The Australian bee bulletin. Vol. 5, no. 7 October 24, 1896

West Maitland, N.S.W.: E. Tipper, October 24, 1896

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THE AUSTRALIAN BEE BULLETIN.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

VOL. 5. No. 7. OCTOBER 24, 1898. PER COPY, 6d

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The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEEKEEPING.

MAITLAND, N.S.W.—OCT. 24, 1896.

H. R., Wartook Apiary, Victoria, Oct 15th,—Business in the bee line is just getting a bit lively with us in the Wimmera. Although I have had no swarms myself, yet I hear of others who have. Mr. F., had his first a fortnight ago, and last Sunday he had three more He expects to send a ton of honey away very soon, as also does Mr. D. The latter's bees are working heavily on white gums. I hope I may get as much by the end of November. We have had just about as dry and cold a winter and spring as I wish to see during the rest of my natural life. Frosts galore, right up to the 7th or 8th of this month. No grass, no green peas, and half the grapes and peaches destroyed by the frosts. And now, Mr. Editor, I want to put in a good word for the wood-swallow, accused by many of bee eating. I used to think so also, but after watching two or three birds dart for the same bee, with thousands flying below and around them at the time, I concluded that it was some particular bee they were after; then I shot several and held post mortems on their remains, when I found my suspicions correct, for their little crops held nothing but drones. I see Mr. Gale says he thinks they eat drones. If he will watch as I did and shoot a few he will be certain. Can you or any of your readers tell me the reason of beautiful yellow wax, after being cleared with sulphuric acid, turning quite black while in a liquid state. I put such wax into tins immersed in boiling water to melt it down for comb making with the result stated.

J.J., Herbert, Otago, N.Z., Sep. 23—I must say bee news is very scarce here. My bees have come through the winter all safe and sound, which is more than I expected, and I was almost afraid to go and overhaul them. Guess my surprise to find good patches of brood in every colony. We are having a splendid spring and things are looking well ahead. Hoping we will not be disappointed. I am greatly troubled with foul brood, and had intended having a thorough clean out this spring, but I have changed my mind, so I will just ask you your opinion on the matter. My bees have a kind of foul brood, the young bees die in the cells; they are mostly full formed, just ready to hatch but instead of the gluey ropey matter, they are quite dry and no smell. You might come on a ropey cell occasionally. The reason I changed my mind is that I thought it useless for me to clean out my bees when there is foul brood all round the district, and my bees (which are the only Italian bees in this part) have been seen going into and robbing other colonies over a mile distant, and, suppose bringing home foul brood honey. What is the best thing to do under these circumstances. I would also like to know is it possible to preserve dead bees in a case, as I was wanting to make a case of all the different kinds of bees, which I think would look very pretty if it be possible to preserve their colour. Your *Bulletin* is always a welcome for the beginning of each month. It has never missed once.

[Your foul brood is seemingly a mild form of it, for from our reading we are convinced there are such forms of it, but with the infected neighbourhood evidently chronic. If in the bush it must gradually kill itself out. If the neighbouring beekeepers have it could you buy them out, or show them how to cure it? Keep your hives well disinfected with weak carbolic acid. Re preserving dead bees, we have no experience. Mr. Jones, of Goodna, Queensland, had some at a Convention in spirits, in clear glass bottles that looked very nice.]

Another old time beekeeper to the fore again, Mr. J. F. Munday. He was the father of beekeeping in the Hunter District.

A B. K. Association formed at Inverell We wish it every success.

Quinine dissolved in ammonia is said to be a splendid recipe for bee stings.

Giving the bees plenty of salt is said to be a good remedy for paralysis.

We are pleased an old friend "The Bee King" at the Cape of Good Hope has not forgotten us. Thanks for that interesting paper.

A letter from Warner via Charlestown with stamps enclosed, but no name. If the sender will forward his name, we will send receipt with thanks.

We receive files of the *Rheinische Bienenzeitung* regularly. We notice they occasionally extract from our pages. We are sorry our want of knowledge of the language of the Fatherland precludes our doing the same in return. It is a want, however, we are quietly plodding to overcome.

BEES ARE SWARMING.

W. ABRAM.

When swarms of bees are being caught on lamp posts and such like in Sydney, and farmers give up their usual occupation, and they with their children big enough to handle a kerosene tin, take it into their heads to run after runaway swarms, then there is no time for writing lengthy contributions I find; the bees are too busy, and so is the working beekeeper. At least I am, or rather have been. The first swarm issued on the 22nd of September, with one of the six queens I referred to in my last. The next came on the 30th, and from then a regular swarming fever set in, and continued till now. I have not known them to swarm so freely as this year; ten years ago nearly approached this season, but not quite. And the swarms are very strong, too. The first ones have the brood room built out already, and nearly half-full of honey. It surprises me that the bees do so well and gather so much honey, as it is here very dry, though warm and suitable for honey secretion. Just now rain begins to fall, may it continue for some hours or a day. It would give the beekeeper a rest, and do a lot of general good, though persons may not have a chance to try and catch other people's swarms in vain.

A RULE OF THREE.

E. H. LONG.

Why don't they teach us in our schools,
The first of all the golden rules,—
It is that simple rule of three,
The Queen, the Drone, and Worker bee.

THE BEEMAN'S WOOING.

E. H. LONG.

Beeman Wooing,
Lady fair,
Bees in garden,
Everywhere.
He says "Be my
Queen, my own."
She says "Oh you
Darling Drone."

Married now, but
Can't agree—
As to who will
Worker be!

MORAL.—

When proposing
Ask if she
Will be Queen, *and*
Worker Bee?

QUESTIONS THIS MONTH.

FROM THE BACCHUS MARSH B.K.A.

76.—Can any of our readers give their experiences or opinions regarding the Bromide Cure which was mentioned in our last issue.

77.—Were narrow bottom bars, say § inch, a success in having combs built right down to the bottoms without the open space which is usual where full sized bottom bars are used?

S. A. LONGMAN, FOOTSCRAY.

78.—Can you give experiences re the spider plant?

WILLIAM HARVEY.

79.—Bee-hives on a westerly aspect with entrance facing east. Will westerly winds affect the bees?

80.—Can Italian bees flying four miles to gather honey return a profit to the owner?

T. BOLTON, VICTORIA.

76.—No experience.

77.—No experience.

78.—No experience.

79.—Yes, more or less. Turn them to the quarter the lightest winds come from. I face mine to every point.

80.—I do not think so.

F. W. PENBERTHY.

77.—My bottom bars are $\frac{1}{4}$ x $\frac{3}{8}$ on edge, the bees like it for the base of the cells in the upper story. Any combs that are not built down to the bottom bar in the brood chamber, I put in the upper for a season. I like a $\frac{3}{4}$ inch bee space on the bottom board.

79.—My yard has a westerly aspect with entrances facing four ways. I cannot say which is the best way for the entrance, but I believe the westerly winds make them a fortnight late.

LOYALSTONE.

77. I use $\frac{3}{4}$ inch bottom bars, and find the combs built to the bottom. In wiring frames, if you have your wire closer than $1\frac{1}{2}$ inch to bottom bars the bees will leave an open space.

78. Spider plant is a good plant for bees, but you require about 15 acres of spider plant for 20 colonies. Only plant plants useful for other purposes besides bees.

79. Winds are very destructive to bees, and no matter what aspect you have will be destructive unless you provide a break wind. Hawthorn hedge acts well as a break wind.

80. I should say not to make a profit the fly should be only $1\frac{1}{2}$ to 2 miles.

HUGH RUSSELL.

76. Have not tried it, but should think that boiling the hive for a few minutes in a strong solution of concentrated lye would be as easy and effective. That is my plan.

77. Have not tried narrow bottom bars. The combs will be built right down to bottom bars in the upper stories, and can be used to hive swarms on the following season.

78. Seven or eight years ago I had a few spider plants growing in ordinary soil, and although each flower contained a large, a very large drop, of beautifully clear honey, the bees never came near it. I also have a few plants of Californian white sage, which the bees rush when in bloom, but this part of the country is too dry for it, I think.

79.—No.

80.—Yes, provided the colonies are strong ones.

R. K. HORNE.

78.—My experience of the spider plant dates from last season only, and I then found them to be a failure. They do not seem to grow in this country, possibly owing to the dry climate, to secrete the quantity of nectar that A. I. Root claims it does, and the bees, while going in numbers to mignonette close by, did not seem to care at all for spider plant. I am going to try it again this season, grown if possible in a patch, and if it succeeds will give my experience.

79.—I should say not, unless the bees have to fly entirely in a westerly or easterly direction for their supplies. In one case I know of where some hives are exposed to westerly winds the bees do very well, and have done so for some years past.

80.—Doolittle's experience in America is (vide A. B. C. Book, Root, page 380, comment 141), that bees fly four to six miles from choice. If the supplies at four miles distance were good, I should think a profit would be returnable.

A. J. BUTTSWORTH.

77.—Yes, when placed in top story.

78.—I saw some grown near Sydney, which bore numerous flowers and was visited by a number of bees. The flowers and plants were handsome and worth growing in garden for their appearance alone.

79.—I believe so. They appear to have difficulty in getting "under weigh," and would recommend utilising any shelter such as a paling fence building, &c.

80.—Not much, I should fancy. Have not found mine bringing honey that distance, while there was a chance of even a moderate flow nearer home. Perhaps with no forage nearer they might be *educated* to that sort of thing.

E. J. KENDALL.

71.—The different species of eucalyptus trees undoubtedly give the flavour and qualities to the honey which they produce, but I have never detected the flavour of what is known as eucalypti extract or oil in the honey, and I doubt if eucalypti honey contains any of this essential oil.

72.—I think that Australian honey should be exported on its own merits as Australian Eucalypti Honey, but that it could only be successfully carried out through a properly constituted company.

73.—The red or grey gum flowers in this district about September and October. It produces a light coloured honey of very fine flavour, slightly acid, but prefered to most of the other local eucalypti. I do not know the white gum.

W. S. PLEFFER.

79.—The westerly aspect is a bad one, and I would prefer having entrances facing north. One half of my colonies have a westerly aspect, the other half a northerly one, and although only about 80 yards apart, the northerly ones do better and are more free from disease.

80.—I think if bees had to go four miles in search of food, they would starve, and if they had to go two miles they would not give their owner much surplus. Last season I robbed six nests in ringbarked timber, two miles from here, and only got about 30lbs of honey from the lot, whilst my bees, surrounded with green timber, kept me busy extracting, each colony giving me

every three weeks, more than the six. On another occasion, I knew bees giving a surplus from clover, whilst bees two miles away, where there was none, scarcely gathering enough to keep them brood rearing.

W. E. BAGOT.

71. There is far too much talk about the eucalyptus flavour. It is purely imagination of British middlemen, and enemies of the honey industry of Australia. At present I am extracting some red gum honey which is delicious in flavour. Perhaps you will forgive me if I tell you something you know, but our friends over the water don't appear to know it, viz., that gum tree honey has not got that horrid flavour associated with eucalyptus oil, any more than the pulp in an orange has the flavour of the leaves.

72. United exportation a good idea; object to the brand eucalyptus—they associate the name too much with the oil. In fact, all our honey is not from eucalyptus. In this district we get a large crop from the Gristonia Conferta, or Cinnamon Box, a very mild flavoured honey, also clover shrubs, &c.

78. A humbug and a horrid weed. Pity that the advocates of planting these weeds could not manage to take their bees to the countries they grow in. It would save a lot of trouble in planting, also save the agriculturist a lot of trouble in destroying them.

J. KERR.

78. The chief point is to get fresh seed, and the rest of the performance is very easy. I received very many packets of spider plant from America, also many of California white sage, and I failed entirely to raise a plant from either, simply because the seeds had no life in them. I had a few seeds of spider plant given to me by a friend in Australia, and they grew like weeds and without any trouble. Kindly inform S.A.L. that it gives best results if sown in strong ground. It is not particular as to soil, but I believe ground of a loamy nature would suit it best. The seeds could be sown in boxes, and then transplanted at least one yard apart, or they could be sown in the open ground in beds. Cover lightly and keep damp till they appear above ground. It will continue itself after the first season. It only yields honey or nectar during the early hours of the morning and late in the evening. The plant is handsome during the periods noted, but it appears quite out of sorts during the day. If examined at night or early morning, a globule of nectar or honey can be discerned easily in the centre of each flower, about the size of a No. 1 shot.

T. BOLTON, VIC.

71.—I should think if it has any qualities peculiar to itself they will be of a desirable and wholesome nature; akin to the properties of eucalyptus.

72. Too indefinite. Formulate a specific scheme, and ask again for opinions on it.

73. Red gum, 1; white gum, eglunnic, summer bloomer, 2; E. Gunnii, winter variety, 3; manua gum (E. Vinulanis) 3; messmate (E. Obliqua), 2.

74. Yes, *a great deal* too much. At that rate all my crop would be divided between the three assistants necessary in a rush of honey, leaving none for myself! Ten per cent. at most for your services as an expert at that period should pay you well.

75. My experience for seven years past is one of some value. When blacks were numerous foul brood raged, and the district was cleared of bees by it. Of late years I have seen nothing of it except in black and hybrid box hives, therefore I conclude Cypro-Italians are "good resisters," and they are better able to keep free of it. Why I don't profess to know, unless it is their more vigorous nature, and better hive defence.

QUESTIONS NEXT MONTH.

W. E. BAGOT.

81.—Have you ever tried blending honey?

JOHN HAYWOOD.

81.—Can you tell me how to clarify beeswax? I have about 80 lbs of wax and some of it is very dark.

B. DAVIS, JUNR.

82.—Does it make any difference to the bees working if the sun never shines on the entrance, or the entrance facing S.W?

83.—Would tree lucerne clipped and made dense be too heavy a shade for winter?

84.—When a second swarm leaves a hive with the young queen at swarming time, is she fertilised before going out with the swarm or while on wing with the swarm, or when they start their new home?

A. I. Root says:—"I want to emphasize the point, that there is an advantage in having one or more swarms together for the production of honey. I believe one of the follies of present beekeeping is the fussing away with colonies that are too small. One big colony will store more than double as much honey as the combined yield of two colonies of half strength. And then, too, the big colony takes less manipulation, and is decidedly less inclined to swarm.

INVERELL B. K. A.

Report of Meeting held at School of Arts, Inverell, Sept. 24th, 1896.

Beekeepers Present: Messrs. J. W. Moore (in the chair), F. W. Penberthy, R. Cooper, Senr., J. Penington, G. H. Arkinstall, — Piggot, — Jenkins, and R. Cooper, Junr.

Mr. J. W. Moore, addressing the meeting said, that he had called them together to discuss some questions asked by the *A.B.B.*, viz: No 71, 72, 73, 74, 75, which after being discussed the following motions were carried. No. 71, Proposed byMr G. H. Arkinstall, seconded by Mr. R. Cooper, Senr., that this meeting is of the opinion that the eucalyptus trees impart the flavour, but cannot say as to quality, and would suggest having it analsyed.

No. 72.—Proposed by G. H. Arkinstall, seconded by Mr. Penberthy, that this meeting IS NOT in favour of exporting our honey under one brand, but that it should be branded as exactly what it is, whether white box, yellow box, red gum, or apple trees, as the case may be and that all honey should be classed by an expert before exporting.

No. 73.—Red gum is far the best quality.

No. 74.—Not discussed.

No. 75.—Never had a case of foul brood in the district, so can give no opinion.

The question of forming a Beekeepers' Union was then discussed.

Proposed by Mr. R. Cooper, Senr., seconded by Mr. F. W. Penberthy, that it is advisable to form a Beekeeper's Union, and that a meeting be called for that purpose this night 4 weeks, and that in the meantime, by-laws and regulations of other Unions be obtained and placed before such meeting.

Mr. G. H. Arkinstall was elected Secretary, *pro tem.*

Will you kindly forward us names of any beekeepers who are not taking the *A.B.B.*

LACHLAN B.K.A.

W. NIVEN, SEC.

The quarterly meeting of the Lachlan Beekeepers' Association was held in the School of Arts, Eugowra, on Wednesday, 23rd September.

The attendance was small. Mr J. Smith, vice-president, occupied the chair.

The minutes of the previous meeting were adopted.

On the motion of Mr Miller, the secretary was instructed to send a letter of condolence to Mr Wright, President of the Association, expressive of the sympathy of the members with him in his late bereavement by the death of his mother.

A discussion took place with reference to the date of holding the Annual Convention. It was suggested Easter would be a better time; it was decided at a future time to bring this matter before the N.B.A.

A conversational discussion took place with reference to the failure in honey and the loss of bees. During the last wo years in this district many persons had started beekeeping, but having lost the bees, have got disheartened and abandoned the industry. At the present time the prospects of a fair season are good.

Members expressed themselves on the lowest price it would pay to sell extracted honey at, the general opinion being that not less than the 2½d delivered at the nearest railway station would pay. As there is a scarcity of honey in the market at the present time, it would be advisable for beekeepers in placing the coming crop on the market to place a reserve price on all their honey, and thus endeavour to keep up the price.

It was decided to hold the next meeting of the L.B.A. on Wednesday, 16th December, 1896.

HUNTER RIVER B.K.A.

The annual meeting of the Hunter River Beekeepers' Association was held on Saturday, October 3rd, at the Technological Museum Class-Room, West Maitland. Mr. J. W. Pender, vice-president, occupied the chair. The attendance, as usual during the passing season of dearth of honey, was poor, though those present considered the prospects for the coming season as being very good, and therefore showed great interest in every subject brought up for discussion. The following report was submitted by the committee, and adopted :—

Annual Report of the Hunter River Beekeepers' Association for the year ending September, 1896.

In consequence of the very bad season experienced generally—not only locally, but over nearly all the colony, and we might add, all the eastern colonies—your committee have a very poor report to present for the year ended. No honey coming in means lack of interest in bees: and the membership of the Association at once falls off. The bad season experienced has been the principal reason for the little interest taken in the welfare of the Association.

There have only been a few meetings held during the past year, and at these the attendance has been very meagre. However, a few local beekeepers have become members, and one old member has again joined our ranks.

The Association has had no very important matter directly before it during the past year, but one matter of grave concern to beekeepers generally has been before the Land Courts. We refer to the ringbarking test case brought up by Mr. G. E. Taylor, of Cowra. The decision in this case will, we hope, have a most beneficial effect in doing away with much of that indiscriminate ring-barking on crown lands previously carried on, and which has been on several occasions brought forward at beekeepers' conventions, and in the first instance on a motion submitted by Mr. John Tucker at the Maitland Convention in 1892. Mr Taylor deserves the support of all beekeepers for having brought the matter so prominently before the public.

Nearly all our beekeepers depending on the bush for bee forage had lost heavily during the past season, and in some cases former beekeepers had lost all their stocks. In some parts of our district this is the third bad season in succession. On the river flats, on the contrary, those who had bees have done remarkably well, both in the matter of increase and honey, which after the light yields of previous years came rather as a surprise, and goes a long way to prove that lucerne when the root becomes a few years old will yield honey, even if the crop is cut so soon after the opening of the flower that the bees only get in a few days work on it at each cutting. May its tap-root grow longer, and no flood down it out again.

Some of our bush beekeepers consider their prospects for a crop during the coming season to be very good, and should such a thing as a good season again visit us we may expect that much of the old enthusiasm in the pursuit will once more be aroused, This awakened interest would materially affect the welfare of the Association, and increase the number of members on our roll and the attendance at our meetings. That this good season may eventuate and quicken the life of our Association is the earnest wish of your committee.

OUR HOME MARKET.

W. D RUSSELL.

To the Editor of the Bee Bulletin.

Dear Sir,—Mr. Adams' letter in your last month's number gives me a fairly good dressing down, but like a great many writers in like circumstances Mr. Adams is illogical and unfair and conceals a good deal that a fair writer would have mentioned. Nevertheless I don't propose to start and berate Mr. Adams because, however much such a course might make my letter amusing reading for some, I fail to see how it would help us on to an English market for our honey, and at present I have that object more prominently before me than going for Mr. A. or anyone else in fact, At the same time (in the kindliest spirit), I wish to set myself right with your readers, and firstly let me point out that I *only* offered to go to England in the interests of the beekeepers if *no one* else would go, and I offered £10 towards someone else's expenses, and I beg to refer all interested in this matter to my several offers in the past in your paper to subscribe £10 towards an agent being sent. This looks more genuine than the action of those who impute a wrong motive to my offer to go and take up the work, failing any one else being found to do it. If Mr. A. and any others thought so poorly of my idea some equally (at least), intelligent persons thought the idea good, and Professor Brown, now managing Lord Brassey's College for farmers in West Australia, complimented me on my endeavours, and counselled me to press my motion as being the very best thing that we could

do. Although money is almost non-existent with beemen since our last seasons experience, I will still offer to give £10 towards opening a trade with England (and so that none shall impute a wrong motive to me), but decline to go myself. It is such selfishness as we have seen that blocks any co-operation among beemen. Now, let us sink any differances that my previous letter and Mr. Adams' letter of last month may have given rise to and let us try to work together, as being the way all advantages will most likely be attained. Let us remember the motto we see around our British coat of arms, "*Honi soit qui mal y pense*," and believe that others may be and likely are as honest as oneself.

Another matter—our secretary,—we don't pay him and have perhaps no right to expect much for nothing, but the fact (as Mr. A. points out) of his being at the door of every channel for the outlet of honey, has done us during the last five years simply *no* good at all. I won't enlarge on this; it is too apparent to all. At the last convention I moved that Mr. Chambers be offered a £5 note as a sort of expression of appreciation of services he had rendered as secretary, but our liberal brethren refused it. Our committee is made up mostly of honey buyers whose interests clash with ours. These gentry have no business in the association, let alone in the committee.

Why are the minutes of the meetings of our city committee not published in the A.B.B. We are now in our second year since conference, and so far as members are concerned the committee might as well have never met, in fact may have never met so far as we know. We are treated as a set of nonentities, and if anyone endeavours to set things on a better footing he finds himself engaged in a pretty hard task. I have more than once written to the secretary for information re association business, but don't so much as get a reply. Can you suggest a course we can pursue to find out what is being done. I think I shall write to our president. I believe he will do me the courtesy of replying. I could say a lot more, but don't wish to offend any, and if my first letter hurt the feelings of any I hope they will believe me when I say I did not refefer to any individual.

W.N., Young, Oct. 8,—Just before the winter I noticed foul brood in one or two of my hives, and I at once sent them away to my brother's farm, which is three miles out of town, and there treated them by the carbolic acid method. Those hives that remained were perfectly clean and showed no sign whatever of the disease. I therefore thought that I had at any rate removed the trouble, and felt quite safe as far as the hives in town were concerned, but when I went through the apiary the other day I found six more hives badly affected with the same disease. I at once isolated them same as before, but I do not know what to do with them, as my treatment of them before failed absolutely, although I cut out and burned all combs and transferred the bees to new boxes. I would be pleased to know what your opinion is on the disease, also what cure you can recommend; as it is, I feel inclined to burn the lot. I have been through all the other hives in my apiary, and they are all quite healthy and working well. There are a lot of people about here who keep a few swarms of bees in old style boxes, no frames, and I am of opinion that these are the breeders of the disease. There is only one other beekeeper here who keeps bees systematically, and he has lost nearly all of his bees during last winter, as have most of those who keep a few hives, so the disease seems to have made pretty nearly a clean sweep, which may perhaps be better for the future success of our industry here. Still that is not much satisfaction, while the ravages of the disease continue.

[You could not do better than put the bees in new hives with starters, and a few days after do the same again, burning the old combs and well disinfecting the hives. You however evidently suffer from neighbouring hives having the foul brood. Could you manage to buy them up and cure them, or do so for the owners?]

EXTRACTING.

T. BOLTON, VICTORIA.

Sir,—I would like to make a few remarks with reference to the replies to query 74, in your last issue by A. Ballinger and Loyalstone, and to enquire for the general benefit, the grounds for considering ½ for extracting a fair proportion to give the manipulator. I consider that to let such replies go out unchallenged would be likely to lead to injustice. Suppose the case of an apiarist who with much care and attention, winter and spring, has brought an apiary of 100 colonies to the honey flow. He is taken ill we will say, and has to get friend B to extract his crop of say red gum, lasting for say four weeks yield, requiring thrice extracting and giving a total of one cwt. yield per colony or five tons value £100 nett. The owner gets £67 for his share, for work, risk, and care throughout the eleven months or twelve months more correctly. For his work, extending over 4 weeks, friend B. would get £33 or £8 5s per week, and reckoning it took him four days each round to extract, take off and return combs and one day (if he includes this work), to dispose of the honey, cappings, &c., for travelling, he earns the fine wage of 35/- per day! No wonder Messrs Wilson wish a long job would come their way. A small extra like this rate of over £400 a year *without risk*, would make me think beekeeping unprofitable if I had to employ help at such "quite fair" "not too much" wages as your two correspondents value an expert bee man's services at. On the other hand, I differ with Loyalalstone, about the good and bad season, and think it worth more per ton to extract a light crop than in a heavy yield. In any case I consider 10 per cent would be ample for heavy to 15 per cent in a light flow.

Page 141, 1st column. Note how this writer has to proceed to make a sure thing of queen cell destruction. The labour of it! the empty hive! the combs handled one by one; the eye sweeping *every* naked comb; the picking off of *every* queen cell, the whole thing of confessed weakness because requiring the practised eye to detect the smaller and inconspicuous cells. Here is an expert's own explanation of the L hive manipulation. Read it and reflect on the time lost, the invitation to robbers to visit those unprotected frames, the brood exposed to chill, and the last and lingering feeling that possibly the eye was not quite good enough, a cell *may* have been missed, and the sought-for results forfeited. But take a Heddon hive, pry off lid and with a simple motion turn the whole case of brood, or if two cases, turn both together *upside down*, replace lid and pass on to the next hive with the knowledge that *every* cell is destroyed, the whole operation taking from five to ten seconds after lid is removed. Then, if time is money in your business, consider whether you cannot improve your position by saving it and consequently running more colonies by keeping a more sensible style of hive. The excellent articles by Loyalstone deserve a hearty vote of thanks from novice and expert alike. May someone now write a similar series on "How to make a profit out of them," or say "Short cuts and dodges." Has the income tax assessment been levied on any beekeepers? If so, Mr. Editor, if any of our number average £200 a year nett profit from bees alone, kindly give them a whole issue sometime soon to themselves to tell how it is done.

The method of using queen cells by caging and cutting out combs to take the cages (page, 143, Loyalstone), can be improved on by using West's cell protectors, just putting them under quilt or lid. If it is inadvisable to let the young queen free as soon as hatched add one of the West coil cages below protector. In the course of a day or so she will eat her own way out through the top of the cell from which she emerged. Virgins of some day's age may often, in this way, be introduced to a queenless colony, I find.

CAPPINGS.

From American and other Bee Journals.

W.A.H. Gilstrap in *Gleanings* says:—The king of honey-producers in California is Mr. Daugherty, of Bakersfield, with only 1400 colonies, I am told. I know perhaps 20 men who produced over 8 tons each last year.

Mrs Sallie E. Sherman says—The best way to put a stop to robbing that I ever found or practised, was, after locating the colony that was the chief actor in the scene, just to exchange places with the robbing and robbed colony. About the best way that I ever found to determine the colony that was doing the robbing, was to carry the robbed hive into the bee tent, and let it remain say 15 minutes with the tent all closed, then go on the outside and open one corner so that the bees that had left the robbed hive would then be at liberty to go to their own hive. Just watch a few moments, and you will find (or at least I always did) that most of them came from one colony; then just exchange places, and the robbing was at an end.

The following is the Belgium law re the sale of honey:—"Under this law the name "honey" is to be applied solely to the substance produced by bees from the nectar of flowers or other juices gathered from plants. Honey produced by bees fed with other substances (excepting such as are supplied to them as provision for winter) must bear a name indicating the material given to the bees, as for instance, "honey from sugar," "honey from glucose," or "mixed honey."

"Honey substitutes and mixtures of honey with such substitutes, or with other foreign substances, must be denoted "artificial honey" or honey mixed with such and such substances, or some term not involving the word honey must be used.

"The sale of honey containing more than one per cent. of pollen, wax or other substances insoluble in water, or more than 0.5 per cent of mineral matter, and all spoilt honey is prohibited. Vessels containing honey, or mixture of honey, etc., must be labelled in such manner as to specify the exact nature of the contents, as defined by the decree."

Dr. Miller says:—No trick at all to unite swarms in swarming season. It's a good deal harder sometimes to keep them from uniting. All that's to be done is to hive a swarm in a hive in which another swarm has been hived. There will be no trouble about their fighting if both swarms are hived the same day, nor, indeed, if they are two or three days apart. If you have any choice as to queens, kill the poorer; but if you have no choice the bees will settle the matter to their own satisfaction without your paying any attention to it. If the swarms are small there will be a decided gain in uniting; but if the swarms are large it isn't so advisable to unite. Unite two large swarms, and by the next spring you will have no more bees in the hive than each would have had if you have had hived them separately.

G. M. Doolittle says:—No one should be foolish enough to put a queen under a glass or tin dish, and allow it to stand in the sun for a single minute. A queen should not be placed in any glass, glazed earthen, china, or tin dish. As soon as the queen finds she is a captive she begins to try to get out, and this she can do only by climbing; and as she can not climb far on the smooth surface of any of the dishes spoken of above, she gets as far as she can and then falls back, only to repeat the effort time and time again, till she dies from exhaustion. The third reason is, that no queen will live any great length of time without food; consequently the bees are constantly feeding their queen, where they can do so. The only proper cage in which to keep a queen is one made of wire cloth, or of wire cloth and wood; and it is better to have all such cages provisioned with queen candy. The bees will generally care for a queen alright where they have access to such a wire cloth cage; but to be always on the safe side, I bore a hole in the inside end of the stopper, when it is always ready, no matter whether the bees can get at the cage or not, so long as this hole is filled with candy. Such cages are very handy to have during the summer season, and I have some in different places in the bee-yard so I can get one at a moment's notice.

Dr. Miller, in *American Bee Journal*, in speaking of non-swarming in large hives, says:—It is only fair to add that for years I have each year kept a few colonies in hives three to five stories high, and in these piles of hives I have never known a colony to swarm. Some of them have been immense colonies, keeping 14 frames filled with brood, but with no offer to swarm I don't understand why these should refrain from swarming, even though sometimes fairly crowded, and yet the colonies in two stories swarm with plenty of empty comb.

[Mr. J. E. Taylor, of Cowra, could have a say in this matter. Let us hear from you.]

H. F. Coleman in *A. B. J.* says *Gleanings*:—I was greatly surprised at the range of prices of honey from the year 1874 to the present—a period of 22 years. It is true that the difference between 28 to 30 cents per pound obtained in 1874, and 13 to 15 cents per pound obtained at present, is very large, but in my opinion the trouble is not in the over production of honey, but in the increased production of other luxuries and other necessaries of life, combined with a contraction of the currency of the country. It is perhaps true that there is more honey produced now than in the year 1874, but not to a greater extent than the increase in the population of the country; and this being true, everything else being equal, there should be no very great difference in the prices or demand for honey. But everything else is not equal. There has been a great increase in the production of the fruits and sugars, and these combined, at their present low prices, to a great extent have supplanted honey, and form the principle table luxuries of the people. It is a rule, founded in economy, that the human family will use and subsist upon the cheaper commodities, if the cheaper commodities will meet the ends in view. And this rule applies with unusual force at a time like this, when there is a stringency in money matters. There has been a general decline in prices, of nearly all kinds of products, since 1874. Wheat, corn, beef, pork, potatoes, and other farm products have declined to an extent that it is almost alarming. and we should not be surprised to see honey in the wake. And there is still another rule, founded in economy, that has its influence on the prices of honey. Honey is a luxury: and when men are in the straits, financially, they curtail expenses and the luxuries are the first to be dispensed with.

BEES TO GO WITH QUEENS IN SHIPPING.

G. M. Doolittle in *American Bee Journal.*

As I have made the sending of queens by mail a study for many years, sending queens to all parts of the United States and Canada, as well as to many foreign countries, where they were from 12 to 50 days en route, I will say that there is a difference in regard to the bees that go with the queen, as I have proven by the reports coming back to me.

I have used bees that were all old, with very poor results. Why these old bees were used was because in certain cases where a colony had been for some time queenless, and the brood from the then laying queen had not hatched out I was obliged to use such bees as were in the colony at the time of taking away the queen. In almost every instance where bees that were over 30 days old were used, a report of "both bees and queen were all dead," or "queen came alive, but all of her attendants were dead," was the result.

With very young bees had I very little better success than with old ones, the reasons for using these young, white, fuzzy things being that at the time of the shipment of the queen, her bees had only just begun emerging from their cells, and being afraid to take the very few old bees which remained in the hive, I used those just hatching.

To illustrate more fully: A beekeeper ordered three queens, and after believing I had found out where the trouble of loss in shipment occurred, I placed in one of the cages all old bees to go with the queen. This cage was marked with a private mark. My circular stated that I guaranteed the safe arrival of all queens, on the condition that when the cage arrived, the bees were to be carefully examined through the wire cloth, and if the queen was dead, the cage was to be returned to me with contents unmolested, when I would send another queen. I made it thus, partly to guard against fraud, but mainly so I could look into any failure on my part in meeting the right requirements for perfect shipment, as I could often find the clew to the fail-

ure in the returned cage. The candy part was the main trouble in former years ; but that has been pretty much overcome by the queen candy now made by mixing honey and powdered sugar together until a right consistency is reached, so that the candy will neither harden nor become so soft that it will "run" in the cage. From this digression, by way of explanation, let us return to the three cages.

One was reported as arriving dead and was returned, while the other two came "without a dead bee." When the returned cage arrived it had the private mark on it.

Again, in early spring, I often have to use old bees, as there is no choice left me when sending queens soon after the bees have been put from the cellar, unless I take bees to go with queens from hives which were wintered on the summer stands, they having bees of right age. As it is some trouble to get these bees from another hive, and as such bees sometimes have a desire to worry a strange queen, I have sometimes taken the bees which have wintered over from the cellared hives and sent them along ; but the loss has been so great that I have resolved never to do it again.

In cases of forming a nucleus, with only young bees to receive a queen (as such very young bees will nearly always accept any queen given them), and having an order for a queen at about the same time, I have taken these young bees to go with the queen, as well as in cases spoken of above, and cages so sent with young bees and marked, have gone with many dead bees, where they were not returned as altogether dead. In this way I have watched results until I have found that bees from 6 to 15 days old are the ones which stand the journey best, especially if a long one, like going to California, Washington, Northwest Canada, the West Indies, Sweden, New Zealand, Australia, etc. Having learned what bees to select, I now rarely lose more queens in going to these points, unless I except New Zealand and Australia, than I did when the distance was 500 miles or less.

In selecting bees I have taken those which have flown once or more, and which are small and slim, and not those whose bodies are distended with excrement, as all young bees that have never flown are extended to a greater or less extent, with the pollen consumed in their larval state. By a little careful watching of bees as the days go by, after they emerge from their cells, it is not difficult to tell the age of a bee, very nearly at least, by its movement and colour ; and in addition to this we can be guided in our selection, on account of the bees of about the right age to use in sending queens being the first to thrust their heads into the cells of unsealed honey when the frame on which they stand is being removed from the hive. Besides this helping us to know which bees to select, bees in this position are very easily picked off the combs, as the wings stand out from the body.

WORK AT MICHIGAN'S EXPERIMENTAL APIARY.

R. L. TAYLOR, *in Beekeepers' Review.*

The season of 1896, in point of swarming, has been a remarkable one. The bees lightly set at naught all the accepted canons of beekeepers respecting that function. Lack of great strength had little restraining influence, and abundance of room, even in the brood nest, none at all. Swarming began the last of May, continuing just a month, during a very moderate flow of nectar, ending abruptly when that flow was at its best at the height of basswood bloom, though even then the secretion of nectar was very light. Not more than one or two per cent of the colonies did anything at all in the supers before casting swarms and many did not wait to fill the combs in the brood nest. Under such circumstances it is safe to say that it would not be wise to cease efforts to determine the best methods of securing and managing swarms, on account of any bright prospect of speedy success in breeding out the swarming instinct, or even of any satisfactory invention that will practically allay it. Indeed it is a very serious question whether if this object could be secured in either of these ways it would be satisfactory to more than a very small percentage of apiarists. There are always more or less losses from various causes to be made good, and there is no cheaper or more generally satisfactory way of doing this than through the increase by swarming. The loss of even a few colonies each winter during a series of unfavourable years, where there is little or no swarming, with occasional failure of queens and lack of stores, often best met by the uniting of colonies, sometimes make the aggregate reduction in numbers rather startling. Then the serious item of rearing of queens comes in, which must be done artificially if increase is secured without swarming. No doubt as good queens can be secured in this way as those obtained from cells built and cared for under the swarming impulse, but how few, comparatively, are the apiarists who have the aptitude, skill and punctuality required to do it. Nineteen out of twenty for one reason or another would fail, and in these times of financial stringency and uncertain honey crops they cannot afford to purchase. Besides it can hardly yet be safely denied that bees receive an impetus to work by finding themselves in their newly pitched tent, destitute of brood and provisions.

That there are some weighty objections to swarming if it could be safely repressed is not to be denied, but these may be reduced to two, namely, the time and labour required for watching and hiving swarms and the danger of loss

from swarms absconding. Some may hold that undesirable increase is another and a more serious one still, but one should be easily able to obviate that and indeed thereby reap a decided advantage. It is only a question of the disposal of the brood in the hive from which the swarms issue, and that is generally, especially in early swarming, very valuable. To accomplish this it is not necessary, as might be inferred from some discussions of the subject, that the brood when hatched or before should be returned to the identical colony that produced it, indeed, it may usually be used with decidedly greater advantage in other ways. There are always at the opening of the honey season some colonies that are not up to the strength required for the best work in the supers. Let the hives full of rapidly hatching brood be distributed among such deficient colonies as fast as they can be obtained, first driving out of each all the bees left behind, into the hive which with its swarm is or is to be put on the stand. Thus in a few days, if swarming continues, all may be got into excellent condition. Frequently, also, there are colonies out of condition on account of being possessed of superannuated or otherwise worthless queens. Destroy such queens as fast as hives of brood can be obtained and place one on each now queenless colony, and in a few days it will be rejuvenated both in its strength and its queen. In some of these operations the advantages of a horizontally divisible brood chamber are especially apparent, for if one wishes to help two colonies with the brood of one it can be done without extra labour, or if one wishes to rear a few surplus queens to meet emergencies, without driving out the bees remaining after the swarm issues, by simply dividing the brood chamber, he may secure two queens as easily and as cheaply as one. Other ways of disposing of the brood thus obtained through swarming will occur to every one in practice, so that soon instead of deploring its abundance one will be likely to wish for more.

There is one principle that is valuable in this connection which I should recall before passing, and that is that a colony having a laying queen of the current year's rearing can be pretty surely relied upon not to desire to swarm, no matter how strong it may be made within any reasonable bounds, and the same rule holds if it has a virgin queen if there be not also occupied queen cells in the hive. This fact may be taken advantage of to safely make some of the strongest possible colonies and at the same time the most profitable ones, notwithstanding the notion which some cherish, but without good reason I believe, that the possession of a virgin queen renders a colony unprofitable for comb honey.

How best to minimise the disadvantages of swarming which give rise to the other objections I have mentioned is a somewhat more difficult matter. The absconding of prime swarms can be almost certainly prevented by having had the wings of the queens previously clipped, which is most conveniently done about the first of May preceeding, but though I have hitherto been strongly in favour of it, and would take it as a choice of evils in the absence of the queen trap, I find it liable in an apiary of any considerable extent where there is little danger of swarms clustering out of convenient reach, to one valid objection, and that is that swarms usually remain a tantalizingly long time in the air giving an unnecessarily pressing invitation to other swarms and perhaps virgin queens to join them, thus complicating the matter of successful hiving. In small apiaries this objection would not have the same validity, but in any case there is first the danger of the loss of valuable queens and then in nine or ten days, in the absence of the apiarist, the loss of powerful swarms with virgin queens, so I now consider the queen trap indispensable unless one is willing to watch his bees continually during the swarming season, and even then it is a great convenience. For this purpose the trap should be so made that the queen once in it cannot return to the hive. This enables the apiarist to determine, with the exercise of very little attention, whether a swarm has issued during his absence from any given hive or not, by the conduct of the bees and the greater or less cluster remaining with the queen in the trap. If a swarm has issued and returned, usually the trap is found full of bees or nearly so: in such case I return the queen and bees to the hive and re-adjust the trap with the expectation that in a day or two I shall discover them making their next attempt, or, if I had no such expectation, I would shake out enough bees to make a good swarm and hive them with the queen in the ordinary way. A trap full of bees at the entrance of a hive from which the prime swarm or at least the old queen has been taken, indicates that the young queen has attempted to issue; if the trap has but few bees it shows that the young queen has attempted to take her mating flight, or perhaps sometimes that she has got into the trap in endeavoring to escape from a rival. In either case swarming is over, and the trap should be removed and the queen returned unless it is certain the colony still has one.

It is best then, I think, to keep traps on all colonies likely to swarm, removing them as soon as the danger is over, being particularly careful on this point in the case of those having virgin queens. When a swarm is discovered issuing, remove the trap, thus allowing the queen to go with the swarm, which induces speedy and perfect clustering, when it may be secured in a moment in a basket. A light pole to which a basket is attached near the farther end serves both

to shake out and secure most swarms that cluster out of reach of the hand. For the highest success in the production of comb honey strong swarms are desirable, and hiving swarms on the old stand not only conduces to their strength, but has also a strong tendency, often almost prohibitive, to prevent after swarms. However, with the methods I use there is a limit to the profitable strength of swarms. If they exceed seven or eight pounds in weight there is apt to be discontent and an early preparation to swarm again even if they do not persist in attempting to abscond. This determination to abscond is a difficulty which I have had to encounter very frequently during swarming seasons, owing principally no doubt to the small size of the brood chamber which I feel compelled to give swarms. After testing different plans I have at last been almost entirely successful in meeting this difficulty by giving the swarm at first a double brood chamber and removing the lower section in two days. This plan has proved a decided relief in the management of swarms.

Little need be said in addition to meet the objection made against swarming on account of the time required for attending to it. Most prime swarms issue between 9 o'clock a.m. and 12 o'clock a.m., so that, with the traps, three hours a day answers very well. In case of necessity even less time may be made to serve without serious loss, even, too, so little as three hours every day.

It is possible that there may be a little danger of swarms going away with virgin queens on their mating flight, but it is not great, for such queens are distasteful to prime swarms, though any laying queen is acceptable.

If a prime swarm and an after swarm with their queens unite, the young queen will usually be found balled, and it is seldom worth while to separate them, because there will almost certainly be sufficient of the prime swarm with the young queen to destroy her or break up the colony.

Some complaint is made that queens escape through the perforated zinc of the queen trap The perforations in my traps are 5.32 in. and no queens escape.

Lapeer, Mich. July 7, 1896.

THE DEVELOPMENT OF THE BEE.

BY RICHARD HELMS, in the *Journal of the Bureau of Agriculture.*

(CONTINUED.)

The organ of circulation is extremely simple It consists of a long tube, called the heart in insects, extending along the back, wherein the white blood is forced along. The food of the larvae is supplied by the nurses, and for the first three days consists of a highly nitrogenous substance, probably secreted from glands in the head, which are particularly active in young bees. On the third day this food is replaced by a mixture of honey and pollen dissolved in water. After the fifth day all feeding ceases and its cradle is covered with a thin layer of wax and pollen. This process is known as sealing the cells. When sealed up, the larva stretches itself length ways in the cell, keeping the head towards the bottom. In this position it probably first finishes the balance of the food left, and then passes through one of the most interesting proccesses of its life history. In consequence of the absence of a dual opening the indigestible parts of the food, mainly consisting of husks of the pollen grains, have accumulated in the intestines. This waste matter has to be got rid of without soiling the inner walls of the cell. The simple structure of the bag-like intestine assists in the process, for the inner membrane is now vomited forth together with its contents. The outer skin of the larva is cast at the same time, and being continuous with the lining of the intestine which, as will be understood is now inverted, forms a close lining to the cell. The refuse left in the intestines are thus buried at the bottom of the cell. This is the last moult of the larva, which is an internal as well as an external one. The foregoing applies in its entirety only to the development of the worker larvae. The queens and drones develop in a slightly different manner. The queen larvae are reared in specially constructed cells, called queen or royal cells, and are fed throughout with the nitrogenous substance given to the worker larvae during the first three days Moreover, this food, known as royal jelly, is supplied in such profusion that it is never completely used up by the larva which floats half buried upon it. The cradles for such favourite larvae are elongated, ovate in shape, and both roomy and strongly built. They have room for any amount of surplus food and allow for the full development of the sexual organs of the larvae. Their strength is necessary to permit the bees to crowd them without doing injury. Up to the fifth day the development of the royal larva progresses at the same rate as that of the worker, but afterwards much more rapidly. The drone larvae are reared in hexagonal cells, which are wider and slightly longer than those of the worker larvae. For about four and a half days they receive the rich nitrogenous and entirely assimilated food, and for a day and a half honey and pollen food. The development of the sexual organs evidently depends principally upon the supply of the nitrogenous food substance. The larvae of workers are fed upon it for three days, those of drones for four and a half days, and royal larvae for five days, or the whole of the time of this phase of life. After the larvae have passed through the last moult they turn round and face the sealed end of the cell. In this position they remain during the following two transformations.

THE PUPA.

The pupa is the third, but a quiescent stage in the life history of the bee. The name signifies little girl, doll or puppet. Other names given to the third stage of insects are nymph and chrysalis. The first of these means bird, and is frequently applied when no leathery covering occurs; whilst the second was originally given to the pupae of butterflies and moths, in allusion to the golden sheaths and glittering spangles many of them are covered with; chrysalis means gold in Greek. As soon as the larva has turned round it begins to spin a loose cocoon, which, when finished will cover it a little more than half way down. The queen larva completes this cocoon in about a day, the worker larva in two, and that of the drone in three. The spinning of the cocoon is very exhausting, and a rest is required by the larva in consequence. This period of rest varies with the different larva. That of the queen takes about two days, whilst the worker larva takes three, and those of the drones about four. After that the development proceeds rapidly, and within a day the limbs and different appendages appear outlined on the semi-transparent body of the pupa. At this stage the name bird (*nymph*) is certainly not inappropriate. The gentle figure, veiled to its waist in a gossamer, suggests such a comparison. The further development proceeds very quickly considering the extraordinary anatomical and physiological dangers now taking place. In a marvellously short space of time the full grown limbless maggot is transformed into a highly organised flying insect. This is more particularly astounding with the pupa of the queen; which, in three days, arrives at maturity, in less than half the time needed by that of the worker or drone, each of which takes seven days.

The Imago.

The perfect insect, the fourth state of its life history, is called imago, from being a portrait or image of its parents. During the process of maturing, whilst in the pupal stage, in addition to the other members, a pair of strong jaws have gradually made their appearance. The bee, then fully formed and grown, is anxious to leave the cell and escape confinement. The jaws are the first organs to be brought into play; with these they cut a circular furrow through the capping and then push the lid away with the head and crawl out. At first the wings are folded close over the back, and the hairs of the body are also lying down. When these rise up and the wings have filled with air the bee has reached its full size. It does not grow after emerging from the cell; all its growing is done in the larval stage. The queen, however, gets considerably bigger after she has been fertilised, this being caused by the development of the ovaries, which expand the abdominal segments. The three kinds of bees acquire their full power of motion almost immediately after leaving the cell, and are soon ready to assume the functions assigned to them by Nature. From the time the egg is laid the queen matures in sixteen, a worker in twenty one, and a drone in twenty four days. This is the nominal time and hardly ever varies with the queen and rarely with the drone, because whenever these are reared plenty of workers are always found in the hive to produce the necessary warmth. The development of the workers may, however, occasionally be retarded in a weak colony during cool weather.

(THE END)

BEES.

One of the most interesting writers of the present day on insect life is Sir John Lubbuck. We have a copy of his work, "Bees, Ants, and Wasps," from which we take the following on "Bees." Though some of these experiments were made as far back as 1870, they are as deeply interesting now as then to the thoughtful bee man:

The current statements with reference to the language of social insects depend much on the fact that when one of them, either by accident or in the course of its rambles, has discovered a stock of food, in a very short time many others arrive to profit by the discovery. This, however, does not necessarily imply any power of describing localities. If the bees or ants merely follow their more fortunate comrade, the matter is comparatively simple; if, on the contrary, others are sent, the case becomes very different.

In order to test this I proposed to keep honey in a given place for some time, in order to satisfy myself that it would not readily be found by the bees; and then, after bringing a bee to the honey, to watch whether it brought others, or sent them—the latter of course implying a much higher order of intelligence and power of communication.

I therefore placed some honey in a glass, close to an open window in my sitting room, and watched it for sixty hours of sunshine, during which no bees came to it. I then, at 10 a.m. on a beautiful morning in June, went to my hives, and took a bee which was just starting out, brought it in my hand up to my room—a distance of somewhat less than 200

yards—and gave it some honey, which it sucked with evident enjoyment. After a few minutes it flew quietly away, but did not return; nor did any other bee make its appearance.

The following morning I repeated the same experiment. At 7.15 I brought up a bee, which sipped the honey with readiness, and after doing so for about four minutes flew away with no appearance of alarm or annoyance. It did not, however, return; nor did any other bee come to my honey.

On several other occasions I repeated the same experiment with a like result. Altogether I tried it more than twenty times. Indeed, I rarely found bees to return to honey if brought any considerable distance at once. By taking them, however, some twenty yards each time, they came to the honey. I at length trained them to come to my room. On the whole, however, I found it more convenient to procure one of Marriott's observatory hives both on account of its construction, and also because I could have it in my room, and thus keep the bees more immediately under my own eye. My room is square, with three windows, two on the south-west side, where the hive was placed, and one on the south-east. Besides the ordinary entrance from the outside, the hive had a small postern door opening into the room; this door was provided with an alighting-board, and closed by a plug; as a general rule the bees did not notice it much unless the passage was very full of them.

I then placed some honey on a table close to the hive, and from time to time fed certain bees on it. Those which had been fed soon got accustomed to come for the honey; but partly on account of my frequent absence from home, and partly from their difficulty in finding their way about, and their tendency to lose themselves, I could never keep any marked bee under observation for more than a few days.

Out of a number of similar observations I will here mention a few and give them in detail in the Appendix, as throwing some light on the power of communicating facts possessed by the bees; they will also illustrate the daily occupations of a working bee.

Experiment 1.—Thus, on August 24, 1874, I opened the postern door leading into my rooms at 6.45 a.m., and watched till 1 p.m. three bees, which had been trained to come to honey at a particular spot. They did not, however, know their way very well, and consequently lost a good deal of time. One made 23 journeys backwards and forward between the hive and the honey, the second 13, and the third only 7.

The following day I watched the first of these bees from 7.23 to 12.54, during which time she made 19 journeys. Scarcely any other bees came, but I did not record the exact number.

Experiment 2.—I watched another bee from 6.55 a.m. till 7.15 p.m., during which time she made 59 visits to the honey, and only one other bee came to it.

Experiment 3.—Another from 7 a.m. to 3 p.m.; she made 40 journeys, and only two other bees came. She returned the two following mornings, and was watched for three hours each day, during which time no other bee came.

Experiment 4.—Another morning I watched a different bee from 9.15 a.m. to 2 p.m.; she made 21 journeys, and no other bee came.

Then, thinking that perhaps this result might be due to the quantity of honey being too small, I used a wide-mouthed jar, containing more than one pound of honey.

Experiment 5—I watched two bees from 1.44 till 4.30, during which time they made 24 journeys, but only one other bee came.

Experiment 6.—Besides the honey in the jar I spread some out over two plates, so as to increase the surface. I watched a bee from 12.15 till 6.15 p.m. She made 28 journeys, but did not bring a single friend with her.

Experiment 7.—On July 19 I put a bee to a honey-comb which contained twelve

and a half pounds of honey at 12 30, and which was placed in a corner of my room as far as possible from the window. That afternoon she made 22 visits to it, and no other bee came. The following morning she returned at 6.5 a.m., and I watched her till 2. She made 22 journeys, but did not bring a single friend with her.

Experiment 8.—Another bee was also brought to the same honeycomb, watched from 2.30. to 7.14. She made 14 journeys, but did not bring a single friend.

I might give other similar cases, but these are, I think, sufficient to show that bees do not bring their friends to share any treasure they have discovered so invariably as might be assumed from the statements of previous observers. Possibly the result is partly due to the fact that my room is on the first floor, so that the bees coming to it flew at a higher level than that generally used by their companions, and hence were less likely to be followed.

Indeed, I have been a good deal surprised at the difficulty which bees experience in finding their way.

For instance, I put a bee into a bell-glass 18 inches long, and with a mouth 6½ inches wide, turning the closed end to the window; she buzzed about for an hour, when, as there seemed no chance of her getting out, I put her back into the hive. Two flies, on the contrary, which I put in with her, got out at once. At 11.30 I put another bee and a fly into the same glass; the latter flew out at once. For half an hour the bee tried to get out at the closed end; I then turned the glass with its open end to the light, when she flew out at once. To make sure, I repeated the experiment once more with the same result.

Some bees, however, have seemed to me more intelligent in this respect than others. A bee which I had fed several times, and which had flown about in the room, found its way out of the glass in a quarter of an hour, and when put in a second time came out at once. Another bee, when I closed the postern door which opened from my hive directly into my room, used to come round to the honey through an open window.

One day (April 14, 1872), when a number of them were very busy on some berberries, I put a saucer with some honey, between two bunches of flowers; these flowers were repeatedly visited, and were so close that there was hardly room for the saucer between them, yet from 9.30 to 3.30 not a single bee took any notice of the honey. At 3.30 I put some honey on one of the bunches of flowers, and it was eagerly sucked by the bees; two kept continually returning till half past five in the evening.

(To be continued.)

"Wasp." Allumora.—It is time the bee-keepers did something to stop ringbarking. Between the 'possums and ringbarkers the country is in a nice state. You laugh, but the possoms have in the past eaten tons of bud from off our great eucalyptus trees and its only since they have been all pretty well snared or shot that my forests have became laden with bloom. Now we have the ringbarkers, and forthwith I propose they be styled the ringtails in remembrance of their defunct predecessors, and in hopes that their nefarious practice will be yet as silent as the 'possums. The squatters have heretofore been looked upon as the main stay of the country, but the fact is they have borrowed all our money and then keep it by the agency of the reconstructed banks to pay interest on loans, also received from English banks. Now they are fairly promising to send many beekeepers into a fit of internal hibernation. I should like to know by what right it is given to them to tamper with land that is reserved permanently for public use, such as gold reserves or temporarily for future sale, or land that is leased to parties and that will yet be offered for public sale? They have no business tampering with the timber in any way, and the law that allows such is loose in the extreme, and is unjust alike to state and people.

RAMBLES.

ARD GLEN.

What a romantic sounding name. Of course the name of some lovely spot in Auld Scotia? Not at all. It was felt the old name, Doughboy Hollow, was ugly, gave a lot of unnecessary writing, too many letters to spell it, and wanted to be substituted for something else, and as two Scotchmen had the principal act and part in such substitution, they choose what they considered a very appropriate name, Ard Glen,—High—Ard — Glen, Valley — High Valley. But the old name had associations. Some fifty years ago, a gang of desperadoes, known as the Jewboy mob, their leader being a man named Davis, rode defiantly through Newcastle and Maitland, on to Scone, where they stuck up a public house, the landlady and a waiter being in charge. The waiter remonstrated and was shot dead—the only murder the gang was said to be guilty of. The police were soon on their track, and surprised them as they were cooking doughboys for breakfast, in the Hollow or Glen, hence the name Doughboy Hollow. Five were hung in Sydney, one managed to escape, and was never heard of after. Let us hope the future historic associations of this beautiful spot will be of a brighter character. We say beautiful, for it is really a lovely spot, high up among the mountains of the Liverpool ranges. If so now, it must have been so years ago, before the hand of civilized man had cleared the mountain side of its native timber. It is some four miles from Murrurundi by road, but between seven and eight by rail, the latter having to ascend the hills between by a very circuitous route, and then to negotiate the gap by a tunnel some mile long. The hamlet consists of about 30 houses, including a public school of which Mr. Mr. Meiklejohn is the teacher, railway station, captained by Mr. Burns, a public house, and two butchers shops. Mr. Meiklejohn is a beekeeper, having some nine hives, all good Italians, in eight frame hives with half supers. He says he was not very successful last season. While on his Christmas holidays his bees swarmed very much, his neighbours taking possession of the swarms. On his return, one only offered to return a swarm to him. Some possible satisfaction might be in the fact that all the other swarms died out, the catchers not knowing how to take care of them. On our visit the ground was carpeted with quite a variety of wild flowers, including English white clover. On the latter, English wallflower (in Mr. Meiklejohn's garden), and the water in the brook that streams down through the glen, the bees were working very industriously. Ascending one of the hills in the neighbourhood, Peppermint was in luxurious bloom, but we could not see a bee working on it. Perhaps it was the wrong time of day. During the afternoon we ascended the hill to the gap, and for some half an hour feasted our eyes on one of the most beautiful bits of scenery it has been our fortune to see. Going through the roadside fence, we seated ourselves on the sward where no trees interrupted the view. In a short time, from a tunnel some 200 feet below where we were sitting, a train rushed out, and then disappeared round the corner of a hill on its sinuous way to Murrurundi. At the foot of the bare hill the course of the River Page was marked by dark shady trees, beyond which lay the town of Murrurundi, which it only wanted a moderate power telescope to well distinguish the roofs of nearly every house. On our right and left hands were high ranges of mountains spreading off on either side of the town. Their limits were united as in a frame work by other ranges beyond the town, and again, miles beyond them, other ranges rose, each successive one becoming more dim, till the distance blended them with the horizon. The pure mountain air, the lovely sunshine over all, made it a scene not soon to be forgotten, and materially helped our appetite, as we afterwards talked bee and other matters at the tea table of the

worthy schoolmaster and his good lady. On bidding adieu at the station, we felt we had spent a most enjoyable and health producing day.

CAPPINGS.

From American and other Bee Journals.

A. I. Root has a basswood orchard of 4000 trees, planted 23 years ago.

L. A. Aspinwall fully believes that isolated hives with wooden worker comb is a certain solution of the swarming difficulty.

G. M. Doolittle says some of the very best queens he had were those reared to supersede their mothers, and living from a day to a year with their mothers in the hive.

R. L. Taylor, of the Michigan State Apiary, after careful experiments, came to the conclusion that artificial swarms may do fully as effective work as natural ones.

Mrs. Sherman has many times kept a queen in a cage laid on top of frames in a hive that had a queen, and was working alright, from a few days to two weeks.

W.G. Northcott says, Foul Brood may be detected in its earliest stages by the larvæ having the wrong or backward presentation. The head being downward instead of facing upward.

A. L. Rogers examined two martins that he had killed for eating bees. The first showed he had eaten fifteen worker bees, getting two stings in the throat, the other, 12 bees with one sting.

T. H. Coe recommends as a cure for cross bees placing an empty hat with veil on it on a block about 10 feet away from the hive. They will expend all their energies on that and go home quietly after.

The *Canadian Bee Journal* gives the apiarian schedules of several fairs to be held, in each of which regulations similar to the following are given:—"Exhibitors showing honey not the product of their own apiary, in competition for prizes, shall forfeit any prizes awarded, and be barred from exhibiting for two years thereafter."

G. M. Doolittle says, five days is the least number of days he knew to elapse before a young queen went out to meet drones. But there are occasions when a queen is detained in her cell after arriving at maturity, so the five days should reckon from the time they arrive at maturity. The worker bee, when the hive is in a normal condition, goes to the field on the 16th day.

L. L. Skaggs, in *The Southland Queen*, says:—I want the bottom bar made triangular, and let one of the edges stand up; the bees will fasten to this edge much better than to a flat bar, and that gives more strength than any other way it can be made. It is a great help to have the comb fastened to the frame all round. Let the bottom bar measure at least ⅞ of an inch, each way, and be sure that you get end bars sharp on one side, so it will cut through the wax that accumulates on the frames, and have the top bar narrowed at the end, so it will not be over ¾ inch wide; that will give good finger hold, and less chance for the bees to fasten them at an end.

A Bulletin issued by the United States Department of Agriculture says to farmers and others, that it is unsafe to feed crimson clover to horses after the blossoms are matured; and still more unsafe to let them have access to the crimson clover straw from which the seed has been thrashed. Quite a number of valuable horses have been killed by the formation of balls in the intestines. These balls proved to be made up of hairs or spines of the head of the mature plant of the clover. Where hay properly made by cutting the clover when it is just in full bloom (not later) is fed to horses, no harm results. It is only necessary to beware of letting them get hold of the over-ripe plant, either before or after the seed has been thrashed out.

A. Ludwig, in *Bienenzeitung*, accounts for paralysis, on the ground of a strong swarm being checked by bad weather, and proved to consume too much bee

bread. "Bee bread when mixed with concentrated honey, gives up but little of its albumen, but gives up much more to water or watery honey. Water penetrates the cellulose covering of the pollen grain and swells the nitrogenous interior (protoplasm), rendering it susceptible of digestion. If it reaches the intestines before this is done, the moisture of the latter only produces fermentation. The result is inflammation and constipation He says *May* sickness (we presume it is the same as paralysis) is unknown to those beekeepers who practice stimulative feeding regularly and in the right way, He recommends pure water sweetened with saccharine instead of sugar.

EXPERIENCES.

W. S. AND H. J. WILSON.

After casting about for more than a year, we finally settled that we should establish our second apiary at Deansmarsh, in the Cape Otway Forest district. A short description as follows: Partly bush and partly plain; a freshwater creek, never known to run dry, about three chains from the apiary, which is on the side of a hill, overlooking flats of about 2000 acres of clover and other English grasses and dandelion. At the back and sides is very thickly timbered forest country which runs for miles; timber, chiefly peppermint, which blossoms about November; messmate, blossoming December; white gum, blossoming February; also honeysuckle, blackberry (which is beautiful honey), and other forest scrub. The above sounds an ideal place for an apiary, but it remains to be tested yet. This time last year we decided on shifting our hives, but first of all we had to visit the place and run up a shanty and honey room. We had a drive of nearly 40 miles to get there, so one fine morning we harnessed up. About 7 o'clock we commenced our journey; all went well for about 20 miles, when ominous black clouds appeared in front, and to make matters worse, our horse was showing as if he had had enough, so we gave him a spell and a feed—also ourselves. Another start in nearly an hour, and by this time lightning and thunder were at work, and we found ourselves on the plains with no shelter in sight, except a clump of pines about 7 miles off. We made for these, but to make a long story short, within half-a-mile of pines storm burst over; got sopping, bedclothes and all—horse dead beat, camped in pines, poured all night, flooded out during night, but wouldn't shift out, shammed sleep; owner of plantation round in morning—blathered us for daring to camp there, told us to "get out as quick as you can; sure and put out fire" (this with a perfect sheet of water about us). Made another start, still pouring, found ford flooded, river over banks for half a mile, slushed through it, and arrived at destination just "cooked," horse and all. Camped and slept in wet bedclothes. Rained continuously for three days, and "pigged" it in a wet tent all the time. And all this just to start a bee farm! However, we've come out of our long "bath" none the worse for it, and I don't think we were any wiser either. We got our house up after a week's graft, and put things in readiness for the bees. We made our first trip with a waggon load (springless waggon) of 20 L hives, and an anxious trip that was. Before we got many miles we found the ropes chafing through with the constant jarring, and all along the road we made stoppages to retie, &c. We arrived safely on the second day and unloaded bees. When all was fixed up I can assure you we were glad, and I'm not exactly certain how many sighs of relief went up. I am not sure, either, how many grey hairs developed themselves on that journey, but I find I've got one or two, and I'm only 23, so it must have been that trip. We discarded the waggon after this, and conveyed the balance over on springed waggonettes. We had a fair season after all, and secured 2½ tons from 50 hives, besides increase. At the home apiary things were very different, as the bees didn't get enough to feed themselves, and never troubled themselves about swarming. No difficulty in controlling swarming in a season like the last. Can you or any of our beemen account for bees acting in the following manner: We introduced a virgin queen to a hive, and was accepted. All went well with her until she started to lay; then she was balled, after laying a frame or two full. We released her once or twice daily for nearly a week, and after that they let her alone, and never molested her afterwards, and she turned out to be a splendid queen. Have never had a case like this before, so can't account for it. We were also once beaten last season in trying to introduce a queen. We tried all possible ways, but never succeeded, and the hive eventually got so weak that they had to be united; they would accept a queen for a day or so, and then she would disappear; cells would hatch out (or rather queens) and the young queen appear all right, but she would be done away with in a few days. What was the cause of the trouble? It was not a fertile worker, for we treated for that, and besides there were no eggs to be seen.

☞ *As we are living at our Apiary at Willow Tree, some 125 miles from our Printing Office, we will be glad to receive correspondence there that requires prompt reply.*

H.N., Yangan, Queensland, Oct 5—I am very pleased with your little paper I see that the honey crop was a poor one in N.S.W., as well as here. I got about one ton out of 35 hives.

G.H.A., Inverell, Sept. 24th,—Bees are doing fairly well, every prospect of a good yellow box flow a little later. We have had a few severe frosts the last three nights which has had the effect of checking brood rearing a little, and pollen is not so plentiful as it might be.

F. W. P., Elsmore, Oct. 8th.—We will have to educate the M's P. on beekeepers' wants by an interesting and to the point article on our wants, and have it printed and one sent to each M. P. We should be very prominent at an election time. I think Canada has the best Pure Food Bill.

A.C., Spring Vale, near Dubbo, Oct. 2nd,—Bees are doing splendid here at present on heather honey; coming in very fast, but weather keeping dry, which I am afraid will affect the flow later on. The next trouble will be to find a market, but I intend to stick to my honey till I get my price for it if I have to keep it till next winter.

R. K. H., Murrurundi, Oct. 19th.—My Italians wintered fairly, the blacks dwindled badly. All have been hard at work on fruit, &c., blossoms for some time past. The willows gave them a good start, and now there is white clover in abundance on many of the lowlying flats. The yellow box is just coming out, and the acacias are in full bloom in the town. So far I have had no swarms but others have had a number.

J.B.S., Pialba, Queensland, Oct 13—We are having a seriously prolonged spell of dry weather, very rough on cattle, crops, &c., but the bees are doing wonderfully well, I never saw them doing better. We started the spring with a long flow from gum trees, followed by wattle, and now ironbark, of course with an interspersing of other flowers, notably scrub. All blossoms seem to be yielding nectar freely, results highly gratifying. I trust you are holding on your way smoothly.

W. R. H. S., Walcha, writes:—Beekeeping only started here last year, after Mr. Gale's visit. I think the Government made a great error in allowing him to be retired. The country will loose ten, aye, a hundred times the amount saved by his retirement. A good many colonies are now about this locality, nearly a hundred I suppose. The Italians all came through the winter, which is very severe here on New England. But the black bees did not fare so well. There is every appearance of a good honey flow, but rain is still wanted.

H. E. M., Keyneton, South Australia, Oct. 10th.—As you wished for bee news, I will write a few lines. Last season there was only a poor honey flow about here, extracted about 60lbs per hive in the last three months of 1895 and nothing after. Bees have been dying in all directions through not being able to get pollen to feed young bees. The trees around here are all in bud. We want a good rain and then we have every prospect of a fair season. Honey is selling at 3½d per lb in the Adelaide market. I find the *A.B.B.* very interesting and useful.

R. S., Parkes, Oct. 12th.—With this post I am sending a piece of brood comb, and will be thankful if you can tell me if there is anything about it to indicate the presence of a laying worker in the hive from which I have taken it. Also, can you explain the following: I placed a frame of brood having a sealed up queen cell on it, in a hive which had no queen. 15 days have now passed and still the cell is capped. I will be very glad if you can explain and advise.

[Piece of comb to hand. It contains no eggs, but some apparently healthy larvæ. A laying worker will place a number of eggs in one cell. A queen also with not sufficient bees to attend to her will do the same. The queen cell is undoubtedly dead. We would introduce a laying queen to the hive.]

N. B., Narandera, Oct. 10th.—I have got foundation fastener and foundation comb. Now I don't know how to go to work to put starters in frames, strips only. My foundation fastener is a little wooden wheel on a spindle on to a handle. What troubles me is to get the wax or say foundation comb to stick to frames. I use no wire in my frames. I have always put starters in with molten wax, painted on a wet strip of wood, but stamped comb seem to be quicker and bees follow it up better.

[Keep the foundation in a warm place previous to putting on so as to soften it slightly. Then press it firmly on to the frame with the wheel previously wetted.]

E.J., Berwick, Vic., Sep. 25,—Three hives have eggs that are not hatching. I find that in hundreds of cells no less than a dozen eggs lay dwindled up in the bottom of the cells, and a fresh one laid on top of them all. I hope you will kindly give me an answer to this egg trouble, and what best to do About three hives only have it. I have just received the *A.B.B.*, it always cheers me up and puts fresh energy into me.

[We hope you did not throw sulphur *into* the *combs*, as that would be bound to shrivel up any eggs in it. The three hives with so many eggs in cells have evidently laying workers. To get rid of them take the infected hives some 100 yards away, shake all the bees off the combs, then put comb back on old stand, and give them a queen-cell, a laying queen (protected) The laying workers or presumed queen will not find their way back, but get lost or killed.]

H.R., Henty, Sept. 30th,—I have a good deal to learn, and am indebted to your paper for many useful hints. I started in October, 1894 with two swarms which in that year increased to six. Last year these increased to sixteen, but I have since lost two, so that I have now fourteen healthy swarms. The honey yield here last season, as in most places, was poor, but owing to a late honey flow from the white box the bees obtained just enough to carry them through the winter. The rainfall during the winter has been below the average, but there is a good show of wild flowers, and as the gum and yellow box are bursting into blossom, there is a prospect of a good season. Hoping that it may prove so and that the result will be an increase in the number of subscribers to the *A.B.B.*

C. U. T. B., Loyalstone, writes, Sept 29th,—Re your question as to how long the yellow box remains in bud before bursting into bloossom. If the season is favourable it will be in blossom about 10 months after the buds first appear. In a rather dry season it will take 15 months. In a good season when the yellow box has done flowering you will notice the tree making a fresh shoot, and on these young shoots you will notice buds forming which will burst into blossom from 10 to 15 months from the time the buds are formed. Should the tree show no fresh shoots after flowering it will take 24 months before it blooms again, viz., the tree will form buds the year following, and flower the following year after that. Should you have dry season after dry season, they will only flower every third season. The yellow box will remain in flower for three months after the first blossom appears, and as the trees come out one after another, you will have a continuous flow for fully 9 to 18 months. The white box blossoms as a rule every third year, remaining in bud 18 months before bursting into blossom, and it takes from 12 to 18 months to form fresh buds from the time the blossom ceases.

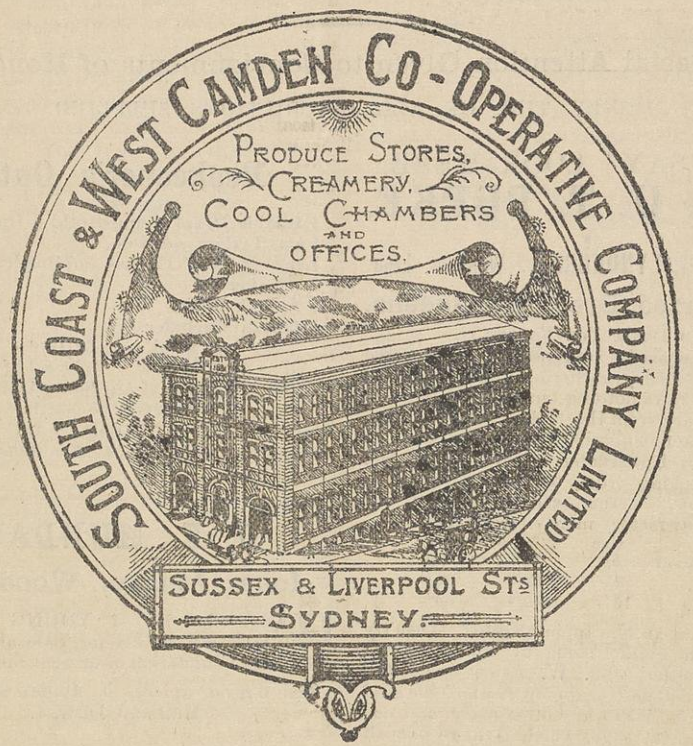
A correspondent from ——— writes Oct 8,—I think the predictions I made in my last are going to come off alright. All the bush trees are blossoming well, and there is every indication of an excellent honey season. The bees are storing honey rapidly, and we are preparing for early swarming. Appended hereunder is an account of a honey taking experience which I think will prove amusing to your readers, and I can guarantee the truth of it from my own knowledge. A few years ago a neighbour of mine kept a few swarms in boxes in his father's garden and some in

his orchard. They caused considerable annoyance to the old gentleman when he was at work, and he at last determined to get rid of them. This he did by giving them to a party who for convenience sake we will designate Mr. X. Mr. X was there early next morning, armed with a knife, a spoon, and several buckets, and started operations at once by knocking the boxes over, and rolling them all over the place till all the bees were killed or drowned in the honey. But the bees that escaped this treatment were naturally somewhat incensed and revenged the wholesale slaughter of their fellows by stinging Mr. X most unmercifully till both eyes were bunged up tightly, and his face, head and neck swelled to enormous dimensions. I verily believe that anyone but himself would have died under this treatment, but it will occur to most that a person who would treat bees in this fashion must necessarily be somewhat tenacious of life, and so it proved. He waited a couple of days for the swelling to go down and then came again with a canvas sugar bag on his head. His hands were encased in leather gloves, and he brandished a spade aloft before making a frantic dive at a beehive, rolled it over, and dug the contents out with the spade, bees, brood and all, and soon had it loaded on his dray, and went away with a greatly elevated opinion of his own ingenuity. If any of your readers can beat this, I would like to hear it. The most regrettable incident connected with the affair is that the bees did not finish the task so well begun on the first day!!!

CURE FOR FOUL BROOD.

Place bees in fresh hive with starters only, queen excluding zinc at entrance. Burn the old combs, and disinfect hive with carbolic acid. In three days after, put them in a fresh hive with starters, giving them food. It is often cured without the second removal.

Honey Sales a Specialty



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