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THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.
EDITED AND PUBLISHED BY E. TIPPER.
Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

VOL. 9. No 12. MARCH 28, 1901. PER COPY, 6D.
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Untested Italian Queens	5/-	13/-	20/-	39/-
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Queensland Agent for the 'Australian Bee Bulletin."

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Try one of my SAFE INTRODUCING CAGES, with queen, 3d extra, without queen, 4d.

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3 Framed Nuclei, 10/-, with division containing two queens and two frames each, 15/-. The advantage is, two Nucleis same freight as one.

R. H. JERVIS,

WREKIN APIARY,

MOSS VALE, N.S.W.

The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEEKEEPING.

—— Edited and Published by E. TIPPER. ——

MAITLAND, N.S.W.—MARCH 28, 1901.

The following is a list of advertisers in our present issue :—

Supply Dealers.

R. K. Allport, Chuter St., North Sydney.
A. Hordern & Sons, Haymarket, Sydney.
The W. T. Falconer Manufacturing Co., Jamestown, N.Y., U.S.A.
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J. W. Miner, Ronda, N.C., U.S.A.
R. H. Jervis, Moss Vale, N.S.W.

Miscellaneous.

A. Hordern & Sons, Haymarket only, Sydney.
Allen & Co, 242 Sussex street, Sydney
The Farmers' Co-operative Company, Ltd., Sussex street, Sydney.

Good queens can be raised successfully from eggs sent by post.

Try honey with your morning porridge instead of sugar.

Heather honey has been recently selling in Scotland at from 1/- to 1/6 a section.

In cases of Foul Brood, McEvoy says save the hives, but burn the frames.

When you sell honey to a storekeeper insist on his keeping it on his counter or in his window, so it can be seen.

The smell of burning wax striking a swarm in the air is said to induce them to turn to the odor and settle.

Giant mignonette is a great honey producer, and grows well on sandy soils.

In making sugar syrup to feed with a little vinegar will prevent its granulation in the hive.

An Illinois, U.S.A., beekeeper, reports geiting 1013lbs. from five colonies, nearly all sweet clover.

The Viticultural College at Rutherglen, Victoria costing £20,000, and £2,000 a year to maintain it, has one pupil!

Bees have been known to be confined in cellars 185 days, and then come out strong.

314 Queens from one single queen in one season by the Doolittle method, the work of Giraud-Paron, in France.

In putting labels on glass bottles, do it while the bottles are warm (we presume the honey is warmed to place in them) The labels stick better.

ERRATA.—In last issue, page 219, 11th line from bottom first column, instead of "January" the word should have been "Fancy."

Swiss beekeepers do not consider the Italian bees superior to the black or German bee. They consider them more desirable for handling, however.

The average length of the bee's tongue is 15-100ths or 16-100ths. A few go up to 19-100ths and 20-100ths. So says E. R. Root.

The Sydney Board for Exports last year exported butter to the value of £3,000. The total exported from the colony was £383,058.

Cappings, with an occasional old comb, from 6000 lbs. of honey with us this season, produced 100 lbs. of wax, or at the rate of 1 lb. of wax to every 60 lb. of honey.

We acknowledge receipt from the A. I. Root, Co., Medina, Ohio, U. S. A., of the February catalogue of Beekeepers' Supplies. The illustrations and information are very complete.

A Beekeeper in Hants, England, says in *Beekeepers' Record*. "When I first began beekeeping I could get 1/- per lb. for honey, but for the last few years the average has been 8d. per lb.

Two thin permanent combs, one on each side of the super, is recommended by F. L. Thompson in the *Progressive Beekeeper* for getting inside sections properly filled.

The duty of a bee or any other journal is of a two-fold character. First to instruct its readers in the craft it represents with all the latest ideas; the other to protect and warn them against dangers and foes.

At a banquet in Switzerland given by Mr. Bertrand, a noted beekeeper there, to Mr. Dadant and other beekeepers, on the centre of the table was an almond cake in the shape of a movable frame hive.

Out Apiaries.—With a constant watcher when swarms issue catch and cage the clipped queen, putting her in the entrance of the hive. Five days after cut out all queen cells, also five days after, when the queen is released.

In our surplus stories the past season in 10-frame hives we have placed nine frames. A year with a good flow, seven would be sufficient, for the bees would fatten them out. Not so this (a moderate) season.

A writer in *Austral Culturist* says "*he can go with* 100 *hives of bees into a country that will not grow wheat or graze* 100 *sheep and turn out* £200 *in a year*!" Perhaps some Victorian or other beekeeper will have something to say on this. Is it correct? Or what?

Clip your queens wings. Have a sharp pair scissors ready at hand. Take hold of the centre of the top-bar with your right hand, catch the queen with the thumb and forefinger of your left hand. Drop the frame, pick up the scissors, and clip large wing one side. If two are working one can hold the frame while the other catches the queen and does the clipping.

A beekeeper named Longley was fined, and with expenses, mulcted to the tune of £10 in England because his bees stung men and team in an adjoining field. Subscriptions to the amount were sent to the editor of the *British Bee Journal* by sympathising beekeepers.

Mr. Maynard tells us he has a great idea of a lorry for an out apiary. Have the hives so fixed on it they can be taken to the selected place, left on the lorrie, a space in centre of the hives to allow for the working.

In making "good" candy, warm the honey, and then stir in all the powdered sugar you can, till you have a stiff dough. Suitable for sending with queens in cages, or putting over brood frames for food in winter.

Allan & Co., Sussex St., Sydney, write us, March 14:—We may state that the honey market is now very dull, and prices very low. Immense quantities are arriving daily, but there is no sale, which is generally the case this time of year. Best box honey is worth 2½d. at present.

A Mr. Poppleton practices migratory beekeeping on the Florida rivers. He uses a launch 28ft. long, 6ft. 8in. beams, driven by a 3-horse power engine, which can carry about 3 tons of honey, or 60 hives of bees in single-story Langstroth hives. As a pleasure boat it can accomodate 20 persons.

Chunk honey seems to be very popular in California, according to H. H. Hyde, in the *Beekeepers Review*, as during the past season he had received orders for some 70,000 lbs. of chunk honey, but could only supply 25,000 lbs. He believed he could get orders for 500 cases for spring delivery in 24 hours time, if required to do so.

When going extracting we take in extracting cart a hive with nine empty frames or starters, which we place in hives to replace full combs taken out.

Replace extracted ones same way during the day. At night, when work is done, take the combs left that have been extracted from, and put in supers on hives specially marked during the day as needing more room. They are got out of the way of robbing, and cleaned up by the bees.

W. Niven.—The saying is, "Opposition is the life of trade." When we get our Association at work there is not the least dubt there will be rivalry between the respective Associations. I trust there will ever be that kindly feeling exist between the members of the Associations that should, and that success may attend the labours of both.

Let melted wax cool as slowly as possible by keeping warm. It will prevent cracking of the cakes. Put in convenient size cakes. We use 2-lb bakers loaf tins. It makes a cake of about 7-lb. Have the tins well cleaned. Rust on such will make a tin mark on the cake of wax. Rinse with cold water before putting melted wax in.

Doolittle says 16 days is the time from the eggs of queen being laid till she emerges. Under favourable circumstances it may be 15 days, while 20 days have been known to elapse. In nine cases out of ten queens are fertilised when from seven to eight days old. Flying or mature drones are wanted at least 17 days from the time the queen cells are started. Drone eggs should be laid 17 days at least before we start to rear queens in the spring, or the time when the drone brood would be sealed from six to seven days. His advice is don't start queen rearing too early in the spring.

We have used new and second hand 60 lb. tins. With second-hand tins, parties who may have used them, in their desire no honey should be wasted, washed them out with water, never troubling whether all the water was out or not; result—rust and holes. Others perhaps have left them out in all weathers with similar results. With new tins occasionally there may be a little careless soldering. Take all in all, we prefer the new tins. Some people in America use barrels holding 350 lbs. They are rolled about, and they say are easier to handle, but great care must be exercised in preparing the barrels, otherwise they leak or absorb honey. One man speaks of the head of one coming out when on a dray—result, a very big mess.

Very few honey producers can afford to buy as many queens as they would like to. It seems the same story as it is with the strawberries. We would like to use a good many, and the only way to have either strawberries or queens, and have them plentifully, is to raise them ourselves. It is also nearer my notion to have these things fresh. Strawberries nor queens can be expected to be any better for having travelled over rough roads for several hundred miles; and so I think it will be more profitable to raise the larger part of our queens ourselves. That we must procure new blood from time to time goes without saying. We may either buy a number of tested or even untested queens each year and then select the best from them; or we may purchase regular breeding queens, the best that money can buy.

WORK FOR THE MONTH.

Now is the time to prepare for winter. Perhaps it is the most important period of the year, as on the proper management now depends in a very great measure the success of next season. There may be a grand honey flow then, but if care is not exercised now you will get no good from it. Having seen that every hive has a good queen and plenty of provisions, one of the first necessary things is to see that all hives are in good order. Now is the time to give a coat of paint, to tops especially, where, as in many apiaries, a sheet of iron does not cover same. An overhaul of every hive is a wise precaution, and a nail here and there, like the proverbial "stitch in time," may save a swarm dying out, or add a year or two to

the life of the hive. Overhaul all combs. Very old ones take out to melt down. See no drone comb is in the brood chambers. In the matter of provisions, note what pollen may be in the hives, or the bees may be gathering. The problem of the winter losses of bees, whether in New South Wales or Victoria, is by no means settled. Warmth-retaining and frost-resisting material should be placed over the cluster. Oilcloth and newspapers are both very good. Or a calico bag sewn up with newspapers inside, made to fit the top of hive, answers in most parts of Australia. Many hives are made with roomy covers, fitting over the tops of the hives, that a good packing of such can be given, always ensuring warmth at top of cluster. In the colder parts of the colonies, such as Tasmania, or the southern parts of New Zealand, something more than above is needed, and double boxes, with several inches of chaff or forest leaves between, may be used with great advantage. In the cold climates of Canada and Scotland cellars are greatly used, and even burial underground has been adopted successfully.

WANDERING.

We recently paid a visit to that portion of New South Wales termed New England, we presume, on account of its tableland formation, height above the sea level, and consequent lower temperature, than much of New South Wales land. The climate is very much the same as in England. In winter heavy frosts and snow are common, and in summer the land has not the parched-up look so common now on the surrounding lower lands. The various towns show tokens of great wealth in the surrounding country, especially in the size and fulness of the stores. The Show grounds, not only in the exhibits both of produce and stock, in the extent and variety of agricultural implements, and the "turnouts" of the various farmers and squatters, show a great amount of prosperity. Sheep and wool take precedence, horses and cattle come next. We attended the late Armidale Show, and received both pleasure and instruction. Dairying does not seem to be so strong as in some parts of New South Wales, and by no means as in Victoria. In conversation with one who "seemed to know," the far greater quantity of butter exported from Victoria is due to the greater enterprise and intelligence of the Victorian people. But here there are gentlemen who will do their best to push forward what appears to us to be, next to wool, the most staple industry of Australasia, one, we were informed, having given while we were there an order for two of the best Jersey bulls that could be obtained in Victoria. These are industries in which the foreign markets are so great and assured, no local rival jealousies need in any way mar the local competition other than with the helpful hand. In our special line (honey) there was a very nice display, and the many visitors must have felt an increased desire for honey consumption as they noted the very nice sections and frames of comb honey. We still have the notion that much more good could be done at these shows if the exhibits of honey, in comb, tin or glass suitable for exhibit on a storekeeper's counter were made a subject of competition, and this, causing storekeepers to make more of such displays, would add to increased consumption and better local prices. We were in one large store, and saw, away down near one entrance, a pyramid of what we took to be 7lb. honey tins, nicely labelled. Walking to the spot, however, we were sadly disappointed to find it was "Golden Syrup." In stores everywhere, no matter what part of N. S. Wales, we find golden syrup and jam well to the fore. Why should not honey be as prominent? Is it the fault of the public, the storekeeper, or the apiarist? We don't think it can be the public. We think if honey was more prominent in the stores it would be more bought. Golden syrup and jams have had the commercial start. It requires the apiarist to push the storekeeper more. The latter is a business man. He likes

his shelves to look well, and he and the public, we fancy, could both be made to work more in the interests of beekeepers than they do. However, we must compliment the Armidale beekeepers on their excellent display at the Show. The following were the prize-winners:—

8lbs. honey in comb, R. Roberts: 5 entries.

3 jars extracted light honey, J. L. Mitchell; 8 entries.

3 jars extracted dark honey, G. Fittler; 4 entries.

6 1lb. sections of honey in comb, J. B. Blencowe; 4 entries.

3lb. Beeswax, G. Fittler; 4 entries.

Collection of apiarian products, J. B. Blencowe; 2 entries.

Queen and bees in a single comb observatory hive, J. L. Mitchell, 2nd; 3 entries.

We should here mention there is an excellent general secretary (Mr. Allingham) and committee, whose attention to the general public, as well as exhibitors, seemed to give universal satisfaction.

Some week or so after writing the above we were in a store which had bought some of our honey for sale again. On enquiry we were told the honey was going off steadily. We asked why they did not put the honey so prominently forward as treacle? The reply was they got as much profit from selling 2lbs. of treacle for 7d. as 2lbs. of honey for 9d.! Is this something to think over?

GOOD QUEENS.

The larger part of the writings on this matter would have us believe that the bees enlarged a worker cell containing a larva of the right age for queen-rearing, and constructed a queen-cell over it. But a close observation during the past thirty years compels me to say that bees never do this, when swarming or supersedure are conducted under a normal condition. Well, if they do not do it in this way, how is it done? Always by starting the cell-cup along the edges of the combs, at the bottom or sides, or more frequently in or about some hole or depression of the combs. These cell-cups are made quite heavy at the base by using wax and propolis, and not infrequently by collection of debris from about the hive, till the completed cell is so strong that it will tear the comb apart rather than yield itself to the pressure brought to bear in removing it from its place. Such are very different from queen-cells built over larva, as is the case where the apiarist removes a queen to cause the bees to construct queen-cells, and have much to do with rearing first-class queens. How? Principally in that they are larger and more roomy, especially at the base. Into these cell-cups the queen deposits an egg, whether the case is supersedure or for swarming, and upon the hatching of this egg the larva is surrouded with chyle or royal jelly, so that it spreads out all it in a crescent form, the larva lying in the centre. As the larva grows the cell is lengthened, and more food supplied, till, upon sealing over, the cell is nearly half full of royal jelly, and that in shape where the larva can reach its food easily during all the time it is spinning its cocoon, and till it ceases to eat more, when passing into the pupal form. If we examine one of these cells immediately upon the queen's emerging, we will find a lump of royal jelly nearly or quite as large as a pea, remaining in the bottom of the cell, and that in the shape of a crescent, showing that the queen was not cramped at all when eating her last meal as a larva. Now, look at the base of a queen-cell built over a worker cell or from a strip of worker comb, having the cells cut down, and every other larva killed with the brimstone end of a match, or from strips of drone comb, as many recommended, and see how the clumsy larva, half larva and half pupa so to speak, has to cramp itself to get those last meals, or go without; which last meals are the finishing touches, which go to make the difference between the really good queen and the only fairly good. And the cell-cups having the worker base, which are made artificially, have the same objection.—G. M. Doolittle, in *American Beekeeper.*

COMB HONEY.

There is not much comb honey produced in Australia, nevertheless the following instructions, by G. W. York in *American Bee Journal*, may be read with interest:—

SHIPPING COMB HONEY.

In the shipment of comb honey great care must be used in its preparation to withstand the necessary handling in transit. Judging from personal experience, and also from somewhat extensive observation in the Chicago market, the only safe way in which to put up comb honey to stand shipping successfully is, first to put it into non-drip cases, having a follower board at the back of the sections, with newspaper wadded up and crowded in back of the follower.

After that, the cases of honey should be placed firmly in a large crate whose upper side-pieces extend out and beyond each end of the crate about six inches, to be used as handles for carrying between two men. In the bottom of the crate should be put a bed of straw or hay, to act as a cushion under the honey-cases. Then, when putting the cases in, they should be so placed that the glass side of each shows through the crate. This will be an aid to the freight handlers, revealing the contents, and thus suggesting care in moving the crates.

It is not a bad thing to put hay or straw on top of the cases before nailing the top slats on the crate, so that should it accidently be turned upside down, the honey would not be injured.

But in addition to all the above care in packing comb honey for shipping, it is also well to mark or tack on this precautionary notice, in large letters, COMB HONEY—HANDLE WITH CARE.

If comb honey is prepared for shipment as above directed, precious little of it will suffer any when shipped, no matter what the distance, nor how often it may be transferred from one railroad to another.

CAR-LOAD SHIPMENTS OF COMB HONEY.

For car-load shipments of comb honey no crates are necessary. Simply see to it that the cases are placed solidly in the car, in such a way that the combs are parallel with the railroad track. This is necessary in order to avoid breaking down of combs from the sudden starting or stopping of the cars. The bumping of freight-cars is simply an awful thing, hence every case of honey must be securely fastened. It will do no harm to put a light bed of straw or hay on the floor of the car before putting in the cases of honey. Even if not really necessary as a cushion, it would serve to keep the bottoms of the first row of cases clean.

? | Questions | ?

313.—How would you distinguish an amateur from a professional beekeeper?

314.—What is the largest number of hives could be kept profitably in the one place?

315.—In rendering wax, what makes it light or dark?

J. THOMPSON.

313.—Any man who sells the honey he raises is not an amateur. If he has only two hives and sells his honey he is not an amateur.

314.—Not more than 70 or 80 in the best place.

315.—Vinegar or acid in the water. Plenty of time to cool, makes it light.

F. W. PENBERTHY.

311.—I should suggest a notice board and visitors book for members to he hung at, say, Anthony Hordern's Bee Supply department, or any other central place, so as to enable a member to find another to talk matters over, of course he would state where he was staying and how long he would be in town. The notice board for time and place of meetings; of course a good deal will have to be done by correspondence.

W. S. & H. J. WILSON.

313.—A professional beekeeper is one who having made a study of beekeeping, and having had considerable practical experience, makes his living at the business. An amateur is one who does not keep bees for a living, but merely as a hobby and may or may not know anything of their management.

314—Depends entirely on the place and demand for the produce.

315.—A few drops of sulphuric acid in the wax while rendering will make it light in colour.

W. L. DAVEY.

313.—Not by the number of hives so much as by the management. An amateur generally runs about three hives of bees, and endeavours to make everybody a beekeeper. When he has 150 colonies and depends on them for his living he alters his tune and wants a payable price, not more competition; there's millions of tons of honey going to waste annually whilst he runs three hives, but the vision changes when his bees number millions, they cannot find hundred-weights at times let alone tons, "he's an expert then", with a little common sense. An amateur beekeeper, generally speaking, is one who does not depend on bees for any financial support, but some large beekeepers are bigger fools, in not caring for the welfare of their industry, than any one-hive amateur ever could be.

A. A. ROBERTS.

313. I should term an amateur one who keeps a few bees as a hobby, and sells what honey he can to clear expenses. The professional, or what I should term a professional, is one who keeps bees for his living, or part of his living, or for what he can make out of them.

314. This is a very open question, as it would depend on circumstances. 1st, the amount of timbered country your bees would have to work on. 2nd, On the honey producing qualities of the timber, and, again, is the honey flow a regular one? I should say if you have unlimited timbered country, with good honey yielding timber and regular flows, 500 would be quite enough, and not too many.

315. I think the timber has a lot to do with the colour of the wax. Some localities always give white wax, and others nice yellow. Brackish water will make it light, and dirty vessels will make it dark.

ELLIOTT J. RIEN, M H A.C.

313.—Worcester says, "an amateur—one versed in, or a lover of, any particular pursuit, art, or science, but not engaged in it professionally—which I think is correct enough, but where does the professional beekeeper step in. I think the line should be drawn at a certain number of hives and against any one not depending on bees for a living combined with kindred pursuits, *e.g.* a civil servant may have 50 hives and draw a salary at same time, he should be classed an amateur. Again an amateur should not rate on a level with those beekeepers, who work for a living in our bee associations.

314.—Depends on locality, some places could not support 20 hives, others 500 or more.

315.—The colour of wax naturally depends on the age of combs, and also whether bees have worked up old wax in their new comb as they often do or for what purpose it had been used, storing honey, pollen, or brood rearing. To get it lighter, if dark, it must be washed well and bleached in the sun, it cannot be made lighter by rendering alone. To make it darker, carelessness is the main thing, put plenty of refuse in, let it burn on sides, use a zinc, galvanized iron, or ordinary iron pot. If you want light, bright coloured wax, use clean tin vessels in all your work with wax, be clean, plenty of clean water, and do not let it burn.

QUESTIONS NEXT MONTH.

BENJAMIN BUCK.

316.—Italian queen mated with drone, wil her drones be pure Italian?

J. Y., Whitelaw, Gippsland:—We are having an average season. The weather should stand up for a month yet at least.

Mr. J. L. Schomberg recently shewed us some very nice preserved fruit—preserved in honey, without any common sugar whatever. The fruit is well boiled first, and then boiled with the honey afterwards. There were peaches, tomatoes, and several other kinds. He says his honey vinegar, of which he shewed us an excellent sample, takes two years to mature. There is a small borer insect generates in the vinegar, that bores its way through the wood of the cask. He stops the holes up with thin plugs of wood.

Bee-Farmers' Association N. S. W.

BEEKEEPERS in Sydney during the forthcoming Easter Holidays will please leave their names and addresses either at the Farmers Co-operative Co., Ltd., corner of Sussex and Liverpool Streets, or Mr. Allen, 242 Sussex St., Sydney, in order for arrangements for meeting.

E. TIPPER,
Sec. pro tem.

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R. BEUHNE,
TOOBORAC.

VICTORIAN APIARISTS' ASSOCIATION.

ANNUAL CONFERENCE, May 1901.

I BEG to draw the attention of all parties interested, to the fact that we are rapidly approaching the end of the first year of our existence as an association.

During the year we have not made any great splash, but have been content to work quietly and determinedly.

We had hoped during the past period to have merely grown into a strong Association, believing that the beemen of Victoria would join an Association run by the beekeepers themselves. In this hope we have so far not been dissappointed, the support has been forthcoming that has more than reached our best anticipations, but we have been able to more than grow, as our influence and power has caused a decided check on the work of those who would ruin the industry.

Instead of the noisy clamour of the belated enthusiasts, (with veiled hints of Government lectures and model apiary,) there is now comparative silence. As we grow so they must decline.

We have not only held our own but have been able to gain ground, for instance 'the Beekeepers Right on Crown Lands" was the suggestion of our president, Mr. T. Bolton; this right will enable a beekeeper to rent one acre of ground annually, for a bee-farm on Crown Lands. Other work has been done which I need not enumerate. You are asked to join us because this is a purely Beekeepers Association, and is working solely for the honey industry and those engaged therein.

Do not forget the Convention during the second week in May, full particulars by circular next month.

W. L. DAVEY,
SECRETARY.

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E. TIPPER,
"A. BEE BULLETIN."

BI-SULPHITE OF CARBON.

In order to find out just how dangerous it was I experimented with it by putting small quantities in a dish, and using a lighted match on the end of a long stick. Before the flame touched the liquid itself there would be an explosion every time. Section honey which was exposed to the fumes of it long enough to have moth-worms killed seems to become thinner, or gather and hold some of this damp fume. In some cases the combs, soon after treatment, would sweat the same as honey that has been kept in a damp cool place will. It also injured the flavour.

This first supply having been used up, last season I purchased more, which seems considerably different from what I had at first. This first supply I got was kept by the druggist in a large tin can, which would hold a number of gallons. All he had last season was in small tin cans which held only a pound, and it was much more expensive than that which he formerly had. The bisulphide in these small cans, costing 40 cents. apiece, though it was nearly if not fully as effective in destroying moth-worms as the first was, the fumes from it do not seem so powerful, neither could I get any to explode. A lighted match dropped into a small quantity would not cause an explosion, though it would set the liquid on fire, which would burn somewhat slowly until all consumed, and it does not appear to injure comb honey as the first did, though my experiments with it in this respect have not been thorough enough so I can say positively that it will not. I would not dispense with its use as a means of destroying moth-worms and eggs in brood combs, even if it cost three or four dollars a pound ; but in order to make its use effective it is necessary that the combs to be treated should be put in a barrel, box, or something of the kind that can be closed up perfectly tight ; and instead of sprinkling a small amount of the bisulphide on the inside of whatever is used, quite a quantity of it must be placed inside in an open dish. I use a small glass tumbler. The amount to use does not matter so there is enough ; for any that does not evaporate can be poured back in the can for future use, as, no matter how long a quantity of it may have been exposed to the air, any of it which has not evaporated is just as strong as it was before being exposed. It is like chloroform in this respect. The latter I have also used, and found to be effective in destroying worms in brood-combs. But it has no effect on the eggs, and utterly ruins the flavour of comb honey, giving it a strong rank taste. It is much more expensive for this purpose than the bi-sulphide, and the combs have to be subjected to its fumes for a much longer time. When using bisulphide, the length of time necessary to expose the combs to its fumes depends upon how tight the box or whatever is used to treat them in can be closed, and its size—no matter, though, how long brood combs are exposed to these fumes, it does not injure them in the least ; but as a matter of economy merely, one would not desire to treat them for a longer length of time than is necessary, and this is an easy matter to tell ; for if, upon lifting out one of the combs, and one dead worm is found, they are all dead, for this stuff shows no favor, but kills all, big or little, alike, and at the same, or very nearly the same time. It is entirely different in this respect from the fumes of sulphur, for with sulphur, as those who have used it have probably noticed, the small worms are killed in much less time than the larger ones ; and if, as my experiments last summer lead me to believe, there is one grade or kind of bisulphide that will not injure section honey, it will be a great boon to bee-keepers in localities where moth-worms are as troublesome as they are here, for, except when they are quite small, it is impossible to kill them in comb honey with the fumes of sulphur unless the combs are treated long enough to become discoloured, which, in the case of section honey, may injure or prevent its sale al-

together; and after worms reach a certain size, say one inch in length, it is impossible to kill them at all with sulphur unless the combs they are in are treated so long that they become fairly green in colour. But for some reason moth-worms develop much more rapidly in brood-combs than they do in section honey. On this account it is not so difficult a matter to keep the latter free of them by the use of sulphur, provided they are treated in time, and often enough so the worms do not reach much size; for when the worms are very small they can be killed by the fumes of sulphur without discolouring the combs in the least; but sulphur has no effect on the moth-eggs, and the great advantage of bisulphide to treat brood-combs is that it kills the eggs also, so only one treatment is necessary if the combs are afterward put where the moth-miller does not have access to them.—*C. Davenport in Gleanings.*

CURE FOR FOUL BROOD.

H. W. PRICE, IN *Beekeepers' Record.*

First, the materials available may be divided into three classes: (1) germicides, *i.e.*, substances capable of destroying bacilli and spores; (2) antiseptics, in shape of disinfectants which prevent the development of germs; and (3) deodorants, which in some cases arrest putrefaction and destroy foul smells. I may say that, in my view, when dealing with *B. alvei* deodorants may be struck out as practically useless, seeing that to cover up a smell with a counter irritant (pleasant or otherwise), gives no permanently beneficial result. It simply hides for a time that which still exists, and so soon as the deodorant has exhausted its power the condition of affairs remain much as before. I therefore maintain that, as already said, heat is the most powerful of all remedies. A temperature of 300 deg. to 350 deg. Fahr. destroys all bacterial life, and also spores, in from two to three hours, while if applied for twenty minutes on three successive days all life or possibility of future germination is completely destroyed even at a temperature of 220 deg. Fahr. Such authorities as Downes and Blunt have also drawn attention to the destructive effect of light on bacteria and no doubt this marvellous natural agent plays an important part in the direction indicated, in addition to its health giving properties. Light and air are unquestionably effective germicides and disinfectants, but I doubt their value so far as destroying spores, save when the same are exposed for a long period to their action. The statement that "thirty six hours exposure to light and air will destroy spores" is mere nonsense.

SENDING EGGS BY MAIL.

"SWARTHMORE" IN *American Beekeeper.*

I have in my yard a large number of fine, young, mated queens, reared from eggs sent to me by post from all over the country.

Early in the season I began writing cards to all the distant queen-breeders throughout the land, about as follows, viz: "What will you charge me for four square inches of fresh-laid eggs in dry comb, from your finest breeding queen, packed in box and sent by mail—no bees?" Prices ranged from 25c. per square inch down to 25c. per four square inches. I am not prepared to state just now what I should consider a fair rate to pay for "Eggs by Mail."

I at once began to recive batches of eggs from all over—worker and drone—and in a very few weeks I had as good as all the finest breeding queens in the country in my own yard to breed from, and to criss-cross as I saw fit—a great advantage to any apiarist who is in for improving the general standard of bees.

Every piece of comb sent arrived in good condition with but few eggs dislodged. From each piece I secured from eighteen to thirty fine cells, and out of the entire lot only half a dozen were lost in mating and introduction. All the young queens were as strong and vigorous as any I ever reared.

BOTTLING HONEY.

W. S. POUDER, IN *Gleanings.*

A speedy method of bottling honey that can be practiced by any beekeeper, without the aid of steam pipes or expensive appliances, is what readers demand, I believe. May be if I had a tank equipped with a steam-coil I would heat honey for bottling on this plan; but I am not so fortunately equipped, and I think many of us are no better off. I prefer to do my bottling with cold honey early in the fall, before graulation starts, thus requiring but one heating just before the labels are put on. The corks can be inserted and the filled jars stored away, and what better storage vessels can one wish for? This can all be done at odd times without interfering with other work. If I heated my honey and then filled the jars with hot honey, the work would have to be done hurriedly; if finished up they might not look as fresh and clean as those that have just had a hot bath and a clean new label. This cleaning up and labeling can be done just before the goods are delivered, so that no part of the work need be done in a rush. A number of years ago I laid aside the use of thermometers in connection with melting granulated honey. I have seen the water boil, which must have been at a temperature of 212, and the honey in the jars would indicate a much lower temperature. To be sure, it would not do to permit the water to boil any length of time, and it is a great mistake to allow the water to come to the boiling point at any time. With a little experience one can tell when the jare are sufficiently heated by occasionally lifting out a jar.

I have often been asked how to simplify the insertion of corks. I take a pail containing water to the depth of half an inch, and fill the pail with corks and place on a lid. Let the water boil a few minutes, and they are ready for use. Do not use the ones that are water-soaked, but use the steamed ones. You will find them soft and pliable, and none will break. The water-soaked ones can be used at another time.

I have experimented with different waxes and combination of waxes, but have found nothing that suits me as well as parrafine and beeswax, about half and half. Half a teaspoonful on each cork immediately after removing from the hot bath, does the work neatly, and a side label and a tinfoil cap make them ready for delivery. It is difficult to learn how to put on the foil cap neatly, but a little practice is all that is required. I use a ½-inch strap, which is securely fastened to the table; wind it around the neck of the jar, with the strap in my left hand and jar in right hand; pull snugly on the strap, and this will smooth down the edges of the foil beautifully.

CHEMISTRY.

DR. MASON, IN *A. Bee Journal.*

Chemistry has made enormous strides during recent years, but so far only chemical compounds of comparative simplicity have been the result, and not in any case has any complex product such as is used for man's food, been obtained. The value of food substances, and above all their price, generally stands in no relation to their composition. Composition, as ascertained by chemical analysis goes for very little; *quality*, which is dependent upon circumstances beyond the present knowledge of the chemist, goes for a great deal. For instance, a pound of tea has chemically no more value than a pound of plum or willow leaves, but who would pay the price for these that tea is really worth? Wine consists of dilute alcohol, slightly acid, and more or less coloured, but chemistry has failed to produce from these ingredients anything resembling the high-class wines which command such enormous prices. Sawdust is chemically the same, both qualitatively and quantitatively, as corn flour, but one would not care to have the former substituted for the latter at the same price. We would resent our butcher giving us leather instead of meat

although the composition of these is chemically almost identical. I might extend this comparison indefinitely, for it is the same with almost every article of food or luxury. The difference between good and bad tea, or wine, or meat, is so small that the most careful analysis fails to detect it. The value, therefore, is not a question of the composition of the article, but is regulated by the presence or absence of minute quantities of flavouring-matters about which we know very little or nothing at all.

We prize honey not because it consists, as the chemist would say, of sugar and water, but because it possesses a delicate aroma and flavour which is always absent from, and can not by any known means at present be imparted to, any artificially made syrup. Glucose, and even cane-sugar that has been given to bees to store in the combs, are totally devoid of the aroma of honey, so that when these are substituted for honey, the fraud can be easily detected.

The taste of the public has not yet been sufficiently educated, and any syrup is eaten as honey provided it looks transparent, and is contained in a neat jar and has a gaudy label. When the taste is as well educated for honey as it is for tea, meat or other articles of every day consumption, no one would venture to palm off artificial syrup for real honey.

It is difficult to decide whether the food-value of the substitute is as good as that of the original article. Sugar in any form produces the same proportion of heat. Oleomargarine, when burnt or digested, produces the same amount of heat as butter. Yet butter holds its own against its substitutes on account of its delicacy of flavour and more ready digestibility. And we have reason for believing that a similar difference exists between honey and glucose. We know that bees refuse, as long as they are able to feed upon glucose, and when driven by starvation to take it they soon die. The probably reason for its deleterious effect is that levulose, one of the constituents of honey, is absent, and that the glucose of commerce contains impurities. At any rate any chemist caring for his reputation would pause before giving a definite opinion as to the relative food-values of the two products.

Moreover, we know that dextrose is the sugar found in the urine in cases of diabetes, often to the extent of 8 to 10 per cent, and also that levulose is a purgative, which probably counteracts any evil influence dextrose may have if taken alone. Thus we have very good grounds for considering glucose deleterious, while the combination of dextrose and levulose in the form of honey as a healthy food. Experience has shown that honey can frequently be eaten by those who can not take sugar. The reason is, that when cane-sugar is taken, before it can be assimilated it has to be transformed into the two sugars that compose honey. Should the digestion be faulty, and the transformation not be complete, some of the cane-sugar enters the circulation and acts as a poison in the blood. Honey is already cane-sugar perfectly transformed and is therefore ready to be assimilated without any previous digestion. For this reason pure honey is to be recommended for children and persons of weak digestion.

BEES IN A CHURCH VESTRY.

In the course of some building operations which are going forward for the extension of Christ Church, at Clacton-on-Sea, the workmen have found that a large swarm of bees had settled down and formed a hive in the rafters of the vestry. If the bees must be regarded as intruders there it should be reckoned to their credit that they have left a handsome rent behind them in the shape of a copious supply of honey. They seemed to have shown judgment and self-restraint in thus taking up their abode in the precincts of the sacred edifice, and not within its confines. Bees buzzing about the head of a preacher, or settling on the artificial

flowers in the hats and toques of the fair worshippers, might have made themselves objectionable. In the vestry it was a different matter. They enjoyed so to speak, sanctuary in the structure, with nothing worse likely to happen than a momentary annoyance for the sexton and the clerk, or a scream from the bride when she entered to sign her name after the marriage service. As for the bees themselves, they will settle anywhere without asking questions. They must have shelter, a dry place, water near at hand, and a hole to go out and come in by. These preliminaries secured, they will enter into possession, either in the hollow of a tree or on an African bamboo set horizontally, or an empty drum, or a regular hive, or, as in this case, a snug corner in the roof of a parish church. Whichever they take up with they first of all make scrupulously clean, then they fly away to gather propolis—the strange stuff wherewith they seal up cracks and flaws, and cover over anything inconvenient. For example, if in a new hive the bees discover that a snail has entered, too big to carry away and too serious to leave alone, they sting him to death and then encrust him in a case of propolis as effective as a sarcophagus.—*Daily Telegraph.*

THE LATEST IN CELL-CUPS.

AN ADVANCE IN THE CONSTRUCTION OF ARTIFICIAL CUPS—SUGGESTED BY THE ORIGINAL INVENTOR.

American Beekeeper.

Mr. W. H. Pridgen, of North Carolina, was the first man to introduce wholesale methods of manufacturing and using Doolittle cell-cups in queen-rearing. His cups were dipped in gangs of eighteen, by use of a device similar to a hay rake—the teeth serving as dipping sticks. By the use of a wax bar having eighteen three-eighths holes bored nearly through, these cups were supported at fixed distances apart. The distance corresponded with the openings in a line of nursery cages; so that when the cells were completed the bar of cells was placed over the cages, and the cells lowered into the respective openings. By this device the queens each found themselves in separate compartments when they emerged from the cell. If, however, there chanced to be a cell-cup not accepted by the bees there was an empty cage.

Mr. Doolittle conceived the idea that, by thoroughly waxing the inside of the holes in the Pridgen cup-bar, the work of cup-dipping could be dispensed with; and accordingly lowered one of the bars into melted wax, allowing the air to escape through the small openings made by the worm of the bit. He then inserted the royal jelly and transferred the larvæ, as per his method set forth in Scientific Queen-rearing. The result was, not a larva was accepted, but the bees had thrown up a slight ridge around each hole, giving it more of the appearance of a real cup than formerly. To his experienced mind this "ridge" bore a significance which suggested another trial. Accordingly the same cups were regrafted; and every one was accepted and completed; fine queens being secured from each of the eighteen cups. As a result of this experiment Mr. Doolittle now gives the following directions: "Dip your sticks in wax, give one, five, ten or twenty to any colony for 48 hours, and you have your cell-cups all right. Now, start with royal jelly and larvæ, and when ripe use a nursery as does Mr. Pridgen, and you have the thing with very little fussing."

THE SAGACITY OF LARVÆ OF WAXMOTH.

PROFESSOR HAMLYN-HARRIS.

Some time ago I had collected three larvæ of the above species from my experimental apiary for microsocopical examination, and had put them into a cardboard box in order to rear pupæ; I also gave them a small piece of artificial comb to feed on. However, two of them spun their threads directly underneath the comb, whilst the third was thereby entirely

shut off from the store of food, and directly the larvæ approached the other two she was instantly driven away. This continued until the first two sallied forth to pupate elsewhere.

It may be a subject worthy of note to record that I did all I could to coax this unbefriended grub to throw in her lot with the others, but everything was of no avail, until ultimately she took possession of the empty passages and devoured the remaining portions of food, by which time one of the others had actually pupated. What was my suprise on examining the box a day or two after to find that the larvæ had torn open the puparium and turned the chrysalis out of its resting-place—thus making room and opportunity for herself to undergo that same period of rest.

The conclusion I have come to as an explanation of this proceeding—the whole of which lasted no more than a week—is that the larvæ, through some means or other, was prevented from spinning quantities of threads, and that she had therefore learnt by natural instinct how to overcame that difficulty; or could it be a spirit of revenge had seized hold of her—revenge at being excluded from the liberal board? How was it she knew her strength and ability directly her foe lay helpless, having undergone that process for which end she herself was straining every nerve to bring about a like change? And did she not know that she would thus be secure and unmolested until the time should come for her to enter into that much-longed-for bliss of the imago state?

Naturally all my sympathies are with the first view being the most likely, the more so as we know cases—such, for instance, as recorded by the then Sir John Lubbock—of spiders unable to spin more than a certain number of webs; and even if the glands and the organs directly in relationship thereto were in no way injured, is not this possible, especially as throughout the whole proceedings this larva showed herself incapable of spinning? I think, also, that we may read in this interesting case the way adopted by Nature, through natural instinct, teaching the feeble to help themselves, suggesting to the helpless a way of self-preservation for the perpetuation of its species.—*The Entomologists' Record and Journal of Variation*, Vol. XII., No. 9, 1900.

CONFINING BEES FOR CELL-BUILDING.

W. H. PRIDGEN, IN *American Beekeeper*.

Immediate acceptance is essential to the production of first-class queens: as a larva once neglected is slower in development, and never results in such. Realizing this fact, like many others, the writer had to adopt some plan of overcoming reluctance on the part of the bees in receiving promptly the larvæ given, and first gave them to bees made broodless and queenless, by taking away the queen, and a day or two later the brood as recommended by others. This proved to be too slow, and finally the brood and queen were both taken away at once, with the result that the bees had to be confined to prevent desertion, by placing a screen at the entrance of the hive, that turned all in and none out. Three or four hours later prepared cups were given and all were promptly accepted.

Inasmuch as confined bees would accept the cups, all that was necessary was to shake the bees from several combs of a normal colony into a hive containing combs of honey and pollen and provided with a wire-screen bottom as a ventilator, was the manner of reasoning which was put into practice with satisfactory results as to the acceptance and shaping up of the cups, but was rather fussy and slow, in that the queen had to be found to avoid shaking her off into the hive with the cell-starters and the bees had to be shaken or brushed from the combs into their hive after the cups were worked on a few hours and given to other bees to be completed. The next step was to use the cell-builders over an excluder, after all of the brood in the upper story was sealed, by simply placing the upper story

on a stand with wire-cloth bottom and shaking the bees from a few of the combs to cause the excitement that follows rough handling, in search of the queen, and found that such bees would accept almost any number of cups in from four to six hours, and could be placed back over the excluder to complete them. Now a colony is kept for this part of the work with two stories above the excluder, with a laying queen below; and while the combs from which all the brood has hatched, are replaced with others containing brood, from time to time, both stories never contain unsealed brood at any one time, and the one is placed on the ventilator that contains none. When this is done, a comb containg water, is given; as many spaces between the combs provided as batches of cups are to be given; the bees shaken from some of the combs in the hive left above the excluder into the one of cell-starters and the latter securely covered to prevent the escape of the bees.

Do this early in the day; four to six hours later give the prepared cups and just before night the cups can be given to any bees prepared for cell-building, and the queenless bees placed back over the excluder by simply handling the hive. The plan here given has been in practice for two seasons with satisfactory results.

Of course, some of the bees escape when the hive is opened to insert the cups, but this has not proven to be a serious matter, as with the arrangement given, they are attempting at the time to escape at the bottom, and by having a cloth between the frames and the cover, it can be gently rolled back and the bees slightly smoked down until the spaces are reached.

NOTICE.

MR. R. BEUHNE, Tooborac, is appointed Agent for Victoria for the AUSTRALIAN BEE BULLETIN, and is authorised to receive subscriptions and advertisements for same.

E. TIPPER.

CAPPINGS.

From American and other Bee Journals.

J. O. Grimsley in *American Beekeeper*: Taken as a rule I will assert that fifty per cent. of the queens reared by beginners—on the ae-queening plan—are inferior in some respects; many being almost worthless, while, as a rule, the professional queen breeder can supply him with queens, ninety per cent of which will be first-class.

The American Beekeeper gives a plan of separate cells as follows: The plan consists of having a number of hard wood blocks one-half inch square, through each of which is bored a three-eighth hole, and inserting in each hole a light waxen cup. The whole lot of these blocks is locked upon a flat surface, after the manner in which a printer locks his formes, and are given to the bees by the same method, as illustrated and described elsewhere, above the frames. When the quoins, or wedges are released the cells are free to be handled separately. We have used quite a large number of this style of cups and cells during the past two months, and have yet to have the first one destroyed by bees. But little wax is necessary in their construction, as the block gives practically an indestructible base.

As the hearse containing the body of James Bracken, formerly of New Albany, was driven into the Rural Cemetery, near Bradford, Harrison County, Ind., one of the horses attached to it trod one a huge nest of bumble bees. For a few minutes there was a lively scene. The angry bees swarmed from the nest and attacked everything and everybody in sight. They stung the driver of the hearse until he was blinded and fled; they attacked the pall-bearers around the vehicle and drove them away; the widow and mourners in the carriage following were victims of the insects' activity; the attending minister was stung by two of the bees, and many of the attending friends were promptly driven from the enclosure. The horses

attached to the hearse were the first to feel the vengeance of the bees, and were stung so badly that they ran away, but were caught just as the hearse and coffin were about to be overturned. After a vigorous fight that lasted a half hour the bees were driven away, the coffin taken from the hearse, and the body laid to rest.—*North American.*

I want to introduce a new queen (the old one being removed intentionally, or in the ordinary course). I make the colony gorge, then lifting the frames one by one, I shake all the bees on to the floor-board, and, with a feather, for a minute or so I gently "hustle" them about, brushing them down as they crawl up the side of the hive. I then pop the new queen down among the bees, replace the frames and close the hive. In following out this plan, I have never had a failure. Incoming bees, besides being gorged, seem taken aback on arrival and fall in with the new arrangement.—F. W., *Haywoods Heath, Beekeepers Record.*

Our practice now is to use tobacco smoke only during fair time, for, unfortunately, our fair grounds are within an eighth of a mile of our apiary; and during that time the stands are making taffee, selling watermelons, lemonade, and the like, our bees would prove to be a great nuisance unless we went around to all the hives and gave a smudging of tobacco smoke. This is done in the morning, about 8 o'clock, and another dose is given about 1 o'clock. Half a dozen puffs of smoke are blown in at the entrances, all over the apiary. If the colonies *are all* stupefied there will be no danger from robbing. This smudging keeps the bees at home. But care should be exercised, as there is danger of overdoing it, and also danger of not doing *enough* of it; for if they have once got a taste of the sweets over at the fairground it takes a great deal of stupefying to keep them at home.—*Gleanings.*

Somewhere in the neighbourhood of Basingstoke, England, a wood-dealer occupies a field adjoining the garden of the local postmaster, who keeps bees. Part of it he mows, and past is grazed by an "old Mare"—that is to say, he designed to mow it, and he turned out his old mare to graze, but the ferocity of the postmaster's bees ruined either project. When the labourers entered with their scythes the flying squadrons of the enemy assailed them in such force that they hastily withdrew, and the poor mare, unable to withdraw, perished in the field. So the wood-dealer applead to Basingstoke County Court, claiming damages, first, for his murdered steed; second for the loss of hay; third, for extra labour, in-as-much as he was obliged to move his rick; fourth for his personal sufferings. And the judge decided in his favour for the whole amount, saying that "a person keeps bees at his own risk, and if they do damage he is liable." The English beekeepers are raising a fund to contest the case.—*English Paper.*

I have an extracting house 15x8x6 feet on iron truck wheels 28 and 32 inches high. It has a door behind, two single sash windows at opposite sides, and one in front, all provided with removable sash and wire screen with bee escapes; round roof, railroad car fashion; floor of fencing dressed and matched on foundation like a hay-rack, only more crosspieces; side and roof frame 2x2 inches, and ½ inch boards 6 or 8 inches wide. It is lined all around inside with sheeting, to close all cracks. The roof is double with building paper between. The whole thing ready to work with driver in, weighs 3,300 pounds. I haul it as near to the apiary as possible. I have for the horses a pair of covers extending all over the head and nose, and also a rope of 100 feet long with hooks at both ends to pull away a distance, if bees are very bad. We have done one extracting, and are much pleased with it. —A. Mittey in *American Bee Journal.*

Get Sample Labels from the *Bee Bulletin* Printing Works.

A New Way of Introducing Queens.—C. P. Bonney writes in *Gleanings* :—I now use a large Miller introducing-cage, ¼ inch thick, and with a bee chamber four inches square. I go to the colony to be dequeened, find the old mother, and remove her. By the aid of a brush I scoop several dozen bees into the before mentioned cage. When enough have entered the cage, or when it is comfortably full without being crowded, I put in the stopper *and set the cage away for half an hour*, then take the queen from the shipping cage, and place her in the introducing cage, and she will be kindly received. After the bees have had time to become well acquainted with the queen, say two hours, place the cage in the hive, and the queen is safe.

Bees in Warfare.—History records two instances, in which bees have been used in warfare as weapons against besieging forces. The first is related by Appian of the siege of Themiscyra, in Pontus, by Lucullus in his war against Mithridates. Turrets were brought up, mounds were built, and huge mines were made by the Romans. The people of Themiscyra dug open these mines above, and through the holes cast down upon the workmen, bears, and other wild animals, and hives or swarms of bees. The second instance is recorded in an Irish manuscript in the Bibleothique Royale at Brussels, and tells how the Danes and Norwegians attacked Chester, which were defended by the Saxons and some Gallic auxiliaries. The Danes were worsted by a stratagem; but the Norwegians, sheltered by hurdles, tried to pierce the walls of the town—when, "what the Saxons and the Gaedhil, who were among them, did was to throw down large rocks, by which they broke down the hurdles over their heads. What the others did to check this was to place large posts under the hurdles." What the Saxons did next was to put all the beer and water of the town into the caldrons of the town, to boil them and spill them down upon those who were under the hurdles, so that their skins were peeled off. The remedy which the Locheans applied to this was to place hides outside on the hurdles. What the Saxons did next was to throw down all the beehives in the town upon the besiegers, which prevented them from moving their hands or legs from the number of bees which stung them. They afterwards desisted and left the city.—*Exchange.*

I have a small colony in an observatory hive, which swarmed out, except the queen, which was kept in by an entrance guard, and they took every drop of honey with them. Certainly none was visible in the comb they had deserted. In a few hours after they had returned and become quiet there was more honey in the combs than I thought possible for so few bees to carry.—F. G. Anderson, in *Gleanings.*

It sometimes happens in the spring there is nice weather for flight of bees, but there is nothing from which they can gather nectar or pollen. At such times it is the practice of some beekeepers to feed some substitute for pollen. Bees will work eagerly upon such substitute so long as no natural pollen is to be had, but when the genuine article is to be had the substitute will be utterly neglected. Prof. Gillette made experiments to see what substitute was preferred by the bees, putting out a number of articles at the same time. As nearly as could be determined, their preference was in the following order: Ground whole kernels of oats, corn and wheat, wheat bran ground over so as to be fine, waste dust and chaff as taken from cleaners at flouring mill, cottonseed meal, wheat bran, pea meal, wheat flour, rye flour, bean meal, barley meal. They would hardly touch the last three so long as they could get the others.—*Canadian Bee Journal.*

We have had frogs here in countless numbers for the last year, and thicker than that when they can get at bees. I at first began to notice that the bees in

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some of my hives that I was building up were not increasing as they should, and couldn't see anything the matter with them. One night, going out among them with a lantern I readily discovered where my bees were going. The alighting-board had a row of frogs all the way across the hive, and every bee that came near the entrance committed suicide. When a frog got all it wanted it jumped off, and another was soon in its place. This disturbance made the bees come out to see what the matter was, only to feed frogs. All the hives were not so bad as this, but they each had one or more frogs at work all the time. Well, I studied how to fix them, for quite awhile, and finally decided the only way was to fence them out. I made a fence four feet high out of an old sail, which works finely for a temporary fence. I think the frogs could jump over it if they tried. They can jump a long way on the ground. I think a fence made out of common lath, ¼ inch apart, would be the best thing.—N. O. Penny, in Gleanings.

CORRESPONDENCE.

R. S., Murrurundi :—My bees are looking well. We had nice rain here last night, about half inch.

A. G. P., Orange Grove :—Bees are beginning to work on white box from I think there will be a good flow.

[With us white box only comes in bloom in July. At present the dry weather is causing the buds to drop off the trees.

W. G. Gympie, Q.—I am sorry to say we have had a very bad season. No honey and a lot of hives died out. All beekeepers I have spoken to in this place have lost from 10 to 50 per cent.

W. N., Eugowra.—During the last fortnight we have had three inches of rain, which has improved matters generally throughout the district. Bees are getting on very well. Intend to do some extracting this week.

J. H. R., Wyee :—I have a very good flow on just at present, which is quite a treat after bad times. It prevents me getting other things straight, however, but that does not matter much.

Mr. Penberthy writes in reply to a question from us, he had trouble in taking the disc or ram off the wax in his press, but overcame it by placing a piece of tin same size as disc between the disc and the wax.

A. C. F., Rose Valley :—I have had the best honey season, so far as I can recollect. Although it has been dry for pasture, etc., it has been a wonderful season for honey. I have taken three cwt. of honey from each colony since November last (on an average). I am sorry to see by the last A. B. B. that you have had a bad season for your bees. Never mind, Mr. Editor, better luck next season I hope.

J. B. T., Wollongong :—I am very pleased to note the stand you have taken against the so called Beekeepers Association and to foist upon us the absurd Foul Brood Act, in the event of such an idiotic production becoming law. I should propose that the Inspectors appointed be required to chop down all bee trees throughout the colony (personally) this would find him a little pleasant exercise and probably do some good to beekeepers generally.

C. U. T. B, Lyndhurst, :—I am just about finishing up extracting for the season. None too prosperous owing to the late honey flow, (and the starving the bees had in the early spring, put them back a lot); owing to having a lot of other work on hand I have not paid the bees the attention they should have had this season. Re ant destroyer I have a large sale for it all over the colonies—have excellent testimonials, and it must be good, as I do not advertise, the only time I advertised it was in the A. B. B. about 3 years ago ; it now advertises itself.

J. M. W, Binalong :—Just a few lines to let you know how we have fared in this locality this season with our bees. Well, on the whole it has been a very good season, my bees averaged a little over two 60lb tins per hive, and the honey is of a very fine quality, and from

inquiries I hear all local beekeepers averaged somewhere about 2 tins per hive. We also have a few bee slayers, that is the gin case man, but their honey crop I know little about. Honey is selling fairly well at 15s. per 60lb tin and any quantity under 20lbs at 4d per lb. Most of our local beekeepers I find a very decent lot as regards keeping up the prices—no cut throat business about them.

W. C., Yackandah, Victoria :—I have had a very poor crop of honey this season, but I am looking for better from now till the end of March. The stringy bark and apple tree are beginning to blossom and they generally last until that time. There is a great difference in the price of honey here, and over your way. I get 15/- per 60lb. tin and 4d per lb. for anything under that weight, and a good local market. I consider the A. B. B. a very valuable paper to beekeepers. I look forward to each issue with the certainty of finding some information of which I am in need.

B. B., Rheola, Vic. :—I am glad to be able to say that we have had a very fair season here. I extracted 19 60lb tins from two of my best hives. The flow cut off short this season only lasted till beginning of February. Have had to give bees artificial pollen to enable them to rear plenty young bees for winter. If I had not done so, it would mean weak hives next spring. I find the A. B. B. a very valuable paper. and have received same very regular. I will get all I can to subscribe to it. Hoping, dear Sir, that Federation will improve the colony and benefit the beekeeper.

R. W., Inglewood, Victoria :—I have only 20 colonies and one 8-frame extractor and one 6-ditto which I designed and made myself. I make all my appliances myself and sell my honey locally. I sold two 60lb tins of honey for a brother beekeeper for 18s. per tin clear, I never sell below 4d lb in small lots and 18s a tin of 60lbs. If people won't pay my price they can go without, but they pay it, for quality will tell, the source is mallee and a bit of box. I get your journal through a friend and find it very useful. I look forward to it every month I think the honey would sell better even if it does if I had nice labels. I don't know how much honey I will get this year as the second part of my honey harvest is coming and it is usually the best.

W. W., Hallam's Road, Victoria :—I have been busy shifting camp, as Kilmore East is now almost denuded of timber (for firewood) being near the station. Every available tree is cut down and all the best for beekeeping go first (the Boxes and Gums), so had to make a shift and decided to come here. It is in the Dandenong District with plenty of Red Gum and Box, Ti-Tree and Pennyroyal in abundance. I have had 50 hives here now five weeks and they are all full and I am extracting from shallow top frames and am well pleased with prospects, as they were all weak and mostly short of stores when I packed them for the journey of 60 miles by rail and one by road. They opened in good order, not a comb broken, though I had no wired combs as I do not extract from bodies. I spaced the combs and drove one nail through each end of frame into the rabbet so that they could swing a little but not move about, and find they carried better than making each frame rigid by packing. I put one half-storey on top filled right full of frames and one underneath with wire cloth on bottom, and nailed two strips on bottom to keep clear of floor, as being the middle of January they wanted plenty of room and ventilation.

T.J.B., Wallabadah, March 21—I am still here, and doing a little with the bees. Just a week after I was down at your place I extracted a few hundred pounds of honey (apple tree) and they filled up the combs again in a short time with white honey, and I hope to extract 3cwt. or 4cwt. of it to-morrow, as the grass I was speaking to you about (wire grass) is now in bloom, and every appearance of a good flow. I can only wonder why none of our beekeeping friends ever mention this grass or the honey it pro-

duces. Now here it only grows in the cultivation paddocks, usually springing up as soon as harvest is over; is a runner and extremely tough, spreading a distance of 1 to 3 feet wide and 4 inches high. It blooms about beginning of March, right on till the frost comes. The honey is very dark and very strong of smell, and is known as wire grass. I will send you a sample of the honey shortly. I have taken note of the time of the wild trees blooming the past two years, which might be interesting to some beekeepers: River gum bloomed about February in 1898, and from about 20th of December, 1900, till middle of January, 1901. White box commenced to bloom first week in April, and 1899 continued till end of November, 1899, and has never bloomed since. Yellow jacket commenced to bloom 1st of October, 1900, and continued till end of November, 1900. Mountain gum bloomed in November, 1900, only for a few days. Apple tree bloomed in end of December in 1899, and part of January, 1900; commenced to bloom Dec. 30th, 1900, and finished end of February, 1901. Creek oak bloomed from 1st February, 1901, till about 14th. These are all the principal bloomers in this district.

N. S. WALES BEE-FARMERS' ASSOCIATION.

W. NIVEN.

With each issue of your valuable paper we must keep things moving re formation of our Bee-Farmers' Association. The date of holding meeting should be given out as soon as possible, to allow ample time to those bee farmers in distant parts of the state to attend. As for myself any time from the 1st of June till the 31st of August would do me.

At our first meeting there are several matters I would like to hear discussed. If they are carried out successfully it would be the means of making bee farming a greater success to the members of our association than at the present. (1st.) A system of advertising. (2nd.) I will show how I obtain a fair price for honey. Also other matters to be considered. I certainly say the stronger our association is the better for every one. But I say this, if we carry on the work as bee farmers should, we can do much good for ourselves. As the officers of our Association will be experienced and practical bee farmers, any one joining the industry it will be to their advantage to have such capable men to guard their interests.

VICTORIA.

VICTORIAN NOTES.

R. BEUHNE.

Wax Production.—New South Wales appears to be a little behind the times, in some things at least. The wax craze which appears to be on there now made its appearance in Victoria as long ago as '95. After some eighty tons of honey exported had been bought up in London as raw material for boot blacking, beekeepers wanted some solace to their injured feelings, and a panacea was readily found in wax production by a Melbourne firm, which came forward at the following convention, with a hive for wax production, and a lecture on the good prospects of a trade in wax, and the possibility of increasing largely the yield of wax in proportion to honey by "repeated drafts on the hive." Quite a number of beekeepers promised to experiment and report, but so far I have not seen or heard of a report. As to the wax hive itself, a friend assured me that it was perfection; it was automatic, for on a hot day the combs would fall to the bottom out of the tall frames without wires, and the bees would sip up the honey and build fresh combs. The Editor of the Australasian Beekeeper has told us some time ago that a swarm will produce ¼ pound of wax from 1lb. of honey. I suppose all that is necessary is to keep the bees always in the swarm

stage. "Dilston," in the same journal, gives the wax resulting from cappings of 11 tins of honey extracted as 50lb. How was that honey comb capped? and how uncapped? I cannot obtain that much from cappings, comb and all put together. This statement wants correcting or explaining. The best wax producing hive is the ordinary box hive, and the best result from it one of wax to 20 of honey. If you strain the honey and feed it back you will be extremely lucky if you get another pound of wax as final result. One time when located in ti-tree country I cut out some thousands of combs, as the honey would not extract. I have also fed honey back largely under all kinds of conditions, and in many different ways. If I happen to be a beekeeper still when honey sells at ½d. a pound I shall continue the experiments.

Specialists.—I thoroughly agree with "Australian Yankee" on this point. A hundred years ago a farm was almost independent of the outside world, almost everything required was produced or made on the farm. You will only find that sort of farm in semi-civilized countries to-day. There is an old saying, "Don't put all your eggs into one basket," and I acted up to it some twenty years ago when I commenced farming. Having no previous training I followed the advice of agricultural journals, and went in for a little of everything. Fruit trees, small fruits, poultry, pigs, cows and bees. It was all very nice and interesting, and diversified by working sixteen hours a day I could look after everything, and produce enough for home use, and a little to spare of each product, but that little I could not dispose of to advantage, as there was no local outlet, and freight and expenses in sending it to market would diminish returns on small consignments to such an extent that the cash realised was not sufficient to pay rent, and buy such trifles as tea, sugar, clothing and boots, which cannot be produced on the farm. The idea which then suggested itself was that I must have more of everything, work still more, and pay a little less attention to each. Things sometimes became decidedly mixed; by some law of contrariness three or four things would require my attention all at the same time. I would attend to what I thought the most profitable and pressing first, only to find out shortly that I should have left that alone, and seen to the others. There may be people who can do all these things satisfactorily and profitably, but I found that I could not, but I was convinced that if I concentrated my labour and attention upon any one thing I should do better, and this is how I became a beekeeper. Of late I have been wondering whether I did not make a mistake in selecting beekeeping for my specialty, but at any rate there will be no mixed occupations for me again. If beekeeping is not profitable enough to be carried on as a specialty, how can it be profitable as a side issue, excepting in isolated instances. With the presence of diseases, receding prices and declining pastures, apiculture has become so intricate and complex as to claim exclusively the energy and brains of the apiarist, and unless it is sufficiently remunerative to enable the specialist to tide over adverse seasons, it is certainly neither worthy the name of an industry, nor any efforts to carry it on as a side issue.

Honey and Pollen from Autumn Flowers.—I notice that the Editor draws my attention to Mr. Taylor's prophecy at the Chicago Convention. I wish to say that the stores in my case were well sealed, and that the bees have wintered well on partly unsealed combs in previous seasons. The following are the final deductions made from my own observation, and the information supplied by many others:—

The stores, as stated above, were grey box honey and pollen. Now, I do not wish it to be understood that grey box stores are injurious to bees; far from it, for some of my correspondents have wintered their bees very successfully on grey box honey. There are some apiaries right in the centre of the affected area which have escaped without any loss, although others lost heavily only a few

miles distant, but in all these instances, so far as I have been able to ascertain, the grey box flow either came earlier in the season, or being from some other source came in with the grey box or preceded it, so that the brood nest was already well or partially supplied with winter stores. The grey box honey itself left after the bees had disappeared was a first class article from a consumer's point of view, and exceptionally clear. Some, however, had candied on the combs, although capped over, but there appeared to be no difference between it and that remaining liquid in its effect upon the bees, or I would rather say the larvæ and queen; for upon the adult bees not reared on it it appeared to have no injurious effect whatever. When given to a swarm its effect would not be noticeable till the larvæ fed on it had progressed to the field bee age, when it would succumb apparently from weakness, while out gathering. Thus no dead bees were visible in the apiary to account for the losses, but I have found them in large numbers on fruit blossom and spring flowers.

The real cause of this mortality is probably a fungus gathered by the bees with the honey and pollen from grey box in localities where climatic conditions were favourable to its requirements. Thus the earlier grey box flow may have been free from it, as also the pollen and honey from other sources, the character of which is probably inimical to this particular fungus. This, of course, is merely theory, but it seems the only way to reconcile the various apparently contradictory facts observed, and there is after all nothing very extraordinary in it, when we bear in mind the case of rust in wheat, which visits certain districts under certain conditions, and yet even under these conditions does not affect certain varieties of wheat.

Dr. Howard, perhaps the best authority on bee diseases, in a paper read at the Chicago Beekeepers' Convention, states that fungi of many different kinds are gathered by the bees with their stores. Most of these are innocuous, but some when fed to the larvæ or queen will develop into growth in some of the internal organs, and the individual bee so affected cannot be cured.

It is but reasonable to suppose that bees so affected will be weak and short-lived, and being weak will succumb after leaving the hive through exertion or chill which would not affect bees in full vigor. To test this point, I imprisoned 20 bees and queen from a dwindling hive in a queen cage, likewise a queen and equal number of workers from a normal colony. I kept both cages in a temperature of about 70deg. for five days; there were no deaths in either cage. I then put both into a temperature of below 50 for one night. The bees in both cages were benumbed in the morning; in fact, appeared like dead. On removal to a warm room the bees and queen from the normal colony soon recovered, while all the bees, with the exception of the queen, were dead in the other cage.

As the result of personal enquiries made, I found that a similar disappearance of bees took place in this district in 1878. For obvious reasons it is very difficult to get exact information of anything which happened so long ago, but, after discarding all secondhand and doubtful information, I have three distinct cases left—one of 50 colonies, one of 60, and one of 12, all in the same year—hives left full of honey, without bees, and no dead bees visible. This, of course, was before the advent of bar frame hives and Italian bees; and as nests in trees have succumbed last winter in the same way as colonies in boxes or frame hives, no question of mismanagement or race of bees is involved. So far, I am not aware that anything can be done to prevent a recurrence of the mortality at intervals, but I should recommend to beekeepers who have lost bees in this way not to winter their bees on any of the old stores that may be left in the brood chamber, but replace them with combs of new honey or sugar syrup.

VICTORIA.

To The Beekeeping Fraternity,—Friends, I am still breeding and selling choice Italian queens. In fact I am devoting most of my time to this branch now. Having sold my dairy herd I intend making queen breeding a specialty. I import fresh breeding queens every season and from different places, so as not to inbreed (a great factor, I think, in preventing foul brood.) My bees have averaged me over a cwt. surplus honey each colony past 12 seasons (summer count.)

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