The Australian bee bulletin. Vol. 10, no. 8 November 28, 1901

West Maitland, N.S.W.: E. Tipper, November 28, 1901

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THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W.

Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

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NOTICE

SHOULD any beekeeper have a doubt of the genuineness of any honey sold in his neighbourhood, send a sample to the Chairman Board of Health, Sydney, who will cause it to be analysed, and take proceedings if necessary.

Printed and Published by E. TIPPER, proprietor, High Street, West Maitland, N.S.W.

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MAITLAND, N.S.W.—NOVEMBER 28, 1901.

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

Supply Dealers.

R. K. Allport, Chuter St., North Sydney.
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A. Hordern & Sons, Haymarket only, Sydney.
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The Farmers' Co-operative Company, Ltd., Sussex street, Sydney.

KEEP UP THE PRICE.

THE bee-farmers of N. S. Wales at least have a good opportunity now to make a stand for an advance in the price of honey. From all we can gather the crop of the colony will not be too great, the number of bees being less through the past bad seasons, and the effect of the new tariff being to raise the price of both sugar and jams, articles that come most into competition with honey. Tinware must also be affected. It will be well, therefore, for beekeepers to arrange with their fellow beekeepers in their local centres, as to the price to be charged, and when sending honey away to distant places for sale also make some arrangements as to the price they wish it to fetch. Supply and demand are said to always rule the market, but are there not times when the suppliers themselves should take a firm stand? and we feel assured the present is one of them.

As in many places the Schedules of Agricultural Shows are now being prepared, it is well to give a thought how they can be worked to the advantage of the honey industry. We will not stop to criticise how this has been done in the past. Let us look to the future. The shows should be the means of popularising honey, not creating a lot of to-be-disappointed men, who will be an injury to the industry. The greatest distributors of food are the storekeepers. What the beekeeper does himself in getting honey to the consumer, is small to what the storekeeper does. Therefore the encouragement of the storekeepers in the disposal of honey should be the greatest aim of those who get up apiarian schedules for shows. The display of honey in hundreds of grocers' counters or windows must have an immense effect on the sale of honey. Therefore the prize money should be given, not to a lot of practically useless matters, as has been done in the past, but for the nicest and neatest displays of honey suitable for a grocer's counter or window. And as we cannot expect storekeepers to stock large quantities, or even display same to the obscuring of the hundreds of other articles in general use by the public, let the prizes be given for neatest display of small quantities, say, not to exceed 100lb.

or 200lbs. weight. Let the prizes be such that the tasty shopman will feel an interest in competing for. And let not such displays be the means of injuring the industry, by selling the honey at abnormal prices to the temporarily admiring visitor, but at the price the same vessel or section would fetch at the shop in which the purchaser would afterwards renew his acquaintance with the luscious and health-giving food his attention had been drawn to at his local show.

Several years ago Mr. Pemberthy complained of heavy loss by spring dwindling, believing the cause was wheat pollen. Last season Mr. Beuhne was a great sufferer by same, putting the blame on grey box honey gathered late in the previous year. This season Mr. C. U. T. Burke is a great sufferer, attributing the loss to poison containing treacle placed to destroy rabbits. A South Australian beekeeper has also been a sufferer. The latter sent us a sample of the dead bees which we immediately forwarded to Mr. Helms, of the N.S.W. Chemistry Department, for analysis. Unfortunately, before they reached him they were too far decomposed for investigation. We will ask beekeepers to bear these matters in mind, and should next spring any of them find their hives dwindling away from some unknown cause, immediately forward us specimens and we will forward same to the proper authorities for analysis. Mr. Helms of the N.S.W. Agricultural Department, has kindly promised he will do his best in such cases, and we believe him to be thoroughly competent. If the cause is ascertained it will be a satisfaction even if no remedy is possible.

In connection with this read Messrs. Penberthy's and Beuhne's articles elsewhere.

WORK FOR THE MONTH.

If you don't want to increase cut out all drone larvæ and queen cells. See all queen's wings are clipped. If your bees swarm or you want increase, remove hive to fresh place. Put new hive in old place, in which put a frame with larvæ and some frames with starters. Starters or pieces of foundation comb, say, about one inch wide, or else pieces of comb fastened under top bar. Placed between full sheets the bees draw them out as straight as you could wish. If queen's wings are clipped so she cannot fly, she will be found on ground near hive surrounded with a cluster of bees. Keep down drones in your hives. When in larvæ it takes honey to rear them, when fully developed it takes honey to feed them. They do not gather honey, they consume. Keep all drone brood out of brood chamber. A queen excluder board —a zinc board, through which workers only can pass—over such will keep the queen confined to that part. And if the bees really want drones they will have them there in spite of all you can do. Should by any means you have what you consider too many, either shave the caps of the cells off with a sharp knife, or cut the comb out. But prevention is better than cure. You can lay the comb on a worker comb, cut through it on to the worker comb, and so get a piece of that that will fit exactly in place of the drone comb cut out. A young queen with a poor swarm, given starters will raise nothing but worker comb. Frames from such can be given hives that require such, and fresh starters given in place. When winter comes on and the swarm diminishes in size, cut out all drone comb and render it into wax. After you have kept bees several years you gradually learn how to regulate this matter from experience.

JAMS.

As the price of sugar has risen we presume there is more chance of honey being used instead for the making of jam. We therefore give a few recipes for such. Tell your neigbours about it :—

LEMON AND HONEY YEAST.

Take the juice of two lemons, one tablespoonful of honey, cup of boiling water. When luke warm add 1 tablespoonful of flour, or better still, piece of dough from last baking, must be made fresh each baking. Much nicer than hop yeast and quicker.

PRESERVES IN HONEY.

Take the fruit and boil carefully so as not to break it. Then allow ½lb of honey to each pint of the water, boil again, skimming very carefully and pour over fruit in jars while hot, taking care to keep the jars air tight.

HONEY PUDDING.

Make a nice paste with either suet or dripping, and roll very thin, put some honey in greased basin, then layer of paste, honey till it is filled and steam two hours. Honey tarts are very nice made same way.

Old queens are said to be better to rear queens from than young ones.

See that your neighbouring beekeeper takes the "A. Bee Bulletin."

ERRATA—In last issue, page 148, 11th line from bottom, "new" should have been "old."

Mr H. L. Jones, of Goodna, Queensland, writes us he has some of the progeny of Mr. Root's long-tongued bees.

It is anticipated owing to promised good flow not being realised in Southern California, the price of honey will rise there.

Some beekeepers use a book to make records of their hives. To do this you need a clerk to follow you round or the leaves will get gummy with alternately handling hives, frames and book. We make marks on the hive, a stone or stones on top, a pencil mark, a bit of leather of different colour tacked on side of hive. By the latter we know the age of our queens.

PUBLICATION RECEIVED.—"The Commonwealth, an annual of Australian Art and Literature," a spendidly got up publication issued by the N.S.W. Bookstall Company, and a product of the firm of John Sands & Co. It is essentially an Australian product, writers, artists, printers and publishers being Australians, and everything is first class. It is full of word pictures, life in the bush, life in the battle field, and the illustration and get up are all in accordance. We recommend our readers when looking for good literature not to overlook it.

QUESTIONS.

15. Have you ever tried queen raising in the following manner:—Take your choicest hive, before the honey flow is over, and take away all unsealed larvæ and queens, leaving only eggs. All the young bees that up to this time were busy feeding the larvæ (now taken away), will be ready for feeding larvæ for queen cells. Only eggs being present they cannot start too old larvæ to make queens with?

G. BUTLER.

15. I have never raised queens on the plan suggested in this question, but I think the idea a very good one. The absence of queen and larvæ will, I think, induce the bees to devote all their attention to queen-raising, and should produce queens of superior strain. I have produced fine queen-cells by putting the queen and brood frames behind a perforated division board, leaving the eggs on the other side, which is somewhat along a similar line. I always did this when the bees were in good trim for business, and when there was a good honey flow on.

A. A. ROBERTS.

15. Have not tried the plan mentioned, it would not suit my business. You would probably rear some good queens by it, on the other hand the bees would be very anxious to rear queens, and would be kept idle in that respect for three days, and when the bees got the larvæ to work on they may cap the cells too early as I have seen them. And, again, if you did not brush all the bees off the combs you would take away nearly all the nurse bees on the frames of brood. I much prefer the grafting method.

F. W. PENBERTHY.

15. No, I don't remember ever trying to raise queens that way; too much risk shifting breeding queens every time you want a few queen-cells. Bees generally eat the eggs when there is no larvæ or queen, they rarely start with larvæ that is too old. There is no difference between a worker and queen larvæ at two days from the egg, and cannot correctly call it any other but a female larvæ at that age; as we can control the result, whether taken from a queen cell and put in a worker cell or taken from a worker cell and put in a queen cell. A

highly developed queen is mostly the result of feeding on fresh jelly direct from the nurses as long as the larvæ will take it, whereas the small queen is sealed too soon, and rather than eat stale jelly, which is sour, they go without. I have seen queen-cells sealed with very young larvæ in them, in one case an egg only.

QUESTIONS NEXT MONTH.

W. S. FREEMAN.

16. The cause of divided colonies swarming out when the queen cell hatches, and leaving sealed brood and bees behind. My bees have a mania this season for doing this. I have given hatching brood but they won't start any cells?

SPRING DWINDLING.

F. W. PENBERTHY.

There have been heavy losses in this district this spring. Two beekeepers lost as much as two-thirds and the rest are very weak; another lost 30 and about 20 will be of no use for honey this season, out of 100. My loss is no so great, about 10 per cent. and about 20 per cent. very weak. Hives in the shade suffered most, those hives faced to the N.W. averaged very good condition. The loss in the different yards seem to be in proportion to the distance they were from the white box, which was in bloom all winter, bees breeding all winter, nearly half as much as in summer, a few stocks brought in a surplus of fully 30lbs. honey since the beginning of June, to the time of the dwindling. I cannot think it was the autumn honey because they were bringing in fresh honey every warm spell and were all in splendid condition at the end of July. I have never known bees before make such a mess over everything (outside) as they have all this winter, and about the dwindle, it was harder and kept its round shape just like worms, how many could not pass it at all I cannot say. I am afraid it had a lot to do with the loss coupled with the want of pollen and water they ventured out when it was too cold to get home again with a load, as a great number had little or no pollen in the combs, but a lot of dead brood. I extracted all the supers at the beginning of June and the bees have not used any honey from the brood chamber as the combs are all capped except where the brood was.

VICTORIA.

VICTORIAN NOTES.

BY R. BEUHNE.

Spring Dwindling.—I am sorry to learn from last A.B.B. as well as from a long letter of Loyalstone's that he has undergone a similar ordeal to the one I went through over twelve months ago. I can sympathise with him if any one can. The experiences of Loyalstone and the conclusion he draws are identically the same as I expressed, and may be summed up as weakness and shortlivety of worker through being raised on unsuitable food. In a German Bee Journal appears a statement that bees wintered on autumn honey exclusively will fare very badly in spring. In my own case the hives were quite empty of honey when the autumn flow commenced, hence the severity of my losses. The honey, although commercially a first-class article, must be deficient in some respect as bee food, or else affected by a fungus detrimental to the health of the bees when mixed with pollen and water as food for the larvæ.

Swarming.—Swarming so far has been very moderate, although the colonies average well for strength, and what swarms I have had have been good ones 8 to 10 pounds weight, excepting swarms from colonies obtained last year from the neighbourhood of Melbourne and not requeened. These are the worst swarmers of all the different strains I now possess. They swarm before entering the supers, they swarm early and often, and usually turn out three or four times day after day after being hived. It matters not whether

they are hived on drawn combs, foundation or starters with or without a frame of unsealed brood; out they turn all the same.

Work for the Month Last Issue.—I don't quite agree with some of the editor's practices. You raise a crop of drones and then cut their heads off or cut out the piece of drone comb. In the former case the bees will drag out the corpses and the queen will lay into the cell again; in the latter the bees will build another piece of comb of the same sort. Of course you get the wax which is about the same thing as, when your horse dies you get the skin. One square foot of comb, about 2oz. wax, say 2d to credit; against that you have raised over 4000 drones where you should have raised 9000 workers, for according to Root there are 30 drone cells or 50 worker cells to the square inch (2 sides), and the drones occupy the cells 28 days, the workers 21. Of course you do not cut out a square foot, but a little here and a little there, but it amounts to the same thing. Why don't you put worker comb into the super and let the queen lay wher he likes, then when the honey flow commences put your best brood and queen into the lower chamber, and the rest and any drone comb you may have (but should not have) into the first or second super, or use your surplus brood to help stragglers, there are always some to be found.

Removing a hive to a new location and putting a new one in its place, all the field bees will stick to the new location. They don't with me, but return invariably to the old location.*

Then again when queens are clipped swarms do not settle, not more than one in ten with me, but fly round and return to the hive. How then can you dump the swarm in when you have not got it dump? The queen also is very often found quite alone while the swarm is on the wing and will run back into the hive, or into any other hive if not found very soon.

The only workable plan with clipped queens I find is to remove the parent stock as soon as the swarm has issued, (having caged the queen previously) and put a new hive on the old stand, and when the bees are returning to that let the queen run in with them, or hang the cage between the frames. Only once in a while a swarm will oblige me by clustering somewhere, and that occurs so rarely that I usually suspect trickery if they do not return in 15 minutes, as they sometimes pick up a flying queen a virgin happening to be out. Of course it may be a matter of locality, and bees perhaps do things differently in N. S. Wales.

* Quite right friend Beuhne. A printer's error. It should have been the "old" location.

Observation in an Observatory Hive.

A writer in an English paper gives the following account of the change from the larvæ to the fully developed bee:—

The first thing noticeable was the general wrinkling of the skin, with signs of a neck and waist being formed. Then very slowly a vague outline of limbs and wings was formed, so gradual that you could not say how it was done. There was something ghostlike, something quite uncanny, in this constant motionless development. Day after day the pure white nymph lay perfectly still on its back; no sign of life, no sign of colour. At last, on June 18th, the head began to color purple. Next day it darkened a little, and the body showed slight signs of color. On the 20th came the first sign of life. At first a slight motion of the head from side to side; later in the same day the legs began to move a little. On the 21st the body became generally darker; the wings were tinged towards the points of attachment, but the nerves remained pure white. That morning the insect—for it was by then to all intents an insect—began to push with its legs, while the head moved more frequently from side to side. Life was coming fast. By noon it had turned itself right over, and for a

while lay on its belly, after which it turned back again and rested. In a short time these movements were repeated. The thorax had by this time become very dark, and hairs were now visible all over the body. At night the insect looked very like a drone, and by the next morning, the 22nd, the tomb was empty, and work-bees were busy polishing it up. From the time the young creature showed signs of life workers had been very busy at the capping of the cell, but I could not see that they did anything towards freeing its inhabitants.

Arrangements had been made to secure plenty of drones, and I was able to study the method adopted to get rid of them. The first sign of it was that here and there a worker climbed on to a drone's back anb nibbled at him in a playful way for a few seconds, generally at the base of the wing. The drone would shuffle on an inch or two and apparently think no more of it. In a few days these attentions became quite spiteful, and soon workers could be seen hanging on like little furies to the poor drones, and dragging them with many and an indignity to the entrance. Sometimes a drone would force his way back; but in the end the unfortunate males had been so worried and hustled, that they became disheartened and no longer dared attempt to return. Doubtless they soon perished from cold and hunger, for the drone consumes much food, and is, I should imagine, quite incapable of procuring any outside the hive. As to the workers stinging the drones, I saw no signs of it : not only would it appear to be unnecssary, but there would be some risk to the worker in attempting it. In the unkindly office just described, a want of unanimity seemed to obtain amongst the workers. The greater number of these do not attempt to molest the drones. During the period, of bitterest persecution I actaully saw a worker feeding an expelled drone in the covered way near the muuth of the hive.

It has often been observed that the drones pack together in corners of the hive when their time of tribulations begin; but the packing seems to be a habit of theirs at any time. Early in the season one might see as many as thirteen or more drones packed closely together on the comb. Perhaps two or three workers among them, but all the rest of the cluster were drones.

UNITING SWARMS.

It is a simple and easy matter to unite successfully swarms that come out within three or four days of each other. All that is necessary is to hive the swarm that issues last in a separate hive, and leave it in this till evening, then carry it to the hive that contains the swarm which it is desired to unite it with. The bees of this swarm, that issued first, are now smoked enough so they will thoroughly fill themselves with honey; or the plan will work if there is no honey in the hive for them to fill up on, if they are smoked enough to take the fight all out of them. They are now all shaken, in any way most handy, down on the ground in front of their hive. Then the bees of the last swarm are dumped on top of them and all allowed to crawl into the hive together. The whole operation need not take over five minutes, and has always been a success with me. The bees of the last swarm need no smoke if they are united the same day they swarm, but the plan will also work just as well as if the second swarm is left until the second or third day; but in this case the bees of both swarms would need to be well smoked, and, of course, the hive that contained one swarm would, the first day, have to be set close beside the other, or the bees from the swarm moved would return to the location or place where their hive was first set, if there is a laying queen with each swarm, and as I have no particular preference as to which survives, no attention is paid to them. Of course, one is always killed, and this is almost invariably done the first night. Whether this murder is committed by the bees, or settled by

royalty itself, I am not able to say, but my opinion is that the bees are not guilty, for I have often noticed these queens that would be found dead in front of the hives the next morning, and their wings and the hair or fuzz on their bodies was not gnawed or marred up, which, so far as I have observed, is usually the case when a queen is balled and worried to death by the bees. However this may be, I never knew one queen to fail to survive, though when one swarm has a virgin queen it is usually the virgin that survives and she may be lost on her wedding-trip. Such cases have occurred with me, but of late I always have a laying queen with these double swarms, for it may be a number of days before a virgin queen gets to laying, when all goes well, and a swarm with a laying queen does much better section work than one with a virgin, and a very few days in a good flow may mean a great deal with these allied forces.—Mr. C. Davenport, in *American Bee Journal.*

GETTING BEES OFF COMBS.

When a super of sections is to be removed from the hive the plan of procedure depends upon whether robbers trouble or not During the height of the season, and until the flow wanes, there is usually no trouble from robbers, and a super of sections may often be left exposed for an hour or more without any danger. Still, there is always a possible danger, and a close watch must be kept. After removing the cover I blow smoke lively upon, or rather down into, all parts of the super, taking half a minute or more, the time depending somewhat upon the amount of smoke the smoker is yielding at the time, and to an extent upon the bees themselves. When there has been anything like a stampede for the lower story, so that all the youngest bees have gone down, there is no need to smoke longer, and there is some danger of affecting the flavour of the honey by too much smoke. Then the super is taken off, and after the cover is replaced the super is set endwise upon it, well toward the front, with one edge of the super projecting over a little. After a time the bees will start a line of march from this projecting part down to the entrance of the hive, and not many bees will be left. It is possible that there would be an advantage in setting the super close down against the entrance, but when it is on the top of the hive it is easy to keep watch of it from any part of the apiary, so as to see the first attempt at robbing, whereas a land-office business might be going on unseen if a super stood on the ground.

After the bees are mostly out of the supers, they are stacked up in a pile until the pile contains perhaps ten supers a robber-cloth escape being used to cover the pile from the time it is started. This escape is simply a robber-cloth having in its centre a very large cone escape of wire-cloth. It ought hardly to be called a cone escape, for instead of being a cone it is a pyramid, each side of the pyramid being an equilateral triangle, and each side of the triangle measuring 10 or 11 inches. This allows the light to shine freely on the top super, and the remaining bees make their way out with no danger of robbers entering. If robbers are troublesome, then the supers are taken immediately from the hive (a little more smoke being used than usual), and put directly on the pile under the escape. The robbers may be in thick clusters at the base of the escape, but they do not seem to know enough to enter at the top.

"Some one may ask why I do not use escapes on the hive, to which I reply that, like some others, I haven't time to wait for them."—Dr C. C. Miller, in A B*ee Journal.*

R. S., Crookston, N. Z., 2nd Nov. :—I have now been getting the B*ulletin* for a year and consider it is well worth the money asked for it, as I think the information it contains is always well up-to-date.

A Simple Way of Rendering Wax.

Wax to be placed in a bag with material not too thick, say cheese cloth. Entrance well closed up. A vessel with sides upright, same width top as bottom, but made of copper. A kerosene tin will however do. An iron frame to fit inside of vessel covered with wire cloth. Place bag in vessel with rain water and bring to boil. Let it boil till wax is well separated, then put in vessel the frame. The weight of the latter will cause the bag to sink to bottom, and the wax will rise to top. The slum gum will be confined in bag at bottom. Water above the frame and wax on top. Let cool slowly. A second boiling of the wax, then straining it through cheese cloth, and this time dipping from the top and placing in mould for market. If a frame not convenient a heavy stone may answer the purpose of keeping the bag at bottom.

How to Liquify; How to Wash the Bottles.

Have your honey liquefied, if candied, holding the same at 150 degrees for two or three hours. By using a gasoline stove you can regulate to a degree, almost. Be sure not to overheat it. It will stand 170 to 180 for a short time, but I prefer not to risk losing the aroma and injuring the delicate flavour. While you are liquifying your honey, wash your bottles, using clear, soft water with sal-soda and shot to remove dirt and particles of glass if new. Then rinse in clear water, and place bottom upward in racks to drain. This will make flint jars clear and sparkling. I prefer to use my extractor (with cross-arm and basket removed), raised to a convenient height. I prefer to bottle honey hot, as it runs quicker, retains its aroma, and will stay liquid longer than if bottled cold. Have the rack containing empty jars at your left. Place the pan under the honey gate to catch any drippings. You will soon learn how to cut off the flow just right the first time. Pass the jar to an assistant at the right, who presses the cork in the mouth, then dips the jar into melted wax and paraffine, half of each. A second assistant puts on the tinfoil in place; winds a capping-strap around the jar with the right hand; then holds the jar with the left hand, running the head up and down on the strap until the cap is nicely smoothed down. A pasteboard, about 12 x 20, covered with dextrine is covered with labels in front of the operator. She lays the jar down flat, deftly catches the label by the corner, removes it from the board, attaches it to the centre of the jar, smoothing it out with a soft cloth; then she places the jar in the case at the right, holding a dozen each. After a little practice, three persons can easily fill, cork, wax, tinfoil label, and pack 800 pounds a day, and not spill a drop of honey, by this method. The corks used for honey jars are seconds, and ought to be covered with wax to effect an air-tight sealing while the honey is hot.—J. Wallenmeyer, in *American Bee Journal.*

N.S.W. BEE FARMERS' ASSOCIATION.

Will readers kindly look over the rules of above on another page. As the Annual Meeting takes place in April, members will shortly be supplied with names of all members together with the number of hives owned by them to enable nominations for office-bearers to be made, or any important matter affecting the industry to be decided on.

E. TIPPER,
Secretary & Treasurer,
Willow Tree.

NOTICE.

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

E. TIPPER.

OLD COMB.

Getting wax from old combs is certainly one of the most tedious parts of the work pertaining to the bee business, but the profits, according to a writer in a bee journal, are sufficient to pay for the trouble, and pay well. For all white comb there is nothing quite equal to the solar wax-extractor, but for all black comb I have not found it profitable. For rendering old combs, I use a tank 15 in. deep and 19 in. square on top. I have it those dimensions as it is suitable for holding four square five-gallon cans of honey for liquifying. This I place on a brick furnace, with pipe sufficient to give a good draught, and fill two-thirds full of water. When boiling I put in old comb until the tank is full. I then have a screen made out of half-inch lumber, 5in. wide, and the size just to fit the inside of the can; the lumber is put together in the form of a box. On this I fasten wire firmly (window-screen) with a brace through the middle. When the wax is boiling vigorously I place in this frame, with the screen upwards. The 5 in. frame prevents the slum-gum from coming up and the wax will come through the screen. When the frame is pressed down I dip off this, and by agitating the frame, it churns the refuse, the wax is liberated and comes on top. I then take out the frame, and screen and stir vigorously, then put in the screen and repeat the dipping off. I then weight down the screen with heavy weights and leave over night. The heat of the bricks and the coals under the furnace will keep the tank at the boiling point for a good many hours, and in the morning, wax can be taken off in a cake. This leaves the slum-gum quite free from wax.—Exchange.

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E. TIPPER.

HONEY MEAD.

The following recipes for honey mead are said by the authors to be reliable:—To 5 gallons of boiling water add 10 or 12 lb. of honey, stirring in the honey while the water is boiling, then set off the stove. For flavoring I use one to two tablespoonfuls of vanilla extract and a little ginger. Set the can in the box and fill up the space around the can with some kind of packing material to keep an even temperature. The can should have the top cut out and be covered with thin cloth to give plenty of air. Set in a warm place and it will be ready to use in about a week. This makes a fine summer drink, and is a good as the best apple cider, but is not intoxicating.

On twenty pounds of honey, pour five gallon of boiling water: boil, and remove scum as it rises; add one pound of best the hops, and boil for ten minutes; then put the liquor in a tub to cool; when all but cold add a little yeast spread upon a slice of toasted bread; let it stand in a warm room. When fermentation is finished, put in a barrel, bung it down, leaving a peg-hole which can afterwards be closed, and in less than a year it will be fit to bottle.—Exchange.

Drone Bees and Their Utility.

In natural conditions, a colony may be several miles from other bees and probably requires all the drones that it may produce. On the other hand, in domesticity, we may keep a hundred or more colonies in one spot. In that case, we have, if we leave it to the nature of the bees, a hundred or more times as many drones as will be needed for all the young queens that we may rear. We are therefore feeding, if we leave the bees alone, hundreds of thousands of drones that cost both food and heat to be reared, and whose problematic usefulness is in the possibility of their keeping the brood warm for a few days after the colony swarms. Some of these drones are certainly more desirable than others, for

our colonies are not all equal in honey-production. In an apiary of one hundred colonies, we may have half a dozen colonies which will yield twice or three times as much honey as the average of the entire apiary, and at the same time we have a few colonies that will produce little if any more than enough for their own consumption. Not only must our female reproducers—the queens—be reared from some of those best colonies, but if we would encourage in all possible ways the breeding of the best, we must also try to breed the greatest number of drones from some of those preferable colonies. Yet, to avoid in-and-in breeding, which Nature so abhors, we should not breed both queens and drones from the same colonies.

To secure a great number of drones from a colony is not difficult, especially if the queen is prolific. We need but to place drone-combs, one or two, in the centre of the brood-nest. Although the queen dislikes to lay eggs in these cells, until after she has bred a large number of workers, the situation of these combs will induce her to lay in them earlier in the season than she would have done otherwise, and we will readily secure a large number of valuable drones early, As to the hive from which no reproduction is desirable, we must confine the drones to the hives, or catch them with a drone-trap as they emerge on sunny days or behead them in the cells before they hatch; or simply prevent their being produced by removing the drone-comb before the laying has begun, and replacing it with worker-comb.

The first of these methods is certainly the worst. Many apiarists use the well-known drone-guard in front of the hive. This is a sort of " yard" made of perforated zinc placed at the entrance, and through which the worker-bees alone can pass. The drones and the queen are compelled to stay in. It is also used to prevent swarming. Though it answers the purpose, it is not practical, because when the drones are induced to take flight by the wormth of the sun, they congregate within this guard and are in the way of the bees. Some people open the guard to let the drones out, and close it again to keep them from coming back. It would serve the purpose in compelling them to stay on the outside and starve if they were all to issue at the same time, but they are going and coming, and no satisfaction can be had out of such a method. The drone-trap is much better, for as the drones get into it they are caught and can not return, and are out of the way, but it must be attended to and emptied out regularly or they will die there and create a pestilence.

The third method, of beheading the sealed drones with a honey-knife, before they hatch, is efficient, but like the other two it has the very bad fault of having allowed the expence of rearing those drones almost to the perfect insect, without any returns. Then the comb in which they have been reared is very soon again filled with eggs, and the work must be done again. The last and only practical method of getting rid of the drones satisfactorily is to prevent there being reared, by removing the drone-comb before any drone-eggs are laid, very early in the spring, and replacing this comb with worker-comb, taken from deceased colonies or from extracting supers. This replacing of combs is a necessity, for the same reason that has caused the bees to build the drone comb in the first place will then cause them to rebuild the same kind in the same spot, if they are allowed to do so. But it is useless to expect to be able to remove every cell of drone-comb. In nearly every hive there are quite a number of little patches of drone-cells scattered here and there, and many of these pass unnoticed even on the closest examination, unless they are already full of brood, in which case the peculiar rounding shape of the capping of the drones will make them noticeable. But the production of a few drones in any hive is not objectionable. It is the pieces of six or eight inches square that give us the host of

useless males. since the comb contains 36 of them to the square inch.

In my estimation, the prevention of drone-rearing is of importance especially because of the cost of breeding them. I have always been of the opinion that they are nearly as expensive to rear as they are to keep after they have hatched. Yet, they certainly consume considerable honey after they have emerged from their cell, but I would be inclined to think that nearly half of the total cost of their support during their short life is to be reckoned while they are in the cell. So it seems to me of the greatest importance, on this score alone, to prevent there being hatched.

I am told that the bees will not accept the removal of their drone-comb, and that they will cut down the worker-cells to change them to drone-comb, when all the drone-comb has been removed. This I disbelieve, as it is contrary to my experience. Though they will rebuild drone-comb where drone-comb has been removed, they do not seem to feel the need of it enough to tear down good worker-comb. In order to convince me that this has ever been done by bees, it would require a very thorough experiment, made on old combs that would not sag under the weight of honey. I believe that what has led some bee-keepers to this opinion is the sagging and consequent elongating of cells by heat. This sometimes happens when the comb is new and heavily loaded, or by the use of defective foundation, which by stretching has become large enough for drones to hatch in it. But I doubt that bees have ever seen fit to tear down worker-comb to build drone-comb in its place. If they were prone to do so, they very probably would be inclined to do the reverse where too much drone-comb existed, and in some cases, when a colony had been furnished with nothing but drone-comb, they certainly would have torn down some of this comb to replace it with worker-comb. while they only reduced the size of the cells by narrowing them down at the mouth.

But even take it for granted that the bees will insist on having some drone-comb. We have seen elsewhere that the average number of drones produced, ranges, according to some of the most experienced writers, from one-tenth to one-thirtieth. If we can keep the average number of drones produced by our poorest colonies at or below the smallest percentage, and if we can at the same time keep the drones reared by two or three of our best colonies at the very highest possible number, we already will have achieved a great deal towards securing improved matings and a greater production of honey.—C. P. DADANT, in *American Bee Journal.*

Eucalyptus Trees in California.

A tree is not without honour save in its own country. One needs to go outside Australia to find the gum-tree appreciated —to California or to Algeria. In the dry and naturally treeless parts of these countries plantations of eucalyptus are, in most of the inhabited portions, the most striking feature of the view. Nor are these plantations for purely utilitarian purposes. Imposing ranks of our despised gum-trees ornament the grandest public avenues and the most princely of private grounds. I should imagine that the finest scientific collection of living eucalyptus species to be found abroad. A collection said to consist of several hundred species and varieties was pointed out to me in the vicinity of Algiers.

I saw many thousands of eucalyptus plantations in Southern and central California, and I dare say I saw hundreds of miles of eucalyptus-lined avenues. At the Palo Alto mansion of Senator Leland Stanford, the Californian milionaire, I observed six Australian gum-trees to be the chief ornament to the front entrance of the mansion, and well they upheld the reputation of their native land.

Foreign eucalyptus plantations are largely derived from seeds, and in consequence the insect and fungus pests that are so rife in their native country, not

having been imported' are conspicuous by their absence. Rarely does one see in Australia such fine looking eucalyptus trees as the average Californian specimen.

I recall only two occasions on which I noticed fungi or insects attacking these trees in California. The growth was almost uniformly luxuriant and healthy —so much so as to make me wonder whether the people there appreciate the extent to which they are free from these pests, and are taking precautions to prevent their introduction.

The honour accorded our eucalyptus trees in other countries sets one to thinking about the sweeping and ruthless destruction of the native trees that takes place among us. The first step on buying a new building lot, according to Australian idea, is to clear it of native trees. Is this right? Aren't these trees capable of conversion into ornaments? Has any systematic attempt ever been made, by means of proper stocks and grafting, to secure uniformly fine specimens of our native trees for ornamental purposes? These are not idle questions. Who ever undertakes to follow out the ideas suggested by them will find himself employed in no unprofitable manner.—N. A. Cobb, in N.S.W. *Agricultural Gazette.*

The Production of Comb Honey.

As soon as it is advisable to put on the honey-boxes or supers, give a super full of drawn comb. This will keep the honey out of the brood-chamber, and start the bees right. Empty sections or such filled with foundation, do not fill the bill here. When the bees once get in the habit of storing their honey above, they are apt to continue thus throughout the season; when they form a habit of filling the brood-chamber with honey at the beginning of the season, they then are slow to enter the sections any time after. Mr. Hutchinson had observed that by giving supers full of drawn comb a case of honey was gained above what other equally as good colonies had made supplied with empty sections. The swarms are treated according to the Heddon plan. Mr. Hutchinson had done a good deal of experimenting with swarms, hiving them alternately on combs, foundation and starters. The combs always gave the poorest results with him, and the foundation, aside from insuring perfect combs, proved a total loss. No young swarm is allowed more than five Langstroth frames, or one section of the Heddon hive. Contraction is practiced only on the swarms. He has come to the conclusion that it is not always profitable to supply the bees with foundation. During a good flow he claims wax is produced anyhow, and if there is no opportunity to use it somewhere a large portion of it is lost. And, after all, he expressed his opinion that good, straight worker-combs were not too dear at the expense of the foundation.—F. Greiner, in *A. Bee Journal.*

Artificial Swarming for Increase.

If left to themselves you are not sure that every colony will decide to swarm. Take from No. 1 all its brood-frames but one, brushing all, or nearly all, the bees back into No. 1. Fill up No. 1 with empty brood combs or frames of foundation. Put the frames of brood in a hive we will call No. 3, and set No. 3 in place of No. 2, removing No. 2 to a new stand. Do this in the forenoon, unless you do it in the afternoon at a time when large numbers of the bees are out for a play spell. For a day or two all tho field bees that go out from No. 2 to forage will on their return enter No. 3. If you have made no other provision for young queens No. 3 will take the matter in charge, and will start a number of queen-cells. About a day after forming No. 3, take from No 1 the frame of brood that you left there, and give it to No. 3, of course, giving No. 1 foundation or comb to replace it. (If you do not leave No. 1 this frame of brood, the bees may be discouraged and desert the empty hive, and if you leave it more than a day or so they may swarm). In seven, eight, or nine days after forming No. 3, take from it one more than

half its combs with the adhering bees putting them in a hive we will call No. 4, setting No. 4 on a new stand. About a week later than this take from No. 2 frames of brood, and give to No. 3 and No. 4—one, two, or three to each, depending on the strength of the different numbers. This will strengthen your newly-formed colonies, and it will prevent No. 2 from swarming. Circumstances may make it desirable to depart from these instructions, and they are not given with the feeling that it will be right to follow them in all cases. For if No. 2 should not be strong enough to make swarming feared, it might be better to take no brood from it, trusting Nos. 3 and 4 to build up without any help, and getting as much honey as possible from No. 2.—Dr. Miller, in *A. Bee Journal.*

PREVENTION OF INCREASE.

If you return the swarm without the queen, in about eight days the bees will be sure to swarm again with a young queen, and perhaps two days later another swarm will issue, and there may even be three or more swarms. To prevent that you may do one of several ways. You may return each swarm as fast as it issues, and when all the queens have hatched out the swarming will cease. You may cut out all queen-cells but one, a week after the first swarm. You may listen for the piping of the young queen in the evening of the seventh day after the swarm issued, and if you do not hear her then, listen every evening till you do, or till the sixteenth evening; when you hear piping cut out all queen-cells next morning. You may hive the swarm when it issues with the young queen, and put it in the cellar till the evening of the next day, and then return it to the old hive. By that time the bees will have disposed of all the queen-cells.

CAPPINGS.

From American and other Bee Journals.

A beekeepers club for queen-rearing is a late American idea. A number of beekeepers to combine together and pay an expert queen-rearer fair wages to raise so many apiece.

Mrs. Barber reports bees as wintering much better in a chamber within a chamber than outside in the open, the slightest quantity of air not being allowed to enter, the same making the bees anxious to get out. Mr. Root agrees with her.

Bees, according to a statistician, must, in order to collect a pound of clover honey, deprive 62,000 clover blossoms of their nectar. To do this the 62,000 flowers must be visited by an aggregate of 3,750,000 bees; or, in other words, to collect his pound of honey one bee must make 3.750,000 trips from and to the hive. As bees are known to fly for miles in quest of suitable fields of operation, it is clear that a single ounce of honey represents millions of miles of travel.—Exchange.

Colonies run for comb are almost invariably in better condition for wintering than those run for extracted. It would seem that a colony regards the brood chamber and the extracting super above as its sole domain which is not to be meddled with; and when the fall honey comes in, the same is distributed around with a view of having it on hand for winter use. When we now remove the extracting-super we throw things badly out of the balance. A comb-honey super is apparently not regarded by the bees as a favorable spot to locate during winter; and when preparing their nest it is left entirely out of calculation.—E. R. ROOT.

The Saw Palmetto is an important honey-plant. That same remark about white clover would perhaps elicit a smile of pity, for everyone is supposed to know white clover honey, yet saw palmetta is to the Florida bee-keeper, the editor of

the *American Beekeeper* says, what white clover is to the Northern producer of honey. "Hundreds of thousands of acres of Florida sand are covered with a scrub growth of it, while in moist and richer localities it grows in impenetrable jungles and is one of the most beautiful of our sub-tropical palms," so says Mr. Hill.

In the same journal, W. S. Hart says it is a tree whose trunk may lie under the surface of the ground or upon it, or it may rise ten or twelve feet high in the air. It is one of the cheapest and best sources of tannic acid for tanning leather. The pinnated leaf is used to make paper, especially of finest quality, and capable of holding oil and other liquids. It also makes a very clean and springy filling for mattresses. The bloom is composed of small, cream-coloured flowers on racemes from one to three feet long, and the honey is of a fine light-amber colour, heavy in weight, and of good flavour. Another grade of honey is obtained by the bees from the juice which oozes through the skin of the berries, which are from the size of an olive to twice that, and seem to be a wholesome food for hogs, cattle, bear and people.

Introducing Queens with Tobacco Smoke.—After giving notice of the date when the queen will be sent, I say:—As soon as you receive this notice, remove the queen from the colony to which you expect to introduce the new queen. When she arrives, put her away in a safe place until after sundown, just at dusk, then light your smoker, and when it is well to going put in a pipeful of smoking tobacco, put on the cover, puff until you get an odour of tobacco, then puff one or two good puffs into the entrance of the hive. Wait two or three minutes, then send in another good puff, remove the cover, drive the bees down with a puff of smoke, open the cage and allow the queen to run down between the combs following her with a puff of smoke, and put on the cover. Half an hour later, light up the smoker again, putting in the tobacco as before, and blow two more good puffs in at the entrance. If no honey is coming in, feed the colony a pint of syrup each night from the inside of the hive, but don't disturb the brood-nest for four or five days.—W. T. Hutchinson, in *American Beekeepers' Review*.

A Decoy for Swarms.—After each melting of wax preserve the residue of dirt, pollen, cocoons, etc, which is left after the wax has been pressed out, until enough for the purpose has been obtained, when you will add to it one-half pound of resin and melt it all in an old vessel. Then having secured some old mullen tops, take an old spoon and spread some of the mixture on to one side of two or three, then keep adding more tops and of the mixture, until the whole cemented together is a fairly good representation of a swarm of bees, when you have an excellent bee-bob. When the swarming season comes on, hang your bob on the limb of a tree, or a pole in the apiary, within the reach of your hand and of the bees also, and nearly every swarm will settle on it. For something to hang it up by, put in a good stout wire while making, cementing it in at the centre.—*Progressive Beekeeper*.

A Mr. Bauckman in *American Bee Journal*, thinks his hives are the finest in the United States, as they are a perfect piece of cabinet wormanship, being thoroughly made, then primed with white lead, the nails being all sunk, then puttied, then sand papered, and then painted with the white lead. They are on stands 11 inches from the ground. He would not have his hives on the ground, nor would he have them on tight stands, but wants them so that the cats and chickens can get under them, and so that there will be free circulation underneath. In this way the hives keep dry, the bees are healthy, and there are no ants or mice to bother.

If you wish to have the honey take the name of "gilt edge" put on the cover to the crate with bright, round-headed screws. This gives the crate a nice appearance, does not tend to break the

honey by driving nails when the honey is in the crate; keeps the bottom of another crate from coming in contact with the nice, white cover to the first, where two or more are piled on top of each other, and the cost is but a trifle above the nails. Now sandpaper off the sharp corners or any rough or dirty-looking places, and you, yourself, will have to admit that this little extra work has made an attractiveness to your package which will more than compensate you for all your trouble. And what looks attractive to you will be the thing that will catch the eye of the customer. Having all thus crated, pack nicely away for shipment, when a sale is made, or to show to purchases or any company who may chance to call in.—S. M. Doolittle, in *American Beekeeper.*

Bees on Shares.—We usually draw up a lease in regular form, allowing the one who leases, one-half the honey and wax. The owner is to have all of the swarms. I have known of cases where the owner would pay the worker fifty cents per colony for hiving swarms. I have never asked anything for hiving swarms, for it is my plan to keep down swarming and work the colonies for extracted honey; and this fact is so mentioned in the lease. The party of the first part furnishes all hives and fixtures for working the apiary, and each shares equally the expense of cans for extracted honey, or for sections for comb honey. The second party must find himself, and must use reasonable diligence to keep the bees in good working strength, and to leave plenty of honey for winter stores. This is a very simple method, and there is no reason for disagreement if honourable methods are pursued in the management.—J. H. Martin, in *Beekeepers' Review.*

A Good Hive Tool,—Made of about one-sixteenth inch steel, 2½ inches broad at the sharp end, tapering to about 1¼ inches 6 inches from end or where the handle commences. The handle is made of two half-round pieces of wood riveted on each side, the same as handles are put on butcher-knives or table-knives. It is ground alike on both sides, so that it does not matter which side is up when I go to use it. When I get this blade between two bodies, or a body and cover, and begin to pry, it has to come, no matter how much propolis. The tool being large and strong (nearly a foot long) gives a great leverage, and no great effort is required in using it. I can take it slow and steady and bring two bodies apart without a snap. It will take the burr-comb from two top-bars at once. It is handy to clean bottom-boards, queen-excluders, and, in fact, almost anything where scraping is needed. I frequently use it to dig with when level-up hives.—S. E. Miller, in *Progressive Beekeeper.*

Owernership of Bees.—Blackstone, the great law giver, says: "Bees also are *ferœ naturœ* (wild by nature); but when hived and reclaimed, a man may have a qualified property in them by the law of nature as well as by the civil law." And to the same purpose, not to say in the same words with the the civil law, speaks Bracton: "Occupation, that is, hiving or including them, gives the property in bees; for, though a swarm alights upon my tree, I have no more property in them till I have hived them than I have in the birds which make their nest theron; and therefore, if another hives them, he shall be their proprietor; but a swarm which flies from out of my hive is mine so long as I can keep it in sight and have power to pursue them; and in these circumstances no one else is entitled to take them." But in respect to such animals as are in the habit of going and returning, as pigeons and bees, which are accustomed to go into the woods and fields, and come again, we have this traditional rule that, if they cease to have the intention of returning, they also cease to be ours, and become the property of the first taker, because they cease to be what are termed *animus revertendi* when they have discontinued their habits of returning. Ownership in bees is *ratione soli*—that is, bearing

reference to the soil, and is said to be the ground of ownership in bees. So in the civil law, if a swarm of bees had flown from A's hive they were reputed his so long as they remained in sight and might easily be pursued; but they do not become private property until they are actually hived. Bees, along with other wild animals, furnish the only distinct class of chattels which have been made the subject of primary occupancy. Even here, notwithstanding the universal principle of law, that all mankind may pursue and take animals, whether of the air, earth, or water, in a wild state, the first occupant becoming the owner, there is found a restraint which ownership of the soil imposes, and which fastens the closer as population grows and civilisation advances.—*Exchange.*

It may be of interest to some of our beekeepers for me to give the groups from first to last in succinct form, to which our pets of the hive belong. The phylum or branch, which used to be called Articulata, and which included worms, is now known as Arthropoda, a word meaning "jointed legs." All animals which belong to this phylum have not only jointed legs but also jointed bodies. Thus the sow-bug, crayfish or lobster, thousand-legged worm, and spider, as well as the insect, all belong to the phylum Arthropoda. The bee belongs to the class Hexapoda, or insects. The former name is given because they all, in the mature state, have six legs. They are called insects because their body is cut up into three well-marked portions, head, thorax and abdomen, besides the other rings and joints which make up these main divisions. Of course this class does not include the lobster class, with their varying number of legs, the eight-legged spiders, or the many-legged myriapods. The bee belongs to the order Hymenoptera. This word comes from the Greek and means membranous wings. They are so called because they have thin wings like those of the common house-fly. This order does not include moths, butterflies, two-winged flies, beetles, bugs, locusts, etc. The family of the bee is Apidæ, a word signifying honey-bee, as the typical genius is Apis. In this family, the larvæ are always fed on pollen, and thus the bees are always provided with means for collecting this valuable food substance. —Professor Cook, in *A. Bee Journal.*

When I find the queen I rest the comb on the edge of the hive and hold the upper end of it in such a way that the comb slants a little away from me. When I can get the queen near the centre of the comb I start her toward the upper end of it; and by following her with my scissors I slip the blade under her wing as she runs, and take it off smooth and clean in much less time than it would take me to catch her in my fingers. One soon gets used to following her motions with the hand, and after a few trials the clipping can be done nicely without even touching the queen except with the scissors. I don't believe they know what has happened, judging by their actions. One needs a pair of embroidery scissors, and they should be keen and sharp.—MRS. BARBER, in *Gleanings.*

I have ready, for the cold snaps that may come, an oilcloth sack or box for each hive, to protect its inmates during the existence of the snap—sometimes a day or several days, a week, and possibly longer. I use the ten-frame Langstroth hive, and I find that oilcloth 46 inches wide is very good in size. I cut a strip off 23 inches wide. It is then 46 inches long, If runs lengthwise of the hive, making top and ends of the sack or box. I mark it so the top is 23 inches, and the ends each 11½ inches. Then I cut another strip 11½ inches wide, and divide it in the middle. Each piece is 11¼ x 23, and makes the sides, the ends of the top piece uniting with the ends of the side pieces. The sewing can be quickly done on a machine. When a cold snap comes I propose to drop or place a sack over each hive while it lasts.—J. W. JACKSON, in *Gleanings.*

N. S. W. BEE-FARMERS' ASSOCIATION.

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RULES & OBJECTS.

1. The careful watching of the interests of the industry.
2. To arrange for combined action in exporting honey to relieve local glut when necessary.
3. To advise members as to suitable localities for establishing apiaries.
4. Any beekeeper can become a member on approval of committee, subscription 2/6 per annum.
5. That every member with more than 50 hives shall be allowed an extra vote for every additional 50 effective hives.
6. No member be eligible for office who has less than 50 effective hives, or his subscription is in arrear.
7. The Association to consist of a central body and distr.ct branches affiliated with it.
8. The principal officers be such as will undertake to meet each other in committee at least once in twelve months.
9. The officers shall consist of President, Vice-President, Treasurer and Secretary, and Executive Committee.
10. After the first election of officers, arrangements to be made by the Secretary to call for nominations for office-bearers, and issue ballot papers prior to the next annual meeting.
11. Supply dealers or commission agents cannot become members.
12. Members unable to attend meetings or conventions can authorise or nominate any member they know will be present to vote for them on any subject brought forward. Such vote or votes to be in addition to the member's present own vote.

CORRESPONDENCE.

P. R., Macleay River, 26th Oct. 1901 :—Re honey for show. The season as yet here is a failure, but will, I hope, brighten soon. Will, in your opinion, the tariff raise the price of our honey?

R. S., Otago, N.Z., Oct 23.—I have lost all my bees this year but two hives through them storing rotten gooseberries in the autumn. We had abundance of of gooseberries last year that went rotten. No doubt that is what killed them.

A. P., Bobadah, Nov 18 :—I am having a very bad season, the very worst there has been for the last six years in this part, owing to there being no rain much for the last two years, and the trees in the bush look dead looking. Rain very badly wanted.

W. A., Moss Vale, Nov. 13th, I am enclosing 2/6, I would much like to become a member of the Beekeepers' Association, will you kindly put my name before the committee. I have 47 full colonies and 14 nuclei. My bees are in very fair condition. I had one case of foul brood this spring which I fixed up, getting a good flow at the present from mountain ash. I have been told mountain ash bloom did'nt secrete honey but it is wrong, at all events this season. I believe this will be a very fair honey season here, as the Mahogany, (which is a very dark honey), peppermint and snappy gum are one mass of buds. Wishing you every success.

G. P., Molong, Nov. 14 :—It is a long time since I supplied you with any bee news, it being nearly 12 months since I looked at one of the busy little things. The price of honey being so low and the difficulty in making a sale, I found it necessary to take on the dairying industry which bids fair to wipe out the bees, or at least to put them in second place. I find it does not do to have one's

eggs all in one basket. The bees, what is left from the starving of last season are doing well, and bid fair to do better than any season since 1892-93. Swarming is going on apace, and honey is coming in very fast. The season both for butter and honey is all that could be desired, and now that we have federation and protection to our heart's content we should rejoice and be glad. I do not know whether you are rejoicing over having to pay extra on nearly everything used by a beekeeper, but I fail to see how the producer of either butter or honey is going to benefit, seeing that the production of each article is above the consumption. However, let those who like the new tariff rejoice, but not me this time. I am sending you a paper with an account of some of our doings in the dairying business since its coming into existence.

P.M., Nov. 21st:—Just a few lines to inform you how I am getting along with the bees. The last time I wrote I said how well they had wintered, but a change has come on the scene, and I can sympathise with friend Loyalstone in last A.B.B. Well, to get to the point, in August when I went through them I had 40 colonies in grand order and plenty of stores, and, of course, I thought I was in for a good year, as there was every possibility of there being a good harvest. So I prepared for it, getting hives ready for the increase and putting up a new shop for the purpose of storing in the honey when it came. But I had counted my chickens before they had hatched, as since then I have lost 20 colonies and the rest are not extra strong, although they are now building up, and I have divided them up to 30 again so I might have a little honey yet after all. Loyalstone has told you how his bees went, well mine went just the same, and no word left that they were leaving. Plenty bees, plenty honey, and in a few weeks dwindled down to none with a few eggs in the cells. Now, my idea of the matter is this, in August we had some very warm days, this brought out all the bees and the queen commenced laying. The nights were very cold and the result was that the cluster contracted and the eggs were hatched out, then it came very boisterous weather with the result that the old bees became exhausted and never returned. The cluster still continued to get smaller and smaller until at last there were no bees left, and all through there had not been sufficient heat to hatch the eggs into larvæ, and there was no young bees to take the place of the old ones. Why I think this, is because where I united several weak colonies and they managed to get the eggs hatched out they have lived, and where the eggs did not hatch out they died away. It might, as Loyalstone says, be the honey, but if it was how is it that those that lived through lived on the same honey as those that died. Talk about foul brood and acts to prevent it, why it is not in the same street with spring dwindling or whatever you call it. I have had a dose of foul brood and cured it, but give it to me before this. I think the Bee Farmers' Association should take this matter up and try and find out the cause of this dying of bees, and see if there is no cure for it, because there is no doubt it makes a big gap in an apiary in quick time, but it is no use crying, and it will give one experience in what it is like. It has been pretty general round here, those who had two or three hives losing all, and my nearest beekeeper a friend of mine has lost about 20 colonies. Hoping that the bulk of you old ones have had better luck, and that this is the last we will all see of spring dwindling or "kill all."

CAPPINGS.

From American and other Bee Journals.

That a queen cannot usually lay worker-eggs in drone-combs was evidenced by an experiment made by a Mr. Drory, of Bordeaux, France, some 20 years ago. A swarm was supplied with nothing but drone-combs. For quite a number of days no eggs were laid except a few drone-eggs, and finally the worker bees reduced the outer opening of a number of drone-cells so as to narrow them down to the size of worker-cells, and the queen laid a few eggs in them.—C. P. Dadant, in A. *B. Journal.*

Adrian Getaz says:—You may say, that I should cut out all the drone comb. I used to do it much more carefully than I do now, and got to the point where I had so few drones that I saw one only now and then. By and by, I took a notion to use queen traps permanently, when, to my surprise, I found that I had hundreds and thousands of drones, and the majority of them were *undersized*, and evidently had been raised in worker cells. As a matter of fact, every queen lays some drone eggs, more or less, only a few the first year, but more as she gets older.

A robber is one which enters a hive and takes honey by force; a thief takes it by stealth. Robbers prey upon the weaker and queenless colonies, being more especially troublesome in a time of scarcity; thieves find their best foraging ground in the hives of strong colonies at a time when honey is coming in in a flood. There seems to be no way to circumvent this quiet stealing. The practical point in the matter is the danger of giving credit to a colony for extra-storing ability when that storing comes from thieving; and then breeding from such stock. Sometimes a colony is found storing when other colonies must be fed.—*Exchange.*

The new system of farming around the ever-growing towns all tend to curtail the output of honey compared with twenty to thirty years ago. The market gardener of to-day is not a clover or sanfoin grower, he may have patches of trifolium for horse-forage, but this is generally of small dimensions and often cut before the flowers are fully in bloom. The old style of rotation of crops in large areable districts was the Eldorados of bees and beekeepers, but this is now followed by a different style of farming, and a new style of farmer. Now it is all "hustle," the land, taxed to its fullest extent with corn-growing, is often allowed to get into a foul state, growing little but weeds; these things are all opposed to profitable beekeeping, as bees rarely gather any honey worth mentioning from weeds.—W. Woodley, in *Beekeepers' Record.*

The apparatus for measuring bees' tongues consists simply of a machinist's steel rule that you can get at any large hardware store, one, two, or three inches long, having on one side an inch marked off into hundredths. This, together with an ordinary 15 cent. or 20 cent. magnifying glass, 10 cents' worth of chloroform, and two darning needles, constitute all the apparatus that is needed. Catch a few bees whose tongues you desire to measure; put a few drops of chloroform on a common handkerchief, and place it directly over the wire cloth of the cage; and when the bees are stupefied, cut off the head of one bee, lay it with the tongue stretched out on the rule graduated to hundredths. Stretch the tongue as far as it will go, by pressing upon the head or face of the bee. Count off the hundredths from the point where the tongue leaves the mouth to its end.—*Gleanings.*

A. C. Miller says in *American Beekeepers' Review*:—Mr. Alley has introduced thousands of virgin queens by the following method:—The nucleus is kept queenless for three days—72 hours—then the entrance is closed with a plantain leaf, the bees given a dose of tobacco smoke through the feed hole in the top of the hive, and the queen immediately run in through the same place and the hole is

closed. By morning the leaf is dry enough to blow away and offers no obstruction to the bees. He uses the leaf to keep the bees in, and so that they may not recover too quickly from the effects of the tobacco. He says failure is practically unknown. One of his plans for immediate introduction of a fertile queen is to remove the old queen, drive all the bees from the combs into the cover or a box, drop the new queen into the cluster and let the bees go back to the combs at their pleasure. Again: pick the old queen from the swarm and let the new queen drop among the bees as they are entering the hive.

A cover little different from most covers in use; being composed of a honey-board and sun-cap. The honey-board is exactly the size of the top of the hive, and ¾ of an inch thick, cleated at each end to prevent warping. Sun-cap is ¼ inch longer, and ¼ wider, inside, than the outside of the hive, three inches deep, and covered on top with a sheet of stove-pipe iron painted on both sides.. This sun-cap rests on a cleat ⅞ of an inch below the top of the hive. This cleat goes clear around the hive and answers for a hand-hole. For wintering the honey-board is removed and a sawdust cushion used instead. The cushion is made as follows:—A wooden rim, the size of the hive, and 1½ inches high, with a bottom of factory cotton below four thicknesses of newspaper, is placed on a flat board, filled full of fine sawdust, pressed down quite firm, and covered with four or five sheets of newspaper. This makes the best cushion that I know of for winter and spring. There is very little if any upward ventilation, which I believe to be detrimental.

Mr. Charles F. England, an Australian, gives a description of a hive tool he uses:—It is made of file steel, 1 inch wide, 3-16th inch thick, drawn out one end broad, the other narrow, The broad end will open hives, clean bits of comb off the frames, clean bottom-boards, cut bits of comb off the inside of hive-bodies, and perhaps be handy to kill a cross-bee now and then. The wide edge is made nearly sharp enough to cut. The sides of the tool for one inch from each end are left square, as they clean the side pieces of the bottom-boards and tin rabbets better. The small end is just right to clean the inside of the tin rabbets, or to use for a screwdriver, etc., and the hook above is just perfect to lift the end of a division-board or frame. It is cut just a little under to form a slight hook, as it is then less liable to slip. The small end is also used to separate Hoffman frames by pushing in two inches and giving a twist.

An Uncapping Box.—Take a good tight hive and nail a cover to the bottom; then wax the crack, and you have a fair capping-tank. For the box to cut the cappings into, take another and tack a piece of wire cloth over the bottom. Bring the edges of the cloth up inside of the hive-body some two inches or so, and tack a strip over it all the way around. This will leave it so that the bulge from the weight of cappings will come down into the lower body, which is used as a tank. By tacking the screen inside, the two bodies will fit close together and make a good joint. Then, too, none of the dripping honey will fall outside. Put a piece of board across the top to rest the frames on while they are being uncapped. Then when you wish to leave it, a cover closes it bee-tight. This will hold enough for half a day's work if the cappings are cut up once in a while with the uncapping knife, and this cutting helps very much in the draining. In this way one gets the lower hive-body just about full from the cappings that the upper one will hold. Have a pail of water and a good whetstone handy by, and keep the knife in perfect cutting order. Then when you cut, *cut*. Many people take off the cappings as though the combs were something precious, and not to be handled roughly. By cutting just into the honey one can cut much faster, and will have more wax. If a comb bulges, cut it down level. By putting eight in a ten-frame super they mostly do bulge some; but it is easier to

take the honey from eight big thick combs than from ten thin ones.—Harry Howe, in *Gleanings*.

To form nuclei take combs of brood and bees from any hive or hives which can spare them and form your nucleus. Closely pack the entrance with grass or moss, forcibly confining the bees to the hive. They should be packed so firmly that it takes some time for the bees to find their way out. See that they have sufficient food to keep them going, and by the time they gnaw away the moss and obtain egress the bees will have forgotten their old home and settle down content and happy in their new one. All this time the young bees have been hatching out, so that the number has increased so much that there is now no danger of failure. It is not by any means always the possessor of a large number of hives of bees that proves to be the most successful all-round bee-keeper. The successful beekeeper is the one who first gauges his own capacity and keeps no more stocks than the time and capacity at his disposal will allow him to do thoroughly well. Such a beekeeper, while being full of hope in spring and overflowing with delight in the swarming and honey-taking time, will be able in the waning days of the season to make the most of things as he finds them.—*Exchange*.

My reasons for not requeening an apiary, when the queens become old and possibly near their decrepitude, date back a good many years. I will have to tell you how this came about. The much lamented Mr. Quinby, about 1868 or 1870, invented what was called the "queen yard." It was a shallow square box, set in front of the alighting board of each hive, walled with tin about four inches high, and with a tin edge projecting inward horizontally all around, to prevent swarming. The queen's wings were clipped so that she could not possibly jump over the walls of the queen yard, and as the tin projection prevented her from climbing out, she was practically a prisoner in the front yard of her own hive. This was securing the same result which is now secured with queen-trap, but with greater convenience for the bees, of having nothing in the way of their flight or of their free access to the hive for ventilation, etc. The only objection was that the queen's wings must all be clipped. We used this queen-yard largely, and it was owing to this method of clipping queens' wings that we ascertained how readily the bees would supersede their old queens without the knowledge of the apiarist. Often, yes, in many cases, we find that the clipped queen had been replaced by a younger one, without even suspecting the change. And yet, at that time, we were very prone to examine the hives from end to end on the slightest pretext. We spent more time then on one hundred colonies than we would think of spending on 400 to-day. But I must say that it paid, in dollars and cents; for the extra attention was rewarded by extra results.—C. P. Dadant, in *American Bee Journal*.

The queens and drones never eat pollen, but are fed chyle by the workers, which is fully digested pollen, and is identical with the blood of the bees. They may also help themselves to honey, which is fully digested nectar. So the queen does no digesting, being entirely dependent upon the workers. This freedom from the burden of digestion, and being fed so freely with food that is concentrated and nourishing, explains how it is that a queen, whose body without eggs weighs only 0.20 grains, can lay in twenty-four hours 3000 eggs, weighing 0.60 grains, or three times the weight of her body. The larvæ receive quite the same food, that is, chyle regurgitated from the stomach of the worker-bee. Nevertheless, we find the necessary difference in nourishing of the different kinds of larvæ. Queen-larvæ are supplied with pure chyle till the cell is capped in large quantities; we call this food 'royal jelly.' Worker and drone larvæ receive the same chyle during the first three days only, afterwards

the food is less digested by and by, and we call this food chyme. From the fifth day, till the cell is capped, honey and pollen is fed to worker as well as to drone larvæ. H. L. Stackelhasen, in *Progressive Beekeeper.*

I find that there is no time in the year in which the queens are so generally superseded as immediately after the principle honey flow. And we can always rest assured that when the bees are willing to do such work, then is our best time. With me, fully three-fourths of all the queens superseded by the bees are so superseded during the three weeks immediately following the basswood honey-flow. Knowing this fact, I have, for years, done the most of my requeening at this time of the year, and with success that has always pleased me, and that without interfering with my honey crop in the least. To this end I start a greater number of queen-cells than usual from five to eight days before the expected close of the basswood honey harvest, and, when these cells mature, hunt out the old queen and dispose of her, giving a mature cell twenty-four hours after having removed the old queen. If cell protectors are used, the cell can be given at the same time of removing the old queen, thus saving once opening the hive; for, as a rule, the bees allow the queen to hatch all right where a cell protector is used. If the young queen emerges from her cell in an hour or so after giving the cell, or before the bees are aware that their mother is gone, they will sometimes kill her and start cells from their own brood; but if the cells do not hatch in less than from twelve to twenty-four hours after the old queen was removed, nearly every queen will be accepted all right. By raising the queens before the honey harvest closes; that is, the bees doing the feeding of the embryo queens while in the larval form before the honey flow is over; they are sure to be fed in such a way that the very best of queens are produced, this also having a great advantage toward accomplishing our object over and above what would be if we raised our queens before the harvest commenced, or after it was over. Another plan which I have often used since my apiary became very much improved beyond what it formerly was, is to raise a lot of cells from my best queen at the time given above, and, twenty-four to forty-eight hours before they are booked to mature, give one to each colony having a queen more than one year old, using a cell protector for each one, and placing this protected cell in one of the sections on the hive, or anywhere I best can where the bees can cluster about it without hunting out the old queen at all; when, if the bees have any notion to supersede their queen, they will accept of this young one and destroy the old queen. If they destroy the young queen I allow the old queen to remain, thinking that the bees know what is right, and in nineteen cases out of twenty where the bees decide on keeping the old queen I find she improves par excellence till after the honey flow of the next year is over.—S. M. Doolittle, in *American Bee Journal.*

In case a swarm fly from the owner's hive, his qualified right continues only so long as he can keep them in sight, and possesses the power to pursue them where he has a right to pursue, or otherwise positively and distinctly identify them.