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West Maitland, N.S.W.: E. Tipper, November 30, 1903

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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.

VOL. 12. No. 8.

NOVEMBER 30, 1903

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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 district 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.

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**THE AUSTRALIAN BEE BULLETIN**

A MONTHLY JOURNAL  
Devoted to Beekeeping —  
*Circulated throughout the Commonwealth of  
Australia — New Zealand & Cape of Good Hope*

MAITLAND, N.S.W.—NOVEMBER 30, 1903.

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

### Supply Dealers.

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AS has repeatedly been pointed out by us from time to time, that while Great Britain willingly accepts our soldiers to fight her battles, she makes no difference or favour to honey or produce received from Australia to that received from countries who perhaps next month may be at war with us, or who by reason of their heavy tariffs against English goods, buy nothing from her. The United States, Germany, Russia, the Argentine Republics have duties against British goods of from 25 to 35 per cent. That is, say in the case of Russia, an article costing 10s in Great Britain, has a duty put on it of about 16s, so that that article costs in Russia about 26s, and so is actually prohibited. Yet those countries can send their honey and all other produce into England to compete with our Australian honey free of cost. Is it any wonder we have such an unsatisfactory English market! Every beekeeper should get a copy of Mr. Chamberlain's great speech at Glasgow and read it carefully. His plan is, to those countries that will flood English markets with their manufactures and produce, to tax such, and give to England's colonies a preference, by allowing a corresponding reduction of duties to them. And he asks the colonies to make a corresponding allowance to goods from England, but to tax goods from the other countries. Mr. Chamberlain says the effect of the present



system if not stopped must be the break-up of the British Empire. It is with pleasure we note the Deakin Federal Government is heartily prepared to endorse Mr. Chamberlain's views in regard to Australia, and we earnestly urge on all beekeepers who have the slightest idea of an English market for honey, in the forthcoming election to give their votes in favour of the supporters of that Government.

As we anticipated, the present season with us is a poor one. Although the country looks beautiful, and field flowers and thistles are in abundance, the forest trees, while putting on new foliage, are not only late in blooming, but as far as we can see, will not give much honey. Perhaps that may be better for the season following, but we can only speak of that when it really comes. This season is a poor one, and we have to make the best of it. Beekeepers should on that account keep the price up.

In another page Mr. Hutchinson urges us to keep the matter of Permits on Crown Lands going. Very pleased are we to do so. At present there is very little security for any beekeeper who has taken to the industry as a sole means of getting a living by it, the main cause of his trouble being the constant clearing and ringbarking going on. With our properly protected State Forests what an advantage it would be to the State to have persons such as beekeepers, whose interests in the protection of the forest trees would not be second to the State interests, and who, once acquainted with the vagaries of the different blooms, could have a comfortable living, and be well-to-do members of the community.

The annual meeting of the New South Wales Free Farmers Association takes place in four months time. Can the subject not be worked up in the mean time so that practical action may then be taken. Will members think it out and forward suggestions on the subject. Beekeepers send along ideas.

Bees weigh from 4000 to 5,600 to a pound.

If you get a solar extractor get a big one. Less than three feet by two, and six or seven inches deep is foolishness. We don't sell them, we give our experience.

An Italian says--In a manuscript of 1326, a machine is described and pictured which was used for the purpose of throwing skeps of bees into the forces of the enemy.

A new ordinance has been passed for Algiers, "An apiary must not be located any nearer to a neighbor than 200 metres."

Through an error Mr Penglaise's address on our 1st page has been put as (Queensland.) It should be (Victoria.) We would particularly call our readers attention to this.

The import duty on honey into Switzerland is now 50 francs instead of 15, as heretofore. This will hit Austrian beekeepers particularly, who have largely exported to Switzerland under the low tariff.

In closing the season with section hives go over the hives as often as possible, removing a super whenever a fair proportion of the sections was completed. Partly finished sections should be massed on those colonies that will be most likely to complete them. This precaution will very largely reduce the number of sections nearly or quite filled but not completed, which is what makes this matter of unfinished sections so aggravating. Besides if the flow comes to a sudden end, you have these sections in good shape to be promptly finished by feeding back.

Are you prepared for swarms? Have you your queen's wings cut? Have you extra super ready to put on? Is your swarm catcher handy? A swarm catcher can be purchased of any supply dealer advertising in our pages. When a swarm comes out with us we immediately rush to get a spare box, in which we put a few empty frames with starters: then get from some hive or other a frame with



eggs and larvae. The swarm when once on the young larvae will stick there. Leave till sunhown and then put in its permanent position. We have often had trouble with swarms in tall trees. A stone attached to a string thrown over the limb, a rope being attached to the string is drawn over, and the two ends of the rope can be got by the hand and the limb shaken till the swarm falls off on to the prepared hive below. Or the rope can be utilised to draw an empty hive or box close to the swarm into which it may enter. Again, if the swarm is on an overhanging but not too thick limb, a charge of shot striking the limb below the swarm may cause the swarm to fall. Our swarm catcher is a pine pole about 13 feet long, with a sugar bag sewn on to a frame of fencing wire.

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### SCOTLAND.

[BY J. F. MEIKLEJOHN.]

We are glad to hear from you from time to time, and to learn that you are happy and contented in the midst of your rather numerous family of bees at Willow Tree. I am glad to learn that weather conditions have been much more favourable with you of late, than they have been in some years previously, and I hope you may have a continuance of favourable seasons, with plenty of provender for the larger animals and abundant nectar for the smaller ones. We have just got to the close of a season, which has not been at all a good one. We have had a good deal of wet and unseasonable weather, the results being that instead of all the crops being safely garnered at this time of the year, very many fields are still untouched by the reaper, and to all appearance, it will be some time yet, before they can be reaped. Farming here as well as in other places appears to be a somewhat uncertain pursuit. The heather-clad hills all around had a very beautiful appearance, but I learn that on account of the excessive rainfall while the heather was in bloom, has been most damaging to beekeepers. Very many

will lose their bees during the winter unless vigorous artificial feeding is carried on. Very many hives cannot show more than from 5 to 10 lbs of surplus honey for the season. I am doubtful if the average produce will reach these figures. I rather think there may be a large shortage of honey on the British market very soon, and I hope if this is so, that Australian beekeepers may get some of the benefits by having greater demands. Some honey I have seen lately as being retailed at from 1s to 1/3 per lb., sections from 1s to 1/6.

As usual we have been doing a bit of holidaying, and spent nearly a month at Dunoon, one of the principal watering places on the Clyde. This town has within a comparatively limited number of years risen from a mere hamlet to be a place of very considerable dimensions. Very large numbers of people come here from Glasgow and suburbs, to recuperate during the summer months, as nearly all the excursion boats, and they are very many, touch here on their way from the city to more distant parts. Facilities are given to temporary residents, to see all the Lochs, Islands, Kyles, &c of the Firth of Clyde.

The steamers that ply to the different places are large, handsome, and very comfortable, as well as being fast. Two very fine Turbine steamers, the King Edward, and Queen Alexandria, have been running for the past two seasons, the former to Inverary, and the latter to Arran and Campbelltown.

We boarded the King Edward, one beautiful morning, and were struck with the very fine appointments of this fine steamer. A peep into the engine room, reveals something quite different in propelling power, from what we have been accustomed to see in paddle or ordinary screw steamers. The heating and mechanical powers of boilers and engines appear to be taken full advantage of. The main engines of this steamer consists of three separate turbines, each driving its own line of shafting, the centre turbine high pressure, and the two side ones low



pressure. In ordinary, ahead going, the steam from the boilers is admitted to the high pressure turbine, and after expanding about five-fold, passes to the low pressure turbine, and again expands another twenty-five fold, and then passes to the condensers. The total ratio of expansion being about 125 fold as compared with eight to sixteen fold in triple expansion reciprocating engines. The vessel has five propellers, which revolve at a velocity of from 700 to 1000 revolutions per minute. No doubt that from the success of boats that have been fitted with these engines they are to become the propelling power of the future.

Crossing the Clyde we are soon at Largs, a very pretty place. Here was fought in 1263 in the reign of Alexander 3rd, the battle with Haco's forces which put an end to Norwegian claims to any part of Scotland. While here I could not but remember, that this was the birthplace of that old sturdy Australian patriot Dr Lang, who adorned his position in your legislature; who knows but he had the strain of blood in his veins of the men of long ago, who crushed the Norse invader. Men of his type would not be amiss with you at the present time I fancy.

Next port we put into is Millford, a considerable town on the island of Cumbrae, the Big and Little Cumbraes are or were reckoned islands of importance. It is related of a good old clergyman who was once there, that in his prayers for the welfare of the Great and Little Cumbrae, that God would be graciously pleased to bless also the adjacent islands of Great Britain and Ireland, was generally tacked on. After leaving Millford we have soon the shores of the Island of Bute on the right, and the rugged Isle of Arran on the left, while away out at sea, but plainly distinguishable, we see Ailsa Craig lying midway between the Scotch and Irish coasts, hence sometimes called "Paddy's Milestone." After rounding Ardlamont Point, we enter Loch Fyne.

The scenery on both sides is very beautiful. Loch Fyne is one of the most extensive arms of the Firth of Clyde,

and stretches into the Western Highlands for more than 30 miles. As most people know, it is the herring pond of the west, and has attained a world-wide reputation for the excellence of the herrings which it produces. A very large number of boats are employed in the fishery, and steamers are despatched every day during the fishing season to Glasgow and other places, with large cargoes of the herrings.

On the shores of the Loch are situated a considerable number of villages, and to these large numbers of visitors from Glasgow, Greenock and other towns resort during the summer. Ararishaig is a considerable town at which the Crinan Canal joins the loch. Many of the passengers leave the steamer here, cross a neck of land of about 8 miles to Crinan, and from there proceed to explore the western Isles, such as Iona, Staffa, Mull, and many others. In an hour or so after leaving Ardrishaig we arrive at Inverary, the ducal town of Argyle. It looks rather pretty from a distance, but when one lands and takes a turn through its streets, it is somewhat disappointing. It is very far short of what we expected to see. Its buildings are antiquated and mean looking. In the town there are few signs of modernity. I have been told, that most of the ducal towns of Scotland have much the same character. The surroundings are very beautiful, and the castle, the seat of the Duke, is a very fine building. Most of the residents are Celts and of course there is much "tearing of the tartan," going on on the wharf. I rather envy these people, they are adepts in their mother tongue. But they are quite understandable by we lowlanders when they essay to talk in our tongue. An Englishman may be a bit puzzled, but we are not. I will annex a cutting of English as she is spoken by a native of Inverary,

The Town Cross is stated to have been brought from Iona. The following is said to have been a proclamation made at the Market Cross of Inverary last century:—

Ta-ahoy! Te t'tither a hoy! Ta-ahoy  
Three times!!! an' Ta-ahoy—Whisht!!!



By command of His Majesty King George,  
 An' her Grace to Duke o' Argyll;  
 If any body is found fishing aboon te loch,  
 or below te loch, afore te loch, or ahint te loch,  
 in te loch, or on te loch, aroun' te loch, or  
 about te loch,  
 She's to be persecutet wi' three persecutions;  
 First, she's to be burnt, syne she's to be  
 drownt, an' then she's to be hangt—an'  
 if ever she comes back she's to be persecutit  
 Wi' a faur waur death.  
 God save the King an' her grace  
 te Duke o' Argyll!

A fine description of Inverary and district, as well of the people and events of long ago is given in Neil Munro's books "Doom Castle," "Lost Pibroch," and "Children of the Mist."

We had a beautiful sail back in company with the palatial steamer Lord of the Isles for part of the way, and having enjoyed the trip thoroughly. A few days after that we took steamer for Ayr, intending to have a short run to the child haunts of Burns. The town, at least the older part, is not very pretty, too much stir and bustle about it. And still it may have some of the celebrity of olden times about it yet.

Auld Ayr wham ne'er a town surpasses  
 For honest men and bonnie lasses,

Of course, I was not long enough in it to know what the men were, and as I had a mate with me I had to be cautious about glancing at the lasses. We took an electric car for the Brig-a-Doon, and while on the way I could not help reflecting on the wondrous ride of Tam O' Shanter over the same road, and how different the means of modern locomotion. Electricity soon carries us over the long Scotch miles, and in a very short time we arrive at the cottage where the poet was born. The room, the fireplace, the shelves with dishes arranged on them, the clock, and the bed in which the poet was born are much in the same condition as they were when that January wind blew handsel in on Robin. A very humble abode was that, but in it lived those good and simple God-fearing souls whose way of life is depicted in the 'Cottar's Saturday night.' A museum has been built on the grounds, and in it

is stored many memorials of the poet. An old man is in charge, and I think he must be a grandson of famous Tam. Brusque he is, and if anyone trespasses on his nicely kept greens, in stentorian tones he shouts, "Come aff that gress." After going all over the buildings, we head for Alloway's auld haunted kirk. Nothing is left of it now beside the ivy covered walls. But here is the identical place where Tam o' Shanter saw that unco sight.

Warlocks and witches in a dance,  
 While horn pipes, jigs, strathspeys and reels,  
 Tut life and metal in their heels,  
 A winnock bunker in the east (there yet),  
 There sat auld Nick in shape o' beast  
 A towzie tyke, black, grim, and large,  
 Eo gae them music was his charge.

I would advise you and all your friends to read Tam O' Shanter, which I think is Burns' masterpiece. All is quiet enough now, and the people I saw there though numerous, were grave and decorous, while wandering through the small churchyard. Thousands from all lands come to this spot every year. Hero worship is indulged in by most of nationalities and pilgrims from all lands come to worship at the shrine of Robert Burns.

We had to go and get a glimpse at the banks and Braes O' Bonnie Doon, as well as stand on the keystone O' the Brig, where Tanis' mare Maggie parted with her tail, but nae man can tether time nor tide. So after a hurried visit to the splendid grounds and monument we had to board the car and get back to Ayr in time to catch our boat. The day was fine and sea smooth, so we had a most enjoyable trip.

## PARTHENOGENESIS.

Since Dzierzon first announced his discovery to the world, many persons have attempted to prove that drone eggs are fertilized in the case of eggs laid by a fertile queen; but so thoroughly has the theory been proven by von Siebold, recently by Prof. Weismann and his pupils, Paulck and Petrunkewitsch, and by many others, that but little faith can



be put in the observations and conclusions of Perez, Dickel, and others with like theories. We can safely assert that all drones are produced from unfertilized eggs, and all workers and queens from fertilized eggs, since all authentic scientific investigations assert the truth of the statement. The same is true for the males of many other insects, which, with the bee, are included in the group of social *Hymenoptera*. Wasps, hornets, and ants furnish examples of the same kind of parthenogenesis.

Examples of females produced from eggs which do not receive the male cell are found in certain small and rare butterflies. It is evident that this form of parthenogenesis gives to a rare species a much better chance of surviving, since it is never necessary for a male and female to meet. In the case of the bee, copulation is necessary for the production of the queen, the individual that has most to do with the propagation of the species; but in these cases copulation is never necessary.

The last class of parthenogenesis, that in which both males and females are produced without union of the two sexes, affords some of the most interesting facts in all natural science. Volumes could be written—in fact, volumes have been written—concerning the different ways in which animals having this power behave. The best known and most interesting cases which fall under this group are those of the plant-lice, *Aphides*, and water-fleas. The small wheel animalcules, or rotifers, so abundant in all pools of water, also show this phenomenon frequently. Let us now examine one of the plant-lice more carefully, as an example of this group of our classification. In the spring there hatches from an egg which has lived over winter a wingless female plant-louse, and no males are seen at this time of the year. This female soon produces numbers of young offspring which come from their mother in a living, active condition, and these, in turn, soon produce more winged or wingless individuals in the same way—a considerable number of generations

appearing during the course of a single summer. Finally, when the unfavorable conditions of autumn come on, there appears a generation consisting of males and females. The individuals of this generation mate, and the females lay fertilized eggs which live over winter and begin the cycle again the following spring. In different kinds of plant-lice this cycle may be modified by the migration of the winged generation to some other species of plant, for each plant has its own kind of plant-louse, and then somewhere else in the cycle another winged generation will appear, and they will all return to the original kind of water-plant.

A cycle similar to this takes place in many of the little water-fleas, which can readily be seen if you dip up in a glass vessel some water from a stagnant pool. If you let this vessel of water stand for a day or two you may see collected on the sides little patches of what appears to be slime, but which on examination with a good lens turns out to be one of the most beautiful objects in all nature—a colony of rotifers. Many of these also have a cycle similar to that which has been so briefly described for the plant-lice.

Besides these cases, parthenogenesis has been described for a couple of beetles, for several flies, for some spiders, for the animals which cause liver-rot in sheep, and doubtfully for several other groups in the animal kingdom. It was also supposed a few years ago that it was not of uncommon occurrence among plants; but of late years it is disproven for most of the supposed cases, and to-day is held for but three plants. It is thus evident that parthenogenesis is of quite common occurrence in many groups of animals besides bees; in fact, the development of males only is probably characteristic of the least modified type of this strange ability.—C. F. Phillips in *Gleanings*.

### ✕ How to Avoid Killing Bees.

There are some things that every bee-keeper naturally learns by experience that are not always found in text-books of instruction in bee-keeping. One of



these relates to the matter of killing bees. In some apiaries hundreds, or thousands, of bees are killed in the course of a year simply by mashing them when covers or snpers are put on hives. The case is unusually bad when a large amount of smoke has been used. The bees run out of the hive, boiling over all around, and by the time the operator is through with his manipulations there is a layer of them half an inch thick or more all around on the upper edge of the sides and ends of the hive. If now the cover be quickly placed over, a large portion of these bees will be killed. If the operator is touched with a feeling of pity for the little innocents, and slowly lets down the cover upon them, so as to give them time to get out of the way, the result is but little better. After their stampede the bees appear just a bit stupid, and make no move to get out of the way till the cover presses down uncomfortably upon them, and then it is too late, for they are held fast in spite of all efforts to get away while the cover is slowly crushing the life out of them.

The experienced operator will put on the cover without killing a bee. In the first place, he will seldom have so many bees in the way, for he does not find it necessary to use so much smoke. But if there should be a border of bees an inch thick all around, he is still master of the situation. A little smoke is puffed lightly upon the border of bees just to stir them up enough so that they will be inclined to "move on," and then the operator takes the cover in hand. Instead of holding the cover level over the place where it belongs, one end of the cover is raised 10 or 12 inches, and the other end is allowed to touch the hive. Neither does it touch the hive the whole width, but just the corner of the cover farthest from the operator is allowed to touch the nearest corner of the hive. Still holding the cover with one end raised, he slides it from him across the width of the hive. Then allowing this end of the cover to remain resting on the hive, he quickly drops the other end 3, 4, or more inches,

and as quickly raises it again. The bees that were squeezed by the dropping of the cover will get out of the way when it is raised. Without waiting an instant, he rapidly moves the cover up and down, each time raising it not quite so high as it was raised before, and lowering it just a little more. At the last, when the cover is raised only an inch, or half an inch, a few rapid vibrations up and down gets the last bee out of the way, and he can tell pretty well by the feeling when the cover no longer strikes upon the bees but upon the solid hive, and the cover is then allowed to rest. All this is so rapidly done that it does not take so much time as seems in the telling, and it is well that each novice should in the start begin practicing to save the lives of his bees.—*American Bee Journal.*

### SPREADING BROOD.

The prime object of spreading brood is a rapidly increased brood nest having in view the opening of the honey season, before which date a crowded hive is desired. Foundation should never be used for this purpose, as brood is wanted, not early or cheaply-built combs, and the two purposes must not be confused. Every comb so built in spring is built at the expense of the very life of the bees, for though, if absolutely necessary owing to shortage, combs may be built in this way, yet the heat necessary for their production is obtained at the expense of the consumption of valuable stores which should be used as brood food, whereas the combs can be produced more cheaply later in the year when the bees have "surplus heat" at their disposal. Too often the bees attack the foundation with obvious reluctance, the corners remaining in this state for long, with every incentive to damage or warp. Of course they may be worked out in this way later in the year, when honey is coming in, by such stocks as are too weak to store much surplus, but they would be better given to swarms, or to special stocks devoted to the purpose.



To obtain the best results with spreading brood, fully drawn combs free from old pollen should be given. This may save the disappointment of comb cut down, and drone comb built; but if frames are inserted in the centre of brood nest I would give preference to clean old combs, then to new ones. Queens appear to lay more readily in combs in which brood has already been reared, and I have had cases where a perfectly new comb on either side of the brood nest has seemed to confine its area until such time as the bees were forced to expand.

The indications of injudicious spreading of brood are very simple. The queen ceases to lay in the outer combs of the nest, and in bad cases the brood is largely chilled owing to the incapacity of the bees to keep it warm during cold nights; a colony in such a case often failing to recover from the set-back until too late in the season, so that I would here emphasize the warning to the beginner that more harm may at times be done by the indiscriminate use of our powers over the movable frame, and that in this as in many other bee matters, one cannot be too careful.—Writer in *Beekeepers Record*.

### HONEY MARKET.

*Queensland Country Life*. Honey  $1\frac{1}{2}$ d to  $1\frac{3}{4}$ d per lb.

*Adelaide Garden & Field*.—Honey continues to find quittance; clear extracted,  $2\frac{3}{4}$ d; beeswax, 1s 1d.

*Australasian*, Melbourne. — Honey—Prime clear garden, 3d to  $3\frac{1}{4}$ d; congealed and inferior lower. Beeswax—1s to 1s 0 $\frac{1}{2}$ d.

*Melbourne Leader*.—Honey—Business is dull. Prime clear garden honey is offered at from 3d to  $3\frac{1}{2}$ d, the latter price being paid only for limited lots of extracted; cloudy and congealed is on offer at from 2d.

*Maitland Mercury*.—Honey 2d to  $2\frac{1}{2}$ d lb, small tins 2s 6d.

*S. M. Herald*.—Honey—Choice  $3\frac{1}{4}$ d, good  $2\frac{3}{4}$ d, inferior 2d to  $2\frac{1}{4}$ d for tins containing 60lb. Beeswax—Choice clear, 1s 1d, other sorts 1s lb.

Messrs P. J. Moy & Co. report :—As previously advised we have received many consignments from hitherto unknown beekeepers through the medium of your Journal. We have a good enquiry for prime honey and at the moment are right out, we have advices of a few shipments to arrive within the next few days. Prices range from 2d to 3d according to quality. Beeswax 1/1 to 1/2.

Formalin Gas has been experimented with by N. E. France, so he reported at the California Convention, and it seemed to destroy the germs in the unsealed cells, but not in those capped over. He had even had live bees hatch out of from combs soon after they had been fumigated. If it will not penetrate a capping sufficiently to kill a bee nearly ready to hatch, it does not seem reasonable to suppose that it will kill the germs of foul brood when sealed up.—*Beekeeper's Review*.

A plan that will prevent swarming and secure a moderate increase consists in taking one comb of brood out of each colony every few days and replacing it with a frame of foundation. If the object is merely the prevention of swarming, the operation should be repeated as often as necessary, so as to furnish the queen enough room to lay. That may be as often as every fifth day, or perhaps only every tenth day, according to the size of the brood chamber, the prolificness of the queen, the honey-flow, and other conditions. As long as the queen has enough empty comb to lay in, there will be no swarming unless the queen is failing, or unless the lack of shade and ventilation renders the situation intolerable.—Adrian Getaz in *American Beekeeper*.

R. Spiegler had an unpleasant experience with a very vicious swarm of bees. After treating it with chloroform he had no further trouble with it, and it worked well the next day and thereafter.

In emptying out a smoker after a day's work, do not throw out all of the unburned fuel. Leave a little in, as it will ignite more readily than other fuel.



## HER ROYAL HIGHNESS QUEEN-BEE.

[BY MR. H. BYRON MOORE.]

*(Continued.)*

There are some flowers that have the honey so far down in the place they keep it in, called the nectary, that the bees cannot reach it, so they bite a little hole in the nectary, and get the honey out that way.

There are other flowers that the ants try to rob of their honey, for you know ants are very fond of sweet things. But these flowers like to keep it for their friends, the bees; so they grow on their stalks sharp hairs, pointing downwards, and these make a sort of barbed wire fence or zareba, which prevents the ants climbing up. Other flowers, like the foxglove, keep their honey shut up tight in a little box, which only the bees know how to open.

Some flowers are able to close their petals down when it rains, so as to prevent the honey being washed away.

Many flowers go to sleep at certain hours. The daisy, like the chickens, wakes at sunrise, and closes, or goes to sleep, at sunset. That is why it is called "Day's Eye" or as we now spell it, daisy.

The Tragopogon pratensis, which grows in England, wakes up (or opens) at 4 o'clock in the morning and goes to sleep (or closes) at 12 o'clock noon. It is called by the country people, "John-got-to-bed-at-noon," and the ancient Britons used to go to dinner when the flower closed. This was in the days before clocks were invented, to let them know the time.

In Fiji the Banhinia expands its petals early in the morning before the sun gets too hot, and the missionary then beats a wooden drum to let the people know it is time to go to church.

Some flowers you would think had brains by the way they act. When the bee gets to the honey the little thread-like part that holds the pollen dust on the top springs forward on to the bee, and in striking her dusts her over with

pollen, and at the same time drives her away to take the pollen to another flower.

Isn't that wonderful? The flower behaves just like a sensible human being.

In other flowers where the pollen is so light and dusty that it could blow away, the flower makes a tiny drop of sticky juice like glue, and fixes the pollen on the bee's body with it. That is still more wonderful, is it not?

Well, I must get back to the bees and their ways. They do not mix the pollen of different kinds of flowers, because they know it would mix up matters. If they begin on mignonette they stick to mignonette. If they are working on heath they stick to heath, and so on. Some pollen they give to other flowers to make them blossom well, and some they take home on their legs, which have long hairs to hold the pollen, and they stroke it off those legs with two other legs, and make it into a little pellet about the size of a pin's head, and ram it into their pollen baskets, and then they are ready to fly home with it. Then they make a substance called propolis from sticky buds and gum. This they use to fill up all cracks in their home, which would let the draught in, for they have to keep their hive warm in the winter. Sometimes a snail or a slug will crawl in, and as it is too big for them to move they cover it with propolis and cement it tight down to the floor, so that it dies; but the propolis is like cement, and does not let any smell through, and they get rid of intruders that way.

They are extremely tidy and clean. If a bit of dirt blows in, they move it out at once. If it is too heavy for one bee, others come and help, and the rubbish is pushed out of the hive, and the place is thoroughly cleaned up. They are very good housekeepers.

Outside the little hole which leads to their home, several bees walk up and down like sentinels, to keep a look-out for wasps or other enemies that come to steal their honey. If they want help they hum at the little opening, and out come a lot of bees to assist them. They also



have to keep a sharp look-out for the blue Tom Tit. He is a wicked little bird to the bees, and goes early to the hive before the bees are up. He is very cunning. He taps with his beak at the mouth of the hive, and out comes a bee to see who is knocking at the door. The moment she comes out the Tom Tit seizes her in his beak and flies away to enjoy her for breakfast in his own nest.

Wasps are great robbers of honey, and they are very strong, but the bees fight well, and if there are enough at home in the hive they quickly beat the wasps off.

But the worst robbers are bees from another hive. Generally bees are well behaved; but sometimes a whole hive takes to robbing the honey from another hive, and then there is a fuss and a big battle, leaving many dead on the field.

I am afraid that, like human beings, some wicked bee sets a bad example, and then they all behave badly.

The way they make wax is very curious.

They somehow chew the honey, and then hang themselves up together, which makes them very hot, and the wax seems to melt out in little flakes on their tummies and they scrape it off and give it to the builders to make the cells.

They are very wise about the weather.

A bee is rarely caught in the rain; she either knows it is coming and gets home first, or she does not go out at all, and they can always tell when a thunderstorm is coming.

They are also very clever at finding their way about. It does not matter how many twists and turns they take in searching for honey, they can always fly, even if it is miles, in a straight line home, and this is why a very straight line is always called a "bee line."

The best behaved bees come from the north of Italy. They have three bright golden bands round their bodies, and are very gentle and good tempered. But this is not all. They are very hard workers. They rise much earlier in the morning than English bees, and are at work before ours get up. They also work later in the evening and longer in

the autumn. The bees in the Island of Cyprus are very hard workers, but they are very bad tempered.

The largest bee in the world is found in India, Ceylon and the Malay Peninsula. It makes immense quantities of honey, but it always makes its home on the top of the tallest palms or up in the rocks, or somewhere where you cannot get at it. It is a very wild and savage bee that you cannot tame.

In America, out in the forests, the bees make their home at the ends of the most slender branches of trees, because they know the monkeys cannot reach them, for monkeys are very fond of robbing the bees of their honey. People in the woods there go hunting for wild honey. If they see a bee searching for food they put a little honey on a leaf and feed the bee. Then they watch her fly home, and in that way they find where she lives, and then they get all the honey she has been storing away during the summer.

They are wonderfully clever little insects, these bees. You know they have two pairs of wings, two on each side, and if they used these independently of each other the wind would get between, and they would not be able to travel so fast, so on the upper edge of the lower wing they have a row of little hooks, and they hook these on to a little bar on the lower edge of the upper wing when they are flying. When they settle on a flower they unhook these and fold their two pair of wings over their backs.

A Queen lives four years, and lays about 2000 eggs a day during the laying season. She will lay during her life nearly one million eggs. A worker only lives nine months. Should a Queen in her hurry of laying 2000 eggs a day leave two or three eggs in one cell, the workers who follow her lift the extra egg, or eggs, out, leaving only one, and place them in empty cells, one in each.

Drones, as I told you, are always killed. Perhaps it is as well, as they would only die of starvation. They never do "a hand's turn," and would sooner die than



work for their living When they are hungry they stoop down, and place their feeding tubes alongside a worker, and just have the honey pumped into them, almost like an infant is fed with a feeding bottle.

Now there is a great deal more to tell about bees that is known, but, of course, I do not know everything, and I daresay there is a great deal more to be found out by those who take the trouble and have the patience to watch and try to understand these hardworking clever little creatures that the Great Architect of the Universe has endowed with such wonderful intelligence and aptitude. I hope my simple story will incite you to study nature and realize by what wonders you are surrounded.

[THE END.]

## MOUNTAIN FORESTS AND IRRIGATION.

[BY J. BLACKBOURNE.]

(Continued.)

### ADVANTAGES & BENEFITS OF IRRIGATION.

In drawing your attention to this all important matter it is just as well to look back before speaking of our own aspirations, to the records of the past. Starting with Egypt, we find that the inhabitants of that wonderful country were in a high state of civilization 3000 years before Joseph, as recorded in sacred history, went there from Palestine to buy corn, because there was a famine in his native land. The Holy Land had doubtless a visitation similar to that which overtook our unfortunate Mallee farmers last year, and the Egyptians had abundance of corn to sell, because they knew how to irrigate and use the water of their noble river in the production of all kinds of foods essential for the welfare and prosperity of the human race. The Romans used Egypt as their granary for centuries, and procured unfailling supplies from there to feed their immense armies and large population. Consequently money flowed into the land of the Pharaohs. Their

Public Works department (unlike ours in Victoria) was always in funds, and they built wonderful cities, temples, & pyramids. When Joseph was made Prime Minister of Egypt he set his great talents to work to render famine in adjacent lands a source of wealth to the nation which he governed, and tradition ascribes to this wise ruler the making of the greatest artificial channel in Egypt for conveying the water of the high Nile to districts which otherwise would be barren desert. This irrigation channel is a great boon to the country through which it flows, and is known as "The Water of Joseph" to this day.

As you are aware, an immense dam has recently been constructed by British skill and capital across the Nile at Assouan. It cost millions of money, and is intended for the conservation of water when the river is falling from high summer level. Its capacity is enormous, amounting to 70,000,000,000 cubic feet. The result of this vast enterprise—the greatest engineering work, perhaps, that the world has ever seen—will be the gaining of millions of additional acres for agriculture, and the revenue from the irrigation they will require will double the annual income to the Government.

If the British were allowed a free hand this increased revenue could be made in a short period to clear Egypt from debt.

The Mormons when they migrated to Utah settled down in what was then a desert. By the magic influence of irrigation they changed this into a terrestrial paradise, and created the beautiful Salt Lake City, a veritable garden of running streams, shade trees and lovely flowers.

The Moors in Spain, before they were expelled by the Christians, were celebrated for their knowledge of water storage, and its application to the fertile plains near their capital. Afterwards Spain destroyed her mountain forests, and ceasing to be "The Eden of Southern Europe," has gradually lost the proud position she occupied amongst the nations, and has degenerated into a third rate power.



Coming nearer home, I may mention our own Mildura, originally a dry arid place, in the North-western Mallee, not even a success when under pastoral occupation. Now it produces grapes, peaches, apricots, figs, oranges, and lemons of the finest quality. What has wrought the change? The judicious application to the soil of water.

It may, however, be argued by some people, reasonably I think, that we have already wasted a lot of money in water storage and irrigation works, and thereby increased the burden of the general taxpayer. This is, unfortunately, true, and is the natural result of starting the project without proper consideration, on wrong lines, and on too large a scale at first. Mr Deakin, when Minister of Water Supply, years ago "boomed" irrigation by masterly articles in the "Argus" on water storage, and distribution in India and America. His writings on water conservation, and its application to the land in the former country were of such great excellence that they were compiled, and are now used there by the State engineers as a text book. At this time we borrowed money largely, water trusts were formed, and fabulous sums advanced to them by the Government, which some of them spent, I imagine, without any definite ideas about the day of re-payment. Contracts were let, and channels scooped out in all directions. Many of them never have had water in them, and in one instance that I remember seeing, the impossible task was essayed of trying to induce water by gravitation to flow up hill, the surveyor having made a mistake, and taken his levels the wrong way. You know the results of our past irrigation policy. Notwithstanding many gratifying successes, the general result has been the failure of the water trusts, who had borrowed money largely, to pay interest on the same. Then a couple of years ago our State Parliament passed a Bill "writing off" hundreds of thousands of pounds of money advanced, but although "written off" to the water trusts, the general

taxpayer has still to provide for the annual interest, and is responsible for the due repayment of the capital borrowed from the British investor.

In America, one patriotic man Senator Newlands, has made irrigation his speciality. It is asserted that the "Newlands Act," which has been passed by Congress, is the best and most perfect measure ever enacted dealing with the storage and distribution of water. It provides for the reclamation of an enormous area of waste State lands (say like our arid Mallee country), and their conversion into irrigated homestead farms upon an automatic system. The proceeds from the sale in ten annual instalments of one converted district will be devoted to the works necessary for the placing of water upon a fresh area, and this process will go on, until several millions of acres will be brought under irrigation, and at least 100,000 square miles of waste lands rendered arable. In America the value of all the works now completed for irrigation purposes amounts to £100,000,000 or three times the original cost. In Victoria, the result of a public outlay of three millions sterling, is that the present assets are valued at one million only. These figures show that the Americans have trebled the value of their irrigation works, and, unfortunately, we have lost two-thirds of ours. Still, why should we lose heart? I firmly believe that a "set back" occasionally, or a certain amount of adversity, brings out the nobler qualities in a nation, as well as in an individual. In a splendid article last week, the "Age" pointed out that what we want is a man like Senator Newlands to arise from amongst our legislators, and make irrigation a special study, devoting to it patriotically all his time, all his talents, and all his energy. We might copy with certain modifications, the Newlands Act, which has been of such service in the United States, and in time see here what they already have there,— "Deserts transformed into rich fruit-growing districts, containing large and prosperous communities."

*(To be continued.)*



## CAUSE OF BEE-PARALYSIS.

[BY E. J. ATCHLEY.]

As promised some time ago, I will give the real cause of bee-paralysis. Having been troubled more or less with this disease for about thirty years, and having read everything that came my way concerning it, and tried every known remedy without success, I set out about five years ago to learn first the true cause, and then get the help of the masses in curing it, if really we need a cure. By close observation, along with my almost everyday work with the bees, I have found out the true cause of paralysis, which is as follows :—

It is caused by bees preparing themselves to feed larvæ, and no larvæ to feed, or not enough on which to bestow the amount of chyle, or prepared food, and the nurse-bees will not throw out or deposit this chyle, and soon the mixture of pollen and honey begins to ferment, or make the nurses sick; and it is owing to how much chyle they have prepared as to how bad the bees will be affected. This discovery was made by closely watching the bees that happened to become stimulated out of season, or at times when queens were not laying, such as moving bees in winter, or disturbing them in any way at such times as they ought to be quiet. What puzzled me most was that the Cyprian and Holy Land bees did not take paralysis at all, or very seldom at least, and these bees are such great breeders that the queens begin laying at the least excitement, in season or out of season, and furnish plenty of larvæ on which the bees can use the prepared food, and consequently they are always healthy. Make a colony of Holy Land or Cyprian bees queenless, and they take laying workers in less than 24 hours, or before the nurse-bees begin to suffer with a supply of prepared food.

I have had hundreds of nuclei take paralysis when Italian bees were used, at times when there was an abundance of pollen coming in, and honey sufficient to stimulate brooding, and the Italian

bees are not such great brooders, or so quick to take laying workers; hence the bees are diseased, because they have no place to use the chyle, and soon swell up and die.

It is very evident that it is bees that desire brood, and which would be great nurses, that take paralysis worse; but the laying faculties, queens or workers, as the case may be, fail to supply the brood, and colonies are affected just to the extent of prepared food not used, and this is why there is so much difference, and so many stages of this malady.

Changing queens has been recommended a great many times, and in many cases it proved effectual, inasmuch as the new queen would soon supply a different working force, and the new queen perchance a better layer, and furnished more larvæ to be fed. But in cases when the new queen was no better than the one taken out, the matter was not remedied and paralysis kept on. If there are enough of the old bees left to start up a colony which have not been poisoned by the chyle, when new honey and pollen come in, then the queen is stimulated to a greater degree, and plenty of larvæ are furnished to take up the food prepared by the nurses, and paralysis stops at once. Bees in cellars sometimes get excited from different causes, and the bees at once begin preparing chyle, but the excitement does not last long enough for the queen to begin to lay, and disease begins, and sometimes nearly ruins the colony before brood-rearing begins. I have seen hundreds of Italian nuclei, which were queenless and broodless, make queen-cell stubs all over the pollen portions of their combs, and nearly all the bees swelled up with nurse food, and all soon die, because they had no place to use the food. Salt has been used as a remedy, but I know that it is not worth any thing, as paralysis is not really a disease, but only a condition brought on by each individual colony, more or less, according to their several characteristics, or breeding propensities, out of season. I think that if bees could be placed in



cellars without pollen, absolutely, there would never be a single trace of paralysis no difference how much excitement they received. There is no such thing as paralysis being a catching disease, as there is nothing to catch, and a colony affected can be placed over a healthy one; and where there is brooding going on, and all is well, no more sickness or death from full and bloated stomachs will result.

In 1880 I thought that pollen was the cause of what we then called the nameless bee-disease, and I came pretty close to it, but did not go far enough; as, certainly, if there was no pollen there would be no paralysis. Bee-keepers all over the land have just about used all the remedies, to my notion, and this, too without knowing the cause; and that is, changing queens, placing sick colonies over well ones, etc. After once knowing the true cause, some practical apiarists over the land may be able to figure out a complete remedy. If paralysis were a disease, then the queens and drones would have it too, as they all sleep in the same room, eat at the same table, sip out of the same cup, as it were; but nothing except the workers are affected; and as drones and queens are bees, and it being mature bees that get sick, certainly all would be subject to the same affection; but there is no disease, and no danger of one colony catching it from another. If I had a few foul-broody colonies on which to experiment, and could get a place where there would be no danger of its getting spread to other bees, I would be glad to try my hand in ferreting out its cause also; but as foul brood does not originate in this country, and as there is no condition known under which foul brood could start in this region, I think it would be quite difficult to get at the cause unless one were where its origin is.—*Gleanings.*

### **BUILDING WORKER COMB ONLY.**

I find that there are three conditions of the hive or colony under which, if rightly managed, the bees will almost invariably build worker comb.

Now you are talking about just what I wish to know. Tell me about the condition you consider best.

The surest of the three ways is when a colony is quite weak or what we term a nucleus. If such a colony is deprived of all its combs save one of honey and one of brood, and a frame having a starter in it is inserted between the two combs left in the hive, the bees will, ninety-nine times out of a hundred, fill that frame with worker comb, and said comb will be as perfect as one built from foundation under the most favorable circumstances. Taking advantage of this fact, I take frames of brood from the weaker colonies I have at the beginning of the honey-flow, those too weak to work in sections to advantage, and give this brood to the weaker of the stronger colonies, and set the weak colonies to building comb, as I have explained. You will note here that I really make a gain in this way as to surplus honey, for this brood, where placed, gives better results in section-honey than it would have done had it been left where it was with the weak colony, as it almost immediately puts the bees of the colony where given (into the sections) at work, while, had the brood remained in its own hive, these colonies would have been somewhat slow in starting in the sections.

The second is, at the time of hiving new swarms, which are treated in this way when I wish them to build worker comb. The swarm is hived on the full number of frames the hive contains, and left for 36 to 48 hours, a super of sections being put on when the swarm is hived. The hive is now opened, and five of the frames are allowed to remain—the five that have perfect worker comb being built in them, and dummies are used to take the place of the frames taken out. This throws the force of bees, not needed below, into the sections, so that the bees do not need to build any store comb in the brood-nest, which store comb, when built for that purpose, is generally of the drone size of cells. By this time the queen is ready to keep up with the bees in their comb building, with her eggs; and in this way, nine times out of ten, I get these five frames



filled with worker comb, and besides secure a good yield of section honey.

Why do you wait from 36 to 48 hours about arranging the hive? Why not give only the five frames at the time of hiving?

Glad you asked that question, as I should have forgotten to speak of something that would have bothered you had I not told you. In the first place, a swarm given five frames when hived, is liable to think the place of abode too small, and leave, or swarm out, and such a procedure is a nuisance. In the next place, when any colony having an old or laying queen is first hived, the bees are likely to build comb too fast for her, hence some of the combs first started are liable to be the drone size on account of the queen not being in condition to lay many eggs at first as all queens cease almost entirely to lay for 24 hours previous to swarming, so that they may be reduced in weight that they may fly and accompany the swarm; and full prolificness does not return under 48 hours after the swarm has commenced keeping house in its new home. And as these combs having the drone size of cells are just right for store combs, the bees generally, when once started, keep right on with that size of cells till the bottom of the hive is reached.

The third condition under which worker comb will be built is just after the young queen gets to laying in any colony having cast a swarm. If, after she has been laying two or three days, we take away two or three combs and put frames with starters in their places, we shall find that these frames will be mainly filled with worker comb. As the bees are now over the swarming fever, and desire worker bees to promote the welfare of the colony, no drones are needed, and the young queens are not likely to lay in drone comb. However, we are not quite as certain of all worker comb in this case as we are in either of the other two, as there are plenty of built combs in the hive for the young queen to use, and it sometimes happens that the bees will prefer to leave off storing in the sections and build store comb in the frames, thus defeating what we are striving to attain.—G. M. Doolittle in *Gleanings*.

## QUEEN MATING IN CONFINEMENT

I built a tent four feet square and four feet high. It was made in six pieces—simply six frames, five covered with muslin, and the top covered with wire netting. This tent was fastened together with hooks when wanted, and taken down in the evening when the drones quit flying.

Three sides, outside the tent, were occupied by nuclei, placed so that the tent would just fit snug against them. The nuclei were made of ten-frame L. hives, with two frames to each, one with brood and one with honey, and a division-board next to the combs. The rest of the hive was left empty, the entrance closed with queen excluder. The bees were put on the side next to the tent. A  $1\frac{1}{4}$ -inch auger-hole was made in the hive near the bottom, and closed with a cork until wanted; the tent was fastened against those hives with a button, and the cork removed when wanted. I gave those bees plenty of drones from other hives not reared in the nuclei.

In the afternoon I would go and watch them. The drones and some workers would come out, and fly with all their force against the wire netting, and fall down stunned on the bottom of the tent, and fly up and repeat the same thing over again until I spread a cloth over the top, when they would circle around the tent quite freely. I did not see any hesitation about the queens coming out. I saw one queen come out four times in one afternoon. The first time she came out she took the location, the same as they do outside. I saw the queen and the drone come together frequently, but no mating took place.

About three days later one of the queens was laying, and I felt like shouting. On the fourth day, late in the afternoon, I found one of the queens outside, trying to get through the excluder back into the hive, so I had to come to the conclusion that the laying queen also had



forced her way through the excluder and become fertilized in the usual way.

But I believe if he had used muslin instead of netting he might have been more successful in a larger tent; and with drones reared in a hive, and allowed to fly only in a tent, he might have done still better.

In making my experiments I would use only the largest queens, so as to be sure they could not go through the excluder.

Muslin will give all the light needed; and if the entrance of the nuclei is shaded a little I think there would be no trouble in getting the queens to fly in a tent.—Fred Breckly in *Gleanings*.

### WETTING QUEENS.

I wet the queens whenever I handle them, just for safety and easy handling. For instance, you want to catch a queen for some purpose or other. You find her on a comb with more or less bees around her. Well, you try to catch her. Perhaps in your hurry you mash her or injure her seriously. Or some bee intervenes and stings you. Or, for fear of hurting her, you fail to catch her firmly, and she begins to race around quite lively. In your attempt to catch her, you scare her worse and worse, and she finally takes wing, and then you feel very much like breaking the third commandment of the Decalogue. Now, suppose that as soon as you see the queen you give her and the bees around her a good wetting. Then neither bees nor queen can neither run nor fly—just barely crawl about. You can then take your own time and catch the queen tenderly and carefully, and just put her wherever you please.

In rearing queens, I invariably cage the cells as soon as the bees have thinned the ends. The cages are made of wire-cloth, and similar in shape to the West cages. I put the cage in the hive the queen is to occupy, if it is already queenless, or I leave it where the cell has been built. But it must be in the cluster of bees to make sure that the young queen will be fed. Anyway, the time will come when the queen (a virgin, of course) will

have to be released. When I first began, I simply uncorked the cage and laid it on the frames, letting the queen come out and go down between the combs. After two or three went "up in the air" instead of "down between the combs," I decided to give cages and queens a good wetting before uncorking the cages. During the last two or three years I have often introduced them directly. That is, taken the cage (and enclosed queen) from the colony where she had been reared, given her a bath, and turned her loose at the entrance of her new home. This method has been as successful as the other. It has the advantage of not needing to open the hive where the queen is introduced. That's a good deal in times of scarcity of nectar. Very often the meddling of robbers spoils the introduction of a queen.—Adrian Getaz in *American Bee Journal*.

A MONSTER STEAM EXTRACTOR.—It cost about \$300, and the dimensions are as follows: Circumference, 36 feet; depth, 4 ft.; revolutions per minute, 250; comb capacity, 21. The reel is independent of the can. There is no centre in the bottom of the can. The three-inch centre-shaft stands in a heavy seat bolted fast to the floor, the top also being secured by bolting the seat to 6x6 pieces. There are 22 or 44 3-ft. arms, one inch square, steel, secured by heavy clamps bolted together. This machine was driven at first by a three-horse power boiler; but as it took 100lbs of steam to start it, after the first season's use this boiler was sold, and another, an eight-horse-power boiler and engine, installed in its place. This extractor weighs 1300 lbs. We could never get enough honey to test it thoroughly; but suffice it to say, the best we ever did with it was 2600-lbs. in four hours, one man to run the engine, one to tend the machine, and a boy of 17 to uncup the combs; but it will be some time before even this record is broken.—WRITER IN *Gleanings*.

See that your neighbouring beekeeper takes the "A.B.B."



## CORRESPONDENCE.

R. G. H., Taralga, Oct. 16th, 1903.—My bees are doing extra well this season as there is plenty of white clover near. This is a very cold district, but my bees wintered splendidly, and are now all storing honey in the supers.

Mr. Abram, Beecroft, October 19th, 1903, reports:—Owing to pressure of work I am unable to continue my writing on "Bee Study and Observations," as besides the extensive queen breeding the bees require all my time now they are swarming, and they are doing well generally, the season being suitable notwithstanding the climatic changes.

W. G., Federal Apiary, Stroud.—Bees are doing well at present. No swarms yet, but a few are flying about. I have got eighteen at present, but mean to increase it to 40.

J. S., Eskdale, Victoria, Nov. 7th.—Very sorry there is nothing good to report from this part; last year was a failure, this is likely to be the same. I think if I survive two bad seasons my stock won't be too strong. I had a few good seasons to start with when other things were dull. So now the order of things are reversed, no good complaining. I knew such things to happen to beekeepers in most places. If it was not so there would be no need for beekeepers, one would get plenty.

F. T. H., Lismore, November 3rd.—Promises to be fairly good season, only we are in danger of too much rain up here this season. One of my apiaries has the swarming fever, but I hope to get them settled down shortly—room or no room, out they go, causing a lot of trouble. Keep the permit business going, perhaps a petition from beekeepers would have the desired effect, if other means fail, each beekeeper could send you his signature on a piece of paper and same could be affixed to the petition.

R. S., Northcote, Victoria.—I had my first swarm for the season on Sunday the 11th instant, a very large one indeed, and last Monday I cut out all queen cells save one, did I do the correct thing in cutting out the cells? Next Monday I will cut the cells from the hive which swarmed last Sunday. I am teaching myself beekeeping for the purpose of venturing out on a large scale when I know more about bees. Our district is not very good, yet I wintered two frames which have also built up and cast a good swarm. Now what I want to know is this:—Can I use  $\frac{1}{2}$  body standard hives with shallow frames for a brood nest, and would they winter well in them? Any information on this subject would be most thankfully received by me. I am sorry to trouble you with so much, but having followed your paper along the line, I wish to stick to it, as it has been worth a great deal to me. I get the papers from U.S.A. but the "B.B." is the one I seem to have my faith on.

[You did the correct thing in cutting out queen cells if you did not want increase, or if you wished to keep your bees strong for a coming honey flow. Instead of letting that swarm come out you should, before it was quite due to come out, have removed the old hive to a new place, and put an empty hive with starters, and a frame from the old hive with queen cell on, in the place of the old hive. Then, when the queen in the new hive emerged, give them a frame of eggs and larvae to prevent the young queen swarming out when on her wedding flight. The bees, in the old hive, being weakened by the field bees all going to the new hive, will generally destroy the queen cells, and think no more of swarming. You may use the half-body standard hives with shallow frames for brood nest, and, if otherwise properly protected they should winter well.]

G. L., via Hornsby, Nov 19th.—We are having it very wet here. Plenty of bloom, but not enough sunshine. The bees are in very good condition, I am working about 85 altogether.

Mr. Penglaise, Narrang Apiary, Fernbank Gippsland Victoria, Nov 17,—Our season is late for queen rearing, I never saw it so cool and cloudy at this time of the year. It is very bad for queen rear-



ing, too many cold spells. There is a fair show of blossom in the forest and I think we will have a good season.

## CAPPINGS.

*From American and other Bee Journals.*

Bee-keeper Herrel, of Heidelberg, Germany, has hit on a plan, possibly of value, especially to those who keep black bees, which will make the finding of queen bees easier. With a quick-drying adhesive paint he painted the thorax on the back of his queens a bright yellow. This did not prove detrimental to the queen's welfare. He keeps the queens confined in a cage among the combs of her colony for an hour until the paint is thoroughly dry.

A German tavern-keeper, witness at a honey adulteration suit, was asked by the court for the reason why he persistently kept adulterated honey on the table for his guests. His answer was: "Of the pure article they eat so much; of mixed stuff they soon get enough."

I have hunted wild bees in nearly every part of West Texas, and at various times have found dead rats in the hollow of trees that were inhabited by wild bees. In every instance these rats were covered over with propolis or bee glue, and were in a fine state of preservation. In one case every bone in the carcass could be distinctly seen through the transparent coating of the propolis, and at another time I counted forty-five large bugs in the bottom cavity of a tree that was occupied by a strong force of wild bees. These bugs were covered over the same as the rats, and together with a mass of dried leaves, formed a bowl-shaped cavity of more than forty inches in circumference. —J. E. Chambers in *Southland Queen*.

Getting bees out of sections is a very simple thing in a good flow. All that is necessary is to take off the super—no need to drive out a single bee—after putting on the cover set the super on end on top, and leave it there till later in the

day, when it will be found empty of bees. The bees will form a line of march down the side or front of the hive to the entrance, and after a little all will have joined the procession. If the sections be left thus exposed all day long, not a robber will touch them. But woe betide you, oh inexperienced beginner! if you get it into your head that this is to be the unvarying program each year. Next year the flow may not be so good, and a very little exposure may start such a bad case of robbing that you will wish you had never seen a bee. Even in the best of years there will come a time when there will be a let-up in the flow, and then the least exposure must be avoided. So keep a sharp eye on your sections, and if at any time you see a bee flying with its head toward the sections, get them under protection immediately.—*American Bee Journal*.

**BEHAVIOR OF QUEENS AT DIFFERENT AGES.**  
—When a young queen has just emerged from the cell she is easily found, making no attempt to get out of the way. When a little older, a virgin queen is shy, scurrying with great rapidity from one part of the hive or comb to another, and makes such a success of hiding that the novice may be persuaded there is no queen in the hive. When about to assume the duties of egg-laying, she again becomes moderate in her movements, continuing thus through life, and in many cases continues depositing eggs in the cells when the comb is taken from the hive.—*American Bee Journal*.

Honey in the making of good candy for bees in queen cages, ought to be heated to 110 degrees when the pulverized sugar is kneaded in. If the honey is at a lower temperature, not enough sugar can be worked in, and when the atmosphere is damp, the candy will absorb sufficient moisture so that it will become sticky, and possibly so soft as to daub the cage and bees.—*Exchange*.

When robbing is in progress there is always a great commotion about the entrance of the hive being robbed. A little experience will enable the beginner to



identify robbers and distinguish them from bees legitimately engaged in honey gathering, or those playing about the entrance of their own hive. It is not difficult to tell whether a bee is loaded with honey or whether she has an empty honey sac. The laden ones are much larger about the abdomen, and by reason of their load present a semi-transparent appearance. If bees are seen to be rushing in and out of the entrance, the loaded ones coming out and the empty ones going in; if they are attacking one another, spinning in pairs upon the ground in front of the hive, and otherwise clinching in mortal combat, the beginner may know that he has a case of genuine robbing on hand. The remedy is to contract the entrance to such a narrow space, by the use of blocks of wood, that but one bee may pass in at a time. This gives the invaded hive a better chance to protect itself from the intruders. An additional advantage is given them also by placing a wisp of wet grass loosely over this small entrance, and keep it sprinkled for some time. A wet bee cannot fight, and the wet grass through which she would have to pass is extremely discouraging. It is imprudent to use smoke about a hive being robbed. It disorganizes the defense.—*American Beekeeper*.

The heath honey is largely produced in the province Hanover. It is probably the thickest or heaviest of any honey produced. It cannot be extracted; to obtain it the combs have to be destroyed or mashed and the honey pressed out. Sometimes artificial heat is applied when thus treated, but the honey obtained without it, or by the cold process, is of better quality and brings better price. *Exchange*.

REPUTED CURE FOR PARALYSIS.—I dug a ditch six inches wide and three inches deep in front of this hive, the ditch extending around to the sides of the hive. It is necessary for the hive to stand very close to the ground. The healthy bees will drag the diseased ones out and fall into this ditch, and have to leave the sick bee there, for it can't fly out; and all the

sick bees that crawl out of their own accord will fall into this pit and can't get out, so you have these diseased bees trapped. I go out every evening and take up these dead bees, and burn them, destroying the disease germ, hence I effect a cure. I have tried this remedy several years, and have never failed yet to cure a colony thus treated; in fact, I would not be in the bee-business to-day if I had not discovered this remedy. It usually takes about ten days to effect a cure.—Writer in *Gleanings*.

The price of automobiles has dropped some 200dol. or 300dol. on runabouts, this year, already. Millions of money are being poured into the industry. It will not be long before Yankee genius will be able to turn out a machine so cheaply that every one can have one who can afford a horse and buggy and a barn. No, throw the barn out of the account. But whether the automobile will be able to go over any roads that a horse and buggy can is doubtful. Good roads and automobiles *must* go hand in hand. There is no use in buying an automobile *unless* you can have better roads than where the mud is half-axle-deep.—*Gleanings*.

One of the most important *secrets* in the production of comb honey is to have no drone comb in the brood-chamber, so that, when sections are put out, the bee rush up intending to construct drone comb. That is why some folks succeed so well and others don't. They use to the utmost valuable inventions of this sort. In a particularly difficult locality I should use worker foundation in the brood-chamber, and drone foundation in the comb-honey super. And even in very good localities it is a good plan to put drone foundation in all sections next to the sides of the super. This reduces the number of unfinished sections; it also reduces the business of moving sections from the outside to the centre and *vice versa*. In other words, it reduces the number of manipulations.—Writer in *Gleanings*.

CANDY FOR QUEEN CAGES:—To seven cups of powdered sugar add one cup of



nice well-ripened honey; knead thoroughly, and make into three or four balls. Let it stand a few days; then break the balls up and pour a little glycerine over the mass, and work in more powdered sugar. Make into balls as before, and let it stand a day or two, when it is ready for use if you have added enough sugar and not too much. If the balls flatten down the candy is too soft, and must have more sugar; but if they retain their shape, and have a moist appearance, the candy is just right. When just right, it is soft and pliable, and retains its shape when made into balls.—*Gleanings*.

**MODERATE INCREASE**—A plan that will prevent swarming and secure a moderate increase consists in taking one comb of brood out of each colony every few days and replacing it with a comb of foundation. If the object is merely the prevention of swarming, the operation should be repeated as often as necessary, so as to furnish the queen enough room to lay. That may be as often as every fifth day, or perhaps only every tenth day, according to the size of the brood-chamber, the prolificness of the queen, the honey-flow, and other conditions. As long as the queen has enough empty comb to lay in, there will be no swarming unless the queen is failing, or unless the lack of shade and ventilation renders the situation intolerable. It will not do to put in an already built comb; the bees would often fill it with honey before the queen could lay in it. The reverse takes place when the foundation is given. But it is necessary even then to replace but one comb at a time, otherwise a portion of them would be filled with honey, as the queen could not lay in them fast enough to occupy them before the cells would be long enough to hold honey. I suppose that an already built comb shaved down would do as well as foundation, but I have not tried it—Adrian Getaz in *American Bee Journal*.

A Mr. B. W. Hopper of Colorado U.S.A. is said to have 1700 colonies.

Requeen with the best honey gathering stock in the apiary (other qualifications

being equal) all colonies whose queens have seen two seasons of service. Some good queens will be displaced by adhering strictly to this rule, but it is better to occasionally pinch the head of a good queen than to run the risk of carrying over several worthless ones.

My cell-building colonies are broodless—composed of bees not one of which is under ten days old. You say, "Why go contrary to all orthodox rules?" Because young bees like "pap" better than the old ones. To satisfy yourself upon this point, just give a frame of eggs to a colony with no bees under ten days old and another to a colony which has just been deprived of all brood and eggs. You will find that the former are much better fed than the latter. Now for my plan of selecting queen mothers: I select a queen that has just begun laying, regardless of what she may prove afterwards, as to color, etc. I closely follow up this method from generation to generation from April to October. Thus, it will be seen, it is possible to get ten generations in one year—forty generations in four years—which is about the extreme limit of a queen's life, which is used as a drone mother. Now observe that it is thus possible for a queen to be a half-sister to her fortieth grandmother. You inquire, "Well, what do you gain by all this?" Well, I gain a long stride ahead of Nature, and, I believe, a queen whose workers have few equals and no superiors.—*American Beekeeper*.

C. Davenport in *Progressive Beekeeper* says:—It does not pay artificially to swarm a colony until they make preparation to swarm naturally, no matter how strong they may be. But if they are to be swarmed artificially, the sooner it is done after they begin to construct cells the better. If they are not swarmed until they are about ready to swarm naturally, especially if they have one or more sealed cells, they are after being swarmed, almost certain to swarm out or desert the hive the next day, even if a frame of brood is left in them. On the other hand, if they are swarmed before they begin to start



cells; it seems to discourage them, or at least they do not work with as much vigor as they would if swarmed later.

My queens are not clipped. When two or more swarms come out and get mixed I take as many bodies of hives with frames as there are swarms. These hives, piled up on one bottom-board only, are raised in front; the lower, say 2 in., and the others  $\frac{3}{4}$  inch. A sheet covers the whole in the form of an awning. Then the bundle of swarms is dumped at the lower opening. In about an hour, even less, all the colonies are divided, and each one occupies its own hive—Francois Benoit in *Gleanings*.

## WESTERN AUSTRALIA

It was pleasing to notice the rapid strides that have been made by the apiarists of the State, as evidenced by the show of bees, honey, and bee appliances. There are about twenty persons exclusively engaged in the industry, and between five thousand and six thousand colonies of bees. The present season has been unfavourable for bee-farming, because of the length of the winter. At the close of the summer it is necessary to leave in the hives a supply of food sufficient to last throughout the winter, but as the cold season has been so long drawn out, these supplies have in many cases been exhausted, and the bees have been lost. The exhibits in class 2, for queen and progeny bred in the State and shown in observatory hives attracted considerable attention. There were five competitors, and the strain of the bees was judged to be excellent. A noteworthy feature was the collection of bee appliances shown by Mr. John B. Kline; this was awarded first and special prizes. It included the bees at work, samples of honey, honey vinegar, honey cakes, wax in different shapes, tank and wax extractor. In the class for extracted honey (liquid or clear) the first prize was secured by Messrs. C. and A. H. Smith against Mr. W. J. Fist, who exhibited samples produced by Mr. F. Barnes, of Victoria,

which were awarded first prizes at the Melbourne show, and other exhibitions throughout Victoria. A new departure in this section was the class for collections of fancy products, such as cakes, puddings, etc., showing the practical use of honey in cookery and confectionary. The toothsome dainties attracted the attention of the housewife, who busied herself copying the recipes which were in each case attached to the article shown. The first prize was secured by Mrs. F. J. Hilton, and Messrs. C. and H. Smith gained second honours with a creditable collection. The prize-list is as follows:—

Italian queen and progeny: Mrs. F. J. Hilton, 1. Queen and progeny, bred in the State, shown in observatory hive: Mrs. F. J. Hilton, 1; C. and A. H. Smith, 2. Observatory hive of modern construction, with bees at work: Government Industrial School, 1; Mrs. F. J. Hilton, 2. Beehive, including frames, and ready for use: Government Industrial School, 1. Extracted honey (liquid or clear): C. and A. H. Smith, 1; W. J. Fist, 2. Granulated honey: C. and A. H. Smith, 1; J. B. Kline, 2. Six sections of comb honey: C. and A. H. Smith, 1 and 2. Chunk honey: W. J. Fist, 1; C. and A. H. Smith, 2. Honey vinegar, one gallon: J. B. Kline. 1. Comb foundation (made in the State): C. and A. H. Smith, 1. Natural yellow wax: J. B. Kline, 1. Collection of fancy products: Mrs. F. J. Hilton, 1; C. and A. H. Smith, 2. Gene-exhibit (including bees honey, wax hives, tools, appliances, and products pertaining to beekeeping): J. B. Kline, 1.—*Midland Junction*.

## DISEASE.

The late uncertain weather, with cold, wet spells, will doubtless cause trouble in many hives, and give occasion to talk among some few who are anxious for Government billets. They are matters though that the practical apiarist will not trouble himself about. Every hive, under the cover, should have good oil cloth or ruberoid, not tight-fitting, but so



all foul air can escape at the edges. In bad weather the bees can cluster under such, and be warm and comfortable. The bees will not eat away ruberoid, and the tar in its composition will act as a disinfectant. In want of such comfort bees have become sickly, the brood becomes diseased and dies. Foul brood has been made a great deal more of than warranted by facts by designing persons. Many cures have been recommended for it, including the latest, Formaldehyde—but all have been found ineffectual. The most practical and effective has been M'Evo's remedy. Put the swarm in a clean hive with starters only. Close the entrance for several days, to enable the bees to consume all honey they may have, and prevent them swarming. Boil down the diseased combs for wax, boiling it well. Paint the diseased hive with kerosene, and set alight, so well scorching it. For paralysis, change the queen; or, remove all brood, then well sulphur replacing the brood afterwards.

the greater working energy possessed by one. Very likely in many cases at least, this is the true solution, but I think that many times the superiority of the winning colony lies only in the ability of each of its bees to put in a few more days' work than their competitors. Again, most of us have noticed that there is a remarkable difference in the way colonies breed up in the spring. Of two colonies apparently alike on April 1, one may be twice the size of the other three months later. We usually lay this to the greater prolificness of the queen in the larger colony. This may often be true, but I think that in most cases the bees of the larger colony have lived to a greater age. This would keep a larger force of bees in the hive all the while, even if no eggs were laid, but, further than this, it is the greater number of bees that permits more eggs to be laid and reared into brood.

Progressive Beekeeper.

See that your neighbouring beekeeper takes the "A.B.B."

### PUBLICATIONS RECEIVED.

We acknowledge receipt of a beautifully illustrated work, "Agriculture in the Western State." The title page (illustrated) sets forth the words "Rush of Settlers," "Best Home Market in the World," "Liberal Land Laws," "Cash Help for the Selectors." It is beautifully illustrated, and full of statistics and information. It is published at the office of the *Western Mail*, St Georges' Terrace, Perth, W. A.

As the part of the bee's life that is spent in honey-gathering is so very short, it is evident that every day added to the average life of the working force would mean a very substantial increase in the amount of the honey gathered by the colony. It is a matter of common observation that there will be no great difference in the amount of honey stored by two colonies that to all appearances are exactly alike at the beginning of the honey-flow. We generally ascribe this difference to

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