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## **The Australian bee bulletin. Vol. 12, no. 9 December 30, 1903**

West Maitland, N.S.W.: E. Tipper, December 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.

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TON.

### 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.

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.

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DECEMBER 30, 1903.

*The Australian Bee Bulletin*

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MAITLAND, N.S.W.—DECEMBER 30, 1903.

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#### Supply Dealers.

R. K. Allport, Chuter St., North Sydney.  
A. Hordern & Sons, Haymarket, Sydney.  
The W. T. Falconer Manufacturing Co.,  
Jamestown, N.Y., U.S.A.  
L. T. Chambers, Gladstone Buildings,  
128 Franklin-street, Melbourne.

#### Queen Raisers.

W. Abram, Beecroft.  
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#### Honey Tins.

Chown Bros. and Mullholland, Ltd.,  
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A. Hordern & Sons, Haymarket only,  
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Allen & Co, 242 Sussex-street, Sydney.  
P. J. Moy & Co., 161 Sussex St, Sydney.

Bees dislike black and woolly material.

Sliced onion applied immediately to a sting affords relief at once.

Mr. Hessel Hall has been a most successful grower of strawberries!

We wish all our readers and subscribers the hearty compliments of this festive season.

A queen that has been in the mails, not able to keep up the strength of the colony for honey gathering, may yet be of great value from which to raise choice queens.—*Doolittle*.

Rain water, says the German, Steigel, is the right thing to use in melting wax. Well water, especially that where yellow clay or red sand abounds in the soil, contains iron, and this browns the wax, no matter how carefully the melting be done.

A German has been figuring out that 50 colonies is the most that may be kept profitably in one location. In a real good season 200 might not be too much in one locality, but as such seasons only occur about once in every seven or eight years 50 ought to be a very good average in most localities.



£5,716 worth of honey imported into Great Britain in July.

A Mr. Harbison of Pennsylvania, at one time owned 6000 colonies.

The *Southland Queen* is again being published. We wish it every success.

Many German beekeepers use cigars and tobacco pipes in preference to smokers.

The best bee bush we have come across is what is sold as bannister brushes at large furniture warehouses.

Camphor balls are useful in hives against moths. The best remedy, however, is strong colonies of Italian bees.

The American basswood, one of its greatest honey producers, and also used largely for sections, is gradually being cleared out.

A second failure of the honey crop in Ireland is reported in the *Irish Bee Journal*. There were 21 days rain in July. The same in England and Scotland.

Mr. A. A. Roberts writes us since he has been in Queensland he has had much family sickness. He promises to write some interesting bee news soon.

Mr. R. H. Lalor of Seven Hills has been appointed Secretary of the New South Wales Chamber of Agriculture in place of Mr. J. J. Miller, and Mr. L. L. Ramsay treasurer.

The prices of beeswax have only changed for the better for a number of years, and it is said good beeswax is becoming more scarce. Is it there are more uses for it cropping up?

A writer in *American Bee Journal* says: Honey is used in Cuba for its remedial properties much more than in the United States, being sold in considerable quanti-

ties from all drug stores, besides being employed in many home remedies for both man and beast.

At the Texas Experimental Apiary it was decided that only borage, mignonette, Japanese buckwheat and privet offer any prospect of being profitable if grown on a commercial scale for honey alone.

Honey bottled at a temperature of 160 deg. F. or thereabouts, and sealed while at that temperature, will remain liquid indefinitely. Experiments have shown that honey bottled at a temperature over 150 degrees, the flavour gets impaired.

Re uniting hives—we get a third—an empty one, and place midway between the two to be united. Then lift the frames with bees on alternately from each hive to be united, and place alternately in the empty hive. Then remove all traces of the now empty hives. It never failed with us.

It seems that the Telegraph Department of New South Wales will not allow the free use of their department for the transmission of telegrams in case of bush fires, so Mr. W. Charles Crawford, General Manager of the Dr. McLaughlin Electric Belt Co., has sent £100 to the New South Wales Premier for the free immediate use of farmers in fire centres when they occur. No doubt there will be occasions when such will be of great value.

Considerable swarming, or would be swarming is on at our apiaries this season. It takes us all our time to follow up, and notwithstanding all our care, we do lose some. Cutting out queen cells, or removing hive to fresh place, and place new hive with frame of larvae and starters in its place is our usual remedy. If we get more swarms than we think the neighbourhood will stand, as the winter approaches, kill off the poorest queens and unite the swarms.



**HONEY TINS.**

Floresville, Texas,  
Oct. 19th, 1903.

Chown Bros. and Mulholland,  
Ultimo, Sydney.

GENTLEMEN,—Please send us price lists and descriptive papers of your "Lever Top Cans," which you speak of the "The Australian Bee Bulletin." We use from five to eight car loads of cans every season in Texas. We shall be pleased to pay freight on a sample if you should choose to send one.—Very truly yours,

THE TEXAS HONEY PRO. ASS'N,  
per L.H.

Thomas and Jones Streets, Ultimo  
Sydney, 9th Dec., 1903.

Mr. Tipper,  
Willow Tree,

DEAR SIR,—We are in receipt of the enclosed letter from Texas, U.S.A., which we are forwarding you, as we feel sure you will be pleased to have further evidence of the wide circulation of your paper.

We have replied to the Texas Honey Producers Association telling them that in all probability our tins are of the same design as what they use themselves but being prematically tested before leaving our factory the possibility of leaks is reduced to practically nil.

Yours faithfully,

CHOWN BBOS. & MULHOLLAND.

**BEE SUPERSTITIONS.**

There are many superstitions with regard to bees. "In Sussex, no one would think, if buying a stock of bees, of paying for them in anything else but gold or hay—half a sovereign is the usual price. . . . It is a common saying in Hampshire that bees are idle or unfortunate whenever there are wars. In Northamptonshire, a motion prevails that they will not thrive in a quarrelsome family! Then—

A swarm of bees in May  
Is worth a load of hay ;  
A swarm of bees in June  
Is worth a silver spoon ;  
A swarm of bees in July  
Is not worth a butterfly.

Bees are also believed to fortell the weather. Thus, when many enter a hive, and none leave it, rain is at hand. Hence the rhyme :

If bees stay at home,  
Rain will soon come ;  
If they fly away,  
Fine will be the day.

In Lancashire, dreaming of bees is counted fortunate, because they are industrious :

Happy the man who dreaming sees  
The little humble busy bees  
Fly humming round their hive.

A wise man many centuries ago, wrote thus : "The bee is little among such as fly ; but her fruit is the chief of sweet things :

Surely, this is the lesson which we are meant to learn from the bee. "Little among such as fly," and having neither the gorgeous colouring of the butterfly, nor the greatness of the eagle, yet chief in her fruit ; thus, those who are small, and humble, and unobtrusive may give "the chief of sweet things" to the world. How often do we open a newspaper, and read therein of some common and almost unnoticed heroism :—a little boy giving up his life in the effort to save a brother yet more tiny a child than himself ; a servant girl, bringing her master's children safe out of the flames of a burning house, but perishing herself ; a lad, rescuing his drowning comrade, though he himself cannot be rescued ? And there are acts of yet humbler heroism than these, humbler because never known or appreciated at any time :—A man, giving his hard-earned savings secretly to maintain a friend's honour ; a woman sacrificing the happiness of her life to nurse her mother.

Possibly, you have read a striking poem called "In the Tunnel," by Bret



Harte, of which I will quote a few lines. "Didn't know Flynn?" asks the narrator a miner in South America :

Here in this tunnel  
He was my pardner  
That same Tom Flynn  
Working together,  
In wind and weather  
Day out and in.

Thar in the drift,  
Back to the wall,  
He held the timbers  
Ready to fall;  
Then in the darkness  
I heard him call :  
' Run for your life, Jake !  
Run for your wife's sake !  
Don't wait for me.'

And that was all  
Heard in the din  
Heard of Tom Flynn,  
Flynn of Virginia.

" All, " yet the highest heroism, for what more can a man do than lay down his life for a friend? We can imagine the next moment: the timbers crashing, the tunnel falling in, certain death, whilst the pardner, " the miner whose life was saved, returned home to light and happiness. Just an everyday story of humble life; but, thank God, not an uncommon one. " The bee is little among such as fly; but her fruit is the chief of sweet things.—" Irish Bee Journal."

## BEE PARALYSIS.

[W. ABRAM.]

In your November issue you publish a copy from *Gleanings* on " The Cause of Bee Paralysis," the writer of which contends that the cause of paralysis is an over production of chyle, that it is not a disease, that queens and drones are not not affected by it, etc.

I cannot agree to any of those points—

Firstly—If chyle is the cause of the trouble then most beekeepers must produce it at times, as under present bee-keeping the bees are repeatedly forced into such conditions as the writer attributes to the cause of the malady. As a matter of fact no trouble arises provided the bees were healthy before. On the

other hand the beekeeper would have a simple remedy by removing some of the " great nurses" and thus obviate the trouble.

Secondly—If it is not a disease then why has he been troubled with the complaint for about thirty years? And why have some beekeepers lost nearly or all their bees by its ravage?

Thirdly—The disease—such it is—may be as destructive in summer as at any other time should conditions suit its progress, and then drones will suffer like bees. I know for a fact that queens and drones become affected and die the same way as bees do. Queens of badly diseased hives are seldom of much use hereafter, should the disease cease and they resist death, and with few exceptions if placed in vigorous healthy hives will be found faulty in laying and vigor, and the bees make preparation for supercedure though young the queen may be.

Weather and climatic conditions play an important part in the matter, causing the disease to vary in degrees and severity, but the disease is present before the bees show any noticeable sign of sickness; once they begin to die in noticeable numbers the disease is in full swing and there is little chance of a recovery unless most favourable conditions for the bees set in to check the progress of the ruin. Pollen is an important factor also, but of itself is not the cause any more than chyle is the only cause of paralysis.

I hope to devote some more time to this deep and important matter during the winter, but now I cannot afford the time the subject requires.

Wishing you and all beekeepers a joyful Christmas and a prosperous New Year.

## QUEEN RAISING.

Select a hive, No. 1, a strong hybrid or black preferable, but must be strong. Unqueen, five days after destroy all queen cells.

Select a hive, No. 2, of your best honey gatherers. At same time as you unqueen No. 1 put a frame of foundation in No.



2. When you destroy the queen cells in No. 1 take this frame from No. 2 and put it in No. , as by this time there will be larvae in it from which No. 1 will make queen cells. If you have not put frame of foundation in No. 1 you may cut out young larvae in No. 2 and either put in place of the larvae in No. 1, with a toothpick or like instrument; or else cut comb containing very young larvae out of No. 2, fix on stick, with warm beeswax and place in No. 1, destroying each alternate larvae, so the cells shall not be too close to cut out. In about the ninth day from this cut out all complete cells and put in West cell protectors with extensions. Go around your hives, destroy any infer or queens you may have, and place one of these cells on comb where honey is. In a few days after the young queen will have emerged from her cell and may be released from the cage. Be now sure there is young larvae in each such hive to keep the swarms at home when the young queens go on their wedding flight.

### SELLING BEES.

At the Chicago Convention the following question was asked: "Is it advisable for bee-keepers to sell bees to people who have no interest in the bees, but who, from reports of fabulous wealth obtained from the bee-industry, wish to go into the bee-business?"

Mr Whitney—If I refuse to sell to them they are all the more anxious to buy from somebody else, and if I sell them and then advise and assist them until they learn that there is something more to the business than they care to do, they give up in disgust, 97 out of every 100.

Dr Miller—That's all true enough, but you are doing a lot for the money you get there. There are two things that you have to do for your money. They will come to you at your busiest times. "Now, I want you to go and see my bees," and think you have plenty of time to go and do it, and feel hurt if

you don't do it, and just so far as they are successful they are taking that much from your crop of honey.

They pull out pretty surely, but while they are pulling out they are pulling something out of you, and if they succeed with half a dozen colonies, that's just so much taken out of it. Perhaps if you refuse to sell them it will make them think there is a bonanza in it. I don't know which is the best way. I believe in my locality it is about safe not to sell them.

### A Larger Opening for Honey-Cans.

One of the most extensive users of extracted honey wrote as follows, to the Editor *American Bee Journal*.—We take the liberty of recommending to the bee-keepers, who put up honey in 5-gallon cans, to endeavor to secure cans provided with a 2½ inch screw-top opening instead of the 1½-inch which is now in use. The large opening has many advantages over the smaller one. The principal ones are that it is easier to remove the honey, and the empty can is more saleable to dealers who use the second-hand cans for other purposes.

### CORRESPONDENCE.

B.B., Rheola, Vic., Dec. 14.—It is a very queer season here, yellow box is only in full bloom now, and a lot was out for a month past but gave no honey except for three days, although we have had plenty of rain, but it is giving honey now, only the weather is so cold for this time of year. Hoping you are having a good season, and wishing you a Merry Christmas and a Happy and Prosperous New Year.

J. S. C., Corowa, Dec. 6.—This season promises to be a lot better than the last two. Swarming has been very general in this district as far as I can hear. The



yellow box was in full bloom all the breeding season but is about done now. The red gum is looking splendid as far as buds are concerned. Little or no honey is being stored at present, but when the gums blossom there ought to be a good flow. I was just reading that article by E. J. Atchley, on "Bee Paralysis." He may be right, but I think it infectious. He says it does not affect queens. Well, I've not had it at all bad for a few years, but when I had I killed the queen in a badly infected hive and sent and got another from a distant bee-keeper. In about a fortnight the bees seemed no better, and the queen took it to all appearances, staggering and trembling just like the rest, and soon after died. The hot weather is the best cure I know of. All the same Mr. Atchley may be right.—Now there is one thing in which the B.B. could be improved I think, that is by having an index printed on the cover or easily found place on every number. It is not every one that can afford to get the numbers bound and the index supplied is apt to get lost or mislaid, or when any one is in a hurry for something looking through a pile of back numbers leaf for leaf means too much time lost, and perhaps the very article wanted overlooked.

Mr. J. J. Parry, Erina, Gosford, writes —The bees are doing very well indeed, the honey is of a better flavour and colour this season. Trusting you will have a Merry Christmas and a prosperous new year and the same to all the fraternity.

F.W.R., Fremantle, W.A., 1st Dec.—I look forward every month for the A.B.B., as it is so full of interest and a valuable aid, especially to me, who is only an amateur at bee-keeping. Wishing you and your paper every success for the coming year.

D.C., Marlo Apiary, Marlo, Vic., Nov. 27.—The season promises to be fairly good here, and I have already extracted a few hundred pounds from Cape weed

and Wattle bloom. I hope that you have a good season in New South Wales. Would you please tell me through the A.B.B. the latest and best method of curing foul brood, if the McEvoy plan is the most reliable. Will you kindly describe it as fully as space will permit.

See page 190 November issue.

F.H., Glenorchy, Victoria, 18th Nov.—We have had a splendid winter and spring over here, and everything is looking at its best. The bees up till now have had a good time and there has been big increase and very little loss all round this season, but things are on the turn now with us, this being the off year. There will be very little honey until the grey box and we cannot depend on that. I see by the A.B.B. that you are trying to get Beekeepers' License for New South Wales the same as we have in Victoria for Crown Lands. Having a beekeeper's site myself for the past eighteen months, I would like to endorse what the other correspondents have said as regards the distance apart. I would urge you to be sure and have it a point of law as it is very bad here. I can get a license and anybody else can get one adjoining which makes it very bad. Trusting that you are having a good season.

D.F., Drouin South, Victoria, Nov. 26.—You may have read in the "Argus" about the thousands of tons of honey going to waste in Gippsland for want of bees to gather it. It is all a pack of lies, practically there is no honey at all in the timbered parts of Gippsland. I have kept bees here in frame hives for a dozen years or more, on up to date methods, and never in any one year have I averaged 30 lbs. of honey per hive, and last season I did not extract one ounce and a good few of the colonies died out with starvation, before winter came on, and I had to feed the others to keep them alive. There used to be beekeepers in this part of the State but I don't know of any now. I only keep the bees to fertilise my fruit blossoms and apart from that only a fool



would keep bees any where in this part of the State.—My orchard was originally all peaches and as the peaches die out I am planting apples and pears, and as the apples and pears commence to bear the peaches keep dying out and I don't get any "forwarder" financially. I sold out some 7 years ago and got practically no deposit (£60) and the buyer nearly cooked the place. He did not spray or cultivate, and allowed lots of the trees to be killed right out and lots more ruined for years, and after taking off the fruit he cleared out and left me to pay back interest on mortgage, etc., and then I had to return from W.A. and bring the place round again, and it is a slow job, and I am in financial difficulties all the time.

## CAPPINGS.

*From American and other Bee Journals.*

The natives of Southern Italy secure their swarms as follows:—They take some leaves of the lime tree (the tree that produces the limes sold in the stores or used at the soda water stands), bruise or mash them, so as to have to the odor as strong as possible, and put them in the hive or where they want the swarm to settle, which it invariably does.

I have noticed that our best or largest honey-producers do not keep the golden strain, although some of our best queen-breeders are boasting them up as hustlers. I will not keep blacks or hybrids any longer than is required to replace them with pure blood.—Writer in *Gleanings*.

The honey industry has advanced in France during the last few years. In ten years the output of honey has increased from 7,000,000 kilogrammes to 8,500,000 kilogrammes. The increase is due less to an increase in the number of hives than to the greater yield of each hive, which has now risen to about 500 grammes, or 11 lbs. a hive. What is more gratifying (to the French producer)

is that, owing to the scientific methods of bee-farming, the yield each year has become more constant and less affected by vicissitudes.—*Exchange*.

A curious place for swarming has been chosen by a hive of bees at Arcot Hall near Newcastle, the seat of Mr. Howard Pease. The bees had swarmed up an apple-tree, and the gardener, on going up a ladder to examine, was startled by observing a green linnet fly out of the middle of the swarm. Closer investigation revealed its nest with two eggs in, the queen-bee having settled on the nest with her attendant hosts, the linnet meanwhile calmly sitting on her eggs. With great care the gardener cut off the bough of the apple-tree—swarm, nest, and all; and, after having smoked the bees off, he carefully stuck the bough up again. The linnet returned to her nest and is now sitting on four eggs.—English paper.

A correspondent writes with evident alarm, referring to the passage in *Gleanings* saying "the effect of the accumulated sting poison may be serious in its effects in after years, as it was in the case of Langstroth and some others." I don't believe it is worth while to raise unnecessary fear. My private opinion is that Langstroth's spells of mental depression had nothing whatever to do with bee stings. If they had, the effect of the accumulation of the past 42 years, stings ought to begin to appear in my case, and I never had more buoyant spirits in my life.—D. Miller in *Gleanings*.

A German editor named Reidenbach maintains after testing both kinds of frames, he finds that a colony will develop considerably quicker in a hive where bees and queen are not hindered by a multitude of sticks and spaces. He can manipulate two colonies on full-depth frames for every one on half-depth frames. He also says that he is opposed to restricting the queen at any time. He wants his bees to have the whole of the brood-chamber for breeding all the time



Winter losses resulting from starvation and lack of bees are thus prevented, he claims.

The unusual spectacle of bees swarming at a theatre entrance was witnessed in Pitt-street, Sydney, lately. A family of these busy little creatures swarmed around the family circle entrance to the Palace Theatre, the mass of them getting over the doorway and on the lantern. A local tradesman says the swarming of bees in this locality has been noticed every year for at least ten years.

A Swiss paper gives a new wrinkle in bee-keeping that has been started in Switzerland. Apicultural stations now receive virgin queens from the bee-keepers and return them to their owners after they are fecundated. Of the 367 queens sent 285 were mated and returned. The others were lost. Needless to say that only drones of the very best stock are used.

"If drones had been intended at all for warmth, they would have been kept when the weather is cold in the spring. But the reverse is the case. Let there be a few weeks of warm weather, early drones will be reared; then a cold spell comes when the brood needs care and warmth, and at that very time you will see the workers persecuting the drones, driving them out mercilessly, one by one, to tolerate them again when the heat returns.—C. P. Dadant in *American Bee Journal*."

The American Machinist is responsible for the publication of the following story, reporting it as received from a Canadian friend. The source of the story is unknown, but the occurrence is credited to the Pincher Creek district. Two travellers were driving through that section and met with an accident to their buggy. One of the two went to a near by shanty, the occupant of which happened to be a Swede, and asked if he had a monkey-wrench. The traveller

was astonished to receive the following reply: "No, ay got a cattle-ranch; may brother, Ole, haf a horse-ranch; Nels Nelson haf a hog-ranch ba de crick ofer; and a Yankee feller haf a sheep-ranch but 5 mile down de road; but ay bet no feller fool enough to start a monkey-ranch in dose country."

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 off a good queen than to run the risk of carrying over several worthless ones. 2.—One disagreeable trait of the Italians is to gorge the brood nest with honey so that late in the season there is little room available to raise young bees. The old bees soon die off, and spring finds the colony heavy with honey, but so reduced in bees that half of the harvest is passed before the colony can be gotten into shape for super work. This condition can be remedied now with a little work. Remove two or three of the frames of solid honey and insert in their place frames of empty worker comb. Uncap a little of the honey at the lower side of the remaining frames. This gives the queen a chance, which, if she is worth anything she will not be slow to improve. At least two sets of bees will be reared and a suitable force provided whose period of life will extend far into next spring. The frames of honey may be extracted, or they may be set aside and fed back to the colony next May, when the honey will be valuable as a stimulant to brood rearing. *Beekeepers Review*.

Mr. France of Winsconan states that he experimented with 200 combs infected with foul brood, all being fumigated with formalin gas, using double Weber's amount of gas or formalin, Weber's lamp, etc. All were afterwards put in clean hives, and bees put on them. Every colony became re-diseased.



## Osmosis and Atavism.

### THE LAW OF OSMOSIS.

The word "osmosis" may be defined to mean the passage of a liquid or gas through an organic membrane which is made up of cells. It is one of the most important phenomena which take place in any plant or animal. The word "digestion" is often defined as liquefying the food.

I would define it as rendering the food osmotic. That is, making it capable of passing through the inner part of the cellular wall of the stomach into the blood. Some food that is already liquid like serum or blood albumin, is yet non-osmotic. It can not pass from the stomach through to the blood until it is first digested. The same is true of the egg-albumin or white of an egg, and the caseine or proteid of milk. This is the substance that makes cheese. It is liquid in the milk but is yet non-osmotic and must be digested before it can pass to the blood.

Osmosis, then, is found everywhere in the body. As the nutritious material passes from the blood to the tissues, or again to the glands, it is done through osmosis. As the waste of the body leaves the tissues, or is passed off by kidneys, skin, lungs or liver, it is done through this same principle of osmosis. All work of the body is attended with this osmosis and without it life would not continue for an instant. The air passes from the lung-cells to the blood through osmosis, and the carbon-dioxide passes off in the same way. We even take in oxygen through our skin by the same principle, and the fish and the tadpole get their air from water in the same way.

It is easy to illustrate osmosis by a very simple experiment. If we take an egg and break off a little of the shell without in the least rupturing the membrane just beneath the shell, and then place this portion of the egg in water, the water will at once begin to enter the egg through this membrane, and the elements of the egg will soon begin to pass out. That is, the cells pass these

substances through them in both directions.

A better way to illustrate osmosis, or one that is more graphic, is to take a piece of stomach or bladder, and tie it over the large end of a funnel. We then fill the funnel with a saturated solution of salt, and place it in water colored with a little carmine or aniline dye. At once the salt solution will pass through the membrane to the water, and the colored water will begin to pass into the funnel. The osmosis is much more rapid from water to salt than from salt to water. Indeed it is found that the rapidity of osmosis varies very much with different liquids, the kinds of membrane used, with the extent of the membrane and with temperature, heat and pressure.

In the body, then, we have everything favorable for very rapid osmosis. The membranes were developed for the absorption of the liquids which bathethem, and so are fitted for rapid work. The extent of membrane is very great. The temperature of the body is most favorable, and the pressure throughout the body stimulates the process. It is found in the experiments with the funnel that as the liquids become more uniform osmosis is less rapid. In the body the liquids are so rapidly carried away by circulation that uniformity is never approximated, and so the osmosis is always great.

The tapeworm, and many animals of like nature that are in the stomach or intestines of other animals, and so constantly bathed with osmotic material, are often without any stomach or alimentary canal at all. They do not have to digest their food and so need no digestive organ. All such simply absorb their nutriment from the rich digested material in which they lie. Many of our worst parasitic enemies like the porkworm or *Trachina spiralis* take all their food by osmosis. The latter lives in countless numbers in the muscles of men, hog, rat or mouse, and through osmosis absorbs the liquid portion of the muscle and thus snatches from their victims vitality, and very likely



life. Nearly all parasites in the softer tissues take their food in this way.

We are not surprised, then, that the larvæ of bees, wasps and ants, often take their food in the same way. Their food is wholly digested for them by the nurses, and thus has only to be absorbed, and this will take place through the skin as readily as though any other membrane. As the larval bees do not need to digest their food, it having been done for them by the nurse bees, they have no need to take it into their alimentary canal, but can the better receive it into their blood directly through the skin. As suggested, then, by your correspondent, these larval bees need no umbilical cord, or, for that matter, any alimentary canal, for they have enough in their skin to take all the needed nourishment for their development.

#### ATAVISM.

The law of atavism refers to the inheritance of characteristics not from the immediate parents but from more distant ancestors, perhaps very distant. Thus if a child resembles its great, great, great, great, great grandfather more than any other immediate ancestors, we say such a child illustrates atavism.

We know that bees were late in developing. It was long after vegetables were created before we had flowering plants. Insects appeared as early as the carboniferous period, and even earlier. But there were no flowers until the cretaceous period of the later mesozoic times. There could have been then no nectar-loving insects until after the cretaceous period, and so our bees, wasps and nectar-sipping flies, were of necessity of late development. They are not only of a late development but of a higher development than most insects. We know that the larvæ of bees are practically footless, and functionally entirely so. Any foot-like appendages, then, would simply be vestigial remains of true feet which were not only present but functionally useful in their distant relatives.

I should then have no hesitation in giving atavism as the law through which

such vestigial organs are to be accounted for. All animals show such evidence. A very remarkable one is in the gill slits of the pharynx of our own very early embryonic development. These gill slits are what are functionally useful in fish, but in us are very temporary organs, illustrative of what were useful organs in a very distant ancestor. There are a great many evidences in our own physical make-up that illustrates this same principle. I think it was Agassiz who once formulated the law that all higher animals pass through stages in their development which are permanent in lower forms. This is only another way of stating that extreme atavism is often illustrated in all groups of organisms, both plant and animal.—*American Bee Journal*.

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#### Bee-Killers and Bee-Robbers.

The most ruthless enemy of the bee is a dainty, fairy-like bird in a gown of golden green, cocoa-brown, and sky-blue, known all over Australia as the bee-eater. It has a long, curved, black bill, in which it can mangle a bee with no fear of the sting coming in contact with any sensitive part. It, too, travels southward with each season's gum blossom, searching, not for the honey, but for the bee. It leaves the Southern Queensland border about the beginning of March, is well down into N. S. W. by August, and has reached the northern districts of Victoria in October. It drills a long way into the sandy banks of streams to lay its eggs, and the first of these tunnels I ever opened was by a dried watercourse, on Moira Station, in Southern Riverina. The little tunnel went straight into the sandy bank for about five feet, and in a rounded chamber at the end were five pearly white eggs. They had distinctly the silvery glisten of the Torres Strait pearl-shell. Most birds that build their nests in the dark of a hole or limb, lay pure-white eggs, one of the few exceptions I know being the gaudy fruit pigeons which nest in the dense Queensland palm jungles.



The bee-bird is most aptly named. I watched him one summer day catching bees by the Wakool Creek, in Riverina. The distinctive points in the bee-eater by which you may easily recognise it are two black feathery shafts, extending beyond the ordinary tail, and ending in two small oval discs; its bright red eyes, and very small green feet; for, like the swallows, it is so much on the wing that it hardly uses its feet at all.

A bee-killer and a bee-robber, rather than a bee eater, is the large brown dragon-fly, called a horse-stinger in the bush, for the reason that it has never been known to sting horses or men either. In this way I find bush gossip on natural history often misleading. The statements apart from the bush joke, weakness for pure exaggeration—are made in good faith. But the bushman takes the first impression for granted; the scientist verifies his conclusions again and again before he puts them upon record. Personally, I claim to be nothing more than a bush loafer, with the time and mood occasionally to give an eye and ear to Nature;—what Robert Louis Stevenson called that strange American, Thoreau, a skulker—and not within a hundred miles of being a scientist. It is as well to be candid, but I pledge my word to the Editor and to you to speak only of the things I have seen, and which I think I know.

About the dragon-fly, though. In his brown armour and duplicate, glassy wings he clatters up and down the course of a stream, beating the water across and across as a dingo will range a bed of reeds for a wild duck's nest. The bees may have their hunting-ground on one side of the stream, their home on the other, and as they cross or come to the verge to drink—for the bee is always thirsty when hard at work—the dragon-fly pounces on the poor chap like a hawk on a wild turkey chick, and, gripping it by the back of the neck, strangles it. Although the dragon-fly swoops with equal ferocity on flies and water-midges, it seems to have a great liking for the

soft-bodied bee. If you place one of the victims under a magnifying-glass you will find the honey-sac invariably torn open, while the little yellow side panniers in which the bee carries flower dust for bread making is rarely touched.

One moonlight night, on a Queensland sugar plantation near the Burdekin River, where in the cane crushing season the bees always knocked off work in the fields and joined us in the mill, to take their share of the sweetness going so cheap—I watched a foray of white moths on a bee-hive. They fluttered round about the doorway, where several restless bees were on guard. In the strong moonlight the bees could see a little, though on dark nights they must be at a great disadvantage against the night-flyers. The moths were not at all anxious to get to quarters. They wished to slip into the hive without clinching, and lay their eggs in the wax cell. They just kept on menacing, harassing, confusing the defenders until the chance came to slip in. Noticing my interest in the struggle, Mr. Simpson told me that, years ago, when they had only the big placid German bee, the moths used to jostle their way in audaciously, and wreak rare havoc; but after the little white-ringed Italian, with his fierce nature and real fighting capacity was acclimatised, the moths all of a sudden became very cautious, and now, with all their cunning tactics, they find it hard to get inside the honey-fort either by stealth or storm.

It is curious that while the bees, and the birds known as honey-eaters or honey-suckers, have the same means of collecting nectar from flowers, the lorikeet or honey-parrot is quite differently equipped. It is the real honey sucker, for it is by suction, through a small hole in the tongue, that it feeds. Both the bee and the honey eater may be said to collect honey. The long pliant tongue of each of them ends in a little hair brush, which flicks with wonderful rapidity round every part of the nectaries of a flower, and brushes up the honey, or, rather, what will become honey—for there is as much difference



between nectar and honey as between the must of grapes at vintage-time and old, matured wine. The lorikeet, I imagine, did not originally eat honey, and some of them who learned the trick have since changed their tastes. I picked up once a fine rock-pegble parrot, freshly killed by a black-cheeked falcon, and its tongue showed clearly that it had once been drilled. This parrot had originally been a honey-eater, and for some reason had changed to a seed diet. Further, it had yet in its plumage something of that lustrous look we see in all the honey parrots, as though the liquid had come out in the feathers. Then, the two kinds of parrots feed differently. The fruit- and seed-eaters take their meals in a leisurely way, as though in no doubt about to-morrow. The honey parrots, like the bees, feed with a concentration—almost a frenzied greed—as though to make the very most of the brief flowertime of that particular tree.

If a man wished to write a history of wild honey he might begin with the Old Testament, for they were collecting and praising it in cryptic record a thousand years before the birth of Christ. I have no wish, though, to hark back to King Jeroboam and his cruse of honey, and fill in the middle distance with someone else's observations. There is enough that is new and fascinating round about us in Australia to write a lot more, if space permitted it, on this sweet theme.—Owen Otway in *New Idea*.

### PROPOLIS POISONING.

Occasionally, we hear of some one whose face and eyes will swell badly if they stand over an open bee hive, or manipulate the frames, even though they do not get stung. This has been erroneously attributed to a poisonous aroma arising from the bees. The poison is due to a propolis dust, invisible to the eye, that is precipitated by opening the hive and disturbing the frames, that seems to have the power of penetrating the cuticle of the eyelids and face, and in people sen-

sitive to its influence, producing violent symptoms of poisoning, similar, in some respects, to that of bee stings. The case we have seen was more severe in the effects of the poison than any we have ever read of. The first indication was a slight itching of the eyelids, but this did not manifest until after the lapse of many years of experience as an apiarist. Susceptibility to the strange poison increased at a rapid rate, and at each subsequent exposure the symptoms became more painful and pronounced. At the worst stage, the eyes were swollen shut, cheeks and lips were badly swollen, and even the ears and neck were involved. The fingers, also, were swollen, and as the swelling subsided, the skin, cracked, leaving painful sores. These manifestations were accompanied with fiery itching. Finally the skin turned white and peeled off. At first it was thought that the trouble was due to the system being surcharged with poison from the innumerable stings that had been received during the previous years, but this theory was hardly tenable, as stings produced no local effect aside from the momentary pain. Careful observations were made to determine the source of the poison, and it was finally established beyond a doubt that it was the propolis. Many remedies were tried, but without avail, until, at the suggestion of Mr. D. F. Moon, of Golden, Colorado, a mask made of sponges, with dust protector goggles over the eyes, and worn while manipulating the hives. The sponges were kept moistened while in use and the hands were protected with gloves. This remedy proved effectual. The inconvenience of working in such toggery can scarcely be imagined, and it was only rendered tolerable by the iron determination not to be whipped out. Subsequently it was discovered that keeping the skin well greased with vaseline while at work, and then washing it off carefully when through, and bathing the parts with alcohol, was just as effectual a remedy as the hideous mask, and caused really no inconvenience, aside



from the nasty, greasy feeling imparted to the skin. After a few months the system became gradually immune to the poison, and now when working steadily in the apiary day after day, nothing is felt, but when first beginning active work in the spring a tingling sensation is felt in the eyelids for the first few days.—*Rocky Mountain Bee Journal*.

## THE HONEY BEE. +

HAULED DOWN FROM THE EXALTED POSITION  
WHICH IT HAS OCCUPIED FROM TIME  
IMMEMORIAL AS THE WORLD'S  
EMBLEM OF INDUSTRY AND  
OTHER VIRTUES.

For untold ages the bee has been the emblem of industry, unselfishness and reckless self-sacrifice. Some authors have seen reverence and respect. Sentimentalists have woven fairy tales about the beautiful devotion of the bee to the safety and good of her sisters.

It is passing strange what a lot of freak ideas exist about the bee and how like a snowball the rolling nonsense has gathered unto itself in its progress the vaporings of every idle dreamer, of every emotional pietist.

The bee is a thoroughly selfish animal, devoid of nearly all the virtues attributed to it, and actuated solely by the laws of self-preservation and parental instinct. Seemingly a bold statement that, but let us see. The original type of bee from which the honey-bee is descended is believed to be well represented by the solitary bees of the present. The females of this type select a place for the reception of their eggs and rearing of their young, each according to the habit of her kind. The selection made, food is gathered and stored, the egg or eggs laid and with some the young are left to themselves and with others, further attention is bestowed.

The next marked stage in the evolution is perhaps well represented by the common bumble bee. Here the female establishes a nest much as does the

"solitary" bee, but the young are imperfectly developed and lacking the power of reproduction but possessing the parental instinct devote themselves to all the natural work of the female except egg-laying. They care for the young, which so far as their instincts guide them are to them their own. Only sufficient food is stored to keep the bees through ordinary spells of foul weather, but slight as is the amount it evinces an instinct of preparing for future needs quite comparable to that of the honey-bee. With the honey-bee we find the instinct to store for the future much magnified and the hibernating instinct virtually eliminated. But all factors of food gathering, brood feeding, comb construction, etc., are but the expression of the same parental instinct as actuates the perfect female "solitary" bee.

It may be asked, what all this has to do with practical bee-culture? Just this, the law of the hive is a simple commonplace instinct, not a complex problem. Let the novice approach his bee studies with this in mind and he will find himself freed of much anxiety and uncertainty.—A. C. Miller, in *American Beekeeper*.

## PHACELIA. +

According to several apiarists of France and Germany, the phacelia is decidedly one of the best honey producing plants known. A peculiarity of it is that its nectar contains only about 55 per cent. of water, while that from other plants generally has 75 or 80 per cent. The honey is light amber and of excellent flavor. A field of that plant in full bloom is one of the most beautiful sights. The flowers are sky blue.

The phacelia will succeed on almost all kinds of soil, giving of course the largest returns on the best. It takes about four pounds of seed to the acre. The plants begin to blossom about five weeks after the sowing. The blossoms open successively so the blossoming period lasts from five to six weeks, more or less according to the weather.



The phacelia can be sown at any time between the early spring and the mid-summer. By successive sowings an uninterrupted yield of honey could be had throughout the summer, except when the weather is too dry. If the phacelia is cut at the beginning of blossoming, or the early part of it, it will grow again and can furnish three or four cuttings during the season.

As hay or green forage, phacelia ranks in quality very near to red clover. It should, however, not be cut later than the middle of the blossoming period, otherwise the stems become too hard. The yield obtained by Mr. Henry (*Gazette Apicole*) was four tons to the acre of hay, or about four times that amount of green forage when used that way. The yield of seed was 600 pounds to the acre. These experiments were made in the department of Vancluse (France), that is in a section of superior land and good cultivation. I doubt if such results could be obtained by our average farmers.

I spoke here of green forage. In nearly all Europe horses and cows are fed in doors all summer; the green forage is cut and brought to them in the stable. Under the conditions that obtain there it is the best course to follow.—Adrian Getaz, in *American Beekeeper*.

### Methods of Running Out-Apiaries.

"Which system is best for out-*apiaries*, hired help, or furnish bees and everything, and give a manager a per cent of the net profits?"

E. T. Abbott—May I give my experience a little with hired help? On general principles, it is absolutely worthless. Once I turned over to a man 150 colonies of bees. I agreed to pay him \$30 a month and his board. I had no way of telling whether he earned his board or not, because I was away for about four weeks. On my return, I found that he did not know where a single colony in the yard was located. The colonies were all numbered, and for quite a little while I manipulated the bees from my location,

saying, No 3 would do so and so, and so on, and I told him that the colony of fine Carniolans should not be permitted to swarm, and that they were not to be divided until absolutely necessary. When I got home, my wife said that a swarm of bees was hanging on a tree outside, and I went out in the morning and put a swarm-catcher under them, when I discovered my \$10 queen had been hanging in a tree all night. When I asked him what had become of the colony of Carniolans, he said he did not know; and he was a very good young man and wanted to look after my interests. That is the reason I gave up manipulating bees. Whenever I have undertaken to hire a man to keep bees, I have become convinced that I could not hire it done. That has been my experience.

Mr. France—This subject, to those keeping a good many bees, is one of vital importance. As Mr. Abbott remarked this morning, it is getting to be everything on the union line. Labour is a big figure, and to get labour on the farm is not so difficult as in the bee-yards. I find I must either hire them at a definite stated price, they to do as I direct, or they must work upon a commission for a part of the product of the *apiary*—one of these two methods. In my own locality I am fortunately situated, having one of our State Normal Schools, and students, especially those in the third year, anxious to stay in the vicinity over the summer vacation, and the busy season comes just at a time when their summer vacation is on, and I take in these graduate boys as my assistants. But, generally speaking, I question if it is desirable to take the ordinary labourer, as we find him, on a commission basis. Their whole interest, then, is as to the number of pounds of honey they can produce, and they may over-reach, and you will be sorry for the experiences. I think this is largely a matter of experience.—At the Los Angeles Convention, from *American Bee Journal*.

See that your neighbour takes the A.B.B.



### The Queen of the Ants. †

A gentleman who is very fond of every living thing, who watches animals carefully that he may learn their ways, tells a very interesting story of some ants he once saw. He noticed a procession of ants going across the path. This gentleman watched, and, knowing the ways of ants, knew that they were emigrating to a new colony because the old city was overcrowded. He watched the ants closely to decide which was the queen.

At last he discovered her, attended by a guard of honor. Quickly and carefully he lifted the queen and held her in his hand.

She was missed at once and there was the greatest excitement. The guard of honor was seized by the others and held under arrest. Ants started out in every direction to look for the queen. They looked everywhere and returned again to learn if there was any news.

At last the gentleman put the queen down on the path some distance away from the point at which he had captured her. She was discovered by one of the scouts, who hurried back to the point where the ants had assembled and told of his discovery. A guard of honor hurried to the queen and actually carried her back to her subjects, who received her with demonstrations of joy.

The new colony had been established under a bench. A hole under one of the legs of the bench led to it. With a guard of honor carrying the queen, the procession reformed and began its march, and soon disappeared from sight. The gentleman moistened four lumps of sugar, and put them in the path. Some two or three ants appeared, found the sugar and immediately reported at the new colony. When they returned a number of helpers came with them; and the sugar was all carried, grain by grain, to the new home. Doubtless they thought they had found a most wonderful land to settle, when food was provided in such quantities near at hand.—*Adelaide Garden and Field*

### Best Bee Escape. †

"What is the best bee-escape?"

Allen Barnett—I do not know whether my experience counts for more than others in that line or not. I work for comb honey, and I like to get the bees out of the supers pretty well, so I don't use any bee-escape, only one of my own, and that is a common tent, such as is used by campers. I have one about ten feet square, and I get a couple of poles and leave an opening at the top of it, and then take common screen wire and make a funnel, leaving one end of it large enough for one bee to get out. At the other end a cloth that will sit securely on the tent, so that the sides and ends will lie down on the ground a few inches so that the bees can not get under. I use a little smoke, and carry the super with the combs in the sections, and stand it in the tent on end—not on the side, but on the end, so that the sections stand up and down. I place another one close to it, but not close enough so that the bees can get through. You can stand them in rows. In a tent ten feet square I can put as many as 50. All that you take off before noon will be out in a few hours, and I can work until 3 o'clock in the afternoon very well with that kind of bee-escape. As quick as you go in, close down your curtain, so that the bees can not come in. If you don't work later than three o'clock in the afternoon, the bees will come out and go to their home. Sometimes bees will come from the outside and go down. In order to remedy that, I make another cone of the same size and shape, allowing the space of 6 or 8 inches above it. They will then crawl out of the first and into the second, and they seem to become confused and go back out. This is the best bee-escape I have ever tried in connection with taking off comb honey.—At the Los Angelo Convention, from *American Bee Journal*.

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"Apply a plaster or poultice of honey and flour on severe burns, also on boils."



## Statistics of Bee-keeping in Ireland, 1901.

The Department of Agriculture have published the Bee-Keeping Statistics for the year 1901, from which it appears that in that year there was an increase of 15.2 per cent. in the quantity of honey produced, as compared with the year 1900. But 1900 showed a decrease of 16.4 per cent. as compared with 1899.

The honey produced in 1901 amounted to 718,218 lbs., viz.:—In bar frame hives, 462,063 lbs.; other hives, 256,155 lbs. Run honey, 298,185 lbs.; section honey, 420,033 lbs.

In 1891 the total was 253,561 lbs.; and the average for 10 years 1891 to 1900 was 37,986 lbs.; so that 1901 showed an increase of 464,657 lbs. on 1891, and an increase of 346,232 lbs. on the average for the 10 years, 1891-1900.

The wax produced in 1901 was:—In bar-frame hives, 3,648 lbs.; in other hives, 2,278 lbs. Total, 5,926 lbs.

Estimating the honey at 6d. per lb. and the wax at 1s 6d per lb. the value of the 1901 harvest amounts to £18,400.

The stocks, in May, 1901, numbered, in bar-frame hives, 18,522; in other hives, 17,083. Total, 35,605. Co. Cork comes first, with 3,197 stocks, and Co. Dublin last, with 379 stocks.

The average honey return for all Ireland per hive was only 20½ lbs. Mayo shows an average of 35½ lbs., Leitrim 30½ lbs., Kerry 26 lbs., Donegal 25½ lbs., Cork 21½ lbs., and Dublin 15 lbs.

It is interesting to notice the high average of the counties in which the Congested Districts Board have carried on their excellent work.—*Irish Bee Journal*.

## New South Wales Chamber of Agriculture.

The regular quarterly meeting of the Council of the N.S.W. Chamber of Agriculture, was held on October 15th, at 11 a.m., the president, Mr. C. H. Dight, M.L.A., presiding. The minutes and correspondence were read

and received and the following circular was authorised to be issued to members: "That the period having expired for which Mr. J. J. Miller was appointed secretary and treasurer, Mr. R. H. Lalor, of Seven Hills, was appointed secretary and Mr. L. L. Ramsay, 58 Pitt-street, Sydney, treasurer." Any communications to the treasurer or secretary will receive attention. The Council agreed to meet during the last week in January.

## Some German Uses of Honey.

From a honey leaflet sent out by P. Waetzel, Freiburg, I take the following recipes:—

"Honey-water flavoured with fruit-juice, lemon or berry, makes a good drink for fever-patients."

"Honey dissolved in hot water is good for hoarseness and coughs, beneficial in diphtheria, influenza and la grippe."

"Honey and unsalted butter made into a salve is excellent in case of scalds and burns."

"Sleeplessness yields to internal honey treatment."—*American Beekeeper*.

In working two-story hives for extracted honey there is a complete evolution of combs from the lower to the upper story every year. The tendency of the bees is to ascend to the upper story to deposit honey and the queen follows to deposit her eggs where the food for the young is most abundant. The result is the honey deposited in the lower story is consumed or carried to the upper and in the close of the season the lower combs are, to a great extent, empty, requiring the combs of honey and brood in upper story to be removed to lower and vice versa.—Dr. Blantro in *American Beekeeper*.

Re the matter of Bee Licenses on State Forests, would it not be well for those who purpose procuring such, to attend at the next annual meeting of the New South Wales Bee Farmer's Association in April and help there and then to get the matter well thrashed out.



Experiments at the Texas College Station showed the old brood comb, the age of which was undoubtedly five years or more, was analyzed and found to contain 36.3 per cent of wax, 17.3 of soluble (in condensing steam) matter other than wax and 46.4 of solids (insoluble). Brood comb two years old was found to contain 47.2 per cent of wax, 21.1 per cent of soluble matter and 31.6 per cent solids. One-year old brood comb contained 57.8 per cent wax, 22.1 per cent soluble matter and 20 per cent solids. "Slum-gum" (refuse from solar wax extractor) contained 24 per cent wax, 40 per cent soluble matter and 36 per cent insoluble matter. New comb, built upon full sheets of thin super foundation the present season, and which had never contained brood, contained 88 per cent wax, slightly over 11 per cent solids, and less than 1 per cent soluble matter.

By the use of the extractor, swarming can be discouraged much better than where we work for comb honey. If you give the bees plenty of room to store as near the brood-nest as possible, or better still, right in the heart of the brood-nest, you will discourage swarming. Well, now, instead of using the extractor in throwing the honey out of the combs in the brood-nest, suppose we have half-depth stories and half-depth frames. In this way we can get a case of sections, either empty (or, where the bees have partly drawn out and filled the combs), not only close to the brood-nest, but we can get it right in the brood-nest. — *Exchange.*

Old strong colonies can be made to work out as much new all-worker comb from starters as is wanted—no uncertainty as to drone comb involved—by simply putting an empty box with starters below, except one straight comb for the queen to start on, putting her below, with excluding zinc above her. This gives all storage comb above that the bees need, and they will make comb below only as the queen presses them for it, and every cell will be

worker. I find this works every time without any regard to age of queen, size of colony, or other conditions, and they at once begin to make what she needs too. Extracting and comb-building can be run together thus very successfully, and no drone comb made.—W. M. Janes in *Gleanings*.

We have seen some fine honey and good sections perfectly sacrificed at country auction marts, such honey being generally owned by persons to whom bees are only a second or third rate consideration. In one case we saw good sections sold at 4d each, and pickle bottles containing 2lb at 6d each. When auctioneer's commission is deducted how much per lb has the honey fetched? Those persons who let their honey go for these prices do not realise how much they are injuring their fellow beekeepers. At the present time we are in receipt of letters from beekeepers who, while having worked up a trade in previous years, find themselves this year without honey. We shall be glad to bring the two sets of people together, we are sure it would be to their mutual advantage.

The question is asked if bees would hermetically seal a dead mouse found in their hive. Yes, they will. Some years ago I put a strong swarm of bees in a hive with an entrance large enough to admit a mouse. Some days after, while working opposite this hive, I espied a mouse inside and near the entrance. As it remained quiet, of course I supposed it to be dead, and thought I would remove it at once; but some business of a pressing nature claimed my attention, and I forgot about the mouse. Some days after, while passing through the bee yard, I thought of the little rodent. The bees seemed to be working all right. I looked in at the entrance, and saw a small mound. I made an examination, and found that they had furnished him with a casket, or hermetically sealed him up. I removed the bees to another hive, and took the board containing the casket



and kept it a long time as a curiosity. Finally I broke it open. The composition was in colour a bluish gray. The outside was rough, but the inside was nicely polished, and no part of it touched the mouse. His hair was smooth, and his tail, folded closely by his side, looked as though he was enjoying a pleasant sleep. Not the least offensive smell could be detected.—F. C. Ross, in GLEANINGS.

In extracting we always use a cold knife. A Mr. McIntyre says in the *American Bee Journal*:—I have never uncapped any honey in my life with a hot knife, but after putting the cold knife into the hands of others, and showing them how to use it, they would never use the hot knife again. I have a little wooden keg usually, because it does not dull the knife when you throw it in. Three knives are about all you can handle. We take a knife out of the water all soaked, clean, and sharp, run it to one side and the capping drops off, then up the other side of the comb. You can use it on several combs that way. Whenever a knife gets dirty—the least bit of wax on it—it goes right in to soak off, and when it comes out it is wet, clean, and free from honey, and, being sharp, it runs up the comb and cuts it right off, sleek as a razor would do it, and does it much quicker than a hot knife.

It is a mistake to have a queen-rearing yard laid out in straight rows, and have all the grass and weeds cut out. Hives should be located in groups of one, two, three, four, and five. Do not have any two groups of the same size and appearance near each other. If there is a group of five hives here, make the next group of two; another group of four. Make each group different from the adjoining one, and, if possible, put near some distinguishing object like a tree or a bush. One group can have a large tree, and another a small one. While they obstruct the flight slightly, they help young queens in identifying their en-

trances. And, by the way, we made a mistake in Cuba in cutting away all the grass in front of the hives, and in putting them in straight rows. The native Cuban bee-keeper lets the grass grow. His hives are laid out very irregularly, with the result there is much less robbing than there would be if they were all laid out with perfect regularity in rows, and entrances pointing in one direction. In an apiary of the last-mentioned kind, it is no wonder the bees become confused, and that robbers get a good start before the inmates of the hive realize what is going on. There is another point: It takes a great deal of time to keep the grass and weeds down. If I were running for honey and money only I would keep the entrances, the paths, and roadways clear, and that is all. You will ask why you would not find that condition of things at our home yard in Medina. Simply because it would offend some of our visitor friends. They expect to see something like a park. But take a trip up to the Harrington yard, and you will find things as they are in Cuba.—“Gleanings.”

I have made a colony from a caged queen left on a table with a box over her to protect her from the sun. Bees came from all parts of the yard and clustered on the cage. They did not come at swarming-time, but one at a time, till there were 200 or 300 bees, which stayed day and night till the fourth day, when they swarmed as naturally as any swarm as you ever saw; but the queen being caged, they returned and clustered again. I made a nucleus colony for them; added a comb at a time as they needed, and now they are a good colony. Who says one cannot get a colony of bees if he has a queen?—Wm. H. Whitney, *American Bee Journal*.

Some time ago I ran across a peculiar pair of scissors that looked promising. The price seemed a trifle high, but as a venture I bought them, and now I would not part with them for twenty times their



cost. Clipping with them is a real pleasure, and one is half inclined to try fancy trimming of the workers' wings just for the fun of it. The handles three inches, blades one inch long, but their virtue lies in the shape of their blades which are exceedingly slender with finely rounded points and all parts but the cutting edges are round and polished. They slip under the queen's wings almost of their own volition. There is no danger of impaling the queen on any sharp points, or of denting her abdomen with the sharp side of a wide blade. It is not even necessary to pick the queen from the combs, but just hold her still by pressing her thorax against the comb with one finger, and then snip the desired wing or wings. A. C. Miller in *American Beekeeper*.

I have seen hybrid colonies that would probably excel other colonies in the apiary may be any other colony in the apiary—and I suppose every bee-keeper has seen the same thing. But I never made a practice of breeding from that hybrid colony, for the simple reason that if one should send out such queens as that they would soon get a bad reputation. If everybody were writing back, "The queens you sent me were hybrids," it would hardly do. Mr. McIntyre in *American Bee Journal*.

I think I am qualified to speak of the advantages and disadvantages of self-spacing frames. I have been in the business of inspecting everybody's apiaries in San Diego county, and I think we have about as great varieties as any State in the Union. If you could go with me and see the disadvantages of the different kinds of self-spacing frames, you would everlastingly place condemnation on them. If you want to examine rapidly, and get over a good deal of space in a day, you will almost curse the time you ever saw a self-spacing frame. And it is a great disadvantage when it comes to rapid handling and inspecting of frames throughout the country. If I had my way about it, I would everlastingly do

away with self-spacing frames. That has been my experience, and I think that of a good many others. There may be some advantages for the time being, but wait until you want to take the frames out, and get at them rapidly. Then you will find they are a great disadvantage. With the other frames, you will find by placing your fingers right, you can lift them right out. But self-spacing frames you will have to pry out the first ones, until you can lift the frames up and get them out. Otherwise they are very hard to get out.—J. M. Hambaugh in *American Bee Journal*.

Owing to the splendid rains and the luxuriance of the grass crop, it is not unlikely there will be a number of bush fires during the coming hot weather. A writer in the *Leader* gives the following means of allaying such:—In cases where protective breaks have not been previously ploughed, and in the event of a fire breaking out suddenly threatening a crop or stack yard, (or apiary), it is imperative that the danger be immediately counteracted by starting another fire out from the point to be protected, in order to run and meet the one approaching. In such a case there is danger in the tendency of the protecting fire strip to run back upon the property sought to be saved. A good practical means of avoiding this is to attach about 8 feet of fencing wire to a barn door or large sheet of galvanised iron and use it as a drag round the stack yard or crop, while an active worker follows applying the fire along its edge. Say it is a stack yard that is to be protected, then the grass is lighted along the edge of the drag furthest from the point to be protected, by one man told off to light the grass following the drag as it is steadily drawn along, while another follows in the wake to beat out any sparks that may threaten to light the grass in towards the stacks, leaving, of course, the other side to burn outwards so as to meet the approaching danger.



REQUIREMENTS FOR A BEEKEEPER.—First, a real love for the business. Second, one that is not easily discouraged. Third, one that is willing to work and do the right thing at the right time. A successful bee-keeper can not be a careless, reckless go easy fellow. He must be quick to observe and ready to act on short notice. Fourth, He should be a person of self-confidence, but not too much so, that he is not willing to learn from others. Here is where a great many fail. They will learn a little about the business from reading a newspaper or some old out of date books, and rush wildly into bee-keeping—try to invent a hive or frame or get a patent on a moth trap, only to find after they have spent much time and perhaps some money, that their invention was no good, and that no practical bee-keeper would have it as a gift. Fifth, one should have a love for the business outside of the money there is in it. If one starts just for the money he expects to get out of it, nine out of ten will fail.—*Southland Queen.*

Amongst the few scientific terms with which the ordinary expert must make himself familiar two present themselves in Latin: *Bacillus alvei* and *Propolis*. These three words are a stumbling block to many good men whose young days were spent in pursuits of more immediate advantage than a struggle with dead languages. First, then, *Bacillus alvei*, the *Bacillus* of the hive. The *ac* should be sounded exactly like the same two letters in the word acid. The stress of pronunciation is on the second syllable, as shown by this little couplet:—

"Kind Sir," said the bees, "you may just as well kill us,  
As leave us a prey to this dreadful *Bacillus*."

In *alvei* the stress is on the first syllable, and the *al* is sounded as in alcohol. The *e* is quite short, and the word might be rendered in English *alveyi*; not on any account *alveei*. *Propolis* is derived from two Greek words, *pro* (before) and *polis* (a city), all the vowels being short. The

ancient Greek naturalists had noticed that the bees use this glue for stopping up undesired crevices and passages, and sometimes to fortify the entrances of the hives, the city gates. The Latin writers who followed them, and are indebted to that source for most of their bee lore, took the word into their own language, and handed it on to us. It is now almost English, and to show the pronunciation may be divided thus, prop-o-lis, the stress being entirely on the first syllable, and all the vowels short.—Lieut.-Col. Walker in "Beekeeper's Record."

† Wm. McEvoy gives his way of preventing a mix-up when queens are clipped. When queens are not clipped how shall we prevent it? With 300 colonies in a space 65 by 75 feet, and not a queen clipped, we succeed fairly well as follows:—Close the hive tight as soon as the swarm begins to issue. At the end of five minutes let out a dozen or two bees, one at a time. If they take wing close the hive for five minutes more. A strong colony might smother if confined longer. It may be necessary to repeat this several times, or until they do not take wing when let out, but walk up the front of the hive, buzzing and fanning, then open the hive. They are then cured of the swarming fever. Give the bees room, and the result will be satisfactory. I think they kill the old queen, and her place is soon filled by a young one, which is usually a profitable exchange. If increase is wanted take one or two combs of hatching brood with a few bees and a good queen-cell and a comb of honey to form a nucleus.—T. J. Adams in *Gleanings*.

† The best house-apiary that I have seen was a shed high enough for a man to stand in, with the roof slanting backward, front to the South, and a tight wall on the north and on each end. The north (reverse north and south here in Australia) was provided with two or three doors, so that one might get to any part without having to pass all along the in-



side. But there was enough space behind the hives to work freely and even to pile some empty hives from place to place. The front was entirely removable at will. This front was in sections, like large shutters, and was entirely closed during the cold days. On warm winter days, and during the summer, these shutters were removed and allowed the air to circulate freely. This made the shed pleasant for work, in fact nearly as pleasant as the shade of trees. But there were drawbacks even in this apiary. The hives had to be placed in close proximity to one another, and this made trouble when the young queens went out for their bridal flight. It is well known that, not only the young queens, but the young bees as well, often make a mistake and enter the wrong hive when the hives are too numerous and alike in appearance, especially if they are crowded together. The mistake of a worker-bee, or even of a hundred workers, has but little importance, but the mistake made by a young queen is of vital importance to the colony, as they usually have no brood of proper age to replace a queen that has not returned from her bridal flight.—*A. B. Journal.*

The hot spell in California in 1883 during the national convention made some of the Californians afraid of a repetition of the experiences of 1883. That year the temperature it held at 115deg., and M. H. Mendleson said that, in spite of his covering the hives with brush, the combs melted down in them, the honey ran out in a stream, the bees deserted the hives, and hung in huge bunches all about. When a bee struck the ground the sand was so hot that it turned over and doubled up, a dead bee.

Here is a colony, we will say, that is queenless. Instead of giving it *one* caged virgin, to be released on the candy plan, he gives it *two* of flying age; but the loose slide protecting the candy is removed, exposing the food in one cage, leaving it in the other cage covered by

the slide. The bees will release the queen of the first mentioned. In a day or so she will become fertilized, and go to laying. The other virgin is kept caged in the mean time. As soon as queen No. 1 is laying, she is taken out, and at the same time the slide covering the candy to the other cage is set back, the bees release queen No. 2. Before that is done, another virgin is put into the hive, caged with the candy protected. Queen No. 2 is accepted, and ere long begins to lay. She is removed, and the slide of cage No. 3 is slid back, and another virgin put in and so on the cycle proceeds. The point is here: Both queens while in the hive acquire the scent of the bees and of the comb, so that when one queen is removed the other queen is already introduced except releasing, which the bees do in a few hours, and she again is in a fair way to become the mother of the flock. G. W. Phillips in *Gleanings*.

I have inspected quite a large quantity of extracted honey, and I find one of the evils is the excessive use of smoke in handling the combs. Much very choice honey has been ruined in that way, so much so that a delicate taste would reject it on account of its bitter taste. You can not be too careful with reference to this matter. Honey is very sensitive to acquire an odor, as much so as butter. J. S. Harbison in *American Bee Journal*.

HOW ONE BEE FEEDS ANOTHER.—Let me describe the manner in which food is obtained by one bee from another. The hungry bee, queen, drone, or worker, accosts bee after bee until one is found who will yield the desired food; then the hungry bee puts her tongue into the other bee's mouth and proceeds to take all possible, the giving bee meanwhile not having unfolded her tongue. As soon as such a proceeding is under way, surrounding bees project their tongues and try to get a bit of of the coveted pap, and not infrequently two or even three bees are simultaneously taking food from the same mouth. Generally,



too, the "giving" bee has her abdomen slightly curved and contracted while the abdomen of the taking bee is palpitating the same as when taking honey or nectar. Just how the hungry bee ascertains which bee has food, and how she persuades her to part with it, I can only guess at, but certainly the antennae play a very lively part. As to the force part: Not infrequently when the "giver" has for some reason seemingly tired of being "pumped," and she tries to back away, or turn from side to side, the taking bee seizes the "giver" by the "cheeks" and holds her fast. R. T. Taylor in *Beekeeper's Review*.

A great deal of beeswax imported into Britain does not find its way into Mincing Lane, but is shipped direct to the manufacturers or wholesale dealers from Jamaica, Zanibar, Madagascar, New Zealand, Australia, Spain, India, and Morocco. A certain proportion of the wax that is offered for sale in the drug market is grossly adulterated; not artistically so as to require the services of an analyst to detect the adulteration; but with such things as stones, earth, and dead leaves, and some of it is very wormy. Like honey, the imported wax varies greatly in color and quality, ranging from white, through all the shades of yellow and brown, to black. Perhaps the article for which there is the greatest demand in the open market is Jamaica wax, which is shipped in barrels, casks, and cases weighing from 2 to 4 cwt., and always finds an unlimited sale in London on account of its undoubted purity. The prices range from £7 10s to £8 15s per cwt., and occasionally there is very active competition for it. Its principal uses are for boot and furniture polishes, heel-ball tailors' wax, photographic compositions, etc. The total exports from Jamaica in 1898 were valued at £10,294, against £4,823 in 1888; while the value of the honey exported from Jamaica during the same years was £2,103 against £1,341. The United States has increased her imports of wax from Jamaica while the

amount coming to the United Kingdom has decreased. The increased production of wax in Jamaica is very largely due to the intelligent action of the local agricultural societies, backed up by the Imperial Department of Agriculture, in encouraging a better system of apiculture. Jamaica wax varies in colour from a nice pale brown and yellow to good red, and pale to dark brown, or chocolate color.—*"Jamaica Times."*

† Doolittle says: "By having the wings of all queens clipped, you have the bees perfectly under your control, and can handle them as you wish, separating them with pleasure when two or more swarms cluster together, and hive them without climbing trees, etc., on the returning plan, when they come singly, they virtually hiving themselves." [We lately trusted to this, but a virgin queen coming out to be fertilised came across our queenless swarm and was accepted, with the result we lost our swarm.]

We acknowledge receipt of Prospectus, &c., of the Fruit Growers Co-operative Co., Ltd., Sydney and Melbourne. The society offers very great advantages to growers of fruit in the way of placing such on the London market in the best and cheapest manner. The offices are in Bathurst-street, Sydney and the New South Wales manager is Mr. H. Rawes Whittell, a gentleman well-known to many bee-keepers, and one possessing a vast amount of business energy.

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