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THE AUSTRALIAN BEE BULLETIN.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

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The Australian Bee Bulletin

A JOURNAL DEVOTED TO BEEKEEPING.

MAITLAND, N.S.W.—NOV. 24, 1897.

An excellent article by Mr. W. Abram unavoidably held over till our next.

To prevent after swarms cut out all queen cells but one on the fifth day after the swarm issues.

When bees are hanging out at the entrance of a hot day raise the cover a little by putting a piece of stick under it.

Gippslander's reply to question 127, "Stick to your association and pull all together," is real sound advice for every beekeeper.

Always make sure there is young larvae in each of your hives. If by any chance they lose a queen they can raise one.

Read proceedings of N. B. K. A. sub-committee. Surely it is the duty of every N. S. W. beekeeper to back them up by joining its ranks.

Where you can reckon on a flow at a certain time, get your colonies strong for it by working up the weak ones, or if you think you cannot get them strong enough in time, unite to other weak ones

If you do not wish to increase your swarms, or to weaken your hives for the honey flow, place the swarm alongside the parent colony, cut out every queen cell in the parent colony, and in the evening place the swarm as a super on top of the parent colony.

We acknowledge receipt of pamphlet "The Dairy Industry in the Colonies," by Samuel Lowe, a paper read before the Royal Colonial Institute, March 9th, 1897. It contains some very valuable and interesting reading.

In reply to Mr. R. A. Price's, M. L. A. communication to Department of Mines and Agriculture, as to the unsatisfactory working by the Board of Health of the Food Adulteration Act, he has received a communication to the effect that the Board is now willing to assist beekeepers by analysing samples of honey where adulteration is suspected.

We acknowledge receipt from Mr. C. U. T. Bourke, Lyndhurst, a copy of his pamphlet "How to refine Beeswax." It is published at 5/- a copy. Most certainly the method he gives will produce the best of wax. He has sent us a sample which is indeed good. Mr. Burke says, "I do not think any large producers of wax will begrudge the 5/- asked for it—the pamphlet."

Our deepest sympathy goes out to Mr. W. Z. Hutchinson, editor of the *Beekeepers' Review*. Mrs. Hutchinson and her little daughter Ivy had both been ailing mentally for a time and were placed in an asylum. They came home apparently cured. A few days after, the mother took both her little girls for a walk, during which she purchased chloroform, and smothered one little girl, and then attempted her own life and that of the other little girl with a revolver.

We acknowledge receipt of Prospectus of the Farmers' and Fruitgrowers' Co-operative Society, Limited, a society

"formed at the request of a number of farmers and fruit growers in New South Wales, who are desirous of co-operating for the sale of their produce, and the storage, exportation, and conversion into manufactured articles of their surplus produce" We sincerely wish them every success, and trust their fullest anticipations will bee realized. Also from the Department of Agriculture, New South Wales, the Report of Proceedings of Dairy Conference held at the Hawkesbury Agricultural College, Richmond.

THE HISTORY OF THE BEE.

Commencing life as an egg, in about three days it bursts its shell, and assumes the form of a little maggot or larvae, gradually increasing in size for five days, filling its cell by lying encircled at its bottom. It is then capped over by the bees, and while so capped over, develops into the full fledged insect, with wings and feet, &c. The queen at the end of about 16 days from the time she was laid as an egg, or eight days from the time she was sealed over in her cell, gnaws with the strong teeth she now possesses the capping of the cell, and issues out a perfect insect. The drone takes a longer time; he does not emerge a fully developed insect till the 24th or 25th day from his being laid as an egg. The worker emerges about the 21st day. The queen during her larval state is fed with a greater amount of what is termed royal jelly, than the workers, a food said to be produced only by young worker bees. The cells of the three kinds are also different. The queen cell is very much elongated, and hangs downwards. The drone cells are much larger than worker cells, resembling a lot of bullets laid closely together. In about five days after the queen emerges from her cell she goes to meet a drone and becomes fertilized. Returning to her hive, in about two days she commences egg laying, and does not go out again except when with a swarm. She lives sometimes six or seven years, laying a portion of her time up to 3000 eggs a day, her most prolific time being her second and third year. The drone, hardly as long but thicker than the queen, takes his first flight when about two weeks old. Although hundreds of them may be in a hive, still only one is necessary to fertilize a queen. Why this apparent waste has not been ascertained. Beekeepers are advised to so work their hives that there shall be as few drones as possible, but spite of care the bees will at times raise a great number. Drones do not gather honey, on the contrary they consume it. Do they assist to keep up the warmth of the hive, and so liberate worker bees from nursing to go honey gathering? Or is it with the great number in the mating with the queen, the survival of the fittest is carried out in the fleetest and best securing the prize and becoming the father of the hive? But his days are not long, and when winter approaches or food becomes scarce he is thrust out of the hive to die, or tolerated only when a hive is queenless. The one who has been successful in mating with a queen—which takes place in mid air, and in the excitement of flight dies as soon as the act of copulation is performed—his organs being torn from him, and remaining in the body of the queen, forming what is called the spermatheca. The queen in the act of laying eggs, in dropping the egg in a worker cell, places her body in such a posture that the egg passes the spermatheca, the latter then ejecting a minute sperm, which enters an equally minute hole in the egg. In laying in a drone cell, this operation does not take place, so that it has been said the drone has no father. But as a mis-mated queen is said to produce drones of different colours, the influence of the mating drone must come in somewhere. This is the doctrine of parthenogenesis which has created no end of discussion among scientists. The ordinary or worker bee is an undeveloped female, possessing ovaries, and under certain conditions laying eggs, which

yield only drones of a smaller size than those laid by a queen. A hive with a worker laying in place of a queen is a loss to an apiarist, as it very soon dies out.

H. R. B. K. A.

The usual monthly meeting was held on Saturday Evening, Oct. 16. Mr. J. W. Pender, President, in the chair. There was a good attendance of members, who were very enthusiastic. A number of questions were discussed, the principal item being a letter from Mr. W. G. Hughes, stating that he has on several occasions cured foul brood with the following: 1 oz soda borax, 1 oz. salicylic acid, 5 pints water. Spray bees combs, boxes, mats, floor board, etc. Give second spray three days after the first if necessary. He mentioned a number of instances in which he lately effected a cure with this spray which takes effect immediately after the application. Several of the members intend to try it when they get an attack. A number of questions were handed in for discussion at next meeting on Nov. 13.

N. B. K. A.

The committee of the N. S. W. National Beekeepers' Association met at Hebblewhite and Co's rooms on Wednesday, 10th November, 1897. Meeting opened at 8 p.m.

Present: Messrs A. Gale, President (in the chair), J. Trahair, G. Bloxham, H. R. Roberts, and J. D. Ward.

A letter was read from Mr. Fred. Ward, Secretary, asking to be excused from attendance owing to ill health.

The president requested Mr. J. D. Ward to act as secretary for the meeting.

The minutes of the previous meeting were read and confirmed.

Correspondence received from several beekeepers, from the Secretary Inverell Association, from the Department of Agriculture, from the South Coast and West Camden Co-operative Company, and from Mr. R. A. Price, M. P.

A news clipping relating to a case against Mr. W. T. Seabrook for trespass was also read. It appears that Mr. Seabrook followed a swarm of bees into an orchard and the owner of the orchard proceeded against Mr. Seabrook for trespass and recovered a verdict.

The question of adulteration was discussed at considerable length and the President suggested a course of action which, before the meeting closed, formed the subject of a resolution.

The following resolutions were carried:—

Re Seabrook's Case: "That the President arrange for a deputation to the Minister for Justice."

Re Foul Brood: "That the President arrange for a conference with the Minister on the subject."

Re Co-operation: "That this matter be left with the President and Secretary."

Re Adulteration: "That the Committe arrange for a deputation to the Board of Health with a view to inducing the Board to take up and prosecute a case of adulteration forthwith, and in the event of the Board of Health refusing to do so the President be and is hereby empowered to take such other action towards prosecuting a case as he may deem necessary."

GOING EXTRACTING.

Breakfast is over and we prepare to go to the bees. The smoker is got well alight with apple tree bark, and we go to the "cart." That cart has a history. In town our youngest son Jack was very anxious to have a cart like some other boys, to wheel his schoolmates and playmates about. An empty goods case was in the back yard, a pair of 8 inch iron wheels at the blacksmiths, two long pieces of scantling at the sides, and the thing was complete. It carried many a juvenile load and furnished plenty of fun. Well, last season we were using two comb buckets in taking honey from the hives to the extracting house, but it was heavy carrying, and the question,

arose, "How will Jack's cart do?" On examination a ten frame hive fitted into it nicely, leaving about 14 inches space besides, in which we no ,, place a tin dish to hold any pieces of wax or burr combs, a table knife, scissors (to clip queen's wings), bee brush, smoker, and a little spare fuel for the latter. Veil on we march to the battle field. Our first visit this morning was to a hive we put sections on some few weeks ago, but had not looked at lately. We took off all full sections, and put in their places starters. Now for No. 1 row. A young queen that has been laying about a fortnight. Working up well. Gave them a frame of uncapped brood and clipped queen's wing. In another month they will be very strong. No 2, three stories high, nine frames each, nearly all capped honey in top story, Brood in second story as well as bottom. No. 3, Hello, queen cells, one just being capped. They mean to swarm. Hunt for the queen. Here she is. Get another hive, and pick out new spot for old hive. Put bulk of brood and queen cells in new location, leave queen and field bees in old. Next hive, Ah—a nucleus. We saw the young queen—quite a beauty—when last here. But where is she now? Has she been lost in mating? She might be here, but till laying is not quite so large as after. Will give a frame of larvae and if we cannot find her next time we come round will give a queen cell in a West Protector, or a laying queen. Ah, ah, There's a swarm coming out. Quick, here's the queen on the ground, her wing is clipped. Get a cage to put her in and a hive to put on the stand they came out of, also a frame of larvae and a few frames with starters. Now they are all right. See how they run in? That job didn't take five minutes. Now to the next. This was a virgin queen last time we were here. She's laying nicely now, not enough honey to take any though. . . . Hello, what's up with the poultry, see them all scampering to shelter. Ah, there's the cause —see the hawk up above them. He sees us—he's away now. And something is troubling the soldier birds down by the creek. Look, the dog sees it! There it is! Up in the fork of that big apple tree--a big iguana--like a small crocodile. How quietly he turns his head towards us, and how persistently the little soldier birds try to worry him. He's an old enemy of theirs and their young, and if let alone would take a big fancy to our eggs and chickens. But the gun is at hand. Steady, he's up high now. Bang! plump. What a rush the dog makes, and how he does seize and twist him about, spite of the huge open jaws. A blow on the head settles him. 5 ft. 9 inches long. . . . Now for the hives again. Why we have been two hours; how the time has passed. The hive in cart is full, and two others on top. Pretty heavy but it is going down hill. Now for extracting. One starts the uncapping, another turns the extractor. A few bees that have come in with the honey make for the one window in the room, and collect on the panes, but the window is on a swivel. How funny they must feel when the window suddenly turns over and they find themselves outside instead of inside.

QUESTIONS.

THE DRONE.

127.—Is the laying power of the queen with reference to drones and workers, automatic, or can she lay either a drone egg or a worker egg at will.

WORKER BEE.

128.—Can any beekeepers give their experience with the foundation wax press.

129.—What number of hives can one man look after, using the Standard hive and simplicity frame in a moderate season.

A. J. ROBERTS.

130.—Will zinc lined cases do for keeping honey in?

E. T. JOHNSON.

131.—What is the best thing N. S. W. beekeepers can do to raise the present low price of honey?

E. E. BUTTSWORTH.

132.—When a person comes across a swarm (settled) in the bush, is it an indication that the tree (nest) which they came out of is near?

133.—A beekeeper has been summoned for trespassing on private property whilst he was following a swarm of bees which had issued from one of his hives. Is there any case on record similar to this, if so could you let me know the Court's decision?

GIPPSLANDER.

127.—The queen can lay either at will.

128.—Yes, we get on alright with one. If your wax sticks wash it well with strong soda water and use plenty of honey water. It makes the foundation rather thick, that's the only fault.

129.—Could not say.

130.—Don't know.

131.—Stick to your association and pull together.

132.—No, the tree may be miles away.

133.—Never heard of such a case.

W. S. PENDER.

125.—No, provided the dead larvae are in no way infected with the disease. White clover seed cannot produce lucerne, neither can any thing but Foul Brood germs produce Foul Brood.

126.—Under boiling or too much butter causes toffee to become moist, also exposure to the air. Use small quantity of butter and don't add until nearly cooked. Try the following:—2 cups sugar, 1 cup honey, 1 cup water, boil till nearly done, then add tablespoonful of butter and a pinch of cream of tartar.

W. NIVEN.

127.—The queen can lay either a drone egg or a worker egg at will.

128.—No experience.

129.—One hundred, but with the help of two assistants occasionally at swarming time and extracting the number could be greatly increased.

130.—No.

131.—Sell as much honey as possible locally. In sending to Sydney put a reserve of 3d per lb on it and do not sell for less.

132.—A swarm of bees settled is not a sure indication that the tree nest is close by.

133,—Never heard of such a case.

W. REID, JUN.

121.—I pack my honey mainly in 2lb pickle bottles and 2lb tins, with labels printed at the A.B.B. Office. Sells freely. Could have sold large quantities at Harden, Cootamundra, Junee Temora and Hay, as well as my own district.

122.—In 1896 one of my queens (my own raising) produced very large workers. She still produces very large ones but not so large as at first. Their comb reminds one of drone comb. The workers are good, but her queens are uneven—a dark strain somewhere.

123.—I very much doubt stinging drones.

124.—Are of opinion Goldens are the best for cold districts.

125.—Never saw Foul Brood that I know of Plenty in C —— last summer. Chilled brood no doubt sows the fatal seed.

AUSTRALIAN YANKEE.

127.—The laying power of the queen bee is perfectly under her control, therefore she can and does lay worker or drone eggs at will.

128.—Not a success in my hands.

129.—That depends wholly on the kind of man. If he is a hustler there is hardly a limit to the number.

130.—No.

131.—Work up a good trade in their own local town, thus keeping the city markets from being glutted.

132.—Sometimes yes, and sometimes no.

133.—Don't know, but I wouldn't go to court over a swarm of bees.

R. H. JERVIS.

127.—Can lay either at will.

129.—Depends upon locality in the home apiary. In a fair season about 300 as they swarm a good deal. In the out apiary 500 as they very seldom swarm. In the out apiary a colony seldom needs more than one super, whereas in the home apiary they always need two and sometimes three and then swarm. The out apiary gives the best returns. It is no trouble to get Dr. Miller's non-swarmers in an out apiary but don't attempt it in a locality like the home apiary.

130.—I would not like to use them, think they would taste the honey. Don't mind galvanised iron or tin.

132.—No. Perhaps two miles away.

F. W. PENBERTHY.

127.—The queen lays either a drone egg or a worker egg at will. The size of the opening of the cell is her guide, and the desire of the workers.

128.—Not enough to give any information.

129.—I don't use the Standard.

130.—The sides would bulge out and the lining burst, the loss would be greater than the price of a tank.

131.—Limit the lowest price when sending honey to the commission agents. It would sell just as fast if we keep to a fair thing, it ought to be easy done. ½d per lb. would make £35 a year difference to me.

133.—No. You may find something you want some of the old English laws. There are some neighbours of beekeepers who have to put up with a good deal from bee stings. A plate of nice white comb honey now and then will heal alot of bee stings.

D. G. GRANT.

127.—Most decidedly the latter, or she could not, as often occurs, lay drone eggs in worker cells or *vice versa*.

128.—Never saw one, but should consider it a long way behind the mill.

129.—It would depend somewhat on the locality, a good bit on what is meant by a moderate season and still more on the man. Some beekeepers would call moderate a flow that would gladden other beekeepers' hearts, and I know men, beekeepers too, who could not properly look after a dozen colonies even in a moderate season.

130.—They would do, if tight, and the cases strong, but I should not care to chance them if at all large; honey is heavy stuff, and they would be liable to burst with undesirable results.

131.—What a hard nut? As I have no steam hammer, I can only guess at the contents. Let beekeepers first keep their local demand well supplied, avoiding all cutting of prices, and getting (as I always do) a fair price for a good article, then let them endeavour (as I do and mean to go on doing) to place their surplus stock direct into consumers hands (by this I mean right into the hands of the wholesale buyers.) By doing this they get full market price including the commission, etc., etc., etc., that they would have to pay the distributing houses if sent for sale in the ordinary way. In this way the glut in the open market would be so relieved as to allow prices to go up, which I think is the solution aimed at.

132.—Not necessarily.

133.—Never heard of a similar case and I might add, I never heard of the like. This ought to be a matter to submit to the N.B.K.A.

T. BOLTON.

127.—What meaning can "automatic" have as applied to a living insect? Surely she (the queen) has claim to be something better than a machine wound up to produce involuntarily a certain number and kind of motions and products in a given time. Such I take to be an automatic arrangement.

129.—I would not like to say without seeing the man, and hives are easily looked after if kept under lock and key, Standard as easily as Heddon, but not so the colonies in them. A man equal to 200 colonies in such (S) hives in a good hearty swarming season, who will successfully control swarming into a right line and get every hive in good order for the honey crop, I should consider an expert. The same man could if he used Heddon hives more efficiently control, under similar conditions of season, 300 colonies, and with the extra advantage of having them placed say 150 at home and two apiaries of 75 colonies each three to ten miles away, visit ing these latter once every nine days. He need have no after swarms and no increase without any extra work being entailed by his decision not to have such and he will not have to spend fruitless labour and time in trying to suppress swarming, but will control it, use it and make money out of this useful propensity of bees. I presume that there is no foul brood work required in the above estimate, that the man is provided for as to keep, and has no outside or extra duties to perform. With an assistant to follow him up, care for his horses and fuel and attend on his wants of cases and frames, etc., the man who knows how can get through say home apiary 200 colonies in two days, making increase artificially 10 to 20 per cent if wanted out apiary, 3 miles, 100 colonies, 1 day; 6 miles 100 colonies, 1 day; 14 miles, 75 colonies, 1 day and camp out on way back next day, 50 colonies and has three days left before next visit to cool himself. When extracting comes on he would require perhaps three days at home apiary with two extractors and four helpers, leaving one man at home to clean up; with two drivers the out apiaries should be emptied and all honey safely housed in storage tanks at home in 10 days and ready for next round. The two drivers now turn to and reduce or empty the first filled tanks and the horses spell for three days, whilst the home apiary is being again cleared. Roughly seven workers, four horses, six extractors to 500 to 600 colonies, taking seven to ten tons per round and seven to ten cwt. of wax; also 4 or 5 400 gallon tanks for honey, and room storage for 2000 kerosene tins, and 2000 to 3000 gallons of water, would be the ways and means to be considered in main outline for your querist if he is inclined for big things.

130.—Yes nicely, if you wish to have to keep it. Happy man! Most of us have no honey to keep and when we have any the trouble is to sell it rather, not make it unsaleable.

131.—As you don't seem to be a hearty work-together lot over there and don't combine to fight adulteration, the best thing now is in my opinion to all take up some other pursuit and let us on this side of the Murray supply your honey market with our surplus. Upward prices then for us too as well as in N. S. W.

132.—No proof at all, yet who can imagine any beekeeper under such circumstance not feeling it is very probable and holding his chin above horizontal for the next mile or two.

133.—I believe in England (if common report was correct) you could go anywhere after a swarm of yours in sight without legal trespass, paying for damage, of course, if you annoy or disturb the squire's rabbits and game.

QUESTIONS NEXT MONTH.

134.—Has the advantage of getting rid of drones been over-estimated?

W. NIVEN.

135.—During the last winter and at the present time, honey is plentiful and cheap in Sydney; from what part of the colony does all this honey come?

G. W. HARRIETT.

136.—In looking over my bees I found as many as four eggs in the worker cells of two frames (there are eight frames in a hive) and there are hardly any eggs in the other frames. The queen appears to be alright. What would you advise me to do?

137.—Give your opinion on Mr. Fackender's, Unanderra, account of loss of bees, page 195

138.—On Mr. Ayling's, page 194

NOTES.

BY LOYALSTONE.

I am afraid beekeepers do not know how to stick labels on their honey tins yet, properly, so as to prevent them from coming off. Well here is a simple way for those that use gum (I have not tried it with any other kind of stick fast only gum). Well, rub the part of your honey tin where you intend to put label on with common whiting, using a piece of cloth to rub it on with. Then gum your label and it will stick like glue in the hottest weather on the part of your honey tin you rubbed with whiting. Try this and be convinced.

I notice, Mr Editor, my suggestion regarding having essays your *A. B. B.* did not meet with much approval. I notice beekeepers are getting more selfish to what they were 4 or 5 years ago and I put their selfishness down as to cause of my suggestion not meeting with approval. I can't agree with 'Australian Yankee" when he says an arm chair beekeeper could write an essay on any subject connected with beekeeping without knowing a queen bee from a hornet. Essays have to be original and not "cribbed" from other works; no one but a practical beekeeper could write a good essay on any subject connected with bees. I think the Australian Yankee says some very rash things himself in some of his "crumbs" which are welcomed. Beekeepers should always strive to the latest in beekeeping; something fresh is always cropping up.

With the long idea hive I don't think it necessary now to confine the queen to only 8 or 10 frames. I find if you allow the queen the run of the hive she will fill from 15 to 20 frames with brood (not patchy, but solid frames of brood) and in a short time you have an immense number of bees in the hive, and when the honey flow sets in the bees confine the queen themselves on 6 or 8 frames, sometimes in front of the hive, other times, at the back. The rest of the frames they quickly fill chock full of honey in a very short time. My motto is, rear plenty of bees in your hives before the honey flow sets in. The more bees in your hive the more honey you get; never restrict a queen. If you think a hive is near swarming, cage the queen in hive for a week which will prevent swarming, and collect honey. Odd hives with queen caged in this way may build queen cells, which must be cut out before releasing queen again.

Let beginners or novices still write away Mr Editor their experiences in your *A. B. B.* It encourages them. And now and again they let drop very useful hints Beekeeping would pay in a good district with honey at 1d. per lb re Australian Yankee's remarks last *A. B. B.* Are these notes satisfactory? If so, I will chop you a few every month.

Come on. They'll do.

MUSWELLBROOK B.K.A.

The annual meeting of the above Association was held at the School of Arts on the 13th inst. Mr Roberts occupied the chair, and the minutes having been read and confirmed the annual report was read as follows:—

Fourth Annual Report.

Mr Chairman and Gentlemen,

Your Committee are glad to be able to report that the past year has been a very successful one for the B. K. Association.

A splendid honey crop enabled the members to secure the honor of having staged at the last Show the finest display of apicultural products ever got together in the colony.

As regards membership, the Association has more than held its own during the year, while its funds are in a very satisfactory condition.

Twelve meetings have been held, those in the winter months having been allowed to lapse.

A change in the Executive took place during the year, Mr Grant having resigned the secretaryship, to which office Mr Paul was elected. The members shewed their appreciation of Mr. Grant's services by presenting him with a valuable work, "Cheshire's Bees and Bee-Keeping."

In conclusion, your Committee wish to thank those gentlemen who, by donating special prizes at the Show, helped the Association to make the honey exhibit the most conspicuous object in the pavilion, and hope that the efforts of the Association will earn their just reward in the shape of continued good seasons and increased support.

A. A. Roberts, Chairman.

C. C. Paul, Hon. Sec.

In moving the adoption of the report and balance sheet the chairman congratulated the members, and hoped that the Association would long continue to occupy the prominent position it at present filled.

The election of officers for the ensuing year resulted as follows:—President, Mr Roberts, in place of Mr Ellerton, whose removal from town prevents him from attending regularly; vice-presidents, Messrs Budden and Hill; treasurer, Mr Hornery, re-elected; secretary, Mr D. Grant. The committee elected consists of Messrs Thomas, Paul, Cox, Hazelwood and Clarke.

A sub-committee, consisting of Messrs Paul, Roberts and Grant was appointed to consider the matter of holding a Convention in connection with next Show, and report to a special meeting on the 27th inst.

Mr Hill was asked to write a paper for next meeting on "How I began bee-keeping," including his experiences as a beginner.

VICTORIAN NOTES.

R. BEUHNE, TOOBORAC.

Foul Brood is much in evidence in the last number of the A. B. B., and the different views expressed are very interesting. Mr. McEvoy is perhaps right that perished brood will develop Foul Brood *if* he should add, germs are present. There is no occasion to be at cross purposes with the scientists. What they contend is that no foul brood can develop without germs. It is of no use ignoring the fact that nothing can spring from nothing, and in localities free from foul brood, no amount of rotten brood would cause it. No doubt neglected brood is more liable to develop disease when germs are present. It is in my opinion that the worker bees themselves (some colonies at any rate) have a way of dealing with foul brood, preventing an outbreak or ridding themselves of it. I had six colonies out of about twenty affected ones some years ago which cleaned themselves and have remained healthy. Several beekeeping friends have had similar experience. I am convinced that it was the workers which affected the cure for I have on several occasions shifted frames of brood from these with a few diseased cells in them to other colonies by way of experiment and found them rapidly getting much worse, while on the other hand I have moved brood from more marked cases to such colonies as appeared disease-proof and they have become healthy in some cases.

It has often been stated that the disease is primarily in the queen, but I have repeatedly transferred queens from diseased colonies to healthy ones without even caging them and no disease resulted, and yet in a way the queen is responsible for she is the mother of the workers which are unable to resist it or unable to deal with it, and therefore I usually replace the queen if the disease appears malignant.

There is a great difference in Foul Brood in different colonies, several types of it, owing perhaps to the action or in-

action of the worker bees, and without being able to give any reasons, I can instinctively tell almost to a certainty whether the disease will disappear or get worse.

Extracting combs from supers of diseased colonies, I have often shifted to healthy colonies provided no brood had been reared in them, either after extracting or with whatever honey they contained. Some beekeepers will no doubt think that this is equal to smoking in a powder magazine. Well I don't expect anyone to do likewise. But the fact remains that I have less trouble with it (none this spring) than when I used to carbolize everything including myself, notwithstanding the fact that over 100 colonies have succumbed to it in the neighbourhood. Of course when I came to this lovely spot with bacillus alvei flourishing all round, I got a very good percentage of it the first two seasons, almost as good as a pawnbroker's. But the sources of supply from outside the apiary have become exhausted and by eradicating it whenever it appears and giving th bees no opportunity to learn robbing habits, it is now a very insignificant factor.

VICTORIA.

T. BOLTON.

Sir,—Some while ago I asked for information as to how best to build a honey house to keep ants out. As I have no doubt your specialist beekeeper readers would like to know how I have built this place and its conveniences, and having made some promises privately to furnish information about it in your pages, I will give a description. The main building is 24x12, two storey high, the upper room being reached by a broad step-ladder, and is used to store empties and light goods, kerosene-tins, foundation etc., The studs are 4x2, and the joists to take the upper floor are 5x2x12 ft. with angle braces to the studs underneath, and tied in centre with 2x1½, to the roof collar ties above. The lower room is the extracting room 18 ft., from one nd the floor drops 1 ft. making a well 6x12x1ft deep; near this the extractor and uncapping barrels are placed, their taps overhanging the well so as to place buckets under, on the other side of the well are two 400 gallon tanks, their taps also overhanging and facing the extractors. On the top of these tanks are wooden lids, snug fitting over an opening of 3x2ft. in each, these lids are raised by light pulleys and cords, other sets of which overhang the tanks from the joists above to hoist honey up with, should a lad or boy be in attendance and equal to throwing up a 60lb bucket of honey. A large strainer of wire on wood frame hangs into the tank openings, size 2ft. 6in. x 2ft. 6in. deep. The further side of these tanks constitute part of and are let into the end wall (the hot west end) of building and are tarred black so as to absorb as much solar heat as possible. The heating of these tanks is further accomplished by a coil of steam piping from a boiler in an adjoining room called by us the boiler room 16x18ft. capable of storing 14 tons on its floor which takes up 16x10. This floor and all others except where the well before mentioned occurs are on 6x2 joists on 6x2 bearers on red gum blocks 2ft. above the ground. The remaining space of this boiler room, is a cement floor 2ft. down, at one end of which is a small steel boiler tested at 175 lb pressure, set in brick, supplied with guages, safety valve, etc. On the higher floor adjoining is a galvanized bath or melter 6ft.x2ft. to hold 14 tins of honey to liquify. Cold water is laid on to this from rain tank elevated outside, which also by suitable connection and valve fills the steam boiler. Also on the other side of room another tank supplies cold water for general purposes. The main from the boiler is 1 inch piping—one branch (A) leads off into the honey room and sends down a sub branch into each of the honey tanks before mentioned and these unite again outside (after coiling round the inside) and return at lower level to the boiler again, so that fuel and firing is thereby economised. The branch (A) in the honey room is continued round to opposite, where the extractors stand so that by a system of bends. a set of steam and water can be sent anywhere on to a sticky floor. To return to the boiler main, another branch and valve supplies steam to the bath for melting honey tins; another carried outside the building boils up the wax barrel into which all wax is thrown from apiaries. And yet another leads inside to a square vessel of copper about 3x2x2 in which all wax after pressing is refined or melted for foundation making—or other more or less waxy boiling, hives and frames are done when required. Two other appliances in this room are worth mentioning, one an article which I may call a gravity "frother". When our honey is melted after granulation a large amount of white froth rises. Previous to making the strainer I used to let it rise in the tin tanks, out of which I filled my small market packages (which range by the way from 1lb. to 60lb., all lever tins.) Constant skimming and use of cheese cloth was required, but now I have this gravity appliance set against the wall close to the melter. As fast as the 60lb tins are liquified

they are poured into thiswhen the froth has risen connection with the outlet tap (passed into my honey room, can be made in such a way that no froth, wax, bees, etc. can possibly reach the outlet. This is done by having an inner vessel close fitting the outer one, reaching *nearly* to the bottom. The outlet tap is raised above the level of the bottom of the inner vessel, so that the froth etc. can not pass under the inner vessel's lower edge. The other appliance I have just completed is for use at Spring and Autumn when we are apt to get thinner honey than we like. It is an "evaporatory". A 4ft.x2ft·x2in. deep tank of tin and galvanized iron seated in a wooden case which can be placed on the bath (for convenience merely on the bath) so that by a simple coupling up the steam pipe to bath can send steam through this longish thin vessel on top of which the honey traverses to and fro many times on its way from the gravity strainer to the outlet of evaporator and storage can. This evaporator on sunny days can be used on my large solar extractor outdoor which it also fits upon and the glass double sash instead of steam will then do the work of ripening. The gravity strainer having removed the fine wax particles previously, I apprehend no darkening of the honey in its course through the evaporator whether heated by steam or by solar rays. The other features of my building which with all its appliances I have designed and made myself and to suit my own ideas. as an engineer as well as bee-man, are an 18x10 room for bench work, hive making, etc., outside loading stages, and inclined planes with double self-closing doors for wheeling in the barrow loads of combs, an idea (also that of ant prevention) I have to thank Mr. James MacFarlane for. The building is 2ft. above ground. around every stump are sheets of tin flanged like letter ⌊ inverted, and wherever possible a side of a keresene tin clean and bright is laid between the top of a stump and the timber above. Where the well floor comes close to the ground no stumps are used, the floor is "slung". Access to every tin and block can be obtained if necessary with a brush and kerosene; but so far—my second summer—only the outside ones that get splashed with rain and grit require this attention. The landing stages and inclines touch the ground but not the building. The whole of the floors are hard wood and caulked after shrinking with pitch. In order to keep every thing bee tight the floor joists do not rest on top of the wall plate, but are flush with it, making a clean tight floor from plate to plate. Before boarding up the walls the studs had hessian tightly strained on the *outside*, so that HW weatherboards answer and are bee-tight. The total floor space is about 1000 sq. feet, which with other sheds and buildings in which hives, kerosene tins and cases, and my lathe and circular saw are, give me facilities with the plant above mentioned of handling rapidly and conveniently many tons of honey in the most effective way I can devise. I have yet however to devise and make a vacuum evaporator before I shall consider my equipment perfect for its purpose.

LIVERPOOL.

At Liverpool Court on the 4th November, Emma Perkins proceeded against James Johnson on a charge of assault. It appeared that Mrs Perkins and Johnson went, at one and the same time, to "snap" a swarm of bees roosting on Mr Christiansen's fence. It was alleged, on the part of complainant, Mrs Perkins, that Johnson struck her. Johnson said he might have pushed Mrs Perkins, and she might have bumped against a box. The bench held that if an assault had been committed it was of a trivial nature, and was unintentional. Case dismissed.

James Johnson was proceeded against by Martin Christiansen for trespassing upon the enclosed lands of the latter. The period was that mentioned in the "bees case." Mr Marsden, for defendant, admitted the trespass and threw his client on the mercy of the court. There were other people on the land at the time who had not been summoned. Mr Purcell, for complainant, said the other people were friends of Christiansen. The Bench held that a small fine, with a caution against repetition of the offence, would meet the case. A fine of 5s, with costs of court, was imposed.

Summons cases for assault between Martin Christiansen and James Johnson, and vice versa, were, by consent of the respective solicitors, Messrs Powell and Marsden, heard together.

From the evidence it appeared that Christiansen found Johnson in his paddock getting a swarm of bees, and after telling Johnson he was trespassing and ordering him out took him by the shoulder and back, and brought him towards the gate, when Johnson turned round and caught him by the beard, also hitting him two or three times with his other fist, blackening one of Christiansen's eyes. When Johnson was in the street he challenged Christiansen to fight, and after this threw a brickbat at him. There was a notice board up warning people not to trespass. Johnson was fined £2, with £2 2s professional costs, and 9s 2d court costs, in default two months' imprisonment in Paramatta gaol. Time was allowed for payment.

Rev. H. A. Winter, says:—I tell my brothers in the ministry: Keep bees; they will make you philosophers; they will teach you pastoral theology. If you treat your bees rightly, you will be successful in dealing with all sorts of mankind. They will bring you in close communication with nature's God; they will make poets out of you. They require clean hands, cool tempers, clean consciences, and peace with God's work. They will make women and children, old and young, your friends.

COLOR AND SCENT.

C. E. BESSEY IN *Canadian Bee Journal*

It is the sweet bait which plants put somewhere in their flowers for the purpose of enticing insects to come. Now there is the philosophy of this relation between plants and bees. We have found that the flower puts some nectar here or there, in order that the bee or other insects may persistently come to those flowers; and in the search for this nectar, they manage to get themselves covered with pollen. I am boiling down, as you will see, a good many botanical lectures into this short discussion. Where, then, is the nectar in the flower? You may just as well ask, "Where is the bait put in the mouse-trap?" It is never put in front of the trap, it is always back of the essential part of the trap. The mouse trap has a certain business to do—either to snap a spring down and kill the mouse, or to entrap the live mouse. The bait is, then, always put behind the essential part of the trap. The nectar is bait, pure and simple; and this is always put back of the place in the flower where the bee is to do its work of getting or leaving pollen. So, in looking for the place where the nectar is, you will always find that it stands in just that position. It is at the farther side of something. This, is what the nectar is for; it is the bait to attract the insects. And so far as the bee is concerned, a bait to attract the bee. Now, color, and odor, and the presence of pollen, perhaps, have something to do with the bee, also. These are accessories. Now speaking from the standpoint of the bee: Now, why are flowers colored? I think this is a point which the bee-keeper has rarely thought of. Certainly the insect is not attracted primarily by color. Insects will not waste their time standing off and admiring the gaudy color of flowers. But the flowers that have something in the way of nectar to offer—the flowers that are of most service to insects—are colored flowers. There is relation, then, between color and the insect visitation. We must not overlook the fact that color is a part of this apparatus in which the bait is put. We must not overlook it or ignore it in our practice. It is true that many flowers which have much color have little honey. Other flowers have marked color. Other things being equal, then, the botanist will say to you that the flower with color is an advantageous flower for you to use for your bees to feed upon. Why? We have found that the color of the flower, as Dr Gray used to say, is a flag or banner put up over the place where there is this treasure that the bees are seeking. This is an indication that the bees pay some attention to the things that they see. Not like the artist does, but in the way the school-boy does. When he goes along the road and sees an orchard, the bright color of the fruit tells him that it is ready to be eaten. It is attractive in that way. Let us not ignore the fact that the color is an advertisement, other things being equal. Odor in like manner. Insects are attracted by odor merely because they have learned that odor goes frequently with the presence of nectar. So let us put it this way: The bait is the nectar. It is placed always in the back part of the flower. The color and the odor are accessory. And other things being equal, that flower is best, which, having nectar, has color to serve as guide, and odor to serve as a still further guide. There is another considerable reason why white clover is an excellent plant for furnishing honey. The white flowers stand out so prominently that even a half-blind bee might find the flower. Added to them is a delicate and delightful odor which goes with it. This, then, is one part of what the botanist has to say. Don't overlook the fact that color is worth something and odor a good deal. They enable the bees to quickly find what they want. Now, I have another point. Flowers are not all alike in shape. Some flowers are what I have called elsewhere "flat flowers." That is, they open out flat. Every petal stands out away from every other petal. The Germans sometimes call them "star flowers." I prefer to call them flat flowers. They have the general

shape, when open, of a saucer. A good example is the butter-cup, strawberry and poppy. The basswood has a flower of this form. Now many of these flat flowers, which are rather primitive—they probably are the kind of flowers which came into existence away back in early times—have a good deal of honey. You can't hide the honey very effectually in the flat saucer. It is put as far down as possible among the stamens before it can be hidden.

Then there are some flowers like the cherry, plum, etc. There the upper part of the flower is flat, but the little calyx of the flower is dished out into a little cup at the bottom. In that cup the honey is found. So that if you compare the flower of the strawberry with that of the plum or cherry, the honey is dropped down into a deep little cup. Not a very narrow cup; rather flaring, but still affording more protection for the honey.

Then pass over to such as the clover. Here you do not have a flat flower at all. I presume it is generally understood that the clover head is made of many flowers. Take out one of these little flowers. You will find that it has the same number of parts practically that you have in the cherry or butter-cup or strawberry. But instead of being flat, its parts are brought together so that they form a tube; the parts are still separate, but there is a tubular arrangement, and the honey is away down at the bottom.

Now take the flower of a verbena—not a very good honey-flower, but very gaudy. You have these parts of the flower brought together in the form of a tube, and even grown together. This tube with the leaves that make it up, protects the honey better than the flowers. The point to which I wish to direct your attention is this: That as you look at flowers, the honey in some is not much protected. There may be a great deal of it, but it is open—in an open cup or saucer. In others it is further and farther down, and more and more protected. In white clover you have an additional protection, namely, that these little flowers are crowded together side by side so that you have a lot of these little tubes, and at the bottom, where they furnish the best protection, there the honey is kept.

Now what is the significance of this? Take some water and put a little in a saucer, some more in a cup, some more in a tube. Or take some honey and do the same. You will find that the evaporation is much greater in the saucer, less in the cup and still less in the tube. The same thing occurs in flowers. The nectar is something that evaporates very readily When you have good weather and suddenly there comes on several days of dry air, the honey flow is checked completely. Now here is something to which attention has not been directed as it should be. And here I think the botanist may offer some suggestions. In the selection of honey producing plants other things being equal, again give preference to those in which the honey is placed at the bottom of a tube instead of in an open flower. Now, I know this is hard on the basswood, but the basswood does not cut any figure here on the plains.

The further west you go, the more this is true. But in the great forests, the dry day do not come as frequently as they do here in the West. Where the dry air is likely to check the flow of honey, by drying up the nectar, we must look to it that we select flowers for nectar that have the deep cups or tubes. In the case of the white clover we have almost—not quite—an ideal plant. And while they are crowded together, they protect the honey so that there is practically no evaporation.

My time is up. Let me then repeat. My method is this, as a botanist making merely suggestions: Don't ignore color and odor in honey-producing plants, because, while you don't store up color and odor, they are advantageous in leading bees more quickly to come to their place of work. If you doubt this, you need simply to go and run over the plant

kingdom. You will find that whenever plants need insects most, they develop color and odor more. Now, bees, being more intelligent, will be drawn to these more than other insects.

Second: Other things being equal, give preference to those in which the nectar is stored down in tubes. Of course these tubes must not be too long for the tongues of the bees; but where the storage is down in the tubes, where the dry air will not take up the moisture of the nectar and carry it away.

HOW TO RENDER SMALL AMOUNTS OF BEESWAX.

Mrs. Abbott, in *A. B. Journal.*

Some day when you have a fire in your cook stove, and will not have use for the oven, tie these pieces of comb up in an old cotton cloth. Place in the oven a tin or granite iron pan with about an inch of water in it; lay two slender sticks across the pan, and on them the cloth containing the combs, in such a way that it will not dip down into the pan, nor drip outside on the bottom of the oven; shut the door and go about your work.

Take a look at it occasionally to see that all is going well. The temperature of the oven should be moderate. If the water boils, it is too hot. Regulate the fire or dampers, or leave the door open a little way. The heat should not be great enough to scorch the sticks or both.

When the wax seems to be all dripped into the pan, remove the sticks and cloth. If possible, let the fire die out, shut the oven and leave the pan of wax to cool in the oven. This will insure a slow and even cooling of the wax, and will allow the dirt that may have filtered through the cloth to settle into the water in the bottom of the pan. But if the fire is used for other purposes, remove the pan carefully and steadily, cover with a tin pot cover, a board or anything that will lie closely over it, but will not touch the wax; then place over all an old blanket or quilt, folded several times and tucked closely around the pan, to prevent the heat from escaping too fast.

On this more than any one thing, depends the quality and appearance of your wax. If it cools too rapidly, the particles of dirt, propolis, and honey will be caught in the mass, giving it a sticky feeling and a mottled appearance. If the surface hardens too quickly it will crack open as the inside cools.

Do not uncover till the pan is no warmer than your hand. When the cake is thoroughly cooled, it will loosen from the pan easily, but if you attempt to get it out before, even though the wax seems hardened, you will not only have your trouble for your pains, but you will realize as never before, what it means to stick as tight as beeswax. Scrape off with a case knife whatever settlings are on the the bottom of the cake, and you should have a clean, clear, smooth cake, that will bring the highest price in the market.

If, for any reason, the wax is not satisfactory, the cake can be broken up tied in a clean cloth, and put through the same process again.

If it is desired to make small cakes, pour from the pan, while hot, into cups or metal moulds and cover closely.

Here are a few don'ts to hang on the walls of your memory when rendering wax:—

Don't allow the wax to come in contact with iron, as it will blacken the wax.

Don't grease the moulds. It is not necessary, and injures the appearance of the wax.

Don't move the moulds before the wax cools. The wax that slops on the side will harden there and give the cakes a ragged look on the edges.

Don't let the wax boil. This tends to make it brittle and crumbly.

Don't spill any melted wax on the floor. If you do, you will be sorry.

Don't spend precious time trying to scrape and scour off any wax that may stick to the pan, but take it out-doors, away from the fire, and apply a little

gasoline. It acts as a certain brand of pills are said to act on a weak stomach—like magic.

These directions are for those who have only a few pounds of wax to be rendered. A large quantity would, of course, have to be handled differently, but for small lots I prefer this method to any I have ever tried.

SPECIALIZED DEVELOPMENT IN HONEY-BEES.

BY PROF. A. J. COOK, IN *A. B. Journal.*

Since the demonstration of the fact of the evolution of animals and plants from lower forms, men have everywhere been studying specialized organs, and no wonder for it bringst to us a wonderland unsurpassed. Every naturalist knows that organs are more or less modified, depending upon their use. The functional use of organs depends largely upon the varied habits of the animal or plants. A plant or animal that does much will give us the most interesting examples of modified organs and varied functions.

To all students of the common honey-bee the fact of their marvellously-varied functions is well known. The bee gathers the honey, which it digests and stores. It gathers pollen which it digests, regurgitates and feeds to the brood and also the queen and drones. They also gather wax by means of which they glue their combs to the hive and cover over offensive matter in the hive. They also use this to stop up cracks, and smooth over rough places. They secrete wax, which is very interesting in its make-up, transfer it from the under side of their abdomen, where it is secreted, to the mouth, where it is kneaded and fashioned into the most wonderful mechanism known to the animal kingdom—the beautiful, matchless honey-comb.

Thus, we see that bees really perform a variety of operations which are hardly excelled even by man himself. We have always supposed, indeed, that the wonderful honey-comb could not be duplicated even by all the ingenuity of man. If Mr. Weed does succeed in fashioning an article equal to the natural comb, he will indeed do a wonderful piece of work. Even then, he has to get the wax from the bees. I doubt if man ever does succeed in making an article so thin and delicate as is the natural honey-comb.

Every naturalist believes that modified function, and modified structure, have always gone hand in hand. Thus we see that the bees must have wonderful structural modifications and it is to these that I wish to direct attention in this article.

I will first call attention to the wonderful developments in parts of the legs of bees, and will first refer to and describe the marvelous antennæ-cleaners on the four legs. In order to do this the more satisfactorily, we will have to discover, if we may, the use of the antennæ. These horn like organs, which are appended to the head of all insects, must be very important. They are as prominent in the insect as is the nose to the man. We have discovered of late, indeed, that they have exactly the same function. I think we may safely say that the antennæ are more than nose, that they combine three organs in one—nose, ears, and touch organs. That a tactile or touch sense exists in the antennæ, is very patent to any one who carefully observes this insect, as it seems to feel its way, oft-times by the use of these organs. There is some reason to believe that the antennæ also answers as ears, or at least that they detect vibrations, and thus are practically the same as hearing organs.

That the antennæ are olfactory organs or used to detect odor, there is hardly any difference of opinions among scientists. There are little pits which contain projections, all lined or covered with very sensitive membranes in the antennæ of most insects. These are much more numerous and better developed in insects like the bees which have to search for their food, and are pro-

bably directed toward it through the sense of smell. Thus we are not surprised that drones, queens, and workers among bees have these antennæ pits greatly developed. The workers have to find the nectar in the flowers; the drone as he flies forth to mate must search for the queen, and the queen in turn is eager to find the drone. It is probable that each of these kinds of bees is directed through the antennæ.

Wasps, also in search for insects to store their cells, that their young may have food, doubtless use their antennæ in the same manner that the bee does its antennæ. As the bee rushes into a flower in search of nectar, it is almost certain to get its antennæ dusted with pollen—or, in other words to get its nose dirty. Thus we see that the bee as well as the boy, may need to wipe its nose.

It has no regulation pocket handkerchief, but has a much more novel and interesting arrangement by which to perform this important work. It is the antennæ-cleaner on the foreleg. At the base of the first tarsal joint—the tarsi are the last five joints on the leg of the bee—there is a concavity—more than a hemi-cylinder—lined with the most delicate hairs, and just the size of the antennæ. Projecting from the lower end of the tibia—the joint of the leg next above the the tarsi—is a spur which may, at the will of the bee, close directly over this groove already mentioned. The inner face of this spur consists of a membrane more delicate than the finest chamois skin.

Now we are prepared to note just how the bee wipes its nose, or rather cleans its antennæ. It throws its front leg forward and receives the base of its antennæ in this groove, closes down the spur, and draws the antennæ through. The brush and chamois-skin like membrane removes every particle of the pollen, which now rests on the side of the antennæ-cleaner very much as the scraping of the shoe or boot rests on the foot-scraper by the side of the door. There is a difference, however. The dirt on the boot-scraper is only good to be pushed one side. This pollen, on the other hand, is valuable food, and the bee wishes to save it.

The bee next takes this part of the foreleg and draws it through between the first two joints of the tarsi of the middle legs, and thus all this pollen is gathered on these brushes of the middle leg. The bee next takes each middle leg and rubs it over the outside of the pollen-basket on the hind legs, and thus the pollen is packed, ready to be conveyed to the hive. Thus the bee wipes its nose and gets its dinner at one and the same time.

The wasp collects its mud to build the brood-cell in the dust, and so renders its antennæ foul. Not with useful pollen, but with annoying dirt. But before the wasp seeks its insect or spider with which to people its mud-cell as store for its young, it must clean its nose or antennæ. This it does very much as did the bee.

SECURING WORKER COMB.

G. M. Doolittle's Method of Securing Worker-Comb is as follows:—When any colony is so weak that it has no desire to swarm (during or preceding the swarming season or honey-flow), such a colony will invariably build worker-comb (so that worker-brood may be reared till the colony comes into a prosperous condition), providing they do not have sufficient comb already built. Taking advantage of this fact, I use all colonies which are too weak to store honey to advantage at the beginning of the honey-flow, treating them thus: Their combs are generally all taken from them; but sometimes I leave one comb partially filled with brood, and always one of honey, giving the combs of brood to other colonies so that they will be still stronger for the honey-harvest. I now put in one, two, and sometimes three frames with starters in them, or frames which are partly filled with comb just

according to the size of the little colony, after I have taken their combs away. In all cases I see that each one has a frame well-filled with honey; for should storms or cloudy, windy weather come on at this time they would build no comb of any amount, and might starve; while with the frame of honey they will go right on converting the honey into comb, storm or no storm. If the right number of frames are given to suit the size of the little colony, they will fill them quickly, especially when honey is coming in from the fields, and each comb will be filled with brood as fast as built. If not too strong they will generally build comb of the worker size of cell till the brood begins to hatch from the eggs first laid in the newly-built combs by the queen; but as soon as many bees hatch they will change to the drone size of cells; or if the little colony is quite strong in bees they may change the size of cells sooner than this. Hence, as soon as the first frames I gave them are filled with comb, look to see about how many bees they have; and if they are still well stocked with bees, or are in a shape where I may expect that they may change the size of cell before they reach the bottoms of the frames with worker-comb (should I spread those apart which they already have and insert other empty or partially filled frames), I take out the combs they have already built, and thus put them in the same condition they were when I first started. But they will not build combs quite as freely this time as they did before, unless there can be some young bees hatching; so, if I can conveniently, I give them a comb containing mostly honey and a little brood (if they have such a comb it is left with them, which is more often the case than otherwise) from some other colony, when they are ready to work the same as before. In this way a colony can be kept building worker-comb all summer, or till the bees are nearly used up from old age, the colony becoming so small as to be unable to build comb to any advantage under any circumstances. But if just the right amount of brood is left, or given them, so that they stay in about the same condition, they will build worker-comb all summer by the apiarist supplying honey or feed when none is coming from the fields. If not so strong but that I think they will still continue to build worker-comb, instead of taking the brood away, I spread the frames of combs (now built) apart, and insert one or more empty frames between, when these will generally be filled with worker-comb before enough young bees hatch for them to change the size of cell. But *this* is always to be kept in mind, whenever you find them building drone-comb: The combs they then have, all except the one mostly filled with honey, are to be taken away so that they may feel their need of worker-brood again, when they will build cells of the worker size once more. I have had hundreds of frames built full of worker-comb in this way, hundreds completed, and hundreds "patched" where I had cut out small pieces of drone-comb, which had gotten in, in one way or another. If anyone wishes a multilated comb to be fixed so it will be a surprise to him, just give it to one of these little colonies and see what nice work they can do at "patching" with *all* worker-comb.—*Gleanings.*

CAPPINGS.

From American and other Bee Journals.

California has nearly 5000 beekeepers who own on an average 150 colonies each.—*Pacific Bee Journal.*

Last year there was produced in the United States 50 million pounds of honey most of it being consumed by its own people.

A mis-mated queen will not produce pure drones as to the mother stock, but when Italian queens are mated to black drones, they will produce some black drones, which is sufficient proof that they get some of the black blood of the father.

Drones from pure Italian queens, vary all the way from black to yellow, but the bees should be uniformly marked having three distinct yellow bands.

A German bee paper says wax may be prevented from cracking by lining the moulding vessels with paper. The wax thus has no point of attachment strong enough to crack it. Another goes a step farther and makes the moulds out of paper altogether. A sheet of paper may be folded at the corners so as to make a tray, and this is laid on a level table, surrounded by any articles at hand which will keep the sides from lopping over when filled with wax.

Mr Pettitt of the Ontario Agricultural College, has experimented to ascertain the best way of producing comb honey with the fewest pop holes. His conclusions are that a bee space should be over the top of the sections Also that the outside sections with two bee spaces and divider between them and the sides of hive were better furnished and cleaner than the side with only one. The bees evidently requiring an outside space to pass from section to section.

The best time to transfer is 21 days after the colony had swarmed. Leave the colony where it is till fruit blooms next year, and many are coming to the opinion that you will do still better to wait till the bees swarm. Hive the swarm in the hive you desire, and then 21 days later, when all worker brood has hatched empty the old hive. Queen cells, as a rule, are started before a swarm issues, and are sealed at the time of swarming. —Dr. Milllr.

Dr. Miller says :—I doubt whether drone foundation in the supers would prevent the building of drone comb in the brood nest. At the time of the honey harvest there are two things that will secure worker comb in the brood nest, the first being very weak colonies, and the second full frames of worker foundation. As we don't want the first we are practically shut up to the last. Supposing that we had drone foundation in the supers and worker comb in the brood nest, there will come a demand for drone brood, and no drone comb being in the brood nest the queen will go up and lay in the supers. She may be prevented from this by a queen excluder but in that case the workers will hold some drone cells vacant in the sections, waiting for the queen to lay in them.

Herman F. Moore, in *Gleanings*, writing re prosecuting adulterators in Chicago, says :—We must remember who are our foes here in the outset. I inclose a clipping from a Chicago paper about the *Glucose Trust*. A new incorporation of the G. T. has just been made in New Jersey, with $40,000,000 capital stock. These people are pushing their business here in Chicago, as I believe $1,000,000 worth a year of their products is consumed and handled through the city in a year. They would fight us tooth and nail. Their first fight would be to furnish unlimited money to hire the best lawyers in Chicago to defend any one arrested for mixing honey with glucose, and to pay their fines if convicted. If the beekeepers desire to push this matter it would be necessary to provide not less than $1 000 in money at the start to pay necessary expenses. It would be necessary to *retain*, to aid in the prosecution of offenders, one of the best lawyers in Chicago —one whose name would carry prestige in the courts and before the people. To retain such a lawyer a liberal fee would be necessary.

Prevention of Swarming.—C. P. Dadant says :—Plenty of breeding room at the opening of the crop, plenty of empty comb for the first rush of honey, plenty of ventilation, and as few drones aspossible—those are the main requisites. As a matter of course, those who run exclusively for comb honey will find more difficulty in keeping down the swarming, but if they have empty combs in sections from the previous year to induce the bees to occupy the supers ; if they use capacious supers and capacious brood chambers ; if they put the supers on before the opening of the crop ; if they

avoid the breeding of drones; and, above all, if they keep their bees comfortable by seeing that they are never suffering from the heat or from overcrowding, or from any difficulty in ventilating every part of their dwelling, they can to a great extent decrease swarming. There is, in our opinion, but one incurable cause of swarming, that is, if the bees have a queen which for some reason they wish to supersede, either from her decrease in fertility or from some defect. They then rear a number of queen cells and in a good season the queen goes forth with a swarm. But with young queens, in the circumstances above enumerated, but few swarms will come forth. At least that is our experience, based upon a practice of nearly 40 years.

J. A. Buchanan, in *Gleanings* says :— Some four or five years ago I visited grocers in different towns and cities, on the hunt for bargains in honey which had stuck on their hands, and being candied, it was not wanted, but looked upon with suspicion by both grocer and buyers. I found in one store several hundred 3lb. cans of candied white-clover honey, and bought the lot at 5 cts per can, and the grocer was glad to get it out of the way. This honey was labelled with plain directions for restoring to the liquid form. It is surprising how few persons there are who will read instructions in the management or use of any article. Also it has always seemed a mystery to me how it comes, that, in nearly every case, we are able to purchase honey of the same quality from commission merchants of the large cities at a less price than we can buy direct from the producer. Perhaps bee-keepers ship to the cities in the hope of getting the best prices; but after waiting long and getting anxious for returns, they advise their dealers to close out at once to the best advantage, which is sure to be to any other person's advantage more than to that of the owner of the honey. Now let every one who can find anything like a fair home market go to work and supply this and keep it up, which plan will be found to give, in the outcome, the best and most permanent satisfaction as well as profit.

In Gale's Ferry, Conn., is a large old-fashioned house of cozy appearance, which is fairly dripping with honey. The dwelling is owned by Albert Bennett. It is fully 100 years old, and is so completely surrounded by cloverfields, groves of locust trees, and beds of old-fashioned flowers as to be very attractive to passers by, as well as to bees. Nearly five years ago bees became so plentiful in the fertile tract that several swarms of them made their homes between the clapboards and lath of Mr. Bennett's house, near the peak of the west end, and since that time they have spread all over the house, until now they are troublesome in hot weather. A few days ago Mrs. Bennett left an attic room open for an hour or two, and upon her return found that a colony of bees had crawled through a partition and swarmed in the room. They drove her from the apartment. During the years the bees have been living in the walls of the house, the crop of honey has been steadily accumulating, and it is now so abundant that, under the influence of the hot summer sun, it oozes out from under the clapboards in various places, and one has only to place vessels beneath to catch as fine a grade of extracted honey as is being stored in Connecticut to-day. Good judges of honey gathering believe there is more than half a ton of honey and comb under the clapboard, and Mr. Bennett has consented (such a nuisance have the bees become) to have the crop harvested next fall. To do this it will be necessary to strip the clapboards off the house, and the job will have to be deferred until cold weather in order to avoid the risk of angering such a mass of bees.

S. A. Deacon, of South Africa, and E. E. Hasty, of the *Beekeepers' Review*, both consider the question should be answered, "Have the advantages of getting rid of drones been over estimated?" They think so.

CRUMBS.

AUSTRALIAN YANKEE.

SECOND SWARMS.

There are a number of ways of preventing after swarms, some of them are good, but the most of them are bad. The method I prefer is as follows:—I hive the prime swarm on a new stand and then go to the old hive, and examine all the combs and remove all queen cells. To do this shake the bees off of each comb, otherwise you may miss a cell or two. When all the queen cells are removed I introduce a laying queen and all swarming is over with that hive, and in a few days it is as populous a colony as though it had never swarmed. If the new swarm is given frames filled with worker comb or full sheets of comb foundation, it will very soon build up to a strong colony, whereas if the bees have to build all their combs from starters it will be late in the season ere they are sufficiently strong to store any honey in the super.

HONEY HOUSE.

If you only have twenty colonies of bees you should have a honey house, as the good wife does not want the honey in her nice clean kitchen. For 20 hives I would make the honey house 15 x 10 feet, this will be large enough to do all extracting and to store the honey in. For 100 colonies, I would build it at least 40 x 20 feet, divided into two rooms, one small one for extracting in and a larger one to store the honey in. It would be best built sufficiently high to allow an attic which would answer admirably to store the supers in during the winter months. I would build the walls of corrugated galvanised iron and line it with ½inch lining boards, the ceiling to be of the same with well fitting doors. This will make a mouse proof building. The windows should have wire cloth tacked on the outside, spaced out ⅜ inch from the wall and extending up 12 in above the window, the top to be left open so as to allow the bees that may be brought in on the combs to escape, but no robbers will ever come down into the room. I would have a stove in the room where I store the honey so that I could heat the room up to 150° or even higher, so as to liquify candied honey or ripen any honey that may have been extracted before it was fully ripened.

ENTRANCES.

Ever since the bar frame hive was invented there has been much ado about what size, and what shape, and what shape, and what position in the hive the entrance should be. All things considered, I think pretty well all agree with me that a long slot about ⅜ x 12 inches is the best kind of entrance to have, and as to position it is best to have it so as to come at the ends of the frames and on a level with the bottom board. All hives should slant towards the entrance to facilitate the removal of dead bees, and also to prevent water from running in. If the entrance is at the side of the frames we cannot give the hives the desired pitch or else it will throw the frames out of true, or if fixed frames are used the combs will not be built true in the frames. The bees much prefer an auger hole up near the top of the hive. If you doubt it just try one hive and see how quickly they will desert the entrance at the bottom of the hive, and use the auger hole at the top. Such auger holes are not desirable as they let in too much cold wind in winter. I have had my bees fill such holes with propolis in the autumn, and use the old ⅜ x 8 inch entrance for the winter, but as soon as it got warm weather in the spring, they gnawed away the wall of propolis and used the auger hole all through the summer. This winter (1897) being a mild one they have left the auger hole open. I do not like the entrance cut out of the bottom board such as is used in the Bristol hive and by the Hetheringtons and Elwood in the Quinby hive. I like to have a little sunshine in at the entrance of a morning, as I always find that the bees go out to work in greater numbers when the sun shines in at the entrance of a morning.

QUEEN REARING.

In these days of cheap queens I believe it is cheaper for the amateur to buy his queens off of some reliable breeder as it takes years of study to breed up bees of first class qualities, whereas by buying untested queens you get the fruits of years of work and study on the part of the queen breeder.

No queen breeder who is worthy of the name will tolerate any but the best of bees in his yard, best in everything. I fully believe that it would pay the honey raisers to buy all of their queens as by buying them by the dozen or hundred they can be had very cheap, and considering that a good queen will live from two to five years, she is well worth more than double what she costs. But of course all beekeepers will want to rear a few queens. There are almost as many different ways of rearing queens as there are people using them, and they all have some good point, the one I use and like the best is the Doolittle Method. I refrain from giving it here as Friend Doolittle has published it in a book. It is well worth the price charged for it. It reads almost like a novel. I have read it almost a dozen times right through from cover to cover. Good queens may be reared in the following way:—Go to any good strong colony when the bees are gathering honey, and remove the queen, close the hive and leave it thus for twenty-four hours, now take away all of the unsealed brood from the queen less colony, shaking and brushing off all the bees into the hive. Give the frames of brood removed to some colony to look after (it is best to place them in an upper story with a queen excluding honey board underneath.) Now go to the hive that has your best queen in it and select a comb that contains only egg or larvae not more than 36 hours old. If you cannot get a frame that has only eggs or 36 hour brood, cut out a piece that does contain these and insert it into an empty comb and treat it in the same way as the comb described below. We will suppose that you found a comb full of eggs or 36 hour brood, you are to shake and brush off all the bees, put an empty comb in its place and close the hive, then carry the comb of eggs to the queenless and now broodless hive, hang it in and adjust the combs containing honey on each side of it, add more empty combs if the bees need them to cluster on. It will be a little better if you cut a few holes in the comb of eggs before placing it in the hive; close the hive and leave it for 24 hours, when an examination will in most cases show that the bees have in most cases commenced to build a number of queen cells. They shauld now be left undisturbed for 10 days, when all the cells but one should be cut out and given to nuclei. Now go to the upper story where the frames of brood were put that you took away when you put in the choice brood, shake the bees off the combs and give them back to the old colony that built the cells. In this way it does not weaken the colony very much. In giving cells to nuclei it is best to put them in a West cell protector as the bees cannot tear them open and destroy the young queen. In about 16 days from the time the eggs were laid the young queens will hatch and in about a week more and they will be laying. If nothing but eggs were given the bees to rear the queens from they should be all large healthy queens. Do not mind if some of them are nearly black as I have had black queens reared from imported mothers, but when their bees hatched they were all three banded and as gentle as could be. It seems a trait of the Italian bee to throw queens of almost any colour from a bright orange colour to a jet black, but the workers all have the three golden bands.

F. B., Broadwater, Richmond River: I have about 50 boxes (frames) well looked after and free from grubs. The past season has been a splendid honey season and the bees are swarming already and honey pouring in both from the clover and gums.

RENDERING COMBS INTO WAX.

G. M. DOOLITTLE.

It would seem from the many articles given upon this subject that no more should be necessary; yet I am well aware that new beginners are constantly entering the ranks of bee keeping, and for these, articles in our past bee papers avail nothing. Therefore I will give my way of rendering wax, where large quantities of old combs are on hand, as requested, for in some essentials my plan of doing this is different from any I have ever seen described. For bits of comb, cappings, etc, which are constantly accumulating in any apiary, the sun wax extractor works splendidly, and I should consider no apiary complete without one of these; but for a lot of old comb, many of which are partially filled with pollen, I know of no way equal to a caldron kettle, outdoors, filled two-third full of water, with a fire under it. With this, used as I shall soon describe, I think I can get fully 98 per cent, of all the wax out of such combs, and rather more for each square foot of such old comb than I can from new. Instead of hanging the kettle over the fire as is usually done, take a measure of your kettle on the outside, a little way up from the bottom, and go to your blacksmith and tell him you wish a piece of old heavy wagon-tire, welded so that the inside shall represent your measure. To this you want three or four (the latter being preferable) square or round bars of iron welded, at equal distances apart, for four leges. These should be of suitable size to give strength enough to support the weight of the kettle and contents, and long enough to raise the kettle from four to six inches from the ground at the lowest point. After getting the kettle holder home, place four flat stones just under the surface of the ground where you wish the kettle to stand, at proper places, so that each leg will rest on one, having it at such a point as will be handy for all the work done with such a kettle, such as heating water in butchering time, boiling potatoes for the hogs, etc, for the smallest past of the work our iron friend will probably do is getting out the way. After once having a kettle fixed this way you will never want one hung on the two stakes and a pole of our fathers. Besides the kettle you will want a sack made of burlap or some other stout open cloth, which you are to fill with the old comb, stamping it in so as to get all in as compact a condition as possible. Next take a piece of four-inch softwood plank, or two pieces of two-inch plank, spiked together, will answer, though not quite so good. Now round one side of this, so it will fit the bottom of the kettle, leaving the other flat. To the flat side fasten (by cleats or otherwise) a standard of suitable length, which should be flattened on two sides at the top and have several holes bored in it. Then get a three or four inch scantling, or a suitable pole from the woods, and mortise through it near one end for the top of the standard, boring a hole through it in an opposite direction for a pin or bolt to pass through it and the standard. Beside this you will want a log chain when we are ready. Fill the kettle two-thirds full of water and bring it to a boil, in doing which use only light fuel so not to have a hot fire except for the time being; because, if otherwise, it would be too warm for working around it and might boil over. Now put in your sack of old comb, and with an old hoe press and squeese the sack against the sides and bottom of the kettle, rolling it over each time as you press. The wax will rise with each pressing of the sack, and if the comb is not all in you can soon raise the mouth of the sack out of the water, and after it has cooled a moment, untie, fill up again, the hot water helping you to get in more and more, and so on till all is in. When all is in the sack, and it has been worked over several times with the hoe, take the log chain and fasten each end to the ears of the kettle, while the middle of the chain is to be fastened to the short end of the pole or scantling. Now put the rounded plank end of the standard on the sack

and sink it to the bottom of the kettle, when the top end is to be inserted in the mortise in the pole and the pin or bolt put through the desired hole. Now go to the long end of the lever or pole, and see how you can make the wax rise by bearing down. When bearing down sway the lever back and forth and from side to side, so as to grind, as it were, every cocoon and cell of pollen fine, thus liberating every particle of wax. Raise the lever up once or twice and turn the sack over, pressing again till you are satisfied that the wax is all out, when you will hang a weight on the lever and leave it. Don't go to dripping off the wax unless you have lots of time and consider it fun to do so, for I assure you that next morning you will find it all caked nicely on the top of the water, when you can break it up and get it ready for a second melting, which all wax should have before going to market or using for foundation. If a little water and vinegar is added when doing this last melting it will help much in taking all impurities out of the wax and giving it a beautiful golden appearance, especially if all is passed through a cloth strainer and the whole allowed to cool slowly so that all small dust impurities is allowed to settle in the bottom where it can be scraped off the bottom of the cake when cold.

After taking off the wax from the kettle, take out the sack, empty out all refuse and rince and dry, when it and the rest of the implements used are to be stored away for future use. The description of this seems quite long, but I believe that in practice it is the shortest known process to get out a large lot of wax from old comb. If you think the iron kettle holder too expensive, set the kettle on three stones. If stones are used they should first be subjected to heat, else they may fly to pieces and upset the wax.

CORRESPONDENCE.

R. A. I., Cowra.:—Honey is coming in abundantly, and swarming has been very pronounced, but the extractor now keeps our "little friends" under.

A. F. B., Queensland:—We are having a splendid season here this time, the best for about five years. I think prices of honey will go down to zero here this season.

A. B., Nurrabiel reports:—Not much swarming in this district. I was at Moiston last week. Disease is rampant, (F B). Was thinking to shift there for this season, but afraid.

J. C. F., Gympie, Queensland:—As you are desirous of getting samples of honey, I forward you a sample of our ironbark honey. We have the prospect of a good season this year. We have had abundance of rain and everything is looking its best.

Sample to hand. It has a beautiful flavour, middling density.

C. E. R., Baerami,:—Dear Editor don't you think it would be a good idea for all beekeepers to get all the chapters etc. of honey as food printed into booklets, and send them round to their neighbours. I am of the opinion that if people knew more about honey, there would be far more used.

We are getting up a pamphlet, which we shall be glad to sell at low price in quantities. Will advertise same next month.

A. Ayling, Dubbo:—Bees are doing well and storing honey fast, but I never knew them so touchy over the queens. It is much more difficult than usual to introduce queens, and if a hive is disturbed it is not unusual for them to kill their queen, and sometimes when they rear another they destroy her just when she lays. It takes me all my time to keep my hives supplied with laying queens. Can you explain? I did not lose a hive in winter and can't account for the large losses reported at Dubbo, as I should have suffered with the rest either from winter loss or spring dwindling.

Mr. R. H. Jervis, Moss Vale, writes: Re Mr. G. W. Gordon on Foul Brood in Ilawarra. There is any amount from Berry along the coast as far as Uladulla and down on the opposite side of Illawarra. I have now a letter before me saying Foul Brood is unknown on the South Coast. Perhaps the same way with the Richmond and Macleay. My opinion is there is more Foul Brood about than most beekeepers think.

J. C., Bulli:—I find a lot of valuable information on beekeeping in your journal, besides being posted up with bee news from all parts of the colony. I consider myself only an amateur in beekeeping, having received my first lesson off Mr. Gale during his visit to this district some three years ago. I had 26 colonies commencing winter and have come through with 25 all in good order. I have three colonies each having two queens in separate chambers the first and second stories containing queens, and the third story for honey chamber. I think it is a great improvement, they more than doubled any other of the hives in yield last summer, and came through winter very strong. Wishing your journal every success.

A. B., Narrabiel, Vic.:—Hurriedly I scratch a line to say that bees are dying off very heavy this spring, and no help for it, as we have had too dry a winter and not warm enough to keep the bees at home, or to induce them to breed, consequently they are worn out before young bees are hatching. I have lost 112 hives up to date, the balance are mostly pulling through with care. Honey is very scarce, but plenty of pollen from cape weed and sufficient honey for the present use of bees; it is worse prospect ahead. I took a little over 11 tons honey last season, all sold readily from 2½d to 5d. Foul Brood is very bad in places, mostly with careless beekeepers. Swarming is just about starting here and with some a few will come off. We are in our off year here this year.

W. E. Fackender, Unanderra, Nov. 15th:—I beg to bring under your notice a matter which greatly affects beekeepers around this locality, and that is the sudden disappearance of the bees from the hives, in most cases when the hives are full of honey. The bush bees have also disappeared and not one is to be seen, where last year thousands were busy on the same bloom that exists now. I might mention that the Dapto Smelting Works have been in operation now some few months, and some people attribute the departure of the bees to the fumes, although they are five or six miles away. With reference to my own I have had two departures as above stated, but with the others they are in a weak condition. Although the hives are full of honey, they cannot increase, the brood looks unhealthy, the larvæ in some cases although fully developed, cannot eat their way out and die in the cell. It has no appearance of foul brood, no smell although the cappings in some cases are hollow. Foul Brood is not known on the South Coast to have made its appearance. The remainder of the hives, the bees themselves have some weakness, they crawl out the entrance of the hive with elongated bodies and almost unable to move, and die in great numbers in front of the hive. I shall fell obliged if you can give me any information on the above matters.

We are sorry we canot; perhaps some of our readers may have a say on the matter.

J. G. Hurstville, November 2:—By the way I forwarded a box containing 42 lbs. of honey in seven pound tins, to a friend in England, who has requested me to do so. He says they cannot get good honey there, perhaps it is because he has acquired the taste of our honey. He is living at Blackpool, a watering place kept entirely by visitors, so one would be inclined to think if there was any place where good honey could be purchased, it would be there. I have asked for a report and will forward same on to you for the benefit of bee men of N. S. W. I have had very good results this season so far, although I was some-

what afraid, as my apiary was attacked with Foul Brood last season. I destroyed at different times 6 hives, bees, frames, etc, but thought when reading your news where one of your correspondents informs us, that the grass in front of the hives should be destroyed also, or there will be a repetition of the disease next season. Well, I did not destroy the grass nor the stand, only bees, frames, and hives. This I did effectually so that not a single bee escaped. The result is that so far all my bees are in a very healthy condition. I should fancy that delaying the treatment, etc., has a lot to do with the spread of the disease, and as I had no time to fuss about and treat them, I consumed them with fire.

This is interesting. We feel assured there are hundreds of markets in the old country where Australian honey will sell well. Re that destruction, the hives need only be say painted with kerosene, and set alight to, so as to give them a good scorching. We believe a great deal of what is thought to be Foul Brood arises from the bees not being warm and snug enough.

W. Reid, jun., Boloko:—We came through the winter A1 with our Italian bees, but the blacks suffered heavily, about 60 per cent pegged out, as far as I can learn through our Monaro district. September was warm, but October set in cold and wet, which has stopped progress, but a month's good weather will make the bees hum alright. Yellow box just breaking out. I reside about 1½ miles from the box. Other trees show splendid. Beg pardon, Mr. Sparrow, but I wish to mention an introducing cage I have invented. I have tried all the cages I could read or hear of, but none like this. I have been very successful with it. Here it is:—Take the lid of a Bidwell's axle grease tin, cut a large round hole in top, place a piece of safe wire inside, fasten it there neat and flat with a piece of solder in three or four places around edge. Now place your queen on a comb of empty cells, place your cage over, press slightly, turning the cage to the right or left and the cage will cut in and not fall out. Hang the cage in the centre. Next day come and with a wooden pencil make a hole in back of comb in centre of cage large enough to allow the queen to walk out. Moisten the hole with honey on the outside. Queens so introduced with me commence to lay in a few hours. Except an extra choice queen, I first place my queen on the comb, screw the cage on, make a hole in back, moisten the entrance with honey, leave mother to take her chance. Come in two days after and remove the cage, all is right. I may add that I have been experimenting for four years. I call this cage the acme. I must tell you, Mr. Editor, I have been taking your paper for two years and am highly pleased with it.

E. J., Victoria:—Here I come again. My reports are few and far between. The past winter has been a very favourable one for the bees. I have wintered them in first class order. They have come out better than ever before and many have wintered with their supers on and have come out the best. Neither used mats on the frames. I find they are much better without any mat at all as they only absorb the damp. There is plenty of honey about here at present from white ti-tree but the outlook for the season is bad. So it won't do for Mr. Sparrow, to shift his apple cart near my boundaries. However I am increasing stock up for the following season which I hope will prove a better one. Dear Editor seeing a article in the last *A. B. B.* on wholesale queen raising could you let me know, where the royal jelly is got from, that is placed in the artificial queen cell. Just before I finish I will benefit your readers with a good waterproof top lid I made some two years ago and I may say that they beat any of the lids recommended as being waterproof. I generally get zinc out of piano or other cases (must be zinc as tin will rust,) then lay it nicely over the top lid over cleats and all and about ½ inch down over the edges, then tack only along the edges. The thinner the zinc the better as anything thick will draw the heat. By the time this

reaches you I shall possess between 40 and 50 colonies.

The royal jelly is produced by a certain gland in the head of young bees only. It is supposed to consist of a mixture of pollen and honey, partially digested.

G. W. R. H., Rawdon Island :—I am a bit puzzled with my Italian hive of bees. I looked over them and found as many as 4 eggs in the worker cells of 2 frames (there are only 8 frames in the hive) and there are hardly any eggs in the others. The queen appears to be alright I got her from —— three years ago. I asked a neighbouring beekeeper and he said he would leave the hive alone for awhile, but as you kindly gave me some information before, I thought I would apply to you again. What would you advise me to do? I may have injured the queen when I was handling the frames, but I do not think so as I am very careful. The season was very good till now, honey coming in plentifully. A neighbouring beekeeper has taken 17 tins honey, and got 16 swarms this year, he had about 30 in beginning. I got some simple information out of one of the *A. B. B.* that saved me a lot of trouble and expense. I say "simple," because I have been handling bees for about 4 years, and when I saw it I wondered how it was I did not think of it before. I must not write too much to you as I am afraid "Sparrow" will have a pick at me, although to a certain extent I am in favour of Sparrow's remarks, but when he draws it too fine I leave him. I know that if I had taken the A.B.B. and sought your advice on several matters connected with bees I would have been better off. When I started bee-keeping I bought swarms at 5/- per hive, and in 18 months, what between buying timber and local made boxes, wax, and bees at 5/- without the queen, (as I found out after that the person I bought them off was in the habit of dividing one swarm into two, and selling them as 2 colonies,) I lost a little over £13.

Either she has not bees enough to attend to her, to get cells ready to lay in, or else she is an old queen. In the former case give a frame of uncapped brood, in the latter case screw her head and get a fresh queen. Many thanks for new names, we are sending them sample copies.

Mr. R. Beuhne, in *Melbourne Leader* says :—I never scent the bees, nor do I shake them off the combs to mix them. Just alternate the combs with bees on them, smoking each colony first and a whiff between each two combs as you mix them. I never had any bees killed yet uniting in this way, but some once when placing one on top of the other with paper between. When the paper was getting gnawed through a battle royal began. I then united them as above and the fighting ceased. Starters on sheets of foundation in the brood nest placed alongside or between finished combs will result in drone comb from starters (a good percentage,) and badly built combs from sheets unless placed facing combs sealed all over, which at this time are hardly present in the hive. Otherwise the cells of the old combs not containing brood will be lengthened at the same time that the foundation is being drawn, and ugly combs old and new will result, which can only be used between other frames after being trimmed. If you want straight even combs completely filling the frame, put your frames with full sheets in the super (no honey board) if possible, without a bee space between top bar of brood frames and bottom bar of foundation frames. Some colonies are much better at comb building than others. I had a few doing nothing but drawing foundation, one set of frames after another all through the honey season. As they appeared to be experts at the business, I kept them going, putting another set of foundation between brood chamber and super whenever the former was well under way. I passed all last season's honey through a warming aparatus, not to evaporate, but to liberate the air which becomes incorporated in the extracting process, which sooner or later would rise and show as froth in the tins if tinned too soon. By this method I can draw and tin the honey the day after extracting. Of

course combs are almost completely sealed when extracted. I use steam to heat water, and hot water to warm the honey. The surplus water from condensed steam goes back into the boiler, which is located in the kitchen fireplace, with a steam pipe leading into the honey room, aud the cook being my stoker, it is automatic so far as I am concerned.

CAPPINGS.

From American and other Bee Journals.

Toads are said to be very fond of bees.

Last year's honey crop of Southern California has been estimated at 250 to 300 carloads—(12 tons to a car.)

An excellent rule to follow in extracting honey is never to extract until the combs are filled and capped at least two-thirds of the way down.—*A. B. J.*

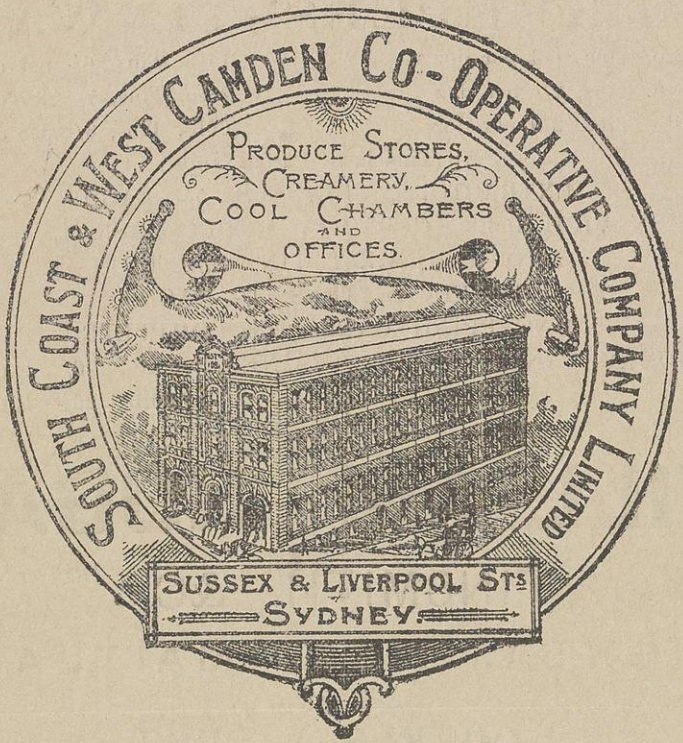
The Belgian Government has issued an order that all railway embankments shall be covered with honey plants.—*Bienen-Vater.*

E. R. Root, in *Gleanings*, says :—In regard to dispensing with a veil—yes, this can be done, but it doesn't pay. I have seen some of these same chaps boast of how they did not need any face protection ; yet I have seen them waste valuable time in stopping to put the hands up to the face, or plunge the head in a clump of bushes in ignoble retreat.

A Mr. Monnier, in *Gleanings*, recommends as a cure for paralysis, the running of several healthy swarms into hives containing affected colonies. *The healthy bees would at once attack the diseased ones and carry them off.* Surely the apiarist could destroy the diseased colonies instead of giving healthy bees all such hard work. How much more simple to kill the diseased queen, and let the poor diseased bees die off quietly ?

Bee-Escapes.—Dr. C. C. Miller. says in *American Bee Journal* : —My reason for not using escapes are :—I can't wait for them. When I go to an outapiary I want to take home with me the honey I take off that day. I dont want to be obliged to make an extra trip next day to go back after the cleared supers. Even in the home apairy I want to finish up the same day, for most likely I want to start off early the next morning for a full days work in an out-apiary.

Honey Sales a Specialty



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