on apiculture; and no doubt he felt a bit sore at not obtaining first prize for his queen at the W.H. & P.S. Show, held in the Town Hall, Sydney, at the beginning of last month. And also does Mr. Caddan, with his V.H.C. queen.

Mr. Caddan says in his letter "exhibitors should demand more care in the selection of judges, and see that judges are not merely lecturers on a subject, but practical, reliable, and experienced men." I quite agree with him on those points, and perhaps if such had been done, he may not have been one of the three at the R.A.S. Show, considering his experience does not extend to more than between four and five years.

Mr. Caddan also says that "both at



Penrith and the Town Hall the judging was far from satisfactory." With the latter place I cannot say anything about as I was not there at all. But at Penrith I was one of the exhibitors (and the only one from this part) in the honey section, and as Mr. Caddan was not there at all, and I suppose heard very little about it, I cannot see that he knows whether the judging there was satisfactory or otherwise. But Mr. McFarlane (one of the judges at the Town Hall) was also an exhibitor of honey, &c., at Penrith, and he was quite satisfied at the result. Mr. Caddan will not say the judging at the R.A.S. Show was unsatisfactory (no, certainly not) he being one of the judges, the other two being Messrs. Learcock and Daley; and Mr. Learcock was the only judge of the honey section at the Penrith Show, so that Mr. Caddan cannot have a very high opinion of Mr. Learcock as a judge. Now about the judges at the Town Hall, Messrs. Gale, James and McFarlane. Those three gentlemen have had considerable experience in bee-keeping, and to know as much as either I think Mr. C. has a lot to learn. Certainly Mr. Gale is a lecturer on bee-keeping, and no doubt he has had practical experience as well. And we all know that Mr. James has had many years experience in bee-keeping, and also Mr. McFarlane. He is an old bee-keeper, and one of those sturdy Scotchmen having an opinion of his own, sticks to it, and will not be led by the nose to the way of thinking of others; so that I think those three were the right stamp of men to act as judges, and no doubt can uphold the awards they made at the Town Hall. I was also an exhibitor at the R.A.S., but was badly beaten, but have nothing to complain about. I thought my sample was good, especially after being so successful at Penrith, but had to compete against a lot better in Sydney. Speaking of judges: I knew a judge at one of the Shows held recently who three years ago (when I first started) could not tell me whether a piece of comb I showed him contained queen cells or drone brood, not knowing

at the time myself which it was, but found out it was drone brood. Will Mr. Caddan say that man has had enough experience to qualify him for a judge at an important Show? Personally Mr. Caddan and myself are the best of friends, but when a man rushes into print he must expect to be severely criticised even by his most sincere and dearest friends.—Yours, &c.,

W. C. BARKER.

Venrubbin Apiary, Windsor.

Dear Sir,—Referring to a communication I observed in your last issue from Mr. J. D. G. Caddan, in which he seems to disapprove of the judges' decision in awarding the first prize for candied honey, at the Town Hall, Sydney, I was much surprised, considering this gentleman in particular, was a full fledged judge in the apicultural section, at the recent Royal Agl. Society's Show, Moore park, when he was seen to pick out from the "Champion prize" Trophy, one of the same jars of candied honey, and lay particular stress upon it, to a person to whom he was showing it, as being superior to any in that exhibition. Could our friend explain his reasons for condemning in one, and recommending it in the other exhibition. By so doing he could oblige, "Orange Blossom candied honey."

W. T. SEABROOK.

### THOSE UNSATISFACTORY AWARDS.

*The Editor A.B.B.*

Sir,—As the effusion of Messrs Cadden and Abram in your last number are calculated to do me serious injury if unchallenged, I beg space for a few remarks. Oh dear me, when a gentleman has "kept bees, not for pecuniary profit, but for the love of the observation of bee life, before our oldest colonial bee masters were in leading strings," and after awarding the largest sums ever offered in connection with apiculture in Australia—£15 at one time was awarded to W. Abram, without one word of protest



on his part, or a hint as to incompetency—to be dubbed a “mere lecturer on the subject,” soars (sores) far too high for my dull wits. I feel sure the bee-keepers of N.S. Wales, would endorse the appointments (Messrs Gale, James, and McFarlane), made by the N.P. and H. Soc. But very few judges’ awards please all. And to tell you the truth, Mr. Editor, like Sam Weller, when writing to his *dear father*. I was “very sorry to have the pleasure,” to beat such a veteran bee-keeper as Mr Abram. Let us hope it was a slip that will not occur again, at least till next show. But what of those black bees? How soon they were spotted. I think it only fair to ask the traducers of my bees to state the precise number of black bees present. I will not positively swear there was not one dark bee present, but if there was, it was none of my stock, as I keep none of that breed. But all experienced bee-keepers know that bees, even from a distance, will to some extent mix through their hives. I will emphatically aver, that any dark bees in the hive were not the progeny of the queen accompanying them, and the presence of an odd dark bee goes a long way to prove the genuineness of my exhibit. As if the bees had been in any way fixed up for the occasion, of course no dark bee would have been among them. I can assure you, Sir, it was after much hesitation, walking along the rows of hives in my yard, that I made the selection. I then lifted the frame from the hive, placed it in the nucleus, and sent it away. I was not present at the show.

Yours &c. C. MANSFIELD.  
Hunter River Apiary, Largs.

## QUESTION.

The following has been handed us by Mr C. Mansfield:—

Gouldsville, April 16th 1894,

Mr, C Mansfield, Dear Sir,—There are a few questions in bee culture which I would feel obliged if you would answer. What is the reason of some queens ceasing to lay in the midst of swarming season in early summer. I have known two or three this last summer to have left off and the workers started two or three queen cells for

swarming. I have a very rare case in my yard of a colony of bees that make a low husky dull noise which I am not sure whether the bees make it or something that gets into the box. I have noticed with my bees this summer, on excessively hot days in the afternoon, bees would take wing from the entrance and swoop down on to the ground, and on looking round the stand there were lots of bees climbing up twigs of grass trying to fly. Is this what you call spring dwindling or dysentery. I remain, yours truly,

EDWARD BEATTIE.

1. I am of the opinion that the cessation of laying arises from one of two causes. If the hive were full of bees and doing well, I should say the queens ceased laying naturally as they very often do before swarming to render them lighter for flight. Or perhaps it was caused by ill-health, but in that case the laying ceases gradually as a rule, and the hive is in a poor condition numerically.

2. I have frequently heard the noise you describe. It is something like that made by some croaking frogs, I haven't the slightest doubt but it is caused by the drones, and is equivalent to the various calls made by animals at mating time.

3. This I have also noticed. They are mostly young bees. I think they are overpowered by the internal heat of the hive and crawl out. It is neither spring dwindling nor dysentery or paralysis. Spring dwindling is caused by the old bees wintered through endeavouring to rear brood. We know little of it in this climate. When you get paralysis you will be in no doubt about it.

C. MANSFIELD.

## FOREIGN MARKET.

JOHN CAREY, Killarney, Queensland.

The enclosed just appeared and it exactly is my opinion and fully endorses what the *Age* says VICTORIAN HONEY.

According to an official return there were in 1892 no fewer than 4,590 beekeepers in Victoria possessing 31,508 hives, the production from which totalled 1,123,283 lbs of honey and 28,455 lb of beeswax. Only a small portion of the total yield is exported, the figures for the four years ended the year named being as follows:—1889, 31,024 lb. value £819; 1890, 24,804 lb., £525; 1891, 52,070 lb., £1648; 1892, 3,115,461 lb., £656. The exports to the United Kingdom in these years were—672 lb., nil, 23,434 lb., and 13875 lb.

The *Age* in referring to these facts, says:—

These figures are insignificant when the production is taken into consideration, and the question is, can our export trade be increased, and which is the best way to do it! In the past we have been making a big mistake in asking English beekeepers to take up our honey and sell it. They do not want to see our honey competing with theirs. We in Australia do not find any nasty flavour in our own honey, nor do we notice anything especially nice in that from England or America—especially America. There must be millions in England alone who would like our honey as we like it ourselves, and would give us a paying price for it. We can sell it very much cheaper than English or American honey. It might pay to send an active canvasser home and let him deliver honey from door to door at a reasonable price, together with circulars stating that it is pure honey from Australia, the land of



eucalyptus. Soon there would be a great demand for it and the shops where it is sold would want regular supplies to satisfy a regular demand. Let us send only the very best honey, and sell it under the brand, in large type "Australian honey."

I asked Mr. H. L. Jones, and E. C. Cusack, of Queensland about sending an apiarist home with a lot of honey. They thought the idea a good one, suggesting forty tons, but they took no more action with me. Every man in Queensland has to paddle his own canoe. You seem to do better in N.S.W. I have exported and netted twenty pounds per ton. But consigned to my own brothers who looked after my own interests, and picked the agent in London. One charge was 1s 6d per sixty pound tin for sampling. The honey sent was the worst of my stock, dark in color, and strong in taste, in fact from a Eucalypti source, thinking there was a mania for that. An expert that understood the melting, and put up in tins or glass jars, nicely labelled, which can be procured at home for half the cost. One penny per pound on my stock that year would have been ample for my expenses home and back. Been home twice, do not wish to go again. I saw a notice in one of the *Bulletins* about a man in Sydney hawking it. I did that in Warwick last year, put a man on to sell, landed it at 2d. per lb in 60lb tins, two in a case, tins and cases to be returned. He sold from house to house at 3d and made as much as £3 per week. That can be done in every town in Australia. The stores will not sell, the people will buy if it is put to them, no cost for tins, filling their own vessels. I have every year to get a fresh agent, as other bee men take my man.

## Special Subject.

Give suggestions how to increase the home (Australasian) market for honey.

W. S. PENDER.

Keep pegging away at trying to induce your neighbours to be consumers. Give away a pound or two of honey now and then to those who you know do not use it. Show everyone the benefits to be derived from its use. Sell nothing but the best honey in clean new packages, neatly got up. Always have it on your own table, especially when entertaining visitors, and do not forget to invite them to try some.

W. PACEY.

This is a difficult subject to solve—As to a practical method being devised to ensure a great increase in the consumption of honey by the public so that beekeepers will be able to dispose of their honey. Although unable to give a practical way of overcoming this difficulty, I am firmly convinced that *unless* all beekeepers are united in unity, to deal with these their interests by associations, with an executive head, nothing of a permanent character can be looked for. "United we stand—Divided we fall."

J. F. MUNDAY.

Let people see in a *practical* way that you undoubtedly believe in consuming honey *regularly* in moderation *yourself*, and your family also (if you have one) is in the habit of doing the same. Teach your acquaintances that by its daily consumption honey has a tendency to keep the system in a healthy condition, and that it is nicer, better and cheaper, to consume honey regularly than frequently have to swallow physic and pay doctor's bills, as many people consider it necessary to do. Of course ask for and partake of honey when dining out. Obtain for sale good honey, put it up in decent and convenient packages, and sell it reasonably cheap. Make an effort to find families who do not use honey and persuade them to try some, more for their own benefit than yours.

JOHN PERRY.

In compliance with your general invitation for suggestions, "How to improve the home market for honey," I have much pleasure in submitting a few lines treating more especially on the marketing side of the question than the producing, and I am anxiously looking forward for your next issue in order to see how many proposals you will receive that do not entail a certain amount of expense to the producer, as I am afraid that this will be the first and greatest obstacle to be met with. Bee-keepers, like other people, fight shy of experiments and new ventures. And though I have every wish to see something practical evolved out of these interchange of ideas, it is my private opinion that any move in this direction will most certainly be a venture. The writer has had some experience in endeavouring to develop the *local* honey market (not Australasian) and I am sorry to say found it an unremunerative undertaking, and altogether too big a task for one individual.

What, may I ask, are our Unions and Associations doing in this direction? Honey, above all things, requires a great deal of pushing to make it go off any faster. We all know that it does not rank amongst the most urgent necessities of life, such as butter, eggs, milk, &c. We will not find it in one house out of a hundred, and at the present time you could not sell a bottle of it in one house out of fifty. People, particularly in Sydney, look upon it more as a medicine than a food. Mothers sometimes buy it instead of treacle for the children, "as they like garden honey for a change." There is nothing in the grocer's store that the general public are more ignorant of than pure extracted honey.

How to increase the market for honey then, is a question that will make many put their thinking caps on. I have a few inexpensive suggestions to make which may not strike you as being new or original; nevertheless they may be worth repeating.



In the first place I should suggest that a series of short articles be made to appear in one of the Sydney dailies on the honey industry of New South Wales. We have been treated to some very excellent articles lately in the *Herald*, on the dairying, tobacco, fruit, and great pastoral industry of the colony, so that I think if one of your 6-page contributors wishes to immortalize himself this is a splendid opportunity to give the public a somewhat similar and equally interesting article on the honey industry of N.S.W. Some bold advertising would also be beneficial, informing the public that a B.K.U. had been now formed to protect them from eating adulterated and injurious honey, stating of course, that guaranteed pure honey could be obtained from any of the members of the Union or Association, whose names are appended. Follow this up with a raid on the well-known adulterers and punish them under the Food Adulteration Act.

The services of a house to house canvasser may also be engaged to distribute freely samples of honey and pamphlets, extolling the virtues of the same in the best parts of Sydney. And after all this, if there is no response, we have an undeveloped foreign market for hundreds of tons of it, notwithstanding all that has been said about its peculiar flavour. I have always received most polite inquiries from English firms asking for samples and price.

Personally I am of opinion that our local market will stand developing. In the States they consume far more than we do per head of population, it being used more as a food there.

Speaking of N.S.W., I find that according to Coghlan we have been importing thousands of pounds worth every year, mostly from South Australia and Victoria, and all this in the face of a 1d. per pound duty, carrying, freight charges, and commission. Well may we ask "what price imported honey," and what may we expect if this penny duty be taken off with a change of Government. It will be glorious times for the 2½d shippers down South, especially if we can improve the Australasian market for honey.

S. SCHUMACH, Binnaway.

Re suggestions how to increase the Home market for honey, I would beg to suggest the following:—

1. Have a standard price throughout the Australian colonies.

2. Form a strong Association and endeavour to obtain all bee-keepers' names, whether on a large or small scale, as members of such association.

3. Have a depot in all the various capitals for the storing and wholesale transactions of the honey, to be managed by a competent bee-keeper.

4. Have a registered trade mark, a duplicate of which every bee-keeper should possess, and no honey, without such trade mark being at-

tached be allowed on the market under the management of the Association. All honey to be tested.

5. That any bee-keeper endeavouring to place honey on the market not up to the standard quality, the same to be returned to the producer at his own expense, and if repeated, such member to be struck off the roll of membership.

6. Give the general public a superior article at a fair marketable price, and the quality of the article must command its own sale.

N. Z.

This is a subject of very great importance to bee-keepers in all parts of the world, and much has been written upon it from time to time in all our bee literature. Time was when writers upon this subject based their arguments upon the idea that honey is one of the necessities of life, and some even do so now, but they are wrong, as I am going to try to prove.

In a case of this kind nothing is to be gained by trying to deceive ourselves. We should look the matter squarely in the face and deal with the question accordingly.

Some kind of saccharine matter is absolutely necessary to the health and existence of human beings; but like everything else, when there is more than one form of the article we naturally use that which is in the most portable and cheap form. Some two hundred years or more ago honey was the only form in which that matter was available, and was in consequence very extensively used. But after sugar came into use the demand for honey gradually fell off till we reached a time within the memory of many of us when very little indeed was used. This falling off in the use of honey was entirely due to the cheaper production and more portable form of sugar.

Since the modern system of bee culture was invented, the production of honey has been very much cheapened and also very much increased, but still it has not made any material difference yet to the demand for sugar. Of late years modern invention has produced what is known as table syrups, a comparatively cheap, and (if pure) a very wholesome form of saccharine matter, which bids fair to be a much more formidable rival to honey than sugar itself. In appearance this latter is very taking, and is now retailed at a very much cheaper rate than treacle was formerly, and we must take this into consideration when studying the question of increasing the demand for honey. There is no getting away from the fact that honey at the present time is chiefly looked upon as a luxury, and as such is only purchased when the purchasing power of the consumer allows him to indulge in luxuries.

No argument is needed to prove the foregoing. We have only to raise the price of honey a penny or two per pound above its ordinary selling price at any given place, and we will find the demand drop off at once, even when the article



is very scarce, thus proving that it can be done without if needs be. Taking the points I have put forward, as facts, it will be readily seen that to compete successfully with its rivals, the cost of honey should not be more than the former, that is to say, honey should be retailed at as cheap rates as table syrups. The only possible way in which this can be brought about profitably is to cheapen the cost of production, and to do this the apiary must be worked in the most economical manner, using the latest and most advanced appliances, turning the bees on a large scale, and choosing good districts for raising the best kinds of honey. Next in importance is the style of marketing, using only the cheapest and most suitable packages, and getting them up in the most pleasing and taking, and at the same time, most inexpensive form. There are other points that will suggest themselves to each individual bee-keeper, but if the foregoing conditions can be carried out there will be no difficulty in largely extending the market for honey everywhere.

JOHN SMITH, Mt Cotton, Queensland.

This is by no means a simple problem, but the remedy appears to be in the hands of colonials themselves. We want a long pull, and a strong pull, and a pull altogether. It is impossible to do any good unless we start at the beginning and put a stop to adulterating (glucose and sugar) honey, making the seller or store-keeper liable in the first instance. Also every lot exposed for sale should have a label on it stating if the honey was extracted or strained. We ought never to lose sight of the fact that an inferior or counterfeit article *always drives the genuine one to the wall*. No matter whether it is honey, butter, pepper, coffee, jam, or any other article of food. Why don't the authorities make a raid now and again, and let us know the percentage of the mixture. When they did so some little time ago in England, the mixtures of food were found to contain 50, 75 and 90 per cent. If a manufacturer grinds up dead men's bones and sawdust, let him be made to give the per centage of each, and we will be satisfied. It is no use tinkering with half a dozen chimerical plans to try to improve the sale of honey in the colonies whilst the door is left wide open for adulterators, whose inferior products disgust the public, and makes them, like the "average Briton" at home, fight shy of colonial honey. Some years ago I knew a large manufacturer of pepper in the old country, who, when a sudden prosecution of adulterators was set on foot, had to shovel at midnight £500 worth of "pepper" (sic) into his mill dam. The disgusted manufacturer said he should emigrate to Australia, where he or they could do pretty nearly as he liked. If, said he, there is an Adulteration Act, they hardly ever put it in force. Note this opinion, Mr. Editor, then ponder over this question: How many real genuine articles of food can you buy for love or money in the colonies?

When this adulteration of food is stopped, I will tell you something else that I think would greatly help to bring the honey before the public and make them buy it. Firstly, secondly, thirdly and lastly, however, nothing in my opinion can do much permanent good until we get a stringent "Pure Food Bill." I have seen lately something about "self-raising flour." Now, I was in the milling business for many years, and since then scientific men may have discovered some new combination of chemical substance to put into flour to improve it (sic.) but from my experience I don't believe there is anything in the world that can be put into flour without injuring it. I will tell you what we used to do, that is, the firm I was with (they are all dead now—this was in the fifties). The firm used to buy inferior wheats and grind up with other products, then whilst in the process of grinding, a certain chemical substance was added. This had the effect of making the flour rise, when it got into the bakers' hands, and it also considerably improved its appearance. We got from 3s to 5s a bag more for it than it would otherwise have fetched, by this manoeuvre. It was all sent into Lancashire, one to two hundred bags at a time, to be consumed by the poor, And I am quite certain whoever got it *must have been injured in health by it*. So much for self-raising flour as one firm made it over 35 years ago.

## QUESTIONS.

MR. JOHN BLAIR, of Tryphema, New Zealand, in reply to question 19, says:—I for one have little experience. N.Z. early honey is so thick it will not extract; the combs must be either scraped and the middle put back, or cut out and frames put back with clean foundtn. Either way effectually does away with old combs. Honey ripening—N.Z. honey being so thick, there is no temptation to take it off before it is sealed, then separate from the wax, and when it goes solid, in about four weeks, seal in air tight tins. Late honey extracts like matter, and goes solid, like butter, in from four to fourteen days—the hotter the weather the shorter it takes—then seal over airtight. Have had no trouble ripening when worked in this manner. It must be kept from damp.

20. To which of the following would you adjudge first prize:—

No. 1. A square cedar polished hive with super, observatory window at back, cottage top with inside top covering tightly screwed on, super also screwed on; frames in supers empty, with starters in frames; Inhabitants black.

No. 2. A Langstroth hive, all sides glass; flat top, also glass and moveable; ten frames full, combs perfect; inhabitants black.

No. 3. Common Langstroth hive, with flat top covering board, combs fair, ten frames full, inhabitants pure Italians.



L. T. CHAMBERS.

If prize was for bees, No. 3. If for cabinet work No. 1. If for novelty No. 2.

P. RIDDELL.

I would adjudge first prize to No. 3.

WHY.—No. 1 is unworkable and No. 2. is a death trap for bees.

J. F. MUNDAY.

Conscientiously I should be unable to award the prize to any, as the purpose of the hive is not stated, but for use in apiary No. 3.

S. SCHUMACH, Binnaway.

I most decidedly would award it to No. 3 on your list. In my opinion it is the most valuable in the market, and producing the best average amount of honey.

H. L. JONES, Goodna, Queensland.

I presume the question to refer to the "best hive of bees." Then certainly I would give it to No. 3. Yes, even if populated with black bees.

J. WORRELL, Balkham Hill.

I would give first prize to No 3, but I think it would be better to give prizes separately for bees and hives. In that case I would give 1st prize to No. 1. I still prefer the Italians to the blacks.

J. J. HARRY, West Bargo.

You do not give the class those hives would be entered under; but if it has to be an observatory hive showing bees at work, I would give first prize to No. 2; if not to be an observatory hive, I would give No. 3 first prize.

H. W. J. TAYLOR, Minmi.

I do not know if I understand this question rightly. But were I giving the prize for the best for general business, I should certainly give it to No. 3, common Langstroth hive with Italian bees.

W. PACEY, Marrar.

I would give the prize to No 3. I would not give a prize to black bees, no matter what make of hive they were in. My experience here with black bees is that they are not worth keeping. They are not in any way to be compared with pure Italians.

W. S. PENDER.

It depends on what the prize was offered for. Was the prize offered for the best hive, or the best hive of bees in good working order? I would need to examine the hives to see to other practical points of construction before giving an opinion.

N. Z.

This question is rather vague, and therefore difficult to answer. What should be the basis of the award? The most expensive hive? the most fanciful one? the most useful one, taking the £ s. d. into consideration? or the most profitable bees? Looking for profit I should give the preference to No. 3, and therefore the prize to that hive and bees.

FITZ GEEBONG.

Competition lays between No. 2 and No. 3. Question 20 is impossible for me to answer cor-

rectly on the meagre data given; nothing whatever indicates what the hives to be adjudged are to be used for.

Is the prize hive to ornament the lawn? or is an observatory hive required? or does the questioner look for profit in bee-keeping? and then, does he intend to go in for comb or extracted honey? Again, what have the bees to do with the hive? Cannot one race be worked in a hive as well as the other? Or are the bees to be judged with the hive?

No. 1 hive is without a doubt for ornamental purposes, but the screwing off and on makes it impractical for anything else excepting to kill time and irritate bees.

No. 2 is an observatory hive I would say judging from the quantity of glass about it. But it is incomplete—it should have a shell or overall cover to guard its frailty.

No. 3 is all wood I presume, and would on that account not do for observatory purposes, and it may not be ornamental, whereas (if otherwise constructed right) it would be the hive for general purposes.

GEORGE JAMES, Gordon.

No. 1. But the question is rather vague, and in the absence of an appendage, leaves it an open one.

## QUESTIONS NEXT MONTH.

21. The best situation for an apiary, as regards aspect, locality, shelter, and convenience of working.

22. Is it necessary to specially prepare hives for winter in any part of Australia? and what preparation do you advise?

We are sorry that want of space compels us to hold over to our next Mr Abram's reply to Mr Gale's articles on "Heredity."

Thanks to informatiot supplied us by Mr. E. Rye, of Wingham, there are in the Upper Manning, 708 hives, which in 1893 supplied 16,250 lbs of honey, and 747 lbs wax.

Californian Honey for 1893, about 5,000,000 lbs. One man W. P. Richardson, had 65 tons; J. Moffatt, 54 tons; J. F. McIntyre, 24 tons, M. H. Mendleson, over 30 tons.—*Gleanings*.

Mr. George James, writes us, re the Fray James non-swarmers:—A lady beekeeper secured 160 1lb sections, with two non-swarmers attached, and from 23 hives, run on the go as you please, total not one completed section. How's that, umpires?



We beg to remind our subscribers that the third volume commences with this issue, and that quite a number of subscriptions fall due. Please send them on, they are really wanted.

### TASMANIA.

Dr. John Mason, Longford, Tasmania, writes:—I noticed in report of discussion at some bee meeting in N.S.W., a while back, the question of starters, half and full foundation came on, some said they had miserably failed with starters, but, as reported, did not give the why or wherefore, which is most important, to beginners especially. Many are induced to content themselves with the starter from lack of funds to fill up their frames. We have not had a good honey flow this summer from lack of rain. Now the drought has passed, stocks are storing for winter. I enclose you a photo, enlarged from one lent to me by a relative of the pourtrayed, of Dr. Wilson, R.N., who in 1832 first successfully established the honey bee in Tasmania, then known as Van Dieman's Land. Dr. Wilson ultimately settled in the island and for years sold swarms at £5. It has been asserted by some that bees were earlier introduced and by Mr. Wm. Kermode. It may be so, but until good proof is brought forward I claim the merit for one of my profession. These bees were the origin for years of all the European bees on the Australian Continent. I refer you for further testimony to Mr. F. M. Moule, Usher of the Black Rod, Legislative Council Sydney, and to Mr. Scobie, M.L.A., Sydney, who is I believe President of the N.S.W.B. Association. I also enclose copy of an address which accompanied the presentation of a silver snuff box by 40 of the then prominent colonists, and amongst them is that of the well known William Kermode, who whatever previous efforts he may have made through agents to introduce the honey bee, appears by his endorsement of the address to have surrendered the palm of success to Dr. Wilson. The snuff box was in the possession of Mr

Aubrey Moule until a few years since it was stolen. It had all the names of contributors engraved upon it. Many of these names are well known throughout the Australias, and if you were to publish as you are at liberty to do the information in full I have furnished, it would excite attention, and further information as to the early history of apiculture in the Australias may be elicited. I wait with interest some reports on Carniolan bees. Am informed they are terrors to swarm.

Copy of address presented with silver snuff box to Dr. J. B. Wilson, R.N.

Sir,—We the undersigned request you will do up the honor to accept of this box, manufactured in the colony, as a mark of the sense we entertain of the important services, which in a long series of voyages you have rendered this colony by introducing to it some of the most valuable plants and animals, but especially the honey bee, which are now in a manner become indigenous to it. That you may long live to enjoy and participate in the advantages your exertions have thus conferred on the colony is the earnest wish of, Sir,

Your obedient servants,

E. Abbott, T. Burnett, J. Bisbee, G. Butler, T. Beaumont, T. Betts, D. Burn, A. Combie, W. Davidson, T. H. Emmett, T. Edgington, Geo. Frankland, M. Fenton, M. C. Friend, J. Gordon, J. Hone, S. Hill, T. Hewitt, E. Hodgson, J. G. Jennings, A. F. Kemp, Wm. Kermode, T. Kerr, D. Lord, J. Y. Lowes, T. H. Moore, F. L. Margette, W. M. Orr, P. O'Farrell, C. O. Parsons, J. Ross, J. Steel, C. Swanston, G. M. Stephens, J. Scott, J. Thomas, W. Wilson, J. Walker, G. Watson, G. Yeoland.

[As we read Professor Taylor's report at the Michigan State Apiary, starters are the right thing, taking the year through. But when a sudden flow of honey comes on full sheets of foundation are necessary, as the bees would have to neglect the honey to make the wax to put it in. We should remember that it is a function of the bees to secrete wax. We will make this a special subject.]

We are very thankful to you for the portrait and biography of Dr. Wilson. It is matter of this kind that is so interesting to beekeepers and the public generally. We cannot see our way clear yet to illustrate the A.B.B., but whenever we do Dr. Wilson's will take a foremost place. We are getting quite a collection of photos of apiaries, &c., all of which we are keeping warm for a coming time.]



## HOW I EXTRACT IN COLD WEATHER.

F. W. PENBERTHY, ELSMORE.

A drapery case without a bottom, battens on edge across the middle to support the frames, a pot with holes in the sides for a furnace—not a white lead or paint pot, as the fumes would poison the honey—a sheet of iron (not galvanized) nearly as large as the case a few inches above the pot, supported by bricks to spread the heat. Place the comb 2in. clear of each other. I put on as many as I can, and put in as I take out, in rotation, and keep them covered with a blanket. I regulate the fire according to results; I use *charecoal*. There is very little loss of time; I can bring in and change the combs at the heater, and return the empties to the hives, and keep another going uncapping and extracting, and it will extract as well as it does in the summer. The combs want to be warmed slowly, so as to be warmed through; if too hot the empty cells will melt down. For two persons extracting the heater should hold from 40 to 50 combs; provision should be made to get at the fire without disturbing the combs.

I see now and then a few writers in the A.B.B. in favour of double queening. I have come across several hives with two queens, which did not appear to be stronger than any other, and I think those that practice it will lose more queens and time than it is worth. An average queen with fair play will keep a hive very strong. If it takes a queen two-thirds of her time in searching for empty cells on an irregular developed brood comb, as they often get with constant breeding for four or five months, such hives cannot be expected to be strong. By putting a few empty combs in the centre of the brood nest, one every other day, according to the strength of the hive, will give far more satisfaction than fussing about double-queening. If this were done more there would be far less

queens condemned. How quick a hive strengthens in the spring, when the queen has straight-ahead work; just as much difference as there is in planting potatoes in regular rows, and planting over again where they have missed.

## THAT PROTEST.

I was somewhat surprised at reading Mr. T H Bradley's curt and dictatorial communication in last issue. Does he imagine for one moment that a Hunter River Beekeeper would have the audacity to smash up one important rule (18) of the Union to mend another with the fragments? If he will refer to his *A.B.B.* on pages 194 and 218 he will plainly see that the alterations of the rules of the Union brought forward by me were only "recommended for the consideration of that body." All present at last Convention—and none knows better than Mr. Bradley—will remember that the rules for the Union were adopted in a hurry, and are in many respects unsuited to the requirements of an Union. By rule 18 alterations can only be made by the members at general meetings, and the alteration must be specified. Again rule 9 states that one month's notice must be given for the annual meeting. Feeling convinced that the alterations I have suggested, viz. payment of a capitation charge by members of other associations to entitle them to membership in the Union, would be of vast benefit to that body in augmenting its membership, and that a general revision of the rules is highly desirable, I think it is high time the committee were at work. Yours, &c.,

C. MANSFIELD,  
Hunter River Apiary, Largs.

The Michigan Experimental Apiary has decided that foundation made on the Given Press has a pretty decided advantage over that made on the roller machines, but no comb made from foundation equals in fineness the natural, though in some cases it approaches it very closely.



## HEREDITY IN BEES.

ALBERT GALE.

"Some men are born to be fishers for faults, they carp at everything, and flounder in all."

Mr. Helms' first carp is a flounder. He begins his critique by barking up the wrong tree. He supposes that I am the author of the term "heredity" in the heading. Had he been abreast of bee literature, he would have known that the term was in use long before I adopted it, or had he taken the trouble to read the first paragraph of my paper, he would have discovered that it is a reply to articles that appeared in the *British Bee Journals*. From Mr. Helms' stand point, the term "Heredity" is *ill chosen*. In his summary of traits, he seems to be convinced that the only ones that can be inherited, are those of will, or intellect, or instinct. He expected to "meet something about character," and heredity in bees, is scarcely touched upon." It is obvious that Mr. Helms has written from hearsay. Some eight or ten times the phrases "transmits and produces," "produces an insect whose constructive intelligence and foraging instinct," "that instinct is heredity," &c., occur. My last paragraph reads thus:—"These conditions transmit to the elements of the hive the reproductive, the social, the domestic," &c., &c. Yet Mr. Helms has not seen it. There are none so blind as those who won't see. Physical deformity and abnormal growths, health and disease, the movements and forms of the body, the tone of voice, &c., have all been more or less inherited.

"Like father, like son," no matter whether it be in mental characteristics or the transmission of certain physical forms, there is a "Heredity Genius" that is always at work developing them. The writer who first used the term is not such a fool as some one seems to think, "Where ignorance is bliss," &c. For Mr Helms' information I will give him the text, to show the reason the term has been used. Neither the father nor mother bee possess pollen baskets, wax pockets, wax secreting glands, honey sacs, &c., &c. Neither

have they a constructive power nor a foraging instinct, yet the workers, their descendants, possess physical formations, constructive powers, and a foregoing instinct that their parents lack. From whence do they inherit them? Is the term so ill chosen?

In reading Mr. Helms' critique it does not take long to discover that he has had very little to do with bees, that he has not profited by the little he has done, and that his bee coaching has been very superficial. By the egotism of the terms, "I doubt," "I do not think," "I deem," &c., one would suppose that he and he only held the curb rein of bee lore in his hands, but the illusion is soon dispelled by the words, "probably," "perhaps," "presume," "probable," and other doubtful expressions, being sown broadcast throughout.

Mr. Helms says, "It is a pity my assertions are unsupported by proof." The "assertions" he refers to I suppose are the "constituents of the hive," &c. My paper was read before an assembly of some of the most practical and scientific beekeepers of N. S. W., men who understood bee-life in all its details, and the proofs are ever present before them, and I presumed the paper was to be published for men of the same bee intelligence as those for whom it was first written. When the copy was asked for for publication I ought to have known that it would be sure to fall into the hands of men who, like Mr Helms are not so well versed in the subject as those before whom it was read, and perhaps it would have been as well had I given an epitome of the maturing of the inmates of the hive. Nevertheless "proof" of the "assertions" are frequently referred to throughout.

Says Mr. Helms, "It is admitted by everyone who understands the economy of the hive that fundamentally the reproduction and the maturing are the same, although wonderfully varied, according to the conditions under which the young have been reared, &c." By *fundamentally*, I suppose, Mr. Helms means the elementary stage in which the



eggs are found in the ovarium of the mother bee, and by the phrase the *reproduction and the maturing*, he means the "like to produce like" and perfect the development. Now, let us see if *every one understands the economy of the hive* with the same understanding that Mr. Helms possesses. The eggs in the ovarium are male and the reproduction of drones are organic, but that of females are a sexual reproduction. The eggs leaving the ovary is the first step towards maturity. Fecundation takes place *after* the eggs leave the ovarium. The cells in the maturing of the male and that of the perfect and complete female bee are very different in all particulars of construction, &c. The methods of maturing in the cells differ as greatly as the cells themselves, and the time occupied in the maturing of the drones and queens is contrasted not by hours but by days. Mr. Helms says: "*the production and the maturing are the same*, and this is *admitted by everyone who understands the 'economy of the hive.'*" Mr. Helms, and he only must be that *everyone*.

"Mr. Gale advances that the abdominal respiration is the chief agent in the development of the queen." My words are "Abdominal respiration appears to be *one of the chief agents*." Why does Mr. Helms, to suit himself, put words into my mouth that I never uttered? What is it Mr. Helms quotes about those who cannot reason?

"Is the royal cell really more porous than the ordinary cell as asserted by Mr. Gale? I doubt it very much," says Mr. Helms. His doubt goes for nothing. Again he says, "The walls of it (the queen's cell) are by no means 'tissue' like, but rather solid."

*Rather solid* is rather good from the pen of a hypercritical critic. A substance can be as "tissue like" as it is possible for nature or art to produce and still be, not only *rather*, but entirely solid. A solid is that which has length, breadth, and *thickness*. See any work on measurement of solids. Can "rather solid" be a misnomer.

"The outer network between which they (the cavities) occur is probably only formed by the bees to give more strength to the cells as well as for the purpose of allowing a better hold to the attending bees." All this is only *probable* and it is just as probable it is not so. "When bees attempt to raise a queen from a drone egg why do they invariably construct a *smooth* surfaced cell? Is it because the incubating bees shall *easily* slip off?"

"*Outer network*." Then Mr Helms must have discovered an inner network, or is *outer* a misnomer. My statement is "being given to add strength." Mr. Helms does not seem to know that some time before the young queen emerges from the cell a large portion of the rough coating is removed.

"They construct it (the queen cell) with the material they break down to get room." Bees frequently construct queen cells at the base or at the side of the combs where no breaking down to make room is necessary, and the queen cells are then constructed with the parings of the surrounding cells. Bees are not so wasteful as to permit pollen to be worked up uselessly, and for Mr. Helms to say "*I do not think that pollen is purposely kneaded with the wax*" is no proof. My "I do" is surely worth as much as his "I don't."

"The queen cell is undoubtedly porous at its apex." If Mr. Helms means by *apex* the capping, he will find the porosity extends far beyond it. "But if it were equally so at the base, as is the specially contended point, the food would probably get too dry for absorption," says Mr Helms. And it *probably* would not. In the early stages in the development of the queen chrysalis it adheres to the royal jelly, for sometime continuing to draw aids to its development, and there is no *probability* of it getting too dry.

For answer to Mr. Helms 6th paragraph, see my answers to Mr. Abram in the last paragraph.

"It is more reconcilable that the abdominal trachea, and this is thoroughly contended by Mr Gale (No it is not—A.G.)



can possibly be particularly active for breathing when the hinder portion of the larvæ and the nymph's body is to the greatest extent surrounded by food substance."

How far up is the *hinder portion of the larvae* and what is meant by its being *surrounded by food substance to the greatest extent*." To say the least of it, it is a little, only a *very little*, contradictory. Mr. Helms could never have seen queen larvæ in the cell. During a great portion of her larval stage she floats on the food substances and is never surrounded by it, during which time one half of her spiracles have full play, and when she becomes erect the fifth and six dorsal plates are submerged. The sixth dorsal plate has no spiracle in it. Why does Mr. Helms continue to put false words in my mouth? I have not used the term *trachea*, the word I have used is spiracles and there is as much difference between the meaning of the two words as there is between nostrils and bronchi.

"I deem it more probable that the abdomen is free from the network of the cocon, &c.,"

But I don't. "To call the queen cell an inverted cone is first of all a double misnomer, because it is neither cone-shaped nor inverted." "Inverted is probably meant for pendulous." No, it is not. I said what I meant and meant what I said. In *rather solid*, Mr. Helms had forgotten some of his mathematical training, and now he appears to remember too much or was never taught that the word "cone" has many applications. The term is used in many of the sciences, but Mr. Helms only knows it as a mathematical one. If the word had only his meaning I would plead guilty. The term is always given to the fruit of the coniferae. The fruit of the *Pinus sylvestris* is a genuine cone. The term inverted is used as having a mode of attachment the reverse of that which is usual. "The cone dependent, long and smooth, growing from the top of the branch."—Evelyn; i.e., the cone with an unusual mode of attachment. Now let us see where the

laugh comes in. Take the fruit of almost any of the pine family and alter the attachment the reverse of that which is usual—"The cone dependent," and compare it with the queen cell, and where is my *unfortunate deduction* or my *double misnomer*. One of the most sorry sights I know of is to see a man laugh at his own ignorance.

Now for the next *carp*, I wonder if we shall find a *flounder* at the end of it.

"As to being conical, the outside shape which however cannot possibly be considered affecting its inmate," writes Mr Helms.

Where have I said or even hinted that it can. Why this *flounder* is as big as a turbot. The remaining part of this paragraph is so full of *probables* and other doubtful expressions, it is useless to waste space in referring to them.

"Quite recently I saw a cluster of nine cells, each of which, to my eye, produced a well developed queen," says Mr Helms. Then I suppose Mr Helms' eye is infallible as far as queens are concerned. What a theme there is in the *nine cells in a cluster* for scientific investigation? Such scientific information was of more importance than the "nine tailors of Tooley Street." How much has been lost, all for the want of an observing "eye." It is a very great pity Mr Helms did not secure the nine inmates after they emerged. Where were they hatched out? Was it in nursery cages? If not, were the eight protected in any way from being slaughtered by the first queen that emerged? Did they all come to maturity and become *laying queens*? If they came to maturity under protection, what protection was adopted? If they hatched under protection, how were they separated, if separated at all, without injuring the inmates. I am sure beekeepers would be glad to have these and a number of other questions that arise from the same subject answered.

"If the theory of Mr. Gale is a correct one, none of those queens can be worth much, because the queens from the outer cells must be defective, and those from the interior of the cluster certainly worth less."



Mr. Helms says "to my eye" each one produced a well developed queen. *My eye* ought to settle it. What proof has he advanced that it was not so. Nevertheless where have I advanced the theory that the inmates of the queen cell produces a queen, *solely* on account of the porosity of her cell?

Now for the aphidean parallel. Mr. Helms says "parthenogenesis occurs only partly and imperfectly amongst bees, but in excess, if I may say (of course that settles it) and most perfectly amongst aphides."

Elsewhere Mr. Helms has said in reference to my paper, "In using the word argument I am scarcely applying the correct term which more correctly should be assertions." What term does Mr. Helms apply to this wandering of his,—this fencing and carping in a superlative degree. My words are "The difference between the winged and wingless aphides both those of locomotion and reproduction is as great or greater than the instinct between the queen and the worker bee, and this difference is not brought about by the change of food in any degree whatsoever." Where is there anything in these words concerning parthenogenical reproduction.

For Mr. Helms to have introduced this into the subject is as foreign to it as if I were to answer him by introducing reproduction by fission or gemination. I don't know why I need reply to it, but I will. It is well known that female bees are *always* a sexual reproduction and that drones are *never* so. The copulation of the queen bee does not effect her immediate male progeny but they are a result of previous union i. e. a union in which the queen bee's mother took part. How different is the reproduction with the aphides? In the end of autumn aphides lay fertilised eggs, in the spring these hatch out viviparous females, but never males, they go on reproducing viviparously and parthenogenically until the winter draws on when *both males and females* are produced, *both genders* being the result of parthenogenic reproduction, and then copulation takes place for continuing the generations

for the following year. This is what I suppose, what Mr. Helms means by parthenogenesis *in excess*. Where does the *excess* come in? My parallel is drawn from the effects of food in altering the physical formation of either bees or aphides. Does the food of the first generation of aphides, the early spring brood, cause them to produce viviparous and wingless descendants, and does the food in like manner cause the last viviparous brood in the autumn to produce an oviparous generation containing both males and females, the males always winged, the females wingless although sometimes both winged and wingless forms occur amongst the latter? Will Mr. Helms kindly answer me this question? The young aphides are not fed by nurses as is the case with bees, but both the old and the young live by sucking the juices of the plants they infest, and it is a moral certainty to my mind, notwithstanding that it is "very problematical" to the mind of Mr. Helms, that they have nothing but the juices of the plants on which to feed. Can this produce the differences in them, I have named.

"Although Mr. Gale makes it (the aphidean parallel) his strong point, he brings no proof for it, nor quotes his authorities."

How many more are to be my *strong points*; just now it was abdominal respiration, then it became the porosity of the queen cell, and now it is the aphides. It really becomes monotonous. To do away with the tautology could not Mr. Helms have introduced some degrees of comparison such as: Mr. Gale's strong point, his strongest point, his stronger point than his strongest; his stronger point than his strongest point by far, his far stronger point than his strongest point by far, etc., it would be such a relief to the readers.

Mr. Helms says I bring no proofs nor quote my authorities. If I have written the article solely for the purpose of bringing in *my* new theory, where does he expect I am to quote my authorities from?



Mr. Helms has given no proofs nor quoted any authorities for his assertions excepting the big capital "I." He ought to know that I am only "a little wosser than he." I admit two blacks will never make a white.

"I may mention here" says Mr. Helms, "that it is very noteworthy that with unchanged food only the female bee will prosper." It must be very "noteworthy" seeing that there are two classes of female bees, and Mr. Helms can't tell which he is referring to.

Here for a time at least I must draw the line. The remainder of Mr. Helms' arguments are equally or perhaps more erroneous than those I have referred to. He is getting beyond his depth and I have no time to get corks to float him, neither will it be interesting to your readers. He is adopting the arguments of Special Pleaders when they have a weak case, abusing the other side.

In looking over Mr. Helms' paper I find he has tendered me a bad sixpence, and I have given him sixpennyworth of bad coppers in return. I am sorry for it; he has only himself to blame. Like a duelist he chooses his weapons and I have no alternative but to fight with the same.

## VISITING.

BY E.T.

We found ourselves one morning in the prettily situated but primitive mining township of Teralba. We say primitive, because, although a government township, with well-planned streets, a railway station on a main trunk line, possessing extensive coal mining works, and a good frontage to one of the most beautiful lakes of Australia (Lake Macquarie); yet it has not advanced to the stage of municipal government, with the drawbacks of water or gas rates, and those who go about at night need know their way or provide themselves with lanterns. Neither is it very blessed with prosperity, for the coal trade has not been what it might be for a long time. Either way, we were there, and had to stop for a cou-

ple of hours for the next train. We were wondering what to do with ourselves, when we dropped across an old friend, who suggested that we should go and look at some of the apiaries about town—"Here close by is Mr Welsh's." Mr Welsh was away boating on the lake, but a young fellow, his assistant, very kindly took us to the rear. And what a surprise! Some quarter of an acre of beautiful smooth lawn, level as it could be made, on which were arranged in rows about ninety hives, at distances of about five feet apart, all properly painted and numbered, gable tops, the front gable of each hive in each row being painted a different colour to its neighbour on either side. A well-made honey-house, with legs resting in tins to be filled with water to keep out ants. And containing a four-frame extractor, uncapping tin, honey tank, section carrier, &c. Had Mr Welsh been at home we should have congratulated him on the neatness and good arrangement of everything about. But he was not, and so we do it now, and tell him he should enter it for the next New South Wales apiary competition. We are sure he will stand a good show of getting a prize. He has good bees, and the only weak part of his apiary is that there is a good lake frontage, on which the bees cannot gather honey, and they have to go some half mile on the other sides for their forage. Our friend now suggested that we should visit two other apiaries about a mile away. But he was not a good bushman, and so, by getting on the wrong track, we traversed more than two miles before we reached Mr J. E. Smith's apiary. It was very rough hilly country, full of scrub and tall forest trees. Masses of hard conglomerate rock were jutting out of the sides of the hills in all directions. The ground was well sprinkled with white heath blossoms, to which the bees were paying great attention; spinifex was abundant; and here and there were the rich red flowers of a species of honey-suckle, containing quite a quantity of honey, but too far down for the bees'



tongues to reach, so they are not seen working on it. Looking across the hills here and there bloodwood trees in full bloom reminded one of gigantic brocoli heads among the otherwise green of the forest. Mr Smith has about sixty hives in close proximity to his residence, mostly good hybrids. It is situated near the foot of a hill, a winding scrubby creek within about one hundred yards of the house, which is, however, high enough to be out of any flood reach. The situation is splendid for bees; they ascend empty to the hills around, and descend homewards when laden. Mr Smith told us he manages to get his cart into town, but it must be by some other road than we came by, or we would not have cared for the job of driving. He has a few cows, some poultry, a little cultivation, and some fruit trees. But the soil is very poor. The honey-house and workshop contains pretty well all that a beekeeper requires—Barnes saw, by means of which he has cut out all the timber for his frames and hives; foundation mill, extractor, &c., &c. Not the least interesting part of the things he had to show us was a collection of snakes, centipedes, and other reptiles which he himself had killed about the premises. He complained of the badness of the honey-flow this year, a flow only just now coming in. After partaking of an excellent dinner, which we thoroughly enjoyed after our ramble, Mr Smith accompanied us to the residence of Mr Coil, about half a mile away. Mr Coil has about five acres, occupied with apiary, orchard, and such cultivation as the poorness of the soil will allow. He has some sixty hives. When he first purchased the apiary, the hives were in sheds, and frames of different sizes. As soon as he possibly could he got them all into frames of one size and placed the hives out in the open. In 1892 he took 11,200lbs from 70 colonies, but this year there has been no honey flow till some three weeks back, and much of that had been spoilt by the continuous rains. Before he took to beekeeping he was a great sufferer from

rheumatics, and he attributes his entire freedom from them now to frequent bee stings. A great pest to him is a black and red spider, which hides under the hive and preys upon the bees. He keeps them in check by using and often changing loose bottom boards. Mr Coyle complains of the low price honey is fetching, and thought apiarists were in many cases to blame. After partaking of some more genuine beekeeper's hospitality, in company with another friend, we made our way over the hills into the town, and were in time to catch the evening train—not the one we had intended to catch when we started out in the morning, but after such an agreeably spent day we did not begrudge the lateness of the hour.

## JOADJA.

BY A VISITOR.

Joadja is a queer little place. It is situated at the bottom of a valley, through the centre of which flows a creek bearing the same name as the township. It is surrounded by lofty hills, almost mountains. It is in the southern district about 17 miles from, and almost due west of Mittagong. It is reached by a tram line along which you are conveyed by a steam motor. The last portion of the way you are lowered down a steep incline of an average of one in five feet; some portions of the way are even more precipitous, one in three. In all you go down 600ft. The means of haulage is a stationary engine on the top of the mountain. Everything in the valley belongs to the Company, the pub, the stores, bakery, butchery, orchards, houses. For years past the only industry was shale mining, &c. The inhabitants may have said that they live by oil. Lately a new industry has sprung up, over which the said Company has exercised no control, if by aiding it in giving the men who are so engaged all the help and encouragement in their power it may be said to be without the control of the Co. The new industry is Bee Farming. Not more than two years ago was



the initiatory step taken. The people were induced to take that step on the suggestion of Mr. H. Neal, who is the father of beekeeping in the valley. There are now in the neighbourhood not less than 300 colonies of bees, the whole with a few exceptions in bar frame hives. In the end of '92, not long after Mr. Neal had commenced beekeeping although he had pretty well advanced, having an extractor and goodly number of home made useful appliances, the valley was visited by our late Governor, Lord Jersey and his Lady. His Lordship in his rambles in the valley came in contact with Mr. Neal's Apiary, and took a very great interest in all that was to be seen in bee life and honey extracting. He was so interested that on his return he sent the following letter to the proprietor of the bee farm.

Gov. House, Sydney,  
Nov. 16th 1892.

Dear Mr. Neal,

The honey you so kindly gave me last Monday is exquisite, and I thank you very much for your good will in making me such a nice present. We enjoyed our visit to Joadja Creek greatly. Will you kindly accept a little scarf pin I am sending you by this post as a memento of my visit to your bee-farm.

I am,  
Yours faithfully,  
JERSEY.

The honey that his lordship so much praised was gathered from the Xmas bush, not that Xmas bush that grows around Sydney, *ceratopetalum gummiferum* but the Victorian Dogwood, *prostranthera lasianthos*. The flowers are lavender colour, grow in spikes, keep in bloom for about six or eight weeks and yield a very beautiful amber honey of great density and flavour. The shrub would pay for cultivation as an ornamental one besides its honey producing qualities. The scarf pin is very unique and especially interesting to a beekeeper. The head of it is in the form of a bee. The abdomen a large pearl, a ruby thorax, three small pearls in each superior wing and one pearl in each underwing, the whole set in gold and in a morocco case.

In the spring Mr. Gale lectured in the valley to large audiences and spent a good deal of time in giving practical instruc-

tion to all who sought it, and by that means put the industry on a very good foundation. The principal beekeepers in the district are, besides Mr Neal, Messrs Thompson, Henderson, Cavile, besides several smaller ones.

## CARRINGTON APIARY, GOSFORD.

We are indebted to Mr. Harold Cadell for the following interesting sketch :— Being a novice in Bee-keeping, and much wishing to increase my small store of knowledge, I availed myself of the opportunity, being in Gosford on Sunday last, to pay a visit to Mr Schroder at the Carrington Apiary, who manages the property for Messrs Macansh Bros. On arrival at the Apiary, I was greatly struck with the arrangement of the hives, some 130 in number, which are all under a long shed some 9ft high at the eaves, and wide enough to allow of a row of hives fronting out on each side, and a passage way about six feet for the apiarist in the centre, and from the principle of the hives, the Berlepsch, all work with the bees can be done under cover. The hives are in two tiers, one about fifteen inches from the ground, the other immediately above, by which means much space is saved, and from all I could see the system works admirably ; and it, Mr. Schroder tells me, is the usual way of running an apiary in his native land, Germany. It was certainly very interesting to watch the bees through the little glass doors in the backs of the hives, and to hear Mr. S explain the advantages of the Berlepsch hive, as well as having the bees sheltered from the sun, and well above the damp ground. Mr. Schroder being a smoker, does not use the usual means of quietening the bees, but uses a large tobacco pipe of the regular old German style, and with a small cap, and pipe on the top of the bowl. So when working, Mr S can enjoy his smoke, a whiff of smoke can be sent into the hive, and both hands at liberty, which must be an advantage, and the plan I am sure will commend itself to bee-keepers



who enjoy the fragrant weed. The beehive faces E. and W., and close handy is a large patch of Japanese Buckwheat which Mr. Schroder tells me gave good returns in spring, while the whole farm is surrounded by native trees. Bees did well to end of last year, but since then there has been too much rain, causing the trees to make wood rather than flowers. Italians and Hybrids are kept, and as I have found everywhere, the former are highly spoken of as workers. The extracting and honey room are very complete, and also the store room for the honey in tanks, cans and bottles, as well as a rack for frames in the winter. Mr Schroder showed me a four framed extractor, fitted to a stand just the height to fill a 60lb tin from, while by having the gear for revolving the machinery somewhat higher than in the novice, a lid could be fixed, and the whole rendered fly and dirt proof, which to me was a great matter, as I have had to use the novice on a back verandah, where flies and ants, as well as bees, were a never ending nuisance, do what we could to cover the machine. Mr. Schroder has a wooden cover, I fancy a tin one would be better, and less liable to shrink or warp. All hives, etc., are made on the place, a small factory being adjacent to the honey room. Two questions have occurred to me since my visit to the Carrington Apiary, and they are:—Would it not be better to shade the hives in summer? I mean the usual flat top sort, and is not more ventilation needed in our hot climate?

April 9th, 1894.

## WELLINGTON B. K. ASSOCIATION.

Mr. Henry Nancarrow, secretary of the above, writes—On Tuesday last we held our second monthly meeting, the president, Mr. E. J. Matthews, in the chair, and about 20 members present. After the usual business was concluded, Mr. A. J. Murray (schoolmaster at Maryvale)

delivered a lecture on "Queen Rearing and Queen Cell Making," illustrating the process as well as the conditions would allow. The lecture throughout was eagerly listened to by those present, for about 40 minutes, and at its close Mr Murray was accorded a hearty vote of thanks, and a hope expressed that we would have many such, for the benefit of novices, and inviting all experienced beekeepers to roll up at our monthly meeting and lecture on any subject in connection with bees for the advancement of the Association and its members. I am pleased to say that a great deal of interest is being taken in bee culture here since the formation of the Association. We number 36 members now, and have promises of about ten more as soon as our show is over. What we want now is a different strain of bee to be successfully introduced, and if I am spared will next season start another apiary of Italians, but I want to get all the information I can before I proceed too far, or I may make a blunder of the lot. Our member, Mr T. H. York, has supplemented our prize list by an addition of £2 2s. That makes our prize list £13 12s. for this season. I have two entries from Cowra, and one from Sydney, and expect some from Mudgee from Messrs W. Shaw, Cassimer and Peterson. I notice your Show is on the same date as ours, viz., 18th and 19th of April, or I should have asked you to invite some of your Association to attend with exhibits and give us a lecture or two. Mr R. Patten is an old resident of Wellington, and we would have been pleased to see him. We are thinking of holding a Spring Show, in one of our halls, of bee products, flowers, and probably fowls—several fowl fanciers are anxious to join us—and I think it will be well patronized, especially at night. What are the chances of getting some of your bee men to attend them?

Will you inform me what are the best plants to grow for honey production that would be suitable for this climate. It resembles the Maitland climate very much.



[If you are in the white box country, you cannot have better for honey production. The spider plant, buckwheat, choko, Russian sunflower, and many others may be planted with profit.]

## RE KINGFISHER ON P. 257 OF A.B.B.

W. J. M., Thames, N. Zealand, writes:—Early last Christmas holidays I noticed orchard almost teeming with these birds. At once I thought of my bees. Carefully noticing the birds' movements, I found them alternately flying from the posts of the fence to ground in front of hives, but as their movements were very quick I was unable to ascertain their business. However I set a trap without delay. No 1. bird caught revealed nothing in its craw, No 2 showed remains of crickets and crabs, No. 3 ditto and locusts. Four or five others still showed no trace of bees. As a last resource I examined all the pellets (remains of food which the birds are unable to digest and throw up as being of no more use to them, which I found under the posts. These I carefully broke to pieces and examined with a powerful magnifying glass, but they did not show the slightest trace of bees. As the whole space round my hives had been freshly ploughed and was a good harbour for crickets, &c., I conclude that kingfishers do not eat bees but such insects that infest our gardens when the ground is freshly dug.

Mr Norman F. Doyle, Dartmouth Apiary, Muswellbrook, writes—Some time ago I noticed in your excellent little journal a letter re blue jays eating bees. To-day I saw one between my apiary and where bees were working, and watched the blue jay catching bees. I shot him and found crop full of bees, so I think it behoves apiarists to wage war on jays. Would you oblige me with replies to the following queries: (1) Is it too late now to introduce Italian queens. I have four colonies pure, and wish to convert all mine to Italians. (2) Are the Carniolans as superior to the Italians as workers as some maintain? Are they more peaceful and easier handled? Is the cross between Carniolan queen and Italian drone better than the pure

bee of either kind? (3) Do you advise removing top stories from hives now for the winter; I have been told such is needful? I find since Italianising a great increase in honey stored, and notwithstanding the late wet and present showery weather the Italians are going on all the time on pumpkins and corn.

[To your first question, it is not too late if you have laying queens ready to place in the hive, otherwise it is not well to disturb them too much at this time of year. You can get such queens from any of the queen breeders advertising in our pages. Re Carniolans we cannot yet speak from experience as to results, but we have heard excellent reports from others, and shall be glad to hear more experiences. If your bees can be contained in one box we should decidedly take the top story off. Bees want to be snug and warm in cold weather.]

## BEE PARALYSIS.

Mr. Fred. Nicholls, Cowra, asks:—Will you kindly let me know the cause of the following:—My bees are lying dead (every morning) in hundreds in front of the hives, and I cannot find any apparent cause for it. I went through all the hives and found only a few moths in some of them. Two of my strongest colonies (Ligurians) seem to be affected the most. Some of them drop dead with their loads on them as they come home from the fields. The flowers they are working on at present are pumpkins and white box. I have noticed some of the bees crawl out of the hive and then double up and die in front of hive. Would it be paralysis?

We are sorry to hear of your trouble. The subject of bee paralysis was well thrashed out in our February number, the general opinion being that it was hereditary, the fault of breeding, and the cure lay in superseding the queen. In an American bee journal just to hand a Joseph Mounier says—"Powdered sulphur, well sprinkled over bees and combs cures paralysis when salt fails." Try the sulphur. To supersede a lot of queens means expense, although it seemingly is the cure. We sincerely wish you over your trouble and shall be glad to hear how you are getting on.

After the above was in type we received the following from Mr. Wilkins:—Some few days ago I wrote you saying I was trying the sulphur cure for Bee Paralysis, and in your reply you asked me to let you know the results. Well I can say conscientiously that it is the best cure I



have tried yet, I have twenty hives and all were suffering more or less, with the exception of hives with the full width of end open. I gave the frames and bees a good powdering, using about four pounds of sulphur on the 20 hives, and I only gave them the one dose and the disease is thoroughly cured. There is a very little honey flow now. We have had continuous rains since January, completely spoiling the honey season, too much rain and not enough sun to bring the honey up in the flowers. Bloodwood is in bloom at present.

### A NEW HIVE.

Mr John Skinner, Maclean, Clarence River, writes :—Being very much taken up by the remarks of Mr John Smith, re new hive, I thought perhaps a few remarks on the same subject might amuse, interest, and perhaps be of some slight use to a few of your readers. First of all, the straw frame hive, is it Mr Smith's own idea, because I have seen it in use six or seven years ago. It answers very well, but would not adopt it myself. Mr Smith also makes a few remarks about straw being best for ventilation. Well, I have seen a few swarms taken from straw skeps, and when the honey has been removed the skeps were so glued with propolis that they will hold water. How about ventilation? I quite agree with his remarks about the defects of hives in ordinary use in this colony—defects so great that at the first sight when I started beekeeping I would not think of adopting them. Now, for the benefit of my fellow readers, by your permission, Mr Editor, I will give a short description of the hive that will eventually drive all imported ones out of the colony. I might have described it before, but being a beehive maker in a small way I did not wish to have a free advt. I have, however, come to the conclusion that I ought not to keep it all to myself. First, I will say that it will be death to the Fray-Jones non-swarming or any other device, as my bees never swarm in them; and Mr Editor, there is no style of hive in use in the colony for which the

same may be claimed. Now for a description. First the floor board, to which are attached four legs, and which is not fastened to hive. Next the hive body, which is composed of two half-inch boards all round, with one-inch air space between them. Then lifts, of one inch boards, which are rebated together so that no wet can penetrate them, inside which are the supers, but not touching the sides. Over all is a gabled roof, with ventilation at ends, which is covered with calico stuck to the wood with wet paint, to prevent warping, splitting, or leaking; the whole hive well painted. Of course these hives are not to be made for 10s each. The price of them in England was £2 10s., which is enough to frighten New South Wales beekeepers. I have found that damp is more injurious to bees than cold, so that it is essentially necessary that hives should be waterproof.

### NEWCASTLE DISTRICT B.K.A

A meeting of the H. R. B. K. A. was held at Brent's Tattersall's hotel, Newcastle, on Saturday evening, March 24th. Alderman G. Hardy, of Lambton, presided. Some 35 were present, among them being Mr J. E. Taylor, of Cowra, and Mr J. Trahair, of Sydney.

Alderman Hardy expressed his pleasure at seeing so many beekeepers present, shewing they had the welfare of the industry at heart. He urged the need of forming a society at Newcastle, and pointed out that by being united and organised they would be enabled to ask Government to make laws that would benefit them. Australian beekeepers had to contend with many difficulties, foremost among them being the adulteration question. He claimed that all honey should be tested and labelled, so that the public would know what they were buying. He also spoke of the "foul brood" trouble.

Mr Patten, a vice-president of the H.R.B.K.A., said the beekeepers of the district should fall into line to seek legislation, and explained matters in connection with the objects of the association.



Mr J. F. Munday of Woodville and Mr Edwin Tipper (*A. Bee Bulletin*) also spoke to the subject, after which, a large sheet being rigged up, Mr C. Mansfield, by means of a powerful magic-lantern, produced some beautiful pictures of the following:—Mr Geo. James' apiary, Gordon; honey exhibit from do; Mr J. E. Taylor's apiary, Cowra; Mr Mansfield's apiary, Largs; J. Hopkins' apiary, Tick-hole, Cardiff; B. Carlill's apiary, Casino; H. L. Jones' apiary, Goodna, Queensland; Mr Seabrook's apiary, St. Ives; Mr Pollock's apiary, Wingham; Bee appliances at Mr Pender's; Mr Mansfield himself; E. Tipper, editor of the *A. Bee Bulletin*. Mr Mansfield gave explanations during the exhibition, and at its close a warm vote of thanks was accorded him. When Mr Taylor, of Cowra's, apiary was being shown, that gentleman was called on to say a few words. He stated that he had 370 hives, many of which were five stories high; for more than a month past he had four extractors constantly at work, his yield being twenty tons this season, principally from white box.

After some discussion it was decided to form an association to be called "The Newcastle District Beekeepers' Association;" Alderman Hardy was appointed secretary *pro tem.*, and the meeting was adjourned to the 21st inst. to elect officers, adopt rules, &c.

At the meeting on April 21, the following officers were elected:—Chairman, Mr. Wm. Forshaw; secretary, Mr. G. Hardy; treasurer, Mr. George Morris; Committee: Messrs. J. Robinson, G. Reay, D. A. Brown, John Hopkins, Robert Murphy, Captain Boam, and Sergeant Cooper. Mr. Tipper was then called on to address the members, after which the meeting closed.

## SPECIAL WORK FOR MAY. N. Z.

There is nothing particular to report with regard to the season since my last. In the northern part of the colony we

have had a continuance of fine weather but further south there has been heavy storms. Further reports from beekeepers show that in some parts there has been more than an average take of honey this past season, while in others there has been less, and as I have previously stated it has been a complete failure in some.

### PREPARING FOR WINTER QUARTERS.

During the month of May all stocks of bees should be overhauled and thoroughly examined, floorboards should be well cleansed, food given if required, weak colonies united, and the bees made generally comfortable until the ensuing spring, in fact the beekeepers should now get his bees in such a condition that they will need no further interference during the winter months. The amount of food required by the bees for consumption during the winter varies in different parts of N. Z. In some places they are enabled during fine weather to gather a portion of honey nearly all the winter, whilst in other parts they have to depend during the whole time on the stores with in the hive. It may, however, be accepted as a general rule that from fifteen to twenty lbs of honey will be required by each colony to enable them to successfully pass the winter months, and come out strong in spring, and any lacking that quantity should be immediately fed up to that amount.

### FEEDING BEES.

Of course the best food for bees is honey, and a good plan is to take frames of honey from strong stocks that have more than they require and distribute amongst those that are poverty stricken. As however combs of honey cannot always be spared for this purpose, dry sugar, syrup or candy cake may be substituted. For feeding dry sugar nothing can surpass.

### SIMMINS' DRY SUGAR FEEDER,

which is usually a hollow dummy or division board holding about 4lbs. of dry sugar, No. 2 crystals should be used, which is suspended in the hive next to the cluster of bees. In cases where the bees have run entirely short of liquid food they



must be given some syrup to serve them while they are converting the first of the dry sugar into liquid form. Sugar syrup should be made in the following manner: To every pound of sugar add half a pint of water, put into a saucpan and boil for a few minutes, keeping it well stirred; when cool it will be ready for use. This recipe is from the "Australasian Bee Manual," but in practice I generally add when the syrup has reached the boiling point, a spoonfull of vinegar and a pinch of salt. This, I believe prevents the syrup granulating in the combs. It is best to feed syrup in the evening, if given in the daytime it is sure to cause some excitement amongst the bees and often leads to robbing which if once started is apt to disorganise the whole apiary.

#### METHOD OF FEEDING SYRUP.

Many devices have been invented for feeding syrup. The "American Simplicity Feeder" seems to be a favourite in N. Z. As usually made it is cut out of a solid piece of wood 1ft long, 3in wide by 2in deep, with three grooves cut out with a circular saw. The interior however must be well waxed before being used, and when filled with syrup should be placed near a hole cut in the top of the mat; the bees ascending will soon take the syrup down into the hive. Syrup may also be fed the bees in empty combs; they can be filled by laying them on an inclined board and allowing the syrup to drop through a perforated vessel held about a foot above the combs. After being filled they should be hung for a time in an empty hive until they have ceased to drip when they should be placed in the centre of the cluster.

#### FEEDING WITH CANDY.

This is a favourite method of feeding with many English beekeepers, and Mr. Hopkins states in his "Bee Manual" that "he has wintered bees on it" but thinks on the whole that a fairly thick syrup is best even in winter in New Zealand if placed convenient for the bees. The following is his recipe for making it:—"Take 10lbs of sugar and add one pint and half of water, mix well and boil, keep-

ing it well stirred to prevent burning. Boil well until it is ready to sugar off.

You can determine when this point is reached by putting some in a saucer, or test it as confectioners do by dipping your finger in a cup of cold water, then in the candy and back into the water again. When it breaks like egg shells from the end of your finger it is just right. Take it off the fire at once and as soon as it begins to harden round the sides keep stirring until it becomes quite thick. Very great care must be taken to prevent the food from burning. It is said burnt sugar is poison to bees. The candy can be made into cakes by pouring it into plates previously greased, or it may be poured into a frame by fastening the frame down on a flat board on which a piece of paper has been spread to prevent the candy sticking to the board. The frame should rest on the board closely all round so that the candy will not run underneath it. A Langstroth frame will hold about 8lbs. It may be suspended in the hive like a frame of honey, and in cold weather slightly warmed before placed in the hive." I would also suggest in order to prevent all fear of accidents that a few pieces of string be tied round the frames before placing it in the hive.

#### UNITING QUEENLESS AND WEAK COLONIES.

In overhauling the apiary keep a sharp lookout for queenless colonies and mark them for uniting with others having queens. Weak colonies will also prove to be an unprofitable speculation and should be joined together, as one good strong colony in the spring will be found worth at least half a dozen weak ones. The colonies to be united should be moved gradually, say two or three feet every day, and when close together should be given a good dose of smoke and the least valuable queen destroyed. One of the hives should now be raised an inch or so in the floorboard by means of a couple of blocks of wood and a sack placed in front; the bees from each hive should now be shaken on the sack when they will unite and run in the hive together. During the operation it is well to dredge them with a little



wheat flour, I saw this recommended a few years ago in the *British Bee Journal* and have always found it prevents the bees fighting.

#### DIVISION BOARDS.

Colonies will sometimes be found too strong to unite but not with sufficient bees to properly cover all the combs in the hive. When this is the case I strongly advise the use of division boards, which may be made of a 9x1 in. board with a top bar of frame nailed on top. They should fit close to the sides of the hive after the end combs have been removed and if any space is left between the sides of the hive and the division board is filled with chaff, it will make the hive more warm during the winter.

#### MATS.

An extra supply of these should now be provided so as to keep the top of the hive warm during winter. I find the best to winter under is one made of American cloth, glazed side down with a good pillow of chaff on top, I find my bees winter much better with this arrangement than they do with the porous ones. A wider entrance however must be allowed.

#### LEAKY COVERS.

Too much attention cannot be paid to these, and every precaution should be taken to stop the slightest leak, dampness produces dysentery, which lowers the vitality of the surviving bees and some think leads to foul brood. and is, I am convinced, the ruin of hundreds of colonies. If the crack is only a slight one a little putty and paint may stop it, or the cover may be first painted and a piece of calico be tacked on whilst still wet afterwards giving the calico a couple of coats of paint. An English beekeeper of repute recommends the following:—Cut pieces of brown paper the size of the hive, cover and paint one side with hot pitch, place the paper on the cover and run over it a hot flat iron, when it will adhere to the wood, the unpitched side of the paper should now receive two or more coats of paint when he says it will effectually stop all leaking and last for years.

#### SECURING COVERS.

Care should also be taken, especially in cases where the apiary is in an exposed situation, that the covers are made secure. Many beekeepers place a large stone or weight on top of the roofs to attain this end, but to my mind they appear most unsightly. The best appliance I have seen for the purpose are the "Van Deusen" Hive Clamps, they only cost 4/- per doz, pairs, are easily attached to the hive, and the roofs are absolutely safe in the roughest weather. Hooks and little eye bolts also answer the purpose.

### JOTTINGS FROM FOREIGN BEE JOURNALS.

N. Z.

[This article was unavoidably held over from our last.]

My usual package of foreign bee journals have just come to hand, and taking into consideration that the American and English were published during the winter months, when beekeeping is practically at a standstill, they still contain a quantity of interesting advice and information for apiarists generally, much of which is applicable to beekeepers in the Southern hemisphere. In the *American Bee Journal* appears a most interesting letter from Professor A. J. Cook—which I think must prove instructive to Australasian fruit growers—on

#### BEES & POLENISATION.

After alluding to the fact that some of the leading fruitgrowers at the annual meeting of the State Horticultural Society have expressed themselves very heartily in favour of bees, he proceeds:—"Mr. E. A. Gammon, of Courtland, Calif. (who has charge of Mrs. D. D. Sammon's fine fruit ranch, and who secures the very highest prices for his fruit, having sold the product of about 40 acres of bearing orchard for as much as 16,000dols. in a single season) has become convinced that he loses much from the fact of imperfect pollenization and so he has arranged to have a large apiary moved on his land near his orchard. It will be a good day for Californian apiarists and fruit growers alike when all learn of a truth of the great value of bees in this important service. Then the fruit men will foster the beekeeping industry instead of persecuting the beekeepers."

Comment on the above is needless from me, I prefer quoting the remarks of the *A. B. J.*, who says:—"The foregoing testimony ought to be heralded throughout the farming world. Every newspaper and farm journal should copy it, and thus inform their readers on this important subject. The above truth would be worth an untold sum to farmers and fruit growers in the in-



creased yields of their orchards. Friends why not call the attention of your local papers to it for your benefit and for the information of every body. Beekeepers should take upon themselves to see that all possible knowledge of bees like the above is spread abroad. It will pay you to do it and is well worth being known by all."

I heartily commend the above to the most serious attention of Australasian beekeepers. Here in New Zealand there is a most absurd prejudice amongst some few fruit-growers against bees who are accused of all sorts of crimes and misdemeanors, amongst others that of destroying grapes.

Now it has been proved over and over again that it is impossible for bees to injure sound fruit. At the Illinois State Convention a Mr. Becker asked, Why bees did not work on grapes last year? Mr. Dadant, the celebrated apiarist and renowned maker of comb foundation, replied "Because the dry weather did not cause the grapes to crack, and added that he had starved bees to death on grapes, and had on one occasion pricked a pin hole in a grape and it was the only one on the whole bunch that was touched, and that only as far as they could reach. Surely evidence like this should be conclusive.

#### MAILING QUEENS LONG DISTANCES.

In the same journal Mr. W. A. Pryal concludes an interesting article on the above subject, and from what I gather from the article is that bees travel better long distances if provided with a supply of water. Probably that may be so. Two seasons ago I unpacked three queens from America in Benton cages with "Good" candy. They were in excellent condition and only two workers dead, and they turned out afterwards most prolific mothers. They must have been at least a month on the journey. Possibly they would have been more comfortable with water, but the difficulty is to provide a receptacle that will hold a supply for several weeks without danger of leaking and damaging the mails.

## BEE FLORA OF N.Z.

WILLIAM HORSFALL.

"Maoriland" has taken exception to two or three remarks in my article of January last. But what he says in reply to me on the subject of flowers I cannot allow to pass in silence. Living almost within stone throw of large patches of bush, and having made it a specialty to observe to which flowers the bees most resort, I feel I can write with at least a little knowledge on the matter; and I should like it to be understood that what I shall now say on the honey secreting

flowers of N.Z. is from personal observation only. In a list of twelve native flowers given on page 279 of the "Australasian Bee Manual," I notice three flowers mentioned which I think do not deserve the character of being good honey producers. 1.—The Puriri secretes honey in large quantities, but is neglected by the bees. 2.—Kowai secretes honey, but is neglected, perhaps because the bees cannot reach the nectar; at the same time I have never seen them hovering about kowai flowers. 3.—Nikau: the nectar from this is collected by our bees, but it secretes very little.

On page 280 of Mr Hopkins' Manual there are some more flowers mentioned:— 1. Native Fuchsia, hardly noticed by bees. 2. Koromiko, noticed, but producing very small quantities of nectar. 3. N.Z. flax, enormous secretor of nectar, which, however, is not collected by bees. Bees are to be seen flying about the flax flowers in numbers, but it is the red pollen which proves the attraction. I would here admit that I have only had one season in which to note these things, and it is quite possible that there are seasons when bees will neglect a certain plant, though it may be a great nectar producing flower, but still this is unlikely. 4. Manuka, rawiri (tea-tree) quite out of court; bees collect but an infinitesimal quantity of honey from these flowers. 5. Tutu, a nasty poisonous shrub, neglected by bees.

Now what are our principal honey secreting flowers? I will give what I know for a certainty to be of this class:—

1. *Metrosideros* (comprising *ratas* and *pohutakawa*.)
2. *Kohe-kohe*, a winter flower, but a large secretor, and most fragrant.
3. *Rewa Rewa*.
4. The *Cabbage* or *Ti Tree*.
5. The *Aristotelia Racemosa*.
6. The *Melicope Ternata*.
7. The *Avicennia officinalis*, or mangrove, a most enormous producer.
8. The *melicytus ramiflorus*.
9. The *Meryta Sinclairii* (*puka*.)
10. And a yellow flowering tree, which is common hereabouts, most fragrant, with white bark, alive with bees when in flower.



This list is far from being exhaustive. There are other flowering trees and shrubs which I have not come across, and which doubtless are attractive to the bees. Six of the above flowers are not so much as referred to in Hopkins' Manual

I have just been trying my hand at queen-introduction. I introduced an Italian and a Carniolan hybrid into two of my stocks. I adopted Simmins' Fast-ing method, which proved quite successful, and now the young bees are issuing from either hive. I notice how lightly and wasp-like the Carniolan hybrids fly.

P.S.—At our local show last month there were three exhibits of honey (strained), three do. of honey in comb, five do. of bees' wax, and three do. of hives. The hive that took the prize was made to take ten British standard frames, super and floor board complete. The second competing hive was made on the plan of Root's Dovetailed. Great interest is being aroused here in bees and bee-keeping.

## FOUL BROOD.

Mr. R. L. Taylor, in the *Beekeepers Review*, gives the following cure:—

In the method which I recommend and which I have thoroughly tested in a hundred cases or more without a single failure so far as I know one must be prepared to disinfect the hive and all its belongings, except of course the bees, by a thorough boiling. My rule is to boil each part fifteen minutes. The combs are of course destroyed but the wax is saved.

Having provided as many hives as there are colonies to be operated upon—the hives to be furnished with frames either filled with foundation or with starters of foundation—combs will not do at all—proceed as follows:—

Select a time when some nectar is being gathered and an hour of the day when the bees are not flying, then move the first colony a little to one side and place the new hive, which should be like

the old in outward appearance as nearly as possible, upon the spot where the other stood, then as rapidly as possible take the combs from the colony and shake or brush all the bees upon the ground in front of the new hive, of which they will at once take possession and then remove the combs and hive to a place of safety to be disinfected, being careful not to break the comb so as to let any honey get upon the ground or elsewhere for other bees to gather up. In like manner treat the other colonies, but if any of the combs contain brood which it is desirable to save they may be given to one or more of the infected colonies, which are then to be removed for treatment as soon as the brood is hatched. This course will ensure a cure.

The same writer says, if the bees, including all nurse bees, of a foul broody colony having no desire to swarm, are simply put on foundation and left to themselves they are, with me, found to produce brood invariably free from disease.

## THE CHOKO.

Mr. Cadden, Windsor, writes:—This season I have succeeded in growing the choko to perfection, and have a heavy crop, averaging 20 oz. each fruit, one vine bearing over 100 good ones. About Dec. last I expected the vines would die and almost felt inclined to root them out, but left them for chance, and then we had good rains (too much for some of us) and choko came along with a bound and now is a picture. I may say for information of any wishing to grow it, my land is always under crop with something not heavily manured, soil good, similar to yours about Maitland, and with ordinary care it will succeed. I would advise putting where morning sun gets it, with a shade after 12 or 1 p.m., and if dry weather water sufficiently. The bees are very busy on the bloom all day. Shall be glad to supply any information for any one desiring such.



## CAPE OF GOOD HOPE.

Bee King, Port Elizabeth, writes—Many thanks for BEE BULLETIN, which is certainly of great value and use to beekeepers, as it contains a general knowledge of means and ways how to rear and keep bees, and every beekeeper, especially in the colonies, should have it. I myself of late have been very unlucky with my hives, although there has been no drought. Several swarms have left the hives, which were filled with comb, and in cleaning out the hives I found that the combs were infested with larvæ about an inch in length, enclosed in a very rough skin, which destroyed the comb in the hives. Bees at the present time seem very scarce, as last year at this time they were very plentiful. It is a very rare occurrence that bees leave their hives in the way they have done lately. I am not the only one, as several of my friends have been served the same way. Out of some of the other hives not a mile away from my empty hives, I took a very fair amount of honey, which I was very much surprised at. Other hives again have no honey. We expect plenty of honey by the end of April, the time when our veldt is in full blossom. I think that your climate and honey-bearing flowers must be better for bee culture than those of South Africa. Bee-keeping could be carried on more extensively than is done. We have wild hives on rocks, that often times the honey runs down from being melted by the sun, hives that have been there for many years. As much as 150 to 250lbs of honey, and honey comb five and six feet in length and three inches thick, the honey all candied. Baboons are honey hunters. When they find a nest handy they rush past and make a grab of honey comb, and the hindmost gets the stinging. We have also the rattell. His mode is to make a great smell about the hive; but he never hurries himself. I will give you more news later on, meanwhile wishing you every success, financial and otherwise.

[We in Australia have to contend with the grub as you have. The Italian bees keep them in check; and occasionally looking over the frames and the corners of the hive by the bee-keeper, effectually controls them.]

The same writer, in a letter to Mr C. Mansfield says:—If I can manage to get a passenger for Australia I will send you a swarm of Rooi Baaitzes, with a queen three times the size of the Italian queen you sent me. The bees which we call the geel, or yellow bee, is scarce even in Port Elizabeth. I had the misfortune to lose three fine swarms of them. They are great honey storers, fine bees; queens large and very long, cannot fly well, very regal and delicate; if you cut her wings the bees will carry her away. The Rooi-baaitzes are also splendid workers and honey gatherers, but a warm lot if you do not use them properly. But the black bee will sting you through leather boots. Whenever he drops on you he drives his sting in, and will sting you if you are 100 yards from his nest. He generally builds in holes, the Rooi Baaitze generally in rock, and the Geel on trees and rocks. The Gigs, or grey striped bee, is a medium bee, works pretty well, and has a dark queen, about the size of the Italian.

The Australian *Farm and Home* of March says:—The adage, "No news is good news," hardly applies to honey gathering. There is an ominous silence in most parts of the colony, but in some districts things are brightening up, and honey reported. Grey box is one of the most reliable honey producers, but is rather late in blooming this season. Yellow box gave only half a crop; red box, a fair flow for a week or two. The parallels of longitude 143, 145, 147 of the map of Victoria, divide the colony into four fairly equal parts. It is pretty safe to predict that the whole of the colony will not experience a honey flow throughout these four parts in any one year, but that when the Eastern parts are producing honey, the western are *minus* and *vice versa*; the intermediate divisions participating according to that division, but at the same time being more steady and reliable year by year.



At the Hawkesbury Agricultural College, there are thirty-seven full colonies of bees, seven nuclei, and two swarms of native bees. All the bees are being Italianised, but owing to their close proximity to other swarms of black bees in the town, a large percentage of the queens are mis-mated. The contemplated removal of bees to a farm will, it is hoped, greatly relieve this difficulty.

Mr. Isaac Jackson, Marrar, via Junee, writes—The time has arrived for me to send in my subscription for the A.B.B. for the ensuing year. I feel it a pleasure to remit my subscription when it becomes due; I don't want to be found on the blue list, like some beekeepers who forget that their subscription is required for paper supplied. I hope the A.B.B. will still keep extending its good and useful knowledge, and that beekeepers will acknowledge the same by paying up.

Mr. J. E. Field, Narrabri, writes:—I think the *A. B. B.* is well adapted to the wants of Australian beekeepers and preferable to foreign works, it being the thoughts and experience of men of this country. I also enclose a stamp for a copy of your "Honey Pamphlet" containing "Cookery and Medicinal Honey Recipes." I am a novice in apiculture, having only two hives of blacks, which I obtained this last season. Is it too late to Italianize them and if not how long should I deprive them of their present queen before introducing an Italian?

[It is not too late to Italianise them, unless the weather in your district is very cold and wet. Deprive them of their present queen immediately before introducing the Italian.]

A Casino beekeeper reports to us that up to Jan. 20th of this year, he extracted two tons five hundred-weight out of 20 hives.

Mr. Thomas Hadfield, junr., Clarence River, writes:—I have got a fairly good start at beekeeping, viz., 55 strong colonies, nearly all Italians and Hybrids, only five black and they will be supplied with Italian queens this month. Our honey season has been splendid this year.

Mr J. Carey, Killarney, Queensland, says—The two last years, from January until this month, have been a complete failure—got no honey; constant wet.

Mr. James Cavenagh, junr., Mt. Alford Queensland, writes:—Will you try and get the Convention next year held in Maitland, to give people a chance to see the apiaries in that district.

Mr Thomas E. Walter, Moruya, writes : Since my last I have transferred the rest of my bees to bar frames, and of course have been able to watch their doings. "Do bees ever rear twins?" My reason for asking is this. I have a swarm of black bees with a young queen that only commenced to lay about three weeks ago. Owing to the very wet weather was unable to open the hives for a fortnight, when I did so on the 24th inst. I noticed two cells about  $\frac{1}{2}$  inch apart, on one of the centre frames, with two eggs in each. My curiosity was aroused, and yesterday the 29th I had another look to see how they were progressing, and to my very great surprise, found a patch about five or six inches with double eggs. They are in worker comb. As the comb does not look as if two perfect bees could be hatched in the space, the thought struck me that perhaps one egg ought to be removed. Has it ever been known for two bees to hatch in one cell, or is it only a freak of the queen. It could not have been for want of room, as there was plenty of vacant brood comb for her to use, nor do I think there could be a second queen, as I have been cutting out queen cells to prevent swarming. It has been a bad season for honey, owing, I suppose to the incessant wet weather.

[It is a very common thing for queens to lay two or even three eggs in one cell. It might be for want of room, or it might be for want of sufficient bees to cover and give warmth, or prepare sufficient cells for her to lay in, especially if a young vigorous queen. But only one egg will come to anything. There is no need for human interference. The bees see to these little matters themselves. Try strengthening the colony by giving them a frame of sealed brood.]



Mr P. Riddell, Gordon, reports weather has been dead against bees there. Plenty of bloom, but rotten by wet.

A correspondent asks:—Would you please inform me do bees usually hang from combs in a hive? To-day I opened mine and found several frames unsealed honey but in corners the bees were hanging in strings quite filling space between the edge of comb and frame. They have ample room, brood too. The weather was fine and genial and bees appeared to be working, as I saw many with pollen. They have upper stories on and have started in them. To me it looked like loafing on the bees part.

Your bees were doing the correct thing. They were making comb and cells to put honey and brood in. Had you used full sheets of foundation it would have saved them much of that trouble.

Mr. E. E. Buttsworth, Cessnock, concludes a communication with: "I haven't written this scribble for publication." I trust he will pardon our availing ourselves of the valuable and interesting news it contains, as follows:—Enclosed please find 5/- for another year's subscription to *A. Bee Bulletin*. I may say that I look forward with pleasure to each issue of your valuable journal and trust that it will find its way into every beekeeper's home in Australia. My bees have had very hard times since December. Very few trees bloomed this year and as a consequence the bees suffered. My blacks could not stand the hard times and some fell a prey to the depredations of the bee moth, &c., and others would have followed suit if I had not fed. The Italians are strong and appear to get honey somewhere. Things are looking brighter just now, for some spotted gum are coming out in bloom. I have been on a trip to the Hawkesbury and find that there has been a good bloom of bloodwood, but on account of so much rain the bees have not been able to do very well. The box trees did not bloom here this year but about Wilberforce the bees have had the benefit of its flowers. Trusting you will continue to prosper in the bee business."

Mr. Charles Horing, Nelson, New Zealand, writes:—I am a beekeeper of about twelve years' standing. Never had more than ten Langstroth hives, as my occupation don't allow me time for more. Have only seven hives now. Have only the common black bee, but intend before next spring (if possible) to get one or two Italian queens. The honey season has been a very poor one with me. Have books and papers about beekeeping and can handle bees well, beekeeping is only a pastime with me and having a large family, we consume the honey mostly ourselves.

We had a hurried visit during the month from Mr J. S. Dick, of Port Macquarie, with whom we had a very pleasant and instructive half-hour's chat. Mr Dick is a typical specimen of an Australian, with no superfluous flesh, and quite if not over six feet in his stockings. He is not only a beekeeper, but has extensive oyster beds, and he is availing himself of the close season in the latter to take a turn round the country. He told us the bloodwood at Port Macquarie blossoms every January and February, and the honey always granulates, the more prolific the flow the more trouble with the honey. His experience with foul brood was that it was a spring complaint. He had seen very much of it among black bees in the bush, and considered a Foul Brood Act that compelled a beekeeper to destroy his infected hives and not compelled the Government to destroy the affected bush hives, a very unfair one. A hearty beekeeper's hand shake, and our worthy friend was on his way to Queensland. We understand Mr. Dick's father imported bees from Scotland fifty years ago.

A hint to Dairymen. Put an ounce of honey to every pound of your butter. It improves the flavour, prevents it getting rancid, and you will sell it much better next time you go to market.

The so-called "self opening tins" are the best to use for honey as they save the bother and expense of soldering, and are handier to customers.





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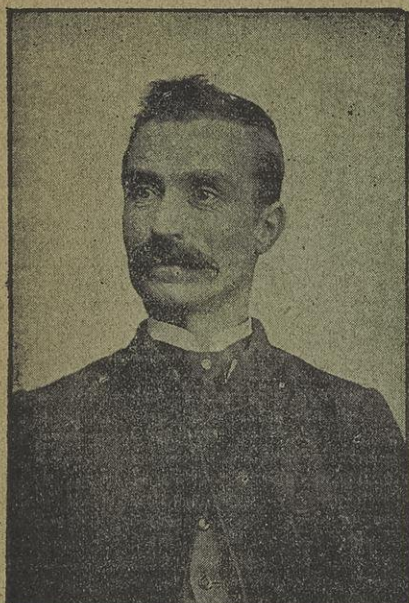
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Read the following, sent unasked to the Editor of the *A.B.B.* :—

I have a number of choice queens suitable for breeders, just right for early breeding next season. They are usually sold at 20s. each. While they last, I will send these queens by post or rail at 10s. each. They are from imported mothers.

**TO MY CUSTOMERS.**

Now that the breeding season is drawing to a close, I would ask all who have got queens from me that have not given satisfaction, to let me know, so that I may have an opportunity to do the right. Many persons run around in such cases and tell everyone but the only one who can put the matter to rights. It should not be so with bee-keepers.

Write for prices. It only needs a penny post card. I am always pleased to answer questions in bee culture.

MR. GEO. SPENCER, Brushgrove, writes :—  
“Would like you to acknowledge through the medium of the *A.B.B.* the receipt of two of Mr. C. Mansfield's double-tested Ligurians, from which I have re-queened eight of my hives, and any one is worth four hives of black fellows, the daughters being equally as good as the mothers, and the mothers being that good they could be no better.



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Dear Sir,—It is with pleasure that I have to tell you that the whole four untested queens which I successfully introduced are purely mated. The first one you sent me is a beauty; 40/- would not purchase her from me. I am rearing a batch of queens from her now.—J. F. O'Connell, Cooper's Island, Bodalla.

It is just such queens that I have been sending out the whole of this season, and wherever sent satisfaction has been given. I am still supplying these queens as fast as can be bred from my imported stock at 6/- each, 4 for £1. Orders are supplied seriatim.

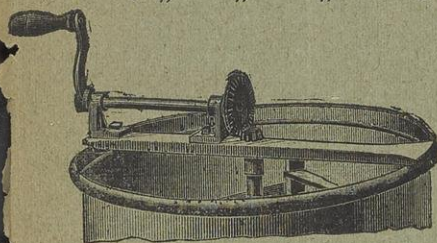
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Pads from 6d. each; Ink, any colour, 6d. a bottle.

**TWO-FRAME NOVICE.**—We make all our Extractors of very strong tin, in one piece, and the whole of the inside fittings are of tin. We do not use any zinc or galvanized iron about our Extractors, as the acid properties of the honey dissolve the zinc, and poisons the honey. The comb baskets are revolved with strong cast-iron gearing, turned by a crank at the side of the can as in illustration, or on the top of the can if preferred.

FOUR-FRAME NOVICE.—We are now supplying 4-Frame Novice Extractors in our 7 inch cans.

2-Frame Novice Extractor,	with 30lbs. capacity at bottom,	£2 2s. 6d. each.
2   "       "       "	with 100-lb. capacity,	£2 5s. 0d. each.
4   "       "       "	"       "	£2 12s. 6d. each.



SIDE GEAR.

For those who take tons of honey we would recommend 2-Frame Cowan's Reversible Extractor. A great deal of time is saved when the combs have not to be removed from the can when one side is extracted to extract the other side. With this machine all that is necessary when one side is extracted is to slow the machine a little, and reverse the baskets, which hang on a hinge, by simply pushing them with the hand. Price, 2-Frame Cowan's Reversible, £3 5s. each.

For beginners, who have only a few hives, we make the single-frame slinger. Only one comb can be done at a time. Place the uncapped side

of the comb against the wire on the outside of the slinger, put the pivot on the bottom in a small hole in the floor, and cause it to revolve by a little swaying of the hands. The honey is thrown into the slinger, and is emptied by a spout in the top after each frame is extracted.

Single Frame Slinger, 12/6 each.

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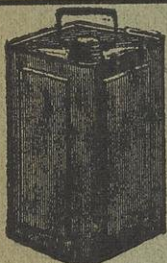
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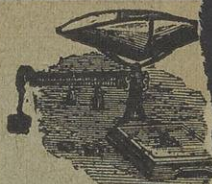
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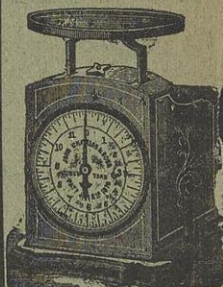
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