The Australian bee bulletin. Vol. 20, no. 7 October 31, 1911

West Maitland, N.S.W.: E. Tipper, October 31, 1911

Registered at the General Post Office Sydney for transmission by post as a Newspaper

THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.
Published by E. TIPPER, West Maitland
Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

VOL. 20. No. 7. OCTOBER 31, 1911. PER COPY, 1D
Per Annum 5s, booked 6s 6d, in Australasia, outside N.S.W., add 6d. postage

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

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"The Australian Bee Bulletin."

A Monthly Journal devoted to Beekeeping.

Circulated throughout the Commonwealth of Australia,—New Zealand & Cape of Good Hope.

Published by : E. TIPPER, West Maitland, N.S.W. Aus. **Editor: W. ABRAM, Beecroft**

MAITLAND, N.S.W.—OCT. 31, 1911.

EDITORIAL.

HOW TO TEST BEESWAX.

In one of the bee journals I read:

Put a piece of the material to be tested, about as thick as a pencil, and an inch long, into a glass; pour benzine over it and leave it stand for two hours. Pure beeswax will then dissolve into small leaflets, whereas other stuff remains unaltered. If the material is a mixture, some leaflets appear, but the shape of the piece remains. After some experience or practice it can be ascertained what per centage of pure wax the piece contains.

DIET.

Dr. Demade is reported to have said: "The general mind affirms that meat is necessary, whilst science maintains that flesh food is not needed. What is needed for the preservance of health is sugar substance, known as glucose, or in other words, sugar containing matter such as is especially contained in honey; as also in good fruit."

Do Australians eat too much meat and too little honey ?

DISTANCE OF HIVES APART.

Most American—and, I fancy, Australian—beekeepers have the idea and express it at every opportunity that hives should be at least ten feet apart to prevent virgin queens—and also young bees—from mistaking their home on their return.

If I had no other experience it would be assumption to dispute such assertions; but as I have and have smiled at all such definately written arguments to the contrary, I may be permitted to ask: "Have you tried the close placing of hives; so thoroughly that you are an authority on this subject ? If not, then try it, and you will find that the whole matter depends on circumstances. I have reared many thousands of queens, and at bee farms where there is only about 18 inches space between hive and hive. Now, if the other contention of 10 feet was correct, it could hardly be possible for me to keep going—not to mention the sale of thousands of queens. A virgin queen is just as smart as a young bee when she leaves her home to take notice of the immediate surroundings and to return to where she came from. But now here some trouble arises at times. The bees either mistake her for an intruder or what else and become either aggressive or too eager to compliment her on her wedding day, and this causes her to get frightened or shy and she attempts to escape again. Then she may try to get an entry elsewhere, but 10 feet are no bar to that.

In closely populated countries bees have to be very often of necessity placed in very compact quarters, there being

no room for them at large distances apart, but in young countries with plenty of space there was an idea created which it is hard to abolish, and this may account for the belief that hives must be at least ten feet apart. Most of my hives are only about 18 inches apart, and what made me refer to this matter was that I have been repeatedly asked by beekeeping visitors whether the loss in queens was not great by having them so close together.

FORMIC ACID.

Formic acid is a sour re-acting liquid of bitter taste and aromatic odor and in a high grade antiseptic. The air in the hive fully impregnated with formic acid is the best means to effect immunity from disease, caused by bacilli, which at times become destructive to bees and brood, and if the food for the larva contains a full percentage of the acid, there is practically no danger. Nature has provided this remedy against diseases, the point is that the beekeeper must see to it that the natural conditions are kept up.

Formic acid is not only a disinfectant but also ensures the keeping quality of honey, and in unionism with the sting forms the bee poison to defend their home. Its presence is therefore a most valuable adjunct to the prosperity of bees. The question is: Is it always present in the needed quantity?

LUCERNE AND HONEY.

It would be a failing of mine if I did not let beekeepers know at the first opportunity where there is some good place to keep bees at a profit. Such is said to be in the Tamworth district. A few years ago Mr. Adamson established an apiary on the share system. There has been no years of failure, and none are expected. In 1909 the output reaced 9 tons. In 1910 it dropped to 7 tons. This year the output is expected to reach 12 or 15 tons, and the colonies have been increased to 156. It would be nice if other beekeepers in the district gave their experience on the subject, however, so as to make sure, double sure.

Just by chance I came across a reply to the above which appeared in "Truth" October 1st, and I cannot refrain from re-publishing same. The writer, whoever he is knows what he writes about, and beekeepers will enjoy reading it.

A few swarms have issued, but the weather is very changeable and not exactly suited for swarming. Queens are now being sent out almost every day, the demand being up to supply.

W. ABRAM, Editor.

* * * *

From Messrs. Gordon and Gotch, publishers, I have received a copy of the fifth edition of the Australian Bee Manual, by Mr. Isaac Hopkins, Auckland. This edition is considerably in advance of former ones, and though it is not so voluminous that does not detract from its value, on the contrary, it is an advantage. Mr. Hopkins is a well-known New Zealand beekeeper of many years experience, and thus his book cannot fail to give useful and practical information. The price is only 2s 6d, a very small amount for a book of this kind, and thus eminently suited for those who wish to acquire knowledge on bees, and as it is practically the only manual published in the Southern Hemisphere, it is of more value here than American text books, and can be recommended.—W.A.

* * * * *

ON BEE DISEASES.

Victorians are going in for the investigation of diseases. There appear two more articles in last issue, namely. Mr. Laidlow on "Bee disease investigation, and Mr. Beuhne on "Bee disease observations."

Mr. Laidlow tells us of the difficulty of scientific investigation of bees. I quite agree with him there. Scientific study of bees requires considerable practice, first to understand the subject under observation, second to clearly define diseases. I do not, however, agree with the request that a note concerning the symptoms of bees sent for examination should be given, as, in my opinion such is apt to lead to couclusions drawn therefrom, wheras a scientific research should stand on its own foundation and then practice will soon prove its correctness or otherwise. From books and such like character information of scientific processes are obtainable, but that is not what aids the beekeeper in distress. Mr. Laidlow entirely omits to make any remedy available, and beekeepers must help themselves. It is then idle to go further into details.

It is worthy of notice that now Nosema apis parasites and spores are quite plentiful in Victoria, but until Dr. Zander showed the way neither Victorian scientists nor experts did find them. That is most significant, and it is most marvelous how these things happen—too late. It is now for them to prove that these parasites are essential to the prosperity of bee life and that Prof. Zander is wrong. I for one wait the result with eagerness.

Let us now look at the subject evolved by Mr. Beuhne. Taking a general view of his writing and bearing in mind his former articles it is evident that he discarted his former ideas and adopts factors which I pointed out years ago as of influence, but not the cause. The 'D.T.', etc., he passes as unworthy of serious notice. Malnutrition is still on his brains, though he fails to show how such happens, viding the fact that similar losses occur under quite different conditions. He says: If malnutrition of the larvae were the only cause swarms which were given combs containing thin honey should not have been affected. This should show him that there are other factors at work. Then Mr. B. goes on to belittle Dr. Zander regards paralysis. Does Mr. B. now profess having been wrong all the time when he denied the existence of diseases, paralysis included. Are not the same symptoms he mentions apparent in Nosema at times? They vary, however. Is it not presumption on behalf of Mr. Beuhne to conclude that because Dr. Zander has studied for years disease affecting adult bees in Germany that such disease does not exist here, when as a matter of fact thousands of stocks have perished from some unknown cause? Can Mr. B. show that he is right? Do it, then! So far he expones theory, but theory is no proof. Prove your case and you are the saviour of bee craft, but otherwise do not meddle with the scientific results of Dr. Zander.

Thin honey is now getting the blame, according to Mr. B. Does he know how that happens? Did I not point it out years ago? The honey gathered by the bees, though thin, is not injurious to bees and larvae, but if left in the hive unsealed it becomes unsuited as bees winter stores, and may cause a source of danger, and then, when too late, the best honey is not proof against disease. But that is not the fault of the nectar as gathered, nor the bees, but solely the fault of the beekeeper. The sooner this is grasped as gospel, the better to avoid losses. In their winter quarters, nor at any time can bees heat honey to 170 degrees to make it suitable as food, but if they are properly attended to they have no need. From what cause did losses occur, if not through infection? Will some one tell us that? And why do some dead bees show more infectious parasites than live ones? Did the parasite develope after death? Should not these bees have lived to an old age?

All these are nuts for Mr. Beuhne to crack.

Abnormal mortality in bees is due to some specific cause, and science should discover them positively, be the cause what it may. Theory and assumption will not do it. The beekeeper who can rid himself of bee diseases is the best scientist.—W. ABRAM.

APPOINTING JUDGES AND MAKING EXPERTS.

(Specially written for the A.B.B., by J. J. Branch.)

To the Editor.

Sir,—In looking for the minute book of the Port Macquarie Beekeepers Association during the week, from which minutes I wanted to learn some dates and refresh my memory concerning events in connection with the projected "Honey Supply Company" that you may remember, and concerning which I may ask leave and space to refresh the memories of your older readers and inform your newer ones. I happened on a document from the R.A.S. which among other things gives the names of the three stewards in charge of the Bees and Honey exhibits for the March 1906 Exhibition, and recalled to my mind some of the incidents of that show, among which was a discussion that took place and a sugestion from the writer that the press should be always admitted to the judging a suggestion which apparently met with approval, and was, adopted, though who got the credit for the suggestion, or if anyone in particular did I am neither aware nor particularly concerned just now, any more than then, except in the interest of publicity.

However, the matter that most concerns your readers and self is the manner in which one section of the metropolitan press was used. If you refer to the Sydney Daily Telegraphy of succeeding date to the judging day you will find in an article under the heading of "With the Beekeepers" (if I am correct), among other things, that while the work of judging was actually in progress, according to the text, one of the stewards in the section was singled out for public advertisement by another at the expense of his remaining colleague, and the persons officiating as the judge for the society, in the name and under the title of Royalty. You will perhaps remember that I mentioned that to you when we met some months after, and I showed you the paper, that I then expressed the opinion that the person named as the "largest stock-owner", etc., would be nominated as judge for next show, which opinion was confirmed when we met at the summoned meeting to discuss and suggest the names of judges and stewards for the ensuing show. You will, as one present, also recall that the "secretary" who apparently was not hampered much by any respect for the wishes of his "committee," mentioned to the meeting that he had written to Mr. Blank, who had replied that he would be down to the next show if there was anything to do, and then after shuffling some papers "could not find the letter just now gentlemen," that was what it said, etc. There was no correspondence produced that I saw or know of, and there was certainly none authorised of which the writer was made cognisant. You may further remember the writer's interrogative remark "that means that he is to be appointed a judge," with the reply "Er—well yes, I suppose so."

The person was then recommended and later appointed by the R.A.S., and at the show made history in the matter of the empty tin trophy episode, and also in catching that wicked and elusive small boy red handed in the act of carrying off a small cake of wax from

one of the stands. I have in memory that the delinquent was brought to me by his captor, and that I referred the matter to the owner of the article, as I considered that my duty began and ended with the competitive exhibits in the section.

Mr. Blank then handed the culprit over to the owner, who managed to let him escape, only to be re-captured after an exciting run, "as runs the eager market crowd," when "catch the thief" resounds aloud among the yard of implements. That was the only ring event I have ever known at bees and honey exhibition. I am not aware if there was any official course marked out, whether the contestants duly kept the course, if any, or what the official time was, or if any was taken, as I gave my attention to the duty I was on at the time inside the pavilion, in case any juvenile culprit or hireling got away with the trophies meanwhile. However, that capture has apparently had the remarkable effect of putting a stop to the reported petty thefts that took place up to that date, and incidentally, I presume, of relieving the gentlemen. who had up to that time given their holidays ungrudgingly to the service of the R.A.S. Some of them for a succession of years. Since I think it was next years that I was informed that only membesr of the R.A.S. were eligible as hon .stewards, and declined to be pauperised by the offer of a member's ticket on the implied understanding that I served certain persons, or to be dragooned into membership by any means that might have the suspicion of being the price of a worse than empty honor, at the expense of my untrammelled freedom to serve the R.A.S as their duly appointed officer, if the council so required through the recognised official channel, and entirely apart from the annual forming out of the hon. officers of the R.A.S. by an annually resurrected committee of a defunct institution, on the stalking horse principle.

Another incident of that show that comes to memory again is that one of the borrowed catalogue, which is like "the ship that never returned,"—to put the matter briefly, I, as hon. steward, took a second record of the awards as they were made and called by the judge in the section, in a spare catalogue that I had, which, before closing time, the jduge came and asked me for in order that he might take a private copy. As I had no quarrel with the gentleman, I reluctantly handed over my copy containing the check record, and have never seen it since. "Why? Will Beekeepers answer?"

I think it was at the meeting described above that I told the assembled wisdom engaged in fixing up the "expert" business, that they evidently did not want the services of either judges or gentlemen, only catspaws.

The next summons to the annual "committee" meeting I purposely ignored, passing and re-passing the door four times that night, enroute to and from the railway, to ship bee material to my apiary, and later on received a second note saying that "owing to the rain, etc.," which I also ignored, but made inquiries if a meeting was held, and who attended, with the result that I could not learn of more than two persons being present in the room at one time, one of those persons being a friend whose sub. I had seen paid and whose address the hon. sec. had forgotten, for the previous meeting, and another to whom he told the meeting without a blush that he did not think it worth while to write, notwithstanding, that his sub. was also paid to date so far as I know. When the next annual notice came round, I decided to turn up and see what the game was, meeting you, sir, almost at the door, when we entered it together, and quietly awaited

events, with the result that the book presumably containing the minutes of the alleged previous meeting was coolly handed over for signature, and apparently signed before our noses without either being **read, put to the meeting,** or **discussed,** and when you, sir, rose to protest against the proceeding, you were insultingly informed that your room was to be preferred to your company, upon which I took up my hat and remarking that I thought we had seen quite enough of such business, we both retired (yourself almost in a state of collapse! owing to indisposition and intense emotion, and I remember also that in the midst of your agitation you remarked that as a consequence of our action you would not again be champion exhibitor if it could be prevented by any means after that. And the subsequent selection of "judges" with one notable exception, seems to have given weight to your remark, and point to my own.

I have been at some pains to write the above, as in some sense an explanation of our individual attitude to the formation of a new "beekeepers' society," which duly arrived in a still-born condition, as it advertised some fourteen officers of various denominations and did not get a dozen paid subscribing members to fill them. Nothwithstanding which, I presume, it will be in evidence at the annual ressurrection to do duty in the recommendation line until the Council of the R.A.S. formally interdicts the recommendation of any, and all stewards or caucus-ridden meetings, or alleged meetings that do not at least submit their minutes of business records for the inspection and approval of its own internal sub-committee, duly appointed to deal with the particular department or section involved, upon formal demand by that body.

Now, Sir, I will ask you for a little space in which to place myself right with yourself and your readers re your pains-taking review of my former article, in which you seem to have in mind that I would abolish or prevent all sales at the show. Such was not my intention. If you refer to nearly the foot of the first column, on page 95, August number, you will read that I said "indiscriminate" selling, and as to whether discrimination should be appiled to persons, dates, or times on specified dates, I leave to those more immediately interested than I am or am likely to be under the present system. But I still respectfully maintain that the educational aspect of the question should receive more consideration than it has up to the present, in view of the fact that exhibition funds for prize money are publicly subsidised, and that shopkeepers and their customers do not constitute the whole public. As an instance, I had the honor to be the deputation that personally received the affirmitive reply to the request for the £25 you mention.

On page 114 of the September issue, you mention my remark annent the lust for selling, and you, I think, go a long way towards proving my contention for you say that when you began to exhibit you did not sell a single bottle, but sold your bulk exhibit to be delivered "after the show," and then you proceed to tell how and why you decided to sell, and how the trouble began "as soon as you entered into the local competition." It was a perfectly safe proceeding to let you have the championship then, as the reward of absolute merit, while you were not in the local selling competition, and it gave your exhibit the prestige of championship honey, etc., to whoever was the purchaser outside, but when your competition became so effective that the "other exhibitors did not get sufficient patronage to materially reduce their exhibits," and you, in addition, decided to sell your bulk produce in combs to the highest, in place of the lowest bidder, and bought your glassware dir-

ect from the factory, in place of through a middle man, your trouble began, and you became a person to be reckoned with, and "have the change taken out of you." And the simplest way to deal with an otherwise invincible exhibitor is to let the "judge" beat him, more especially when and where a protest is handed over to mal-experts or non-experts to deal with, and the invariable custom is to "uphold the decision of the judge" or "judges," the matter then becomes a question of selecting or securing the right "judge" or "judges," and all is plain sailing. Re your comment on the pracsailing. Re your comment on the practice of allowing officials to exhibit, kindly allow me to re-state my objection, and to supoprt it by a quotation from the columns of this journal of May 23rd, 1894, page 33. Our friend, J. D. S. Caddan, writes—"In a few days our local show will open, and then I shall, no doubt, see a lot of empty coops, and buildings only partially filled, that last year were crowded, and one of the causes is small prizes; and another powerful one, because stewards of sections are also "exhibitors" in the same section; and having seen their little game, numbers refuse to exhibit, arguing that stewards have no more right in their section than the judges have. I voice the opinion of numbers when I state the foregoing." Mr. Caddan wrote this from Poodmere apiary, Windsor, and I think I may safely leave all comment to your intelligent and fair-minded readers.

BEE FARMING.

Bee farming deserves more attention than it generally receives. Every district which produces lucerne in large quantities is specially adapted for bee culture, and wherever blue gums and other varieties of eucalyptus grow honey may be made a considerable source of profit. The localities on the higher parts of the North Shore line are well suited for bees, and, in a sense, an ideal spot on the northern line for bee farming is Beecroft, where Mr. W. Abram, who may be regarded as the pioneer of the industry in this State, has been established for many years. The agricultural students of the Sydney and Granville Technical Colleges visited the farm on Saturday, accompanied by their instructor, Mr. Henry Lord, for a practical lesson in the management of bees, and were afforded a good opportunity of learning something as to the possiblities of the industry.

There are over 200 hives of the Berlepsch pattern in operation at Mr. Abram's establishment, the output being 100lb and over per hive, according to the season. The farm is well situated for securing a good flow of honey, as the bees are able to obtain nectar from the surrounding bush, which contains blue and other gums, blackbutt, ironbark, and other native timbers, as well as flowering shrubs suitable for honey production; in addition to which it is in the citrus district. The present spring, with its wealth of blossom, is a good season for honey, and on Saturday the frames, of which there were ten in each hive, were seen rapidly being filled by the busy workers. Interesting information was elicited as to the rearing and management of Italian queens, swarming, smoking, extracting the honey, foundation comb, surplus wax, the various pattern of hives, the implements pertaining to bee culture, etc. A profitable couple of hours was spent in this way.

Saturday's outing of the agricultural classes was the final field excursion of the term. These seasonable gatherings are becoming popular amongst city men, Public School teachers, and others who are desirous of learning something of

practical farming. In May last, and for the two succeeding months, pruning was taken up, various orchards and vineyards being visited. Then came mixed farming, dairy work, pig raising, poultry farming, and apiculture. In this way those who are unable to follow the course at the Hawkesbury College or the experiment farms are afforded an opportunity of becoming conversant with the practical side of farming.—"S. M. Herald."

BEEKEEPING AND GOOD HEALTH.

By F. B. Cavanagh.

A good deal has been said lately regarding the healthfulness of bee-keeping and stings; perhaps more particularly the latter. In fact, the casual reader might be inclined to believe that the more bees kept the greater would be the degree of health attained, should he combine the writings on health with the popular advice to keep more bees. However faithful and true are the writings on this subject, it is true that there are certain elements entering into extensive bee-keeping which are not conducive to health, and bee-stings and hard work are not among the least of these.

Do you, my amateur bee-keeping friend, ever stop to consider what the difference might be between keeping a few colonies for diversion and pastime, and of being crowded with the overwhelming rush of work which the specialist has at certain seasons to endure? With you it is fresh air and an agreeable change; with the specialist it becomes a daily grind and routine. In all this routine is the fascination of seeing success in sight, which leads men on to exertions which are often injurious to health.

The rush season of the honey flow offers the greatest menace in this manner to the extensive bee-keeper. With a multitude of details to plan, and hired help to arrange for, he arises early, rides perhaps 5 or 10 miles to an apiary, and after doing a big days work reaches home late in the evening. The successive days are repetitions of the first, for with half a dozen apiaries to visit he must finish at least one yard a day, so that it will be safe to leave for a week, at least. There is honey to be extracted, and swarming to be controlled, concurrent with all the complications which are prone to occur should there be an unusually heavy flow in all yards at once. Under the excitement of the honey-flow the beekeeper essays to keep up; he does keep up, in fact, although working under a terrible strain and fearful odds, the result of which he is bound to realize years after the honey-flow has been forgotten.

A few years ago much was said about "lightning operators," and I confess that the idea took strong effect on me at the time, but what was the result of these fanatic maneuvers? Well, in the majority of cases we were no doubt left to surmise the effect on the operator after continuing this lightning work for a time. Neither are we told how much honey these extra-swift crews extracted the day following the one on which they made their record. However, we have a few examples of what such exertion can do for a man, as well as some others, who will admit as they read this that they have been injured in the same manner by trying to do two men's work. Harry Howe and some of the Coggshalls of New York could, I believe, tell what this sort of thing continued can do for a man. Yes, and I also have seen a little too much of it, although I am beginning to gain a little sense in the matter, at least.

Continued over-exertion is followed by weakened nerves, and incapacity to continue the pace which ambition or pride in excelling has set. A prominent bee-keeper once said to me that the shipping of bees shortened a bee-keeper's life. After going through the ordeal several times I agree with him perfectly, and it is certain that many bee-keepers are accomplishing the same result by trying to do all of their work alone, when they have more bees than one man is able to care for. Nature has given us a reserve force which may be drawn on rapidly or slowly, but which should never be depleted. Exhaustion is the danger signal which reads, "Stop, and take rest and refreshments." Will we heed it, or

will we, under the lash of enthusiasm, whip our poor, tired bodies on to their final destruction?

There is a better way to succeed than to break one's health down through overwork. In fact, such procedure is iself the ruination of success. That way is to take forethought for the future, and to plan properly during dull days the work of the inevitably busy future. How best to reach our apiaries, what machinery to install, and what help we shall employ, are questions which should be carefully planned ahead of the busy season, in order that we may be able to accomplish what we formerly thought was a big 10 hours' work in the short space of six hours.

Arrangement is only second in importance to equipment in an apiary, and the order of manipulation is vital in attaining speed. The apiarist should know in advance of the rush season just where each piece of machinery is to stand. The arrangement, as a rule, will be, capping tank, extractor and strainer; situated in order at the left of the door on entering. A system should be worked out which is as effective and as economical of mismoves as is that employed at the slaughtering houses in Chicago. By so doing we shall accomplish the work more we shall accomplish the work more quickly, leaving the operators time for rest and to plan better the following day's work. With shorter hours, the work may, in fact, be better accomplished, the beekeeper is more fit to manage, and the hired helpers feel encouraged.

In our apiaries, as in many others, young men are employed who have in view a beekeeping future, and who are consequently students of bee-culture as well as helpers. It therefore becomes us to be able teachers, giving these young men an inspiration to be capable in their calling; to make the work interesting by the use of new appliances and the application of new systems. Neither should this be considered in the light of a philanthropical move on our part, for the adoption of these features are in themselves our most profitable moves.

This is an age of general science and invention, in which beekeeping is at least a close second. The reversible power-extractor, steam capping-knife, melters, and not least the modern hive and equipment have made it possible to handle of thousands of colonies almost as easily as we could otherwise manage hundreds. Science has made the pursuit fascinating, so much so in fact that unless we exercise good judgment we are apt to be lured on to over-exertion. This should be strictly guarded against, however, and, with the proper use of modern machinery, it becomes unnecessary.

Instances are frequent where bee-sting poison has been beneficial in curing certain forms of rheumatism. So much has been said, in fact, that the reader is led to overlook the fact that this poison may do serious damage to the system. Doctors with whom I have talked say that this poison is hard on the tissues, affecting the pericardium or membranous lining of the heart. Several cases have been reported in which the beekeeper has suffered from an overdose of this poison, be it formic acid or otherwise. The amateur beekeeper is in little danger of receiving into his system a harmful amount of this poison, although at times he is liable to think the results very bad. The specialist, if not careful, is, in time, liable to get an amount which is injurious to health. Once the system is inoculated with this poison, it is said that the effects are more or less of a permanent nature, so that it becomes us to be very careful in this matter. A good veil costs but little, and a careful system of handling bees, so as to avoid stings, costs nothing. Often, no doubt, the operator is affected with this poison, and the discomfort is attributed to other causes. At any rate, there is

nothing to be lost, while perhaps much may be gained, by being careful in the line.

Finally, we should temper the doctrine of keeping more bees with sound judgment in the employment of our energies, accomplishing an increased amount of work by the means of better facilities and a more expedient system. Cut in two the time spent on the road, by the use of the automobile; the labour of extracting with the power-extractor, and kindred labour-saving devices. Work hard and fast at the apiary, for languor at work will never bring out the best that is in a man; but shorten the hours of labour to the increase of the rest period. If you must draw rapidly on reserve forces, give Nature time to recover before beginning the new day's work. Install the best of modern labour-saving machinery, and keep bees enough to pay for the added expense. Be a big enough man to handle it all, or else do not attempt so much, for it is better to handle a few bees well, and to succeed at the business, than to attempt to handle many, and fail.—"American Bee Journal."

Important Points to be Considered in Producing Comb Honey on a Large Scale.

(Continued from last issue).

Prevention of Swarming.

It is a question very much debated as to how the prevention of swarming is to be managed. Some go over their colonies every eight or ten days to ascertain which ones are preparing to swarm, and deal with them accordingly. That is entirely too much work, and should be dispensed with altogether. Cut that out.

Others will requeen (or divide) the whole apiary at the proper time and be done with the thing once for all. That is all right where the swarming comes all together, or nearly so, at a certain definite time, and where nearly all the colonies would likely swarm. In my locality that kind of proceedings does not work. There is no very definite time for the bees to swarm, the entire period during which they may swarm is at least six weeks.

Usually only about one-fourth, at most, of the colonies do actually try to swarm. Treating four colonies to prevent one from swarming is rather a waste of time. Furthermore, the ones which have, not contracted the swarming fever give far better returns when left undisturbed.

So, I finally decided on putting queen traps on all the hives and let them swarm if they wish to. Of course, the swarms being queenless, return. The queen is usually found in the trap and is either removed or caged, the cage being placed in the centre of the hive in order that she can be fed by the bees. The queen cells are destroyed, except two or three which are caged. A week later, whatever queen cells have been started are destroyed and the best of the young queens (from the caged cells) is turned loose and all the others destroyed or used elsewhere. The queen trap is left two or three days longer, because, if some queen cells had been overlooked, swarming might occur. It is then removed to permit the young queen to mate.

One or two remarks can be made here. The old queen can be removed instead of caged; but as far as I can see, the bees work better with a queen, caged or not, than without. On the other hand, the colony does decidedly better work with a young queen than with the old one; that is, as a general rule.

Evidently a queen from some other colony can be introduced in the place of one of their own rearing, but in such cases, care must be taken to not introduce her too soon. The colony must be four or five days without unsealed brood,

before a queen is released or introduced, otherwise swarming would occur again.

Supers.

My hives and supers are home-made. The majority of them are 17⅛ inches long inside, giving room in the supers for just four sections in each row. Instead of section holders, I use plain strips of wood 1½ inch wide; the sections are plain sections of the same width; strips are also placed on the sections and the posts of the fences are long enough to reach clear through both strips. This arrangement permits a very rapid filling or emptying of the supers. Furthermore, it reduces cleaning to a minimum, as the sections are protected on all the sides. Only the edges need cleaning, and, usually one or two sweeps of a joiner's scraper on each side is all that is needed.

Double-walled Hiver.

I use, exclusively, double-walled hives. Not only the hive proper, but the supers and cover as well. They are not much heavier than single-walled hives. The lumber used is only ½ inch thick. The space between walls is 1½ or 2 inches wide, and filled with light packing, excelsior or straw being the best. The stiffness of a double-walled hive is secured by the strips at the top and bottom of the walls, hence the possibility of using thin lumber.

These hives have many advantages. In my locality the bees winter better than in single-walled hives. The protection to the brood in the early spring is invaluable. What is almost as valuable is the protection to the first super put on in the early spring, which, in many localities, must be done at a time when the weather is yet quite cool.

That is not all. When the hot weather comes, the double walls and covers with packing protect from an excess of heat as well as the excess of cold. The heat of the sun cannot penetrate readily through such walls, and accumulates in the packing, which, in turn, helps to keep the hive warm during the night. This is a much more important item than most people think. Go to your hives before daylight, after a cool night, and you will often find the supers entirely deserted. That means a considerable loss of surplus. Under favourable circumstances, the comb building and other work will go on during the night as well as during the day, and if it does not, there will certainly be a loss.

Another advantage of having full sized brood nests is that there is room enough for all the food needed, and all the room for egg laying, until the bees can gather enough to supply their wants. It does not take much honey merely to feed the bees during the winter; it is the rearing of brood in the early spring that consumes the stores so fast. An eight or ten frame L. size have has not room enough for both purposes. The result is that it is necessary to feed in the spring if room enough is left in the fall for breeding purposes. I say full size brood nests and cut out the spring feeding.

The Why and Wherefore.

But somebody will say: If a large brood nest has so many advantages over one made of two bodies, why is it that they are so little used?

While they are so little used here they are used extensively in Europe. There the full sized Dadant hive is considered among the smallest that can be tolerated. Here it is different. When A. I. Root began the hive making business, a single story eight, or, at most, ten L frames, was considered sufficient. Later, it developed that it was not so; but the beekeepers had already their hives made of that size, the manufacturers objected strongly to the introduction of a third pattern, so all the efforts made have been in view of using two-story hives. But it is only a makeshift, and a poor one at that.—"Review."

HELPFUL HINTS FOR NOVICES.
Treatment of Swarms.

By W. HERROD.

The novice generally commences bee-keeping with a swarm which he purchases, but very often we find that through accidently obtaining a stray swarm people who had no idea of keeping bees have been initiated into the craft. A prominent case is that of A. J. Root, of America; from a vagrant swarm which he found has grown one of the largest apiaries and manufacturing plants in that country.

Just as the first few years of life are to the human being the most vital for the health and strength in after years, so it is with the bees. Treatment of the swarm for the first few weeks will either mar or make the stock. Instinct teaches wild creatures their work right from the moment they are born, but in the case of man he has to rely upon his intelligence, and the knowledge obtained by those who have lived before him in dealing with dumb creatures. We have unique opportunities of seeing how ignorant the beginner ofttimes is with regard to the habits and treatment of bees, and it is remarkable how very few seem to realise the necessity of buying a good text-book dealing with the calling they are taking up. This applies equally well to the upper-as to the working-class, and I must confess that when dealing with queries of such a simple and rudimentary nature that a few minutes' perusal of a text-book would enable the enquirers to see exact- to have printed in large red letters, pence in postage, and very often sixpence for a wire, I feel inclined in reply to have printed in large red letters, "Buy the British Beekeeper' 'Guide Book' and read it." Readers must not infer from this that editors do not like answering queries; juite the opposite is the case, from the fact that one feels the satisfaction of giving in a few concise words exactly to help the inquirer probably needs at the moment, and not what may be wanted later on. In the last hints I dealt with the orthodox method of hiving a swarm, and this should always be followed if possible. There are occasions when it is impossible to do this; for instance, if, after travelling a long distance the swarm arrives on a damp or cold day, it would be foolish to try to run the bees in at the front; they would simply hang together in clusters, and refuse to move. Under such circumstances, take them into a warm room and feed as described previously. When ready for hiving, remove five of the frames from the hive and space remaining five as far apart as possible! have ready a sheet larger than the top of the hive, "dump" the bees straight in and cover quickly with the cloth. The next day the remaining frames can be put in and the feeder given. On about the second day after hiving, the bees should be confined to the number of frames they can cover thickly; when the combs are fully built out in these, then add the other frames one at a time. In this way, perfectly straight combs will be obtained. If spare combs are on hand it is well to utilise these, and interspace them with full sheets of foundation, so providing the queen with cells to lay in straight away. If a swarm is hived on all drawn-out combs, then a super should be put on at the same time; this will give them comb building work to do, which, by nature, they are well fitted for, as in a natural state, they make their home in a combless and foodless hollow. Frequently, when drawn-out comb is given surplus is obtained.

Swarms of the previous year very often are weakest in the spring. This can be accounted for by the fact that it is the old queen which accompanies the

swarm. Therefore, if a record has been kept and the queen is an old one, she should be replaced about three weeks after hiving by a young, vigorous queen.

Where the beekeeper does not pay attention to the recording of the age of queens, or carry on queen-raring, and he has an idea the queen is an old one, she can easily be replaced by uniting a cast after first killing the old queen.

Returning Swarms.—This prevents increase and ensures surplus, all other conditions being equal. After the swarm has issued, go through the parent stock and destroy all queen cells (to do this effectively it is necessary to shake the bees from the combs), put on an extra super, and give bottom ventilation, and return the swarm in the evening.

Definition of a Swarm.—People frequently used the term erroneously. At Christmas they tell me they have six swarms (?) in the garden. A swarm is a cluster of bees with a queen, but without combs or brood. A colony or stock consists of bees, combs, brood, and food, established in a home.—"B. B. J."

REMOVING A SWARM.

From a Curious Location.

It may interest some of your readers to hear how a swarm was removed from a lamp-post by the writer and two other students of the Horticultural College for Women, Swanley. A message came to the College on the evening of May 16th, asking if any student could come and give assistance as a swarm of bees were in the grounds of the Farningham Boys' Homes. No one there knew anything about bees, and they wished to obtain the swarm. It was then too late to do anything, so we promised to go over next morning. We arrived on bicycles with veils, smoker, carbolic cloth, &c., at 8.30 a.m., to find a crowd of excited people gazing up at a tall street lamp-post, the top of which was swathed in muslin. Inside was a small cluster of bees, but the majority had gone down a tiny hole round the gas-jet, right into the standard. We first obtained a ladder, and tied a half-peck basket round the top of the lamp, keep the light out with coats, &c., and put syrup inside to entice the bees up, but all to no purpose, and as we were in a hurry to return to the College, something had to be done quickly. Pickaxes were procured, and the bottom of the lamp-post was undermined. The bees began to pour out, and we hoped they would continue to run through into a peck basket we put there; presently they ceased to move, and were not affected by drumming the sides of the standard. A plumber was then fetched to bore a hole in the middle of the shaft for us, a good stream of bees came through it, settling round the top of the lamp, meanwhile we kept a sharp look out for the queen; suddenly one of my fellow-students saw her run out on the ground, and caught her. We put her in a match box inside the basket at the top of the lamp, and the bees began to collect there. Meanwhile, we loosened the gas-pipe inside the standard, and drew it carefully up. Pieces of comb were already built round it, showing that the bees intended to make this their future home, and hundreds of them were clinging to the side. Looking down the standard, we saw it was still lined with bees. We got a long rubber tube, and put it up the standard and smoked through it, but this only seemed to stupify the bees, and not to stir them. There seemed to be no way of moving them, when a brilliant idea occurred to us. We took a long sting, which we weighed at one end, and dropped it through the hole at the top of the standard. When it came out at the bottom, we tied a car-

bolic cloth on to the end, and drew it slowly up. This was most effectual, and in a short time all the bees were up in the basket.

In the meantime we thought it best to release the queen into the basket. This we did, and sprayed the flying bees with water, which caused them to settle. We next arranged a hive in a suitable corner of the garden; as we could not stay longer it was necessary to hive the bees at once, in spite of its not being a good time to carry out this operation. We shaded the hive with an umbrella, and when all was ready, threw the bees in front, putting some handfuls close to the entrance, and syringing water round to keep them from flying. The rest of the bees began to pour in as fast as they could, until nearly all were in. We then noticed they were very unsettled and excited. On inspecting the last cluster of bees, what was our dismay to find the queen in the centre, half-dead, whether from injury caused by her subjects or by ourselves, we do not know. Our only hope was to put her in as she was and secure the bees with muslin over the entrance of the hive.

We inquired if there were any bee-keepers near, but could not hear of one nearer than four miles. The waggonette was hurriedly got ready, and off we drove. The cottage owner was most willing to help, and allowed us to overhaul his single hive, and take what we liked. The stock was very strong and healthy, so we took a good frame of eggs. This we wrapped in flannel and drove triumphantly back, and put it in the new hive. We then collected a few more bees which had gathered round the lamp, hived them successfully, put a feeder full of syrup on and left the bees humming contentedly, and already forming chains across the frames and fanning at the entrance. We hope they will rear a new queen, and do well. We were unable to avoid killing a small proportion in digging and driving them out of the lamp. There are, however, enough to make a good stock with proper attention. There is just a chance of there being another queen, for though the one we found was old there were so many young bees that a cast may have united with the swarm. The bees were marvellously quiet, veils were not worn at all, and amongst the people standing round, and others passing by, we had only three stings caused through our inadvertantly squeezing an unobserved bee in working them out of their extraordinary location. The keenness of the owner and all who assisted was most exhilarating, and it promises well for the success of the future apiary.—B.B.J.

[The above shows how the teaching in all branches of the work at this, the first college of its kind (which even now holds premier position), is so thorough that it enables the students to carry out difficult and unique opertaions at a moments notice in a most satisfactory manner. Swanley College also has the distinction of having supplied the Government apiarists of New Zealand, and the Orange River Colony. Incidentally the action of the cottage-bee-keeper is an instance of the readiness with which the members of the craft help one another. It was indeed an unselfish action to allow a frame of brood to be taken from a colony at this vital time of the year by absolute strangers.—Editor.]

DISAPPEARING TRICK.

Hardknock Apiary.

To the Editor of the A.B.B.

Sir,—

The beekeepers troubles for a continuance of years has been nothing but bee disease, and the disappearing trick is by far and away the worst of all; but this season under similar circumstances, the bees seem as if they could not die if they tried. The hives boiling over with bees

in the month of September, and every appearance of a boska year; but this disease in the native timber put the damper on it all, and being a wet spring there is clover in abundance, but so far it contains no honey. The ironbark catches the disease first, and is wiped out pretty quickly. I am sending you a fair sample of bud leaves and a piece of stem. First if you examine the stem under a powerful glass you would not wonder at the trees dying. Second, look at the sickly look of the buds; and third, I am sending a lot of leaves, and if you hustle a bit and examine all the shells you may find one of the insects just poke the shell on one side with the point of your knife and if you see one, he or she is worth looking at. To think that such little wretches can cause such havoc with timber, and do away with tons of honey and the beekeepers living. The disease spreads very fast. I have traced it for about 50 miles by 20 miles, and I suppose it will go the whole hog now it has started. As regards the disappearing trick I have read a good many articles on it and so far to my experience there is not one of them on the right track. The genuine disappearing trick the bees go out to work and never return, and of course when the colony gets depopulated to a great extent, other complications follow. Now I have heard, and I dare say so have you about orange blosoms and the beautiful flavor the honey gets from them but here may be a solution for the disappearing trick. At Cooplamaba station, and at No. 1, both belonging to Mr. Mackie's, there is heaps of orange trees they grow well, fruit well, and of course flower well; well, if you put, say four colonies of bees on either place in the spring, you can pick your bees up in shovel fulls under the trees dead, and in a very short time you will have four empty boxes. If such will happen under your eyes, what may happen in the tree tops, for as far as I am concerned, that is my belief of the disappearing trick for a good while.

J. Pollock.

October 19th, 1911.

THE STATUE OF APICULTURE.

By Dr. G. Bohrer.

That apiculture is regarded as knowledge of the habits, care and management of bees and the success of this industry in practice is far in advance of what it was 50 years ago is a fact. And that it is far behind other industrial pursuits as regards a thorough theoretical as well as a practical knowledge of them is also true. In addition to this, it is safe to assume the ground that the food and medicinal qualities of honey as compared with other sweets is also very imperfectly understood by the masses of our people. At no time within the recollection of the writer has honey been regarded as much more than a luxury, and not, by all odds, as the most wholesome food of all the sweets in use among the civilised nations of the world. Yet such is now known to be a fact by all who have made the food qualities of the different sweets a subject of scientific investigation.

It is well known that honey is partly digested, through which it taxes the organs of digestion much less than the different sugars so commonly and so extensively in use as food. But to render it still more difficult to digest and destructive to human teeth, it is very extensively combined with glucose (corn syrup), which is not at all palatable, and would not sell upon the markets if it were not combined with honey, cane syrup or sugar. And it is also very largely used in the manufacture of candies; but it is here that it gets in its deadly work on the teeth of all who eat candy containing glucose. I feel warranted in hazarding the assertion that

not 5 pounds of candy in each thousand pound of this product as now found upon the markets of the country are free from the presence of glucose. It may be readily detected by the flinty character of the candy, which, as stated, injures the teeth by wearing them away. In fact, it serves as a file in cutting or grinding them away in the process of mastication.

Millions of pounds of such abominable stuff is permitted to be sold to an uninformed public annually, and that, too, in the presence of a co-called pure food law upon this subject, which is anything but what its name concerning this particular matter would indicate. In support of the foregoing statements I will refer the reader to the pure food law upon this subject in my own State (Kansas), which is evasive in everything, and specific in nothing, except that it permits the wholesale use of glucose in the manufacture of candies. And to make the matter of deception a most perfectly masked affair, it authorises the vendor and dealer to use as a covering the following language: "Guaranteed under the pure food law." But special care is used in omitting to state the presence of glucose or the proportion of this ingredient to that of pure cane or beet sugar or syrup. So that nothing worth knowing is guaranteed by this feature of the Kansas pure food law, except, perhaps, that such candy dose not contain either strychnia, arsenic or prussic acid in doses sufficiently large to kill outright in a few minutes or hours after taking.

Now, if any one will point out one thing in which the public is protected, aside from what is above mentioned, I will most humbly beg pardon and make all apologies that are due in the case. That the laws of many other States are fully as misleading and deceptive as is the law of Kansas, is no doubt true, for in my opinion the law was formulated at the expense of much labour and money to those who shaped, or caused the law to be shaped, as herein stated.

The foregoing are a few items in regard to which the world is in a seriously benighted condition, and simply to advertise honey until the crack of doom will not add anything of value to the increase in the sale of honey. What is needed most is, as already stated, that every industrial and educational institution throughout the land be required to teach the habits, management, and practical care of honey-bees, and demonstrations fully illustrating their practical management in every important detail should be given, as is the case in teaching other industries. In assuming this ground, I will say that but very few persons engaged in practical bee-keeping are found to be on the delinquent tax-list, but, on the contrary, about all will be found to be punctual in paying their full share in support of every school and college of the country, and are as much entitled to a due scientific consideration as any other legitimate pursuit engaged in by our people. Yet it is neglected, to the discredit of all who are in charge of our educational institutions, as well as the masses of our people. I hold that it is the duty of every sane-minded person to demand that all industries be taught in our schools of whatsoever kind, and that, too, without being called "monkeying with bees" any more than they call the dairy business monkeying with cows.

In addition to this, all parents have not only a just right to know what their children are eating, but should make it a point to know what their children are using as food. As matters now stand, they have no available means of ascertaining the ingredients of the candies on the market.

In making the foregoing statements, I know what I say to be true, as I have repeatedly asked retail dealers in candies to show me the formulae after which their candies are made, but not

one of them has been able to do so, for the reason, they tell me, that it is not given out by the wholesale dealers nor by the manufacturers. These are not withheld from public gaze except for the purpose of keeping the people from knowing what they are eating, as the manufacturers know quite well that their abominable compounds would not sell as they now do.

A short time before the National pure food law went into effect, an unlimited amount of glucose (corn syrup) was doctored with a small quantity of honey and labelled "Honey." This the law prohibits, but these vendors were left free to label such a compound a "blend;" but this showed that the package was not pure honey, and as a result the public would not purchase it.

Now to remedy this lamentable state of affairs, let every honey-producer talk to his member of Congress, as well as every member of the legislature in each State, and in time a remedy will be put in force, and the product of the apiary will take its stand side by side with the products of every other legitimate industry, and honey will sell in much larger quantities than heretofore. But with the absence of information concerning beekeeping, now so prevalent, it will continue to occupy the background as it does now. The lack of general information concerning bees and their care, as well as the worth of honey, must remind one quite a bit of that little girl's knowledge of physiology, who, upon being requested by her teacher to define digestion, answered that "digestion begins with the teeth and ends with the big and little testaments." In a day or two her mother sent her teacher a note instructing her "not to teach Jane any more about her insides," assigning as a reason that it "made Jane too proud."

The above illustration is a fair representation of the real knowledge the masses possess concerning the science of apiculture, and the real worth of honey as food or medicine.—"A.B.J."

SOUTH AFRICAN BEE-KEEPING.

Bee-keeping is going ahead strongly in this, one of the finest countries in the world for it. It received a check when a year ago the Act prohibiting the importation of bees, honey, wax, and foundation came into force; but it has recovered from this, and there is plenty of first class foundation now being made here.

In a quiet way, Miss M. D. Sillar, the Government apiarist, has been doing good work in the Orange Free State, and the result of this must react in the future in the establishment of piriau,flko cmff in the establishment of apiculture on a firm basis as an important rural industry. Personally, I am optimistic about it as a commercial proposition when we understand it from a local point of view more thoroughly. At present we are all beginners under new conditions, and what we have to ascertain is how best to adapt European and American methods to suit those particular conditions.

My association is doing good work in collecting information from all over the country in its monthly journal the "Agriculturist and Stock-Breeder," copies of which you should now be receiving monthly. We have a whole lot of things to find out, such as bee-flora, best size of brood-chamber, etc., but we hope to get nearer our goal as time proceeds. We are having an important conference here in April next, the effect of which I trust, will be to assist us considerably in our efforts.

You should within the next fortnight receive the report of the general meeting

held in December last, which will give you a fair indication of the association's prospects.—B.B.J

LUCERNE AND HONEY.

By J. E. O'Grady.

No matter what may be the staple crop of any district, farmers may nearly always find some minor crop which fits in well with their operations, and which will, without much capital, turn in sufficient profit to pay the interest on the mortgage, or to provide a welcome cheque at an opportune time. The purpose of this article is to invite attention to the subject of bee culture in those districts where lucerne is now being largely planted for the first time. Every district which produces large quantities of lucerne is specially suited for bees. Along the Hunter, and about Tamworth, considerable profits are derived from bees, either by specialists or by farmers who make bees a "side-line." In other districts hundreds of acres are now being laid down with lucerne; and we wish to show how farmers, while deriving great advantages from their lucerne, may perhaps still further improve their position by introducing the busy little bee.

Sources of Honey.

The honey which is at present most in favour on the Sydney market is the product of the Central tableland and slopes, where the bees draw their supplies from the flowers of box and other native trees. It is pleasing to know that our wild Australian timbers give a honey-flow which is at least equal to the best; but box-honey is not produced in sufficient quantities to supply the local market. This is partly because timber is giving way to wheat and other crops, but largely—almost wholly—because of the uncertainty in the time of flowering of our native trees. Box-honey has an enviable reputation; but this uncertain flowering makes the industry very insecure when the native timbers alone are relied upon. A friend of the writer, on the Central tableland, got 1½ tons from sixty hives in 1907; but his bees have not been able to accumulate any surplus since, though he has good hopes, from the indications of Nature, that the timber will flower well this coming season.

Lucerne flowers regularly every sumemr, and several times during the summer, as the new growth follows the mower. Lucerne provides nectar of excellent quality, of such quality that in the United States, besides being the king of fodder plants, it is also regarded as the most important honey-plant of the west.

When it is remembered that the visits of bees are essential to the setting of lucerne seed, it will be seen how intimately the two crops, lucerne and honey, are connected.

A Practical Example.

A contrast to the experience of the gentleman mentioned above is afforded by that of Mr. T. G. Adamson, "Ngoora," Nemingha, near Tamworth, a district in which lucerne is extensively grown. A few years ago Mr. Adamson established an apiary, working on the share system with Mr. Phillips. Mr. Adamson provided the capital; Mr. Phillips attends to the bees. There have been no years of failure, and none are expected. In 1909 the output reached 9 tons. In 1910 it dropped to 7 tons, due to the unprecedented late frosts of that yar, which dsstroyd the spring blossoms of all kinds. This year, 1911, the output is expected to reach 12 or 15 tons, and the colonies have been increased to 156. As bees travel considerable distances it is not possible to say how much the partnership bees contributed to the excellent crop of lucerne seed which Mr.

Adamson harvested last season; but certain it is that without bees that crop would have been impossible, and the bees were there on the property, ready and willing for the work.

Bees at Nemingha.

Mr. Phillips was kind enough to indicate what, in his opinion, were the possibilities before a practical farmer who has not had the advantage of a training in apiculture. But, before going on to this, we shall briefly deal with the industry at Nemingha, so that the conditions where beekeeping is certainly successful may be compared with the reader's own.

The Nemingha Valley, on the Peel and Cockburn Rivers, embraces large areas of alluvial flats, for which lucerne is an ideal crop. It has been grown in the district for fifty years, and its cultivation is extending as land is opened up. The flats, in their virgin state, are covered with red, blue, and white gums, apple and box. The higher lands are also chiefly box and gum, smaller in size. But the flats are being rapidly cleared, and the higher land, where not cleared for wheat and maize, is mostly ring-barked; so that the supply of honey from native timber is diminishing.

Mr. Phillips, observing the flowering of the trees and plants, considers that his bees draw nectar mainly from the following, in descending order of value:—

1. Lucerne.—This plant flowers freely from November to February inclusive, and during that period the product of the hives is mostly lucerne honey. Lucerne-growers aim at mowing their crops when about one-tenth in bloom, so that there is a conflict of interest between farmer and apiarist. But the mower does not always cover the ground as rapidly as the farmer wishes. Moreover, there are always plenty of lucerne men who are having a "shot" at a crop of seed, which means that the blooms are left to be fertilised by the bees. The result is that there is always a good supply of lucerne-bloom; though the claim made in America, that an acre of lucerne will feed a colony of bees, is certainly "not" realised.

2. Apple and Yellow Box.—These are about equal for second place, though far below lucerne. The apple-trees flower from February till the end of March, and the yellow box from July to the end of October. For the four years that Mr. Phillips has been in the district, both these timbers have flowered regularly during the months named; but, apart from the risk of non-blooming, they are vanishing before the plough.

3. Gums of different kinds.—On the hills the gums flower pretty regularly about March, but the river gums are not so reliable. They are generally the last of the main honey-plants to flower, and after them there is nothing much for the winter except an odd box-tree.

4. Cat's head, a weed of evil repute, has the redeeming feature of being a honey plant, and old residents say that before lucerne was largely grown good cross of honey came from it. Mr. Phillips has seen the bees working on it. This is an ill wind blowing the apiarist some good.

5. Variegated thistles, another unwelcome plant, which gives trouble in a paddock of baby-lucerne, supplies the bees with pollen to feed the young ones. It flowers throughout the year in neglected places.

6. Maize, flowering about Christmas or a little later, provides pollen, and perhaps honey.

The variety of feed results in a variety in the color of the honey; but inasmuch as the flowering periods of the different plants overlap, it is not definitely known which color is attributable to each plant.

The effect of this succession of blooms is that honey may be expected all the year, except from March to July, when there is practically no flow. At Nemingha, as in most districts of New South Wales, the expensive and troublesome system of wintering bees, which has to be practised in colder climates, is altogether unnecessary. The bees are left to go into the winter with 20 or 30 lb. of honey in each hive. This, with what the bees can gather during the winter, is sufficient to keep them strong. If a swarm should come out too late to gather enough winter food before the flow ceases, there will always be surplus combs of honey in the apiary to give them. The expression "robbing bees," is incorrect, because an apiarist does not rob his bees; he simply removes portion of the surplus honey, which the bees store up against the time of scarcity. If the balance fails to keep the bees in health, he is prepared to give back the quantity required to take them through the winter.

The flows of honey come periodically, depending a good deal on the weather. When the honey-plants are blooming freely the frames will be seen to be filling up with honey. They are removed before they are completely filled, so that the bees will not be crowded for honey-room. If honey is coming in freely, and there is no room for it, the colony will cast out a swarm, to seek another home. This swarming depends a good deal upon the strain of bees, but more upon the management. A good strain of bees, carefully selected by keeping records, and properly managed, will rarely swarm.

The combs are uncapped, and the honey is extracted by means of a reversing extractor, and the combs are then replaced for the bees to continue their work. "Ngoora" honey is sold in 60 lb. tins, and fetches from £20 to £30 per ton. Bottling and selling retail is more profitable, but would involve a larger plant and more labour.

As the apiary has now practically reached its limit of profitable extension, there is a good deal of surplus wax for sale. This is obtained from the uncapping of the combs and from "burr combs," and fetches about 1s 2d per lb. wholesale. From 156 hives, with a 9 ton flow, there would be from 3 to 5 cwt. of surplus wax, but in building up an apiary the surplus would be absorbed in making "foundation."

Mr. Phillips estimates that within a 6 mile radius of Ngoora Apiary there are about 1,000 hives. Bees will certainly travel 3 or 4 miles for honey, as has been definitely proved at Lapstone Apiary; so the Ngoora workers probably share their feeding ground with all these 1,000 colonies. It is quite possible for a man who knows his work, and has proper appliances, to look after 200 hives, but owing to the number of bee-keepers in the neighbourhood Mr. Phillips does not wish to extend any further. Of course an "out-apiary" might be established some distance away, but this is not contemplated at present.

"Foul brood," the dread of the amateur, has never appeared at Ngoora. Should the evil-smelling disease present itself, Mr. Phillips would adopt the standard remedy of removing the bees to a box, letting them build wax of any honey they have, and, boiling the wax, whilst the infected hive would be promptly burnt. A suspected case of paralysis occurred once; the hive was requeened, and the trouble disappeared so quickly that it cannot be said whether it was really paralysis or not. Moths are in the district, as everywhere, but do no damage at Ngoora. Leather-colored Italian bees are used, and these will keep the moths away themselves if the hives and frames are so arranged that the bees can march all around the interior of the hive. The frames swing at each end,

and there is a space at each side and underneath. The frames rest on a metal rabbet about the thickness of a penknife blade. This is the construction of an up-to-date factory-made hive. A moth entering a hive tenanted by healthy bees is stung to death as soon as discovered, and the body cast outside. If she has had time to lay any eggs, these are swept off the premises, as bees will not tolerate trespassers or rubbish in the hives. The notion that moths kill out swarms of bees is an erroneous one; the bees are generally dead before the moths enter.

Dysentery is unknown in the Tamworth apiaries.

(Continued in next issue).

CURING FOUL BROOD.

This is the title of an article, by Mr. D. M. Macdonald, which appeared in our issue of July, 1910. The article attracted attention abroad, and was republished in some of the foreign publications which beekeepers read. In it Mr. Macdonald said:—

"In this country, and, indeed, almost all over Beedom, bees are never returned to a foul-broody hive until it has been most thoroughly cleaned and disinfected. I am a strong advocate of this being done every time. . . . . The Canadian, or McEvoy, method does not include this disinfection of hives, which I look on as its weak point, when carried out by the average beekeeper."

The writer supported his case by references to the methods adopted in New Zealand and Switzerland, quoting Mr. Hopkins and Herr Leunenberger as authorities in favour of disinfection.

Quite naturally and properly, the "Canadian Bee Journal" and beekeepers of experience who do not believe in the necessity for disinfection, joined issue with Mr. Macdonald; from which we have still proceeding a very helpful controversy upon the question—"Is the disinfection of foul broody hives necessary?" There are few questions relating to the industry on which it is more desirable that we should have clear views. Anyone who contributes to the store of knowledge on this subject, helping us to give a decisive and confident reply to the question, will have deserved well of the craft at large.

Mr. Macdonald was perfectly correct when he said that in this country the disinfection of hives is considered to be necessary, and is practised as such. But was he correct in saying that it is so "almost all over Beedom?" We know that, as Mr. Macdonald pointed out, the Canadian, or McEvoy treatment does not include disinfection of hives, and now we are told that in New Zealand—to which appeal was made in the article—disinfection is almost unheard of. By the favour of the "Canadian Bee Journal" we publish in this issue an article by "A New Zealand reader," in which reply is made to Mr. Macdonald. The name and address of the writer are not supplied, but Editor Hurley tells us that he is "one who knows," and, supporting him, declares that disinfection is a bogey. He adds that the disease is never "cured," but that the McEvoy method, without frills, is sufficient to "remove" it. "Our British friends," he says, have fooled with drugs a long time without result."

The "New Zealand Reader" thinks that disinfection has become with Mr. Macdonald almost a fetish, and that our Scottish contributor has been defeated on all points of practical experience. Disinfection in New Zealand is almost unheard of; owners, relieved of the trouble and expense of disinfection, are more willing to carry out the requirements of

their Apiaries Act; several districts are already clear of disease, and this result has been attained without disinfection.

Testimony of this nature cannot be lightly treated. But the conflict of opinion and of evidence is remarkable. We who believe disinfection to be necessary, are prepared to put forward evidence in support of our contention and we have with us the opinions of many of the foremost practical beekeepers and teachers in foreign parts. The opponents of disinfection, on the other hand, claim that they can overcome the disease without disinfection, and cite numerous authorities in favour of their views. In such circumstances, it is always desirable to preserve an open mind. It is not wise, on either side, to be too cocksure. If we succeed with the McEvoy treatment plus disinfection, and fail when disinfection is omitted, we should be foolish to dispense with disinfection because of the "trouble and inconvenience" it involves, which are really inconsiderable in apiaries of the size that is common in these countries. If the owner of 1,000 stocks to whom disinfection would mean much trouble and inconvenience, finds that he can with safety return his shaken bees to their hives without disinfecting the latter, he would be no less foolish to undergo the labour of an operation which he has proved to be unnecessary. Mr. Macdonald's objection to the McEvoy treatment had to do with "the average beekeeper." With us, the average beekeeper is the owner of a small apiary; apiculture is not his life work, but rather a secondary occupation, a relaxation, or even a hobby. With a blow lamp, or a cup of petroleum and a whisp of hay, he can disinfect a hive in five minutes. He will keep on disinfecting where occasion arises, and, in our opinion, he will be wise. The Canadian owner of 1,000 stocks may find that the trouble of disinfection does not pay; but he has still to convert the largest American beekeepers, of whom the editor of the "American Bee Journal" declares that some of them insist just as strongly upon disinfection as if they had spent their whole lives on British soil.

—"Irish Bee Journal."
