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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.

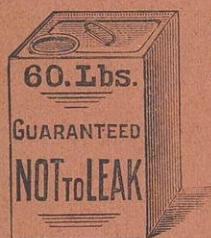
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MAITLAND, N.S.W. — MAY 28, 1906.

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Be careful each hive has enough honey to last through the winter.

Punic bees from North Africa are the blackest bees seen yet, with a shiny polished appearance.

A successful beekeeper says : "I have been compelled to become a large hive man against my will."

Did you ever try honey and cream on your pancakes instead of butter? If not, spread some honey on the cake and then pour cream over it.

A speedy cure for bee paralysis is said to be to feed young bees on honey, whether they have plenty of honey or not.

When making paste for labels for tins or otherwise we always put in a few drops of carbolic acid. It makes it keep for a long time.

The Caucasian bees are being pushed by the American Government. They are rather small, almost black, much like the common black bee.

Recently in one town in the United States 22 grocers were each fined 25 dols. for selling adulterated honey, vinegar and butter.

Some continental beekeepers are recommending painting queens to assist in finding them. Others consider it cruel and unnecessary.

We acknowledge receipt of a new apicultural journal, "The Apiarist," published at Wasco, Texas, U.S.A. Mr. C. S. Phillips is the editor. It is very neatly got up.

We acknowledge receipt of Catalogue of Beekeepers' Supplies of Messrs. Gould, Shapley & Muir Co., Limited, of Brantford, Canada, for 1906. A good index and well illustrated.

To hand, copy of the "Fruit World," published in Melbourne. It is exceedingly well got up, and contains a vast amount of information. There are also several pages devoted to beekeeping. Mr. W. L. Davey is the editor.

In many, many cases, I have seen a returning swarm go to a hive other than its own because the call was there, a swarm having just previously returned to that other hive. Has that colony all at once changed from its individual smell to a cell smell, recognised by all bees alike?

We acknowledge receipt of copy of May number of Steele Rudd's Magazine for May. Capital illustrations, comic or otherwise, short pithy tales, and some 100 pages of bright, interesting reading, making it a capital sixpence worth for either the railway journey or the leisure half-hour.

Caucasian bees, said to be stingless, are now being boomed both in England and America. The same was done some 25 years ago. By many beekeepers they are said to be quiet, but no better than Italian or other races, and one editor says "they are the most worthless race of bees ever offered to the public."

Our dear old friend, Mr. J. F. Meiklejohn, writes us from his home in Scotland: "We have half of three hives of bees. I was looking at them the other day. They have come through the winter nicely, so I trust they will do well this season. My partner in the bees died last October. I must work them for the mutual benefit of his widow and myself."

We notice many beekeepers use hot water to dip their extracting knives in. We have never done so believing the dipping in hot water spoils the temper of the steel.

A dealer in Munich Germany, named Gustav Grote was recently fined 150 dols. for dealing in adulterated honey, and locked up in prison for 100 days. On top of this he received a month's imprisonment for his deception.

SEASONABLE.

Living away from our out-apiaries we can only visit them occasionally. We recently did so to one of them. Excepting two or three colonies they all seemed well supplied with honey. From those that could well spare we took frames well capped and put in those hives that wanted same; noted where entrances were any way large, and lessened same. We do not think they will need looking at for another two months.

An extractor with strainer at bottom is a time saver; the honey, free of cappings, can be put straight into the tins for market.

HEATHER HONEY.

Mr. D. M. Macdonald says in the "British Bee Journal": It is my opinion that no genuine Scotch honey of any description can be offered at the absurdly low price of 3d per lb. On the contrary, heather honey sold readily at 1s. 3d. per lb. upwards, and I had any number of orders which I was quite unable to fill after making extensive inquiries, although several customers offered 1s. 6d. per lb. Pure clover honey sold readily at 10d per lb.

I think it is high time that heather men should rouse themselves to put down such attempts as were made last year, and which are evidently now being repeated to foist honey on the public which is not what it is stated to be, and I am credibly informed "this honey has not a bit of heather about it."

Another writer says: For the information of the general public I may state that Scotch heather honey is very seldom sold by the producer in bulk to the trade. Most of it is sold in 1-lb glass jars at the wholesale price of not less than 9s. per dozen. Special samples command a much higher figure. But for many years the frequent adverse seasons have told so heavily against the raising of the "real Scotch" heather that it is impossible for any beekeeper to place it on the market in great quantities.

NUPTIAL FLIGHT.

I have on several occasions observed the mating of queen bees, and I wish now to record the facts as witnessed during the season of 1905.

My observations were made on dull days when the sun was partially veiled, for on such a day one can look directly into the sky without being dazzled by the sun.

It is my belief that young queens never fly as high as we have been led to believe by past writings on the subject, nor do I believe that it is natural for them to go very far from the hives. From my observations I judge that a mating zone grows smaller and smaller by the increase of the number of drones in a given location.

In my mating-yards, during the height of the season, there are at least ten thousand drones, and if half this number should be on the wing I doubt very much if any young queen could possibly get very far before being caught.

I will try to picture the action of the drones when young queens, due to mate, are in the air. They form in a flock (somewhat like geese) when in full pursuit of a queen, but do not fly steadily as do geese; they slow when the queen slows and speed when the queen speeds. This gives a sort of jerking motion to the entire flock as it swiftly circles above.

When the flock first forms there may not be more than three or four drones,

but others soon join in the chase, until they number perhaps eighteen or more. All the while the rear drones are grappling with the drones in advance, and come tumbling down together. These fellows, however, soon join in the chase again. I have seen the drones grapple each other thus until only three perhaps remain close to the queen—she may then dodge about in the air and thus slip away from the few left, to reappear at another point along with another flock of suitors. The flight is wondrous swift, and one must be vigilant to keep track of it all. If you happen to be in a mating-yard on a dull day when young queens are due to fly, on looking up you will certainly see what I have outlined above.—*British Bee Journal*.

THE HONEY-FLOW.

H. S. Philbrook says in the "American Bee Journal":—There are three known elements required to produce a good honey-flow, and a fourth unknown. The three are, in my part of the country—

First, and most important, the bees must be in good condition, free from disease and strong in numbers.

Second, we must have abundant rains before the season has advanced too far.

Third, we must have warm, balmy sunshine, and not too much cloudy weather after the flow is on.

And now for the fourth and unknown condition, and observations I have made in connection with this condition. We were enjoying a plentiful flow of honey when a thunderstorm of considerable force came on, accompanied by a slight rainfall, but a grand display of lightning. It lasted only part of the day and night, but our honey had vanished, and for nearly a week the bees were furious, and on the robbing order.

At that time I thought the slight rain had washed the flowers free of honey, but this put me to observing the results of rains since then during the flow, and I find, or seem to find, that clouds and

an electrical display will always stop our flow for a time, even with no rain.

I have been engaged in the culture of sugar-beets for the past seven years, and we are paid according to the per cent. of sugar our beets contain, each load being tested by a sample caught at random as the load is being dumped into the cars, and the same thing appears in the sweetness of the beet. No rain, with a grand electrical display, reduces the per cent. of sugar nearly as much as rainfall does. Our beets are very sweet here, frequently going 28, and sometimes over 30 per cent. sugar, so such things are readily noticed.

NEW YORK.

At a meeting of the New York State Association of Beekeepers the statement was made—Mr. Marks declares that a few years ago the several manufacturers of supplies for the bee men were small concerns with limited capital but that now they are all combined and the capital of the combine runs over a million. These concerns have grown rich through the sale of these supplies and made it impossible for the producer to buy except at the prices set by the combine. He declared that the producers had stood the condition long enough and that some remedy should be sought. In addition Mr. Marks advocated the withdrawing of the New York State Association from the National Bee-Keepers Association, stating that the association was working more for other interests than for those of the honey producers and that it had come to a time when the producers must either fight for control of the National Association or else withdraw and form an other association which would work entirely for the interests of the producers.

At the same meeting there was a paper read of bees and fruit tending to show that bees were of a great deal more benefit to the fruit man than they were a damage and that in certain lines it would almost be impossible to get along without them.

Following the paper a bee man present spoiled the record somewhat by telling of the narrow escape he had from a lawsuit by reason of the fact that his bees had stolen all the wax from his neighbours grafts. Several of the other men present had had the same difficulty, but they advised that a little pepper or carbolic acid mixed with the wax when it was put on would soon stop the bees working in it.

We are sorry to have to publish the following from Mr. D. M. Morgan. Our sincere sympathy goes to the bereaved family.

Dadswall Bridge, Vic., May 8th, 1906.

Dear Sir.—We are very sorry to inform you of the death of one of our oldest beekeepers of this district in Mr. F. Kilner, who died in Horsham on Easter Monday after a short illness. Mr. Kilner always took a interest in the Beekeepers Association and was a man very much respected by all who knew him, he leaves a wife and family to mourn his loss and many of his friends in Ledcourt district will miss him greatly.

HONEY CAKES.

DR. COLOMBAN'S RECIPE FOR MAKING.

Ingredients.—3lb. honey, 3lb. flour, 1oz. powdered ammonia, a small teaspoonful of ground cinnamon, half-teaspoonful of ground cloves, 6oz. orange peel cut very small, 4oz. sweet almonds cut small.

Directions.—Pour the honey in a copper or enamelled pan, and set on a stove or quick fire. When it boils, draw it aside and remove the scum (as honey boils up very quickly, great care must be taken not to let it boil over). Then pour the honey into the vessel in which the paste is to be made; leave it to cool; then add flour and other ingredients, except the ammonia, which latter must not be added till the flour and honey has been mixed up, and the paste has become quite cold. In preparing for use, place the ammonia in a cup, pour on a few

drops of cold water and stir it well, so as to form a thick paste, then mix it up with the rest. Then take a piece of the paste, roll it out into a cake not over a $\frac{1}{4}$ -inch thick, and cut up into convenient sizes as desired. This done, put cakes on a flat tin (which must be greased beforehand) and bake from twelve to fifteen minutes in a hot oven. — *British Bee Journal*.

VICTORIAN APIARISTS' ASSOCIATION.

BY W. L. DAVEY, SECRETARY.

Members are requested to communicate to the Secretary their opinions as to when the Annual Conference should be held. The Stawell Branch have passed a resolution that the Annual Meeting be held during the Royal Agricultural Show; the opinions are desired of all members as soon as possible.

The Lands Department have over 90 applications for Bee Sites and Bee Range areas, which is an indication of the popularity of the new legislation. I have heard of some complaining, but the great event to the industry is the preservation that must eventually ensue as a result of the new and just right we now possess in Victoria over the tree tops. At the same time many hard knocks are in store for us as conflicting interests clash with our new right, and we may not always come out on top, therefore members should do all they can to keep the Victorian Apiarists Association, well to the front in finances, vigour, and moral support.

The Heather Harvest in Scotland.

One of the worst on record, I presume, will be the general verdict. Yet it is not quite so bad as that, for we had a good gathering during a few days of mid-August. The worst of it was that in most cases, unless stocks were abnormally strong, almost every ounce gathered found its way into the body-box, there, of course, to fulfil a useful purpose in

supplying ample stores for bees to winter on, for before the flow of these few days brood-frames were almost all drained dry. When bees presciently had thus stocked the larder they went upstairs as if they meant to beat the record; but, alas, the weather broke, and we got drachms when we fondly expected to find pounds. At an early date they began carrying down the contents of outside combs, and so supers were withdrawn, too often with sections partly filled and sealed. Some stocks filled one rack, but most would not average half that number of marketable sections. The price is good, 1s. 3d. per 1-lb. section being easily obtainable, and where sections are well filled and sealed they should make 1s. 6d. A blend sold readily at 1/-, and clover 10d. I would strongly urge on all to hold up for a good price. Grocers during the rush in July bought good sections at 7d., and many bee-keepers, anticipating a heavy flow, reduced from 10d. to 8d. needlessly, as the higher price should have been maintained, because in many districts where light soils prevail the honey harvest was almost a failure owing to the severe drought. — *British Bee Journal*.

SPRING-MANAGEMENT.

The first thing to do in the spring is to go through every colony and thoroughly overhaul them. By this time all should have a little brood on the way. If we see none we scratch the face of a frame of capped honey, and leave it right in the centre of the cluster. The next time we come, if no brood is present, we look for the queen; and, if queenless, unite with some other weak hive having a queen. Colonies that we think have inferior queens are marked, and, if they show no improvement, they are requeened at the earliest time practicable.

After the queens have commenced to breed rapidly, I recommend the equalizing of brood among all colonies having good queens; and, at this juncture, I would begin to systematically spread the brood. As soon as there are two, good

full, well-capped frames of brood in the centre of the brood nest, I would insert between them a frame partly full of honey and partly empty, and on each side of the two frames of brood, place a frame similar to the one put in the centre, placing the pollen frames just outside these frames. If the weather is good, the centre frame will at once be filled with eggs, and, as fast as the capped frames of brood hatch, the other two outside frames will likewise be filled. As soon as there are five frames of brood it is a simple matter to place one or more frames at a time between the filled frames of brood, and so on until the entire hive is filled with brood. The spreading of brood is all right when properly done by experienced men, but not advisable when done by others.

As the spring proceeds, and the bees become stronger, our object is to keep them from swarming, and yet have them as strong as possible when the honey flow commences. If the colonies become full of brood, and show signs of swarming, we draw brood and bees from them, and give empty combs or foundation; draw just enough and give the queen just enough empty room to keep down swarming. With the brood and bees removed, new colonies may be made by putting enough together, or nuclei can be started with two or more of the frames of brood or bees; and a queen cell or virgin queen given them from cells already started for the purpose, or from cells cut from colonies that may have the swarming fever.

Swarming is the greatest problem to meet in the successful manipulation of out-apiaries; but, if we can hold it down until the *flow commences*, and the bees start in the supers, we have no more swarming. If we cannot keep down swarming, and the bees get the fever too bad, then we resort to the well-known "shook-swarming," throwing all the bees of two colonies together, giving one queen to the bees, and one to the brood, and, a few days later, again shake all the hatched bees from the brood into the hive of bees

so as to augment their strength.—*Beekeepers Review*.

How to get brood from two Queens in one Hive.

There is one thing I must describe to you all, and that is the proper and best way to care for our little weak colonies after taking them from their winter quarters. It is this: As soon as they have some uncapped brood in their hives, take them to a good strong colony; remove its cover and put a queen-excluder in its place, then set the weak one on top of the excluder and close up all entrances to the weak colony, except what they have through the excluder, down into the strong colony below. Leave them in this way together four or five weeks; then separate them and you will have two good colonies and will have saved yourself all worry about these weak colonies being robbed, chilled, or starved. When we are feeding the other colonies we usually give these a few spoonfuls of the warm syrup in a comb next their brood. This encourages them; and if there is not more than a cupful of bees they don't get much from the feeder under the strong colony.

This is something we have been practicing for more than twenty years. Some seasons we have a large number of weak colonies on top of strong ones during early spring, and we don't lose five per cent of them. I am sure it goes a long way toward preventing spring dwindling. I will quote what a friend says on this subject: "In regard to putting light swarms on top of heavy ones in the spring, I believe it is a great thing; in fact, I look upon it as one of the best things brought to light in modern bee-keeping. Last spring I had 16 swarms marked heavy, and just 16 marked light—in fact, so light that I almost despaired of getting them up to the honey harvest by any process; but when that article by Mr. Alexander came out in the April Review, telling us how to save weak colonies by setting them on top of strong ones, I concluded it would work, so I placed the whole 16 weak

swarms on top of the 16 strong ones. I examined them some three weeks afterward, and such a change I never saw. Those weak swarms had built up so they were as strong as if not stronger than the ones below, and had more honey because of the tendency to store above. I could scarcely believe that such results were possible. Then again, instead of detracting in anyway from the strong swarm below, it really seemed to be the reserve, as though they had been stimulated by it to greater activity. Having the two queens depositing eggs instead of only one the bees went out with a rush on all occasions when they could get out. It also proved another thing, which is that the upper queen is all right, only she was handicapped for want of bees and warmth; and as soon as these conditions were supplied she proved herself to be as prolific as her sister below, instead of being the worthless thing that she had been supposed to be."

I think I have shown you how we can keep our bees warm and comfortable through the sudden changes of early spring; also how we can stimulate them to early breeding by keeping them warm and feeding a little thin syrup every day. This is very important; and how you may save those little weak colonies and have them ready for your early harvest.—*Gleanings*.

TOP ENTRANCES.

Top entrances are seemingly great novelties to many Bee-keepers. In *Stray Straws* (March 1, 1905) appears the following: "Top entrances are said in *Apiculture* to increase the yield of honey 20 per cent. I can imagine that there might be some increase over hives with the entrance at bottom, and that too small for hot weather. For years I've had piles four or five stories high, an entrance to each story, and an entrance at the back of the cover. I can't say whether they stored more honey; but I can say that none of them ever swarmed. But it doesn't work for

comb honey." For my part I can add but little to this except to say auger-holes bored with a Fostner bit answer very well. The holes are best half way up the honey chamber, not too near the zinc. Don't make the mistake of making too many holes, always remembering the lowest entrances should be largest. In hot weather a cover entrance is necessary. Some one asks if top entrances are practical. Yes, decidedly. I don't see how an extracted-honey producer can very well get along without them, and I didn't know there were many bee-keepers who didn't use them.—Exchange.

THE INDUSTRY.

Advertisements in some of the farm papers, and general newspapers, urge upon city people, villagers, farmers, especially women folks—to go into bee-keeping. They tell how profitable, fascinating and healthful it is, and how easily it is learned. I suppose it may be "business" for the manufacturers of supplies, and the publishers of bee journals, to thus help to make additions to our ranks, but, if this thing is carried too far we will soon have to start another "League." Seriously, it seems to me that it would be better if the publishers of bee journals devoted all of their energies to the betterment of existing bee-keepers, instead of trying to augment their numbers. It does not seem like a kindness to either the new recruits nor to the old hands, when we urge people to enter bee-keeping at the same time that we are donating hundreds of dollars to try and lift the honey market even to a normal plane.—*Beekeepers Review*.

It is an established fact that any amount of box or surplus room will but partially overcome a crowded condition of the brood nest. The introduction of slatted frames, or dummies, previous to the swarming season, I have found to be the great essential in overcoming the crowded condition; thus retarding the swarming impulse.

PRICES OF HONEY.

Melbourne Australasian. — Honey — The supply of the best garden honey was favourable as regards quantity to buyers, but the market nevertheless was characterised by a dull tone. The best found favour at 3½d., while 3d. was about the ruling figure for medium lots.

Melbourne Leader. — HONEY. — Prime clear is in fair demand from 3d to 3½d., but several lots arriving are only of medium quality, which is dull of sale, and lower prices have to be accepted. Beeswax in good inquiry at 1½ for prime; mixed lots lower.

S. M. Herald. — Honey, 60lb tins, choice extracted 3d to 3½d, good 2½d, inferior 2d per lb. Beeswax — Dark 1½, prime 1½.

Maitland Mercury. — Honey, 2d to 2½d. per lb. Small tins 2/- to 2/3.

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HUMIDITY.

I am confident that many will conclude with me that excessive moisture may become actually painful to bees, causing uneasiness and evident distress.

Right here is a possible explanation for the ill-nature displayed by bees on certain days. For are bees ever more spitefully cross than on those days we term muggy?

Heat has usually been given as the cause of the hanging out of bees, and no doubt it often has much to do with that phenomenon. Yet intense heat, if the air is dry, will not cause so general clustering outside the hive as will a much lower degree of heat accompanied by excessive humidity. More than that, bees will cluster out when the thermometer does not stand above sixty.

I saw a marked instance of the phenomenon last spoken of in the spring of 1905. One morning late in April or in early May I observed that every colony in a row of eight was hanging out, the clusters varying from the size of a good prime swarm down to a bunch the bigness of one's fist. This small cluster was from a hive in which there were not enough bees to cover well three combs. Why should they cluster out, for surely they had plenty of room and the morning was not warm? Later in the day the mists disappeared, the air became dry, and even the large cluster went into the hive.

Why was this, for the air had become no colder?

And so it went on all summer. Bees hung out in huge masses on humid days even when the sun was not shining, but stayed inside on hot dry days.

The continued observation told me one useful fact, namely, that no safe estimate can be made of the strength of a colony of bees by the size of the cluster hanging out, unless, indeed, at the same time many colonies are compared one with another.

I think, too, that it told me another thing, namely, that great humidity distresses bees. Finding it difficult to get

rid of the water in their systems after their usual manner in the hive, because of the excessive humidity, they stayed outside where the circulation of air would assist their natural function.

It seems that the urinary organs of the bee are not able to do as much work in the way of taking care of water as those of vertebrates, the respiratory organs probably doing a great share of this work.

Obviously, in a dry atmosphere the respiratory organs can easily do most of the work, and thus relieve the delicate urinary organs of the bee; but in humid air the respiratory organs can no longer throw off the water, and it must be taken care of by the urinary organs. The latter organs being ill adapted for much of this work, and there being no suitable repository for the excreted water, great discomfort comes to the bee.

It is safe to assume that 95 per cent. or possibly more, of the ventilation of the hive as performed by the bees themselves is to exchange the humid air of the hive for the drier air of the outside. It is a well-known fact that breeding brings about increased moisture in the hive, and that simultaneously with increased breeding comes increased fanning at the entrance. That bees require but slow exchange of air for the purpose of oxygenation seems either to have escaped the notice of most observers or at least to have been considered of small moment.

It is usually stated that bees need moisture for successful breeding, and such would certainly seem to be the case; but that the statement has ever been proved does not follow, and set off against it is the fact that bees try to rid the brood-nest of moist air. Probably a most careful and exhaustive study of the matter would reveal the truth that there is a certain humidity which is best, and that the activities of the bees are bent to preserve that uniform humidity.

The power which bees have of throwing off water is in itself phenomenal, and, when one considers that, he is led to wonder that a bee can suffer in a humid atmos

phere when not engaged in active work.

I have in mind, of course, the power which the bee has of ridding the nectar as gathered from the flowers of its large percentage of water. It is possible that the belief is still rather prevalent that the honey is placed in cells while still thin and there evaporated after the manner in which we dry fruits—but the truth is far otherwise. The way of the bees is more after the manner which we have of evaporating (?) an orange in a few minutes and then discarding the skin and pulp.

The observation hive tells us that the bee gets rid of the moisture in the honey while the honey is held in her own body, and that the honey does not find a permanent resting place in the cells until well cured. The very fact that honey is deliquescent in humid air, and that the atmosphere of the hive is rather humid, will logically bear out what has been seen by a few observers. The fanning by the bees is not so much to bring currents of drying air over the cells of honey, as many apparently believe, as it is to bring dry air to the laboring insects in the hive, air into which they can little by little unload moisture from their respiratory organs.

To offer an illustration, by no means interded as exact, it seems as if the bee was able by some delicate process to separate the water from the honey something after the manner that we can separate buttermilk from butter. The spiracles of the bee carry away the water in the form of vapor, while the buttermilk leaves the churn as a liquid stream. If the level of the buttermilk outside the churn could reach the level inside, the flow would cease; if the humidity of the air in the hive reaches a certain point, then no more moisture can leave the body of the bee by way of the spiracles. Is it any wonder then, that the bees put forth such strenuous efforts to keep up the circulation of air in the hive in the hours following a heavy honey-flow? The new air becomes warmer in the hive, becomes thereby drier, and hence acquires the power of taking up more water.

To cite still another instance in connection with the effect of moist air upon bee-life: When the wind comes in winter time, bringing with it air of high humidity, the bees, especially in the cellar, become exceedingly restless. Heat is generally blamed for this restlessness, but unjustly. Let him who doubts this last statement bring the cellar to the same temperature with dry air.

To epitomize my theme, I would say: Humidity brings discomfort to bees; that this discomfort causes restlessness, and sometimes fiery temper; that hanging out and fanning are only acts to relieve the humidity within the hive; that bees have a power peculiar to themselves of eliminating water from their systems; that this power is correlated with the humidity of the atmosphere; and finally, that humidity plays an important part in the economy of the bee-hive.—*Exchange.*

THE IRISH BEE JOURNAL.

Among the many exchanges that regularly come to our table there is none we read with greater pleasure than the *Irish Bee Journal*, edited by the Rev. J. S. Digges, M.A., Lough Rynn, Dromond, Lectrim, Ireland. Mr. Digges is also the editor of an excellent publication, "The Irish Bee Guide." We thank him much for the kindly notice of ourselves in the April number of the "Irish Bee Journal," the concluding remarks of which are:—"Wisely, from the editorial point of view, Mr. Tipper has maintained the A.B.B. as an entirely independent publication, free from connection with either the appliance or queen selling business, his aim being to conduct the paper on the principle of justice to honey producers and supply-dealers alike. If he has not always been free from the attacks of interested persons, he is never at a loss to recognise the common or garden axe grinder when he meets him, and we greatly mistake our man if he is one of those uneven souls who can be turned from the path of rectitude by the howls

of any white-skinned savages, to whom self-interest is the only god. The Bulletin is the oldest journal of its kind in Australia, and stands entirely upon its merits as an educative force in the field of beekeeping, and as a medium for legitimate advertisers without distinction. That the efforts of the editor in this direction have met with general approval in all the Australian colonies is a fact upon which he is to be congratulated, and one which, we trust, will become still more evident as his excellent work makes itself more felt."

A SMOKE BOX.

I have used, with excellent success, a smoke-box invented by Mr. S. T. Pettit. It is an inverted box, the size of the top of the hive, and about three inches deep, with a hole in one side which can be closed with a button. The cover of the hive, together with the cloth or honey board, is removed and the box very quickly put in place. The button is turned and the smoke puffed into the hive. By smoking gently, giving the bees time to keep ahead of the smoke, the combs can be fairly well cleared of bees; unless the queen should have passed above the queen excluder and filled the combs with brood. This is the quickest method that I know of for freeing the combs of bees, but a mild smoke must be used or the cappings will become tainted, when a delicate palate might detect the flavour. With strong flavoured honeys this point need not be considered. The best way that I know of is to smoke the bees through the ventilator in the super, which every super ought to have at its back, doing this work in advance upon the colony that we next expect to manipulate. This induces the bees to fill themselves with honey, when they are easily dislodged from the combs and have little disposition to fight.—*Beekeepers Review*.

BEES INSTINCT.

Whether we call the action which emanates from the central nervous system of the bee, reason or instinct, matters little, and it is never likely to have an undisputed title so long as the definition of the term instinct is inexact. What chiefly concerns us is the complexity of that action, and what chiefly interests us is the extent to which it trespasses upon our own divinely given mentality.

It is unwise to take too decided a stand upon either side of the question, Do bees reason? Few of us would care to go as far, for instance, as did Father Langstroth, or as does Maurice Maeterlinck of the present time. When sentimentality sits in the seat of science a comedy is pretty sure to be enacted; and with all due respect for the memory of Langstroth and with all due sympathy with the feeling of Maeterlinck I can see only false deductions in some of their statements regarding the wonderful reasoning powers of the bee. Yet to make the rabid statement that bees never do, in any sense, make use of a reasoning faculty, may sometime be shown to be entirely unwarranted.

In most cases one can apply this test to the actions of bees: Will other bees invariably, when put under like conditions, perform the same acts? If the answer is always yes, we are forced to the conclusion that the bee's reason and man's reason are essentially unlike, since we know that two men do not act the same under like conditions.

It is easy, too, to understand the instinctive action of the honeybee when every act performed is only one of a series and is essentially the part of the life-work of every bee, or at least is perfectly normal to every bee. It is when some unusual act takes place, one which may not have occurred among the ancestors of certain bees for a score of generations, that our amazement becomes supreme; and it is then that, almost filled with awe, we ask: Is this reason? For it is well nigh beyond our belief that an

instinct can lie latent over a score or more of generations.

In offering the incident which I am about to describe, I am inclined to prefix an apology. It may be that such an act is extremely common, and that I have been carelessly ignorant of it, since I kept bees twenty years before I saw the first instance. A year later I saw the act repeated, and I can get bees to repeat it by bringing about the right conditions.

A few bees were placed in a box five by five by nine inches, with a hole a little over one inch in diameter at one end.

The weather was somewhat cool and the conditions unfavorable for the development of an extremely weak colony.

There were less than a pint of bees all told, and they had but one small comb at the extreme rear of the box.

Not many days after leaving the bees thus I noticed on the inside edge of the opening a chip-like projection; and I remember thinking at the time that they had not bored a good clean hole. A few days later, however, the chip was doubled in size, and there were two or three bees busy about it. The bees were in reality building a wall across that entrance, building of wax and propolis, mostly of propolis (bee-glue).

In the course of a week the wall was completed, and all the opening except a space large enough for two bees to pass in was closed. The wall was not smooth and flat but more like paper which has been wet and dried rough. It was of uneven thickness, as could be seen by holding it to the light. The wall persisted till well along into summer, though at times it was partly removed only to be rebuilt soon. When the colony had gained well in numbers and the weather had become warm, the wall was permanently torn down.

There seems to be no doubt that this wall was built to shut out currents of cold air, and as an act of rare occurrence it demands more than a passing notice. — Excerpted.

BEES.

It is with bees the same as with any other kind of live stock. It is possible to overstock the land. Bees must have a certain amount of pasturage and the blossoms of plants from the pasture. Therefore it is not possible for them to find sufficient nectar to feed themselves and store honey in their hives when there are too many of them close together. Those who keep stock know how seasons fluctuate and how some years pastures are bare compared to others. It is the same in beekeeping. There are average years, there are years when there is a superabundance of blossoms, and years when plants do not bloom readily or blossoms do not last long. Thus it is with bees as with any other stock, no one should think that he can depend for his living on beekeeping alone. It is not advisable here any more than in other places. Beekeeping is an excellent side issue, and fits in well in the operations of a careful man who has other crops besides the honey crop to depend upon or other stock besides bees. This is not to say that a few may not be successful in beekeeping on a very large scale, and depend upon it, but in that case they must be careful, experienced and enthusiastic, and good business men besides. — Jamaica paper.

Doolittle on the Sale of Honey.

The great mass of our people do not consider honey as something which it is necessary that themselves or their families have. In other words, the desire for honey is not so great as it is for butter, whisky, tobacco, etc. Their *butter* they must have or the dinner is not worth eating. The whisky they *must* have, even if it means sorrow, ruin and crime to themselves, their families, the nation, and the world. Their tobacco they *must use*, even if their clothes are ragged and their shoes are out at the end of their toes; and the tea-drinking habit must be indulged in whether there is any honey on the table or not.

"But don't you think that we could educate the people to a point where they would consider honey of as much a necessity to them as tea, and the things you have mentioned?"

"No, never."

"Why not?"

"Because when you get them educated, and the time comes from straitened circumstances that they must retrench, they never retrench in favor of honey. Did you ever know of a family giving up their butter, sugar, tea, or tobacco for honey? And even without the straitened circumstances, after once having honey, and knowing of its goodness, many families which I know of tell me that they can make a good syrup for their buckwheat cakes — A syrup that answers all purposes, and that at a cost of less than one-half of what they have to pay me for my honey. All other families which I know of will buy honey of me if I go personally and press it on them each year, but will never come to me or any other bee-keeper after it. But they would go miles and miles after their tea, tobacco, sugar, and butter, with honey right at their next door, before they would use honey as a substitute for either."

"Well, you are advancing some new thoughts—thoughts that are, perhaps, well worth thinking over. But in your ground there is very little hope. Is there no remedy?"

"I see only one."

"What is that?"

"Let the bee-keeper stop putting the rosy side of apiculture before the public all the time, thus putting more bee-keepers into our already overstocked honey field. Give the truth of the thing as it is and make the question of more or better beekeepers the prominent one for a while. Then with fewer and better bee-keepers as a basis, add a goodly lot of energy spent in a house-to-house canvass each year with our honey, perhaps we who are in it may be able to hold on and make a living out of bees. What do you think of the proposition?"— *Beekeepers Review*.

ODORS AMONG BEES.

SOME OBSERVATIONS.

An interesting article from the French of Mons. L. Forrestier, translated by Mr. Dadant, and dealing with odors among bees. The first point which arrests attention is that the author did not approach his experiments with an unbiased mind. He was at the start convinced of what he set out to demonstrate, and naturally saw in his experiments only those facts supporting his preconceived ideas.

Among his recorded experiments he says he repeatedly washed his hands to remove all trace of human odor—an impossibility to start with. Next he smeared his hands with the juices from crushed drones, and in some cases the bees of the colony from whence the drones were taken failed to sting him, and in other cases they stung. Nothing positive there. Again, in two or three instances when hands so smeared were presented to a colony alien to the drones, stings resulted; but while he attributes the painful reception to the presentation of alien drone odor, he seems to forget that living alien drones would have been well received. He cites the harsh reception in their homes and washed in alcohol, which treatment he assumes removes the home odor. The painful and fight inducing effect of such a bath he entirely overlooks. But he says that after a sufficient time has elapsed bees so treated having, he assumes, recovered their natural odor were favorably received by their sisters. Such reasoning is hardly worth noticing had it not been so widely copied.

Let me cite some facts falling under my own observation:

Hands coated with a solution of propolis from one hive will pass unscathed in every hive. Where is the home odor? The human odor is sealed in by the varnish. Sometimes the bees will assail the moving hands but will only strike, and not sting.

A bee slightly injured by the moving of a frame is not infrequently set upon by

her sisters. Surely she has neither lost nor acquired an odor. But she often shows a fighting spirit.

Queens caged in a colony to which they are to be given are often killed, and queens given without caging are no more frequently killed.

Bees often freely pass from colony to colony. Often we can unite bees of different colonies without difficulty, and again bees from one colony separated from their sisters for a few hours, even though on their own combs, sometimes fight to a finish on being reunited. This is notably so with Cyprians. Confined bees accept aliens without trouble. Can-not confined bees smell? All evidence points to the possession of bees of an acute sense of smell and a strong antipathy to many foreign odors, but it does not consequently follow that odors govern their attitude toward each other. Because certain animal and other odors greatly excite them we cannot conclude that the odor of an alien bee is the cause of her sometimes killing reception. It is far more rational to say that the alien recognizes the strangeness of the surroundings, and acting on the defensive soon finds a sister ready to knock the metaphorical chip from her shoulder.

There is as much, or more, evidence against the "odor theory of queen reception" as currently taught, as there is for it, as will be seen if it is only looked for without prejudice or bias.—*Arthur C. Miller in American Bee Journal.*

✻CORRESPONDENCE.✻

F. F., Melbourne, Vic.—I trust your season for honey has been more favourable than it has been around here. There has been very little blossom this summer.

W. S., Spring Creek.—The past year was very dry, therefore the bees and other things did not do well, but am

pleased to say that there has been a good lot of rain this year so far.

W. P., Rockhill Apiary, Rheola, Vic.—I am very thankful to you for sending on the Bee Bulletin. It has been a great boon to me, as I am only a novice practically. It has been a very poor season with us, being the off year with the yellow jack and red gum. Our box flow is just about over; not so good as our last one, the weather being too cold. Last winter was the worst I have witnessed. I lost twenty hives. The spring came in so cold I delayed in opening my hives, and when I did to my surprise I found a good few hives with the bees dead in them, and others very weak. My bees are going into winter much better this time. Trusting you are having a good time over there.

H. W. S., Walcha—Last spring was a bad one for our bees. It was late and cold. Apart from that I cannot complain, as they done well at the end of the season. I have no doubt next summer will be a bad one unless plenty rain falls.

A. B., Nurrabiel, Vic.—In Victoria we have had a great struggle to save our bees up till about two months ago, when things took a turn with some beefarmers, and the bees got up strong and met a splendid grey box flow, and some who are near the grey box got a good harvest. After all, I will get about 3 tons, which is a splendid yield for an off year, from 90 hives. Never did the grey box bloom so heavy, and is in bloom now, and the white gum is just bursting into bloom and will continue in heavy bloom until the end of October, carrying our bees into the yellow box. There is a danger of a dwindle between white gum and yellow box of three or four weeks. Sometimes we could get through safely. I have spent 16 years with bees and think more of them than ever, but the country will soon be wrung, and useless for bees. I've got to run mine now 20 miles from home.

❖ CAPPINGS ❖

LONG LIVED BEES. — A writer in the "British Bee Journal," says: "My third stock consists of two lots of driven bees, secured from an old country woman in the autumn. Her daughter in law told me that she did not think that her mother's bees would be worth having, as she was quite sure they were too old to gather honey! "Why," she said, "they must be nearly thirty years old! She has kept them in the same place ever since she had them, and I'm quite sure they must be nearly worn out, poor things. Why, last year they hardly gathered any honey at all, so I don't think it much use your trying them."

The common toad (*Bufo vulgaris*) is very systematic in its methods. In the early forenoon, when the worker bees were busiest, he crept cautiously and quietly along at the back of the hives and down the inclined bank at the left side, then climbed up the incline to his hiding place, about 3 in. outside of the plump of the edge of flight-board, turning himself round into his "den" where nothing but his two bead-like eyes could be seen. Every now and then a heavily-laden bee dropped to rest for a moment on the grass, when, quick as lightning, his long tongue was out and forked the poor bee into his mouth. It was a great treat to see how the sly dog seemingly smacked his lips at every fresh mouthful.

"Have you a boy? Well, make a farmer of him, and you will have the satisfaction of seeing him an honest, independent and respectable member of society; more honest than traders, more independent than professional men, and more respectable than either."

The "Irish Bee Journal" says: If to starve a dog be an indictable offence, to starve a stock of bees should be punishable with a month's hard labour. bread and water diet in the smallest quantities,

a plank bed, and such other creature discomforts as a paternal Government may devise

In the "Canadian Bee Journal" for February, a Mr. Couse complains that he gave 2,600 lbs. of honey to a Toronto firm to market in Great Britain. He got back 57 dols. for 1,000 lbs. of it, the balance of 1,600 lb. proved a bad debt. Less than 2½d per lb. for 1,000 lbs.; less than 1d. per lb. for the lot. Not much of a show.

The Rev. Father Mason, of Devon, England, made an experiment as to the effect of cold on the life of a bee. On Thursday, March 1st, some bees were despatched to him. They travelled the whole night till Friday noon, and, having been roughly handled, they must have been tired, and consequently not in the best condition for experimenting. Whilst putting them into order a bee settled on his hat. He carried her to his room, and thus isolated she lived for days and nights without food in a torpid condition. On Monday night, March 5th, he warmed her a little in his hand, and she could still walk but was rather weak. To-day, March 6th, she is still lively and seems likely to be so to-morrow. — *Irish Bee Journal*.

Take a black felt hat and stick it up in the apiary, say 6 feet high, on a stick some cool day, and at the same time place a light felt hat in a similar position. But mind you, put them far enough apart so the angry bees from the black hat will not fool with the light one, and in the evening count the stings in the black one and compare with the light one.

KNOWING AND JUDGING HEATHER HONEY. — At a conversazione in Scotland it was deemed strange that Scottish grocers should not know genuine heather honey. "'Tis true, 'tis pity; pity 'tis, 'tis true." They didn't, and many Southern judges don't. To prove the first, I know of a first-class firm, desiring to do their very best to secure the purest heather honey, preferring sections containing almost black honey, possibly a large

admixture of honey-dew, to some of the very finest product of *Calluna vulgaris*. The one was dull, dead, and dirty; the other bright, brilliant, sparkling amber. The flavour of the first was rank and unpalatable, that of the other crisp, toothsome, and capable of delighting the finest and most delicate palate. The odour of the first was unpronounced, while that of the other sweetened the air yards away. In consistency they differed as the poles. To prove the second clause of my indictment, I have but to point out the fact that Scotchmen have ceased exhibiting specimens of their genuine heather honey at Southern shows.

One of the most marvellous and interesting phases of bee life is demonstrated in the fact that bees are able to raise queens (or mother-bees) from eggs, or from very young brood which in the ordinary course would produce workers only, the latter being 'neuters,' or undeveloped females. In order to realise the supreme importance of this to the bees themselves as a community, it must be borne in mind that the queen bee is the only fully developed female in the hive, and lays all the eggs from which the population is produced and kept up. Thus, if by any chance the queen is killed or lost, the whole colony would inevitably perish but for the means given them of raising a successor as mentioned above. Supposing, then, that a stock of bees is suddenly deprived of their queen at a time when there are eggs and young brood in the comb; the first symptom of the loss is shown by an outward commotion, the bees running excitedly all over the front of the hive, as if searching for something. This continues for some hours, after which the bees settle down, and set about building the pear-shaped structures known as queen-cells. These are very much larger than the ordinary cell, having very thick, strong walls, rough and irregular on the outside, and absorbing a great amount of wax in construction, compared with worker cells. Then follows the remarkable transforma-

tion required in raising a new queen. This change is wrought by feeding the selected eggs or larvæ with a substance known as "royal jelly." This latter is very stimulative in its effect, and is given in such abundance that the baby queen literally floats in it during the whole feeding period. In consequence, there is a rapid increase in development owing to the nature of the food given, and certain organs, which, in the worker, fed in the ordinary way, remain altogether dormant, are perfected, and the young queen hatches out in about fifteen days, as against twenty-one days occupied in the process by the worker bee.—*Exchange*.

SULPHUR AND SUGAR-SYRUP FOR BEE-PARALYSIS.—Sulphur and molasses used to be a favourite medicine to cleanse the blood. A correspondent in the "British Bee Journal" now gives a somewhat similar prescription for bee-paralysis. It is sulphur and sugar syrup. He says: "I took away all their stores, sealed and unsealed, and, as they were greatly reduced in numbers, I contracted the brood-chamber, leaving them only a few empty combs (one or two contained brood) and put a chaff cushion each side of the frames to keep them as warm as possible. Then I made half a pint of sugar syrup, putting in a small teaspoonful of sulphur and 5 or 6 drops of Dr. Collis Brown's chlorodyne. The sulphur must be made up to paste consistency first, as it is hard to mix with the syrup afterwards. I also made the syrup a little warm. This I gave them in a 'Simplicity' feeder on top of the frames. The sulphur settled to the bottom of the feeder, but I suppose they got the benefit of it. I put the chlorodyne in because it is such a universal remedy for rheumatism, cramps, etc., in human beings. At any rate, that treatment quickly cured them, as no more died after they got the doctored syrup, and to-day they are doing well and working away as if nothing had happened."

If you know of anybody who does not subscribe to the A.B.B. kindly send along their names.

ANCIENT BEE KNOWLEDGE.

We take the following quaint matter about bees from a book by John Worledge, published in the year 1691:—

OF THE NATURE AND UNIVERSALITY OF BEES, AND THE ANTIQUITY OF THEIR COLONIES.

Bees and Silkworms are the only Insects that are kept and nourished by Mankind for their Use and Benefit. The Silkworms for the fine spun Silk they yield, to adorn Princes and Grandees of the Earth withal; Nourished only in hot Climates, and fed by Hand, by the Leaves but of one sort of Trees, and that also with continual attendance for their time of feeding: Their Product at best but an Ornament. Bees of whom I shall now treat are kept and maintained almost throughout the World, for the delicate Food, pleasant Drink, and wholesom Physick they yield; Barbary and other of those hot Countries abounding with them, so that *Wax*, the least part of the Profit arising from them, is there a great Merchantable Commodity: *Russia* and *Tartary* make their principal Drinks out of the labours of these industrious Insects: All the Countries about the Mediterranean Sea, have ever been stored with them, as most Histories of those Parts testifie; in *America* especially, where our *English* Colonies are, Bees multiply even to admiration, so that we may esteem them the only Ubiquitaries of any Insect. hardy, enduring all Airs, hot, cold, wet, or dry: The hottest Summers hurt them not, unless by melting their Honey; nor do the coldest Winters kill them, unless they be too nakedly and severely exposed. In moist Countries they thrive, and are most apt there to swarm, but their Habitations ought to be kept dry, nothing more annoying them than wet within their Houses: In hot and dry Places and Seasons they gather great store of Honey, especially where the Sea or sweet Springs are near; So that we may well say with *Butler*,
That there is no ground (of what nature

soever it be, whether it be hot or cold, wet or dry, hill or dale, Woodland or Champian, Meadow, Pasture, or Arable; in a word, whether it be battle or barren) which yieldeth nat matter for the Bee to work upon. Then they are the most industrious of any Animal whatsoever, never at rest, whilst either that they have matter to work upon abroad, or room to workin at home; If they cannot find wherewith near home on which to gather Honey or Wax, they fly far for it. For swiftness they exceed the Wind, notwithstanding which many of them daily become a Prey to the Swallow and other Birds. In their understanding, also, they surpass all other Insects, that is, in their distinguishing of times and seasons wherein to labour, and send forth their Colonies, and how to bestow or expend their hoarded Treasure. And when they have possessed themselves of a new Habitation, their curious Architecture is to be admired; but above all their Properties and Virtues, that of their Prescience is most observable, daily foreseeing what Weather is likely to succeed, and ordering their Affairs accordingly, and annually providing of Stores for the approaching Winter; Nature having instructed them to foreknow that they shall stand in want of such Provisions: They are not only Prognosticators for themselves, but Portenders of good or evil (or ominous) to Mankind, as hath been often observed from many accidents that have hapned or succeeded after their unusual actions: which made the Poet, and questionless many others in that Age, take them to be Divine, as well as the Muses Birds; else would he not, after a repetition of several of their extraordinary Properties, have sang,

Hic quidam signis, &c.

From these Examples some there are maintain

*That bees descend from a Celestial Strain,
 And Heavenly Race.*

After him *Pliny* esteem'd their manner, time, and place of setting, as *Augures* or *Prefages*; for they sometimes settled

amongst Houses, or on the Temples of their Gods, as you may read in his 11th Book of his *Natural History*, cap. 17. But whether they portended good or evil is not yet clear from *Historical Observations*: For the same *Pliny* relates, That a Swarm of Bees settled within the very Camp of General *Drusus*, the very same day when he obtain'd that notable Victory at *Arbalo*. Yet may you read in *Lucius Florus* his *Roman History*, lib. 2, cap. 6. That in the second *Carthaginian War*, when *Hannibal* fought against the *Romans* by *Transimeneus Lake*, the Swarms of Bees that clustered upon the *Roman* Ensigns, proved unlucky signs of the great Overthrow *Flaminius* the *Roman* General afterwards sustained. Afterwards the same Author tells you, lib. 4, cap. 6. That before the great Battel between *Cæsar* and *Pompey*, when there were above 300,000 Men in the Field in both Armies, besides the Aids of Kings and Senators, Swarms of Bees (not unusual amongst Armies) presaged that total Ruine of *Pompey*, and victory to *Cæsar*.

In the last-cited Chapter of *Plinie's Natural History*, he tells you that there was a Swarm of Bees rested upon the very Lips and Mouth of *Plato* whilst an Infant, persaging his future Eloquence. The like hapned to *Pindar*, *Lucan*, and *St. Ambrose*, as is by *Historians* recorded. Of later years we have an Account of the Swarm of Bees that welcomed *Ludovicus Vives* to *C.C. College* in *Oxford*, Anno, 1520, signifying the incomparable sweetness of his Eloquence, whereof at large you may read in *Butler* his *Feminine Monarchy*, c. 1. n. 59. But the uncertainty of their Portents leaves us in doubt what to conclude from such preternatural Accidents.

And as they are so universally dispersed, so are their mellifluous colonies of very great Antiquity; *Samson* feeding on the Honey made by a Swarm of Bees that hiv'd themselves in the Carcase of a Lion, and *Jonothan* tasted of the Honey that dropped from a full Comb in a

Wood. Profane Authors also have not passed these Insects over in silence, the most ancient Poets and Naturalists having written largely of them; as *Hesiod*, *Philistus*, *Menecrates*, and many others. *Aristomachus* for fifty-eight years did little else but keep bees, and *Philistus* employ'd his whole Life-time about them, as *Pliny* relates lib. 11, cap. 9. Honey being much more in esteem in those ages than in these, Sugar having lately gained a Repute above it. For if you observe most of the ancient Instructions for Conserving, Preserving or other Confectionating, Honey was then prescribed where Sugar is now: so that thence it may be presum'd that Bees were more nourish'd and cherish'd than in these later times. Such an opinion had the Ancients of Honey, that in case it were gathered by the Bees under a certain Constellation, that it would be so heavenly a sweet Liquor, that no one thing in the World might be comparable to it for the universal Cure of Diseases, and restoring from Death to Life, like unto that Celestial and Divine Nectar which they supposed did immortalize the Gods above.

But how these numerous Insects first came to be reduc'd into Colonies is uncertain, unless *Aristæus* the Son of *Apollo* and King of *Arcadia* (as some report) was the first Discoverer of their Use and Order; a work becoming so great a person. But certain it is that they in ancient times had their residence in hollow Trees in ancient Woods, as that of *Jonothan's* finding honey seems to assert, and in other Concavities.

Off in deep Caves (if Fame a truth report)

Low underneath they vault their Waxed Court;

And oft discovered in a hollow Rock,
Or in the belly of an aged Oak.

And at this day in many places it is not unusual to find swarms in Trees and hollow places in Buildings, etc.

From whence their Swarms issuing out, it is probable that they were entic'd into Hives or other Receptacles prepared

for them; which were first made of Rinds or Barks of Trees, in imitation, as may be supposed, of the hollow Trees they naturally placed themselves in. Afterwards by degrees they began to make them of other Materials; and some, before Pliny's time, had made such Hives with that fossile Glass we call Island-glass, wherewith Ships are glaz'd; and some of clear Horn, placed in Frames to discover the Bees work, although in vain. Then they betook themselves to the making of Hives of Osier twigs and such like and dawb'd them; as yet in many places are used. From all which it may be concluded, That Bees preserved in Colonies, and their increase by Swarms, is of that Antiquity that no History certainly mentions the first Invention of their management, unless you will credit that of Arifleus.

(To be continued).

HOW FAR DO BEES TRAVEL.

Upon this point much depends. The very object of establishing out-apiaries is to enable the bees to gather the greatest possible quantity of honey during the time the honey-flow lasts. It is most absurd to try to see how much the distance bees actually fly can be stretched. For twenty years I have always acted on the teaching that, if you want to move bees, it must be at least two miles. Time after time have I had occasion to move bees much within that distance, but beyond a mile, and in only one instance have any bees returned. It is certainly unwise to expect much honey from a stock of bees located a mile or more from a honey-producing crop.

I once knew of an apiary which remained on the spot for eight years, and its crop was always shorter than that of any other apiary. It was on the bank of a large river, and about four miles north of the house; and, although it was known that the vicinity of the river had something to do with the scanty crops, yet it was not moved, because it was in a location where orchards abounded, and the

facilities for a spring harvest were good. It was a long time the impression that the home apiary was helping to cut off the honey supply by its proximity; but this doubt was well cured when an apiary of ten colonies was found just half way which had harvested more surplus than the known ones. I have often since ascertained that localities three miles apart may have altogether different crops, both in quantity and quality. We should find out what crops likely to be of value to bees are growing in our district, and before the end of May. When stocks may be moved without danger, remove the bees to a spot only about a field away from the best sources of honey.-Exchange

DUELS BETWEEN QUEEN-BEES

Referring to the article in B. B. J. of September 21 (page 379) headed "Duel between Queen-bees," I will, with your permission, describe a duel I witnessed between two newly-hatched queens this summer. A neighbour sent asking me to hive a swarm one rather cold dull morning in the end of June (bees about here seem to prefer to swarm on dull or windy days this year). As she had only one stock and wanted some honey, I advised her to let me return the swarm to the parent hive. This was agreed to; but, as I had not time then, I deferred the proposed operation until the evening. On opening hive, and examining frames, I found between a dozen and twenty queen-cells, and on one frame was a newly-hatched queen while on the next were two queen-cells just opened. I therefore decided to hive the swarm in a new hive; this done, and thinking that my neighbour would like to see a queen bee and the cells they hatch from, I put a handful of cells in my pocket and repaired to her kitchen. By that time two of the young queens had escaped, and were crawling over my coat, so I carefully placed them together on the table a little distance apart. They immediately began "piping," and, having located each other in this way, they went

for each other like a pair of game cocks. Seizing each other round the body, they rolled over and over in mortal combat, until one succeeded in getting the tip of her abdomen against the centre of her rival's thorax, when she gave one swift stab, and the wounded queen was instantly paralysed, and in about two minutes was dead. There did not seem to be any hesitation in this duel; it was one supreme effort for mastery with an abrupt ending. Last summer I saw a young queen sting a worker to death under uncommon circumstances. Examining a neighbour's hive—in order to cut out queen-cells, and thus prevent a "cast"—I found several ripe cells. I took these in my hand, after cutting them out, when the lid of one cell shot open and the young queen crawled out. Having a stock of my own that had swarmed a day or two previously, I thought I would introduce her with a view to saving time. I decided on the unorthodox plan of lifting out a frame with bees and allowing the young queen to crawl on to it and, if the bees on frame accepted her, replacing it on the hive. I had placed her in a match-box for conveyance home (a distance of one mile.) On releasing her on to the frame she began to rush wildly about, and then seized a worker, and flying off with it a distance of a couple of feet, dropped into the short grass, where I saw her curl her tail in and sting the worker, which seemed to die almost immediately. I replaced her on frame, where she quietly crawled about as well-behaved queens usually do, and was accepted, and a good queen she has turned out to be. —"British Bee Journal."

How To Get Rid Of Ants.

A few years ago the ants took possession of my yard and built mounds or "ant hills" all over it. I tried all kinds of remedies, among them Paris-green, london purple, corrosive sublimate, white hellebore, borax, tobacco, kerosene (or, rather, gasoline) and chloroform. With

the exception of the last two, all were used as solutions or mixtures in water.

The solutions were gradually increased in strength till they killed all plant life with which they came in contact—but they didn't kill the ants. Chloroform gave vacation only, while gasoline killed not only ants, but all the plants near by whose roots were affected in the least degree, seemingly, by the oil.

Finally, I found a cure for the pest in a mixture persian insect powder in water— $\frac{1}{4}$ pound in a gallon of water. The mixture does not injure plants, though one thorough application destroys the ant-nest.

Use pure powder, for much of the powder sold is badly adulterated, and hence of little value. Use freshly-made powder, for unless kept dry in air-tight canisters after being made, it loses gradually its insecticidal powers.

Put a quarter of a pound of good powder into a watering can (or other vessel with a spout, from which a small stream can be poured) and add a little water; stir until powder is thoroughly wet, and then add the balance of the gallon of water.

Keep stirring the mixture while using, and pour the mixture slowly into the tunnels of the ant-hill till they are all filled. In my experience one application destroys the colony.

ALEXANDER THE GREAT.

How big was Alexander, Ma,
That bee-men call him great?
What's all this rumpus with his bees,
Down in the Empire State?
Is he so big that he can stand
Within his bee-yard dry,
And when his bees start out to swarm
Can snatch them from the sky?
And do his bees have awful jaws,
And tongues that reach an inch,
To draw the honey from the tubes
That common bees can't pinch?

Why can he do w'at others can't
(At least so folks believe)

Unless he's got some secret great
Tucked up within his sleeve?

No, no, my child! he's not so big,
Nor does he stand so high;
He's 'bout as big as Uncle James,
Or something like A. I.

His bees are good—Italians fine
Just such as all may raise;
But in the way he handles them
Is where he earns his praise.

Of course the fields around are good,
And full of nectar sweet;
Kind Providence has blest the place
With oceans of buckwheat.

But constant work alone, my boy,
Bestowed on bees with skill,
Will put the honey in the hives,
And empty coffers fill.

Learn Nature's ways, then follow them
For they are best, my son;
Then you may have as good success
As he of Delanson.—*Gleanings*.

CAPPINGS.

Readers who do their own binding will find the following plan simplify the task. —Place the numbers in regular order, taking care that loose pages go well to the back; putting them between two pieces of board, leaving about $\frac{1}{2}$ in. protruding on the side where the holes are to be pierced. Place the boards in a carpenter's vice, or letter-copying press, and screw up tightly, then pierce the holes with bradawl and run the string through. A fine sacking-needle will expedite the latter operation. If the string is securely tied your volume will be firm and book-like. A piece of strong brown paper and a little glue will make a cover if desired.—*Exchange*.

In the Garden Magazine the following account may be of interest, and possibly of use, to those of your readers who are, like me, beginners in bee-keeping. To day I found on the ground, near one of my hives, about a hundred bees, apparently dead. Some however, made very slight twitches in their legs, I picked them all up and put them in a dish, covered with glass, and placed it in front of the fire. Within half an hour they were running and flying about the dish as well as ever, all but half a dozen which were really dead. I had placed a few drops of honey in the dish, but only a few took to it, so I conclude they were suffering from chill, and not hunger. After the half hour, I took the dish to the front of the hive, removed the glass, and except the dead half dozen they all flew off from the dish and joined the numerous throng at entrance of their hive.—*Exchange*

The "Irish Bee Journal" says:—Australian Honey An English correspondent writes that Australian honey is being sold in one of the monster London stores at 9d. and 1s. 3d. per lb. bottle, and 10d. and 1s. 4d. per lb. section, while in Australia the beekeepers get only 2½d per lb. Our friends who sell at 2½d. should look up affairs in London. [It was well to note what honey was sold at at the Royal Show in Sydney.]

Frequent cases have been reported of queens which have mated more than once, and this probably accounts for the irregularity in the markings of the offspring of some queens. It is claimed by some that obviously the first mating must have been unsuccessful, but there seems to be no ground for that view, and there is no reason to believe that both matings were not complete. There is no reason whatever, so far as is known, why a queen can not receive a supply of spermatozoa from two drones.—*Exchange*.

In cool weather I do not advise giving liquid food in a feeder, as it stimulates or excites the bees too much, and causes them to fly out and die on exposure to the chilly atmosphere. If the atmosphere is

warm enough so that the bees can store all the syrup before it turns cold, less harm will be done. But a colony so fed is quite liable to fly out; and if a weak colony is not watching its entrance, the fed bees are liable to pounce on it.—*Exchange.*

The "bee country," or the area of country known as the Blue Rocks, in the Grampians district, contains valuable timber. From time to time efforts have been made to secure the reservation of this land for forest purposes, but they were not successful, and under Mr. Taverner's administration of the Lands Department several blocks were thrown open as grazing areas, with strict conditions for the preservation of the timber. The selectors had authority to remove decayed and useless timber, but no other. Recent instances have come under notice in which these conditions have been ignored, and the Minister of Lands has imposed fines on several people, and in one case that has just come before him he considers the offence so flagrant that he has issued instructions for the cancellation of the lease. This country is peculiarly suited for bee culture.—*Exchange.*

At the Dungog show, in May 26th the following were the apicultural Prize Winners. Extracted honey, not less than 50 lbs., Gardiner Bros. Beeswax, Gardiner Bros. 1 and 2. Beehive, most suitable for the district, J. T. Redman. Bottled honey, J. T. Redman 1, R. L. Fitzgerald 2.

FEEDING BEES.

Should we find a hive without stores, and have no frames of honey we can get from other hives, we leave a space by taking out a frame. Then in the evening hold that frame over, say a milk dish, and pour into it a warm syrup made of sugar, honey and water, from a height of a foot or so, doing one side and then the other. Quietly lift the hive cover and put in the vacant space. Do it quickly and quietly. There is no need to fear stings.

A SERIOUS MATTER.

We take the following from the *Qurindi Gazette*:—

POISONED WILD HONEY.

"A couple of weeks ago Mr. Bert Clarke, of Narrabri, was seized with a serious illness while employed at his work at Bobbiwa Creek. It appears that the young fellow was employed in felling a tree, which was found to have a bees' nest in it. Clarke ate some of the honey, and two hours afterwards was seized with violent pains in the abdomen, and had to leave his work, returning to his home at Narrabri. He was taken to Dr. Segol, who ordered him to bed and prescribed for him. For three days Clarke's condition was most critical, and he was confined to his bed, but he is now out of danger. It looks as if the bees had been working on the poisoned baits laid for the purpose of destroying rabbits, and portions of these were conveyed to the hive. This theory seems sound, as the phosphorus at times is mixed with treacle. A sample of the honey is to be forwarded to Sydney for analysis. With these facts before them, persons taking honey from nests in the bush will want to be careful."

VARIORUM.

The following were received too late to be classified under the usual headings:—

CORRESPONDENCE.

W. R., Monaro, N.S.W.—I am forwarding names of beekeepers. I have no doubt you already have a large percentage of them. I know the names of many others who take your paper. [Here follows a list of 21 names, some of which we have, but others are new. We most sincerely thank the sender, and will be glad if more of our friends will follow his example.]—Ed.

EDITORIAL.

Some contemptible individuals would wish the A.B.B. were defunct. It was never more alive than at the present day.

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