The Australian bee bulletin. Vol. 18, no. 10 January 31, 1910

West Maitland, N.S.W.: E. Tipper, January 31, 1910

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. 18. No 10. JANUARY 31, 1910. PER COPY, 6D
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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.—JANUARY 31, 1910.

EDITORIAL.

How changeable! Last month I remarked on the very dry state of affairs in general;now all is changed, various districts experiencing serious floods. Here we had splendid rain before Xmas, and from the 11th to the 15th an abundance of almost uninterrupted duration. The poor bees had a bad time, but conditions should now improve matters considerably, as the ground has got a real good soaking. Our best honey-producing trees are not out yet, but will be soon, and the bees are lookingforward to it.

On Friday, the 14th, Mr. Barnes, of Melbourne, paid me a visit. It was raining all the time he was here, but we had chat about bees, diseases, etc., of an interesting character.

Convention matters at Easter or in June are now engaging your attention, and should receive careful consideration.

The Beekeepers' Union is getting a strong concern and may induce the authorities to renewed action on their behalf.

Note the advertisement of the R.A.S. in this issue and act up to it to the best of your ability. It is a pity that a diversion existed at first, and thus our aim to aid the industry and the R.A.S. may not be achieved. The matter is in your hands, and I am willing to help all I can.

Note—If not more than one competitor writes for the prizes offering, only second prize value will be given, and if there is no response at all, the prizes will be withdrawn altogether.

The New South Wales and Commonwealth Beekeepers' Union.

The Hon. Sec. convened a meeting for the 17th inst. at 7.30 p.m. Present: Messrs. W. Abram, President; J. J. Branch, Hon. Secretary and Treasurer; D. W. Parker, Henry Lord, J. J. Parry.

Minutes read and confirmed.

Correspondence was read and received. and membership showed further increase, which encourages the Executive to renewed action.

The subjects of ringbarking, etc., as stated in last issue were further postponed for various reasons.

Considerable discussion ensued as to the holiday of a Beekeepers' Convention. Some thought Easter week the most suitable time; others considered the end of June, when again cheap fares are issued, more convenient from a beekeeper's point of view, as then there is actually nothing to do with the bees. It

was decided that a circular be issued to beekeepers, requesting them to state whether they are in favour of a convention at Easter, and, if so, will they attend. On receipt of replies the Executive will decide the course to be taken. You see, the whole matter lays with you on your vote. The Executive will act.

But send your decision either to Mr. J. J. Branch, 67 Liberty St., Enmore, or to Mr. W. Abram, Beecroft, before the 15th of February, so as to allow the Executive time to deal with the matter, and to let you know in the February issue as to what is to be done, Wednesday, the 23rd and Thursday, the 24th of March, or Tuesday, the 29th would seem the most suitable days. I mention this to assist you in your decision. If, however, you prefer the end of June as more convenient, please say so. You have to decide and direct us to act. Therefore, do not omit to vote. Easter week is early this year, and some may be busy and could thus not attend. A representative attendance is, however, required to formulate decisions for further actions, of which there are quite a number to be attended to, and i is your business to help improve the position. Our affairs are handled different to previous ones. Mind you,—act accordingly and assist each other—and vote.

Several other matters had to be left over till some future time owing to lateness.

Messrs. Hawken and Vance, Produce Merchants, Sussex St., Sydney, write:— We forward you a sample of honey from the northern tablelands. Although the demand is only for small lots, stocks kept clear of the small supply coming forward. Price 3¼d. to 3½d.

(It is hardly likely that there will be a glut this winter; but it is probable that a fair flow will ensure shortly. The quality of sample is all that can be desired. —ED.)

RULES.

(Subject to Alteration.)

Styled : THE NEW SOUTH WALES AND COMMONWEALTH BEEKEEPERS' UNION.

1. Objects and Aims: To aid and assist beekeeping in all its branches.

2. Members are beekeepers or have particular knowledge of bee culture.

3. President, Secretary, Treasurer and two other beekepers form the executive to carry into effect, to the best of their knowledge, all matters submitted to them by members regarding Union business.

4. Vital questions or subjects shall be decided by members voting per post.

5. Subscription to Union, 5/ per annum, dating from 1st July each year, payable in advance.

6. All expenses, except time, incurred by any of the Executive on behalf of the Union's business to be paid them out of funds of the Union.

7. Members agree to abide by majority rule.

8. All correspondence to be addressed to the President for the time being until otherwise arranged, who shall publish in the "Australian Bee Bulletin," or send each member (not a reader of the A.B.B.) periodical reports of the Union's Executive works.

9. Members are resuested to submit to the Executive matters which they desire to be decided on by vote or referendum.

EXECUTIVE.

ABRAM, W., Beecroft, President.

BRANCH, J. J., Enmore, Hon. Sec. and Treas.

LORD, H., Technical College.

PARRY, J. J., Erina and Parliament House.

PARKER, D. W., Turramurra.

BEE DISEASES IN VICTORIA.

Sir,—The original title of the paper, published in your issue of 11th December, is, "A Disease Affecting European and Victorian bees." The "new," in the heading of your article is your own, and I would point out that the disease is not new in Australia, and has, so far, not been proved to be the cause of the heavy losses of bees experienced this spring in the Stawell and some other districts, but only those of minor losses, and of an unprofitable condition of many hives in apiaries in almost all parts of Victoria. The identification of the micro-organism by Mr. Willgerodt, as that discovered by Dr. Zander, of Erlangen, and named by him Nosema apis, is of the greatest importance. Pending the evolution of a system of treatment adapted to Australian conditions, and the eventual breeding of a strain of bees practically immune, the instructions given by Dr. Zander are invaluable in checking the further spread of this disease in an apiary. Considering the wide distribution of Nosema apis, which has already been proved, its eradication cannot be considered practicable, but there are indications that the disease will become modified, and eventually will be no greater trouble than Foul brood is in Northern Italy.

The loss of entire apiaries, and of over 50 per cent. of the total number of colonies in the Stawell and other districts has so far not been connected with Nosema apis, although that disease undoubtedly exists there, as well as in almost any part of this State.

Microscopical examination of bees, which succumbed within a few doys after being fed exclusively on the honey obtained from defunct hives in the Grampians country, failed to reveal the pres ence of Nosema apis. This fact, together with an absence of the symptoms of Nosema disease, point to some other cause as accountable for the Stawell losses. Since there has been new honey the pollen coming into the hives, the trouble has entirely disappeared, whereas in the cases proved to be Nosema apis it continues. Investigations, which are still proceeding, may therefore prove that the cause of mortality, not due to Nosema apis, is in some way connected with the supplies of food gathered during the preceding summer or autumn, stored in the hives for winter and spring use.—Yours, &c.,

R. BEUHNE.

Tooborac.

PRIZE COMPETITION.

The Publisher of the "Australian Bee Bulletin" offers Prizes for competitive contributions on subjects appertaining to Beekeeping, under the following conditions:—

1. The prizes are:—1st, 7/6; 2nd, 5/0; 3rd, 2/6.

2. Competitive articles to be addressed to Mr. W. Abram, Editor A.B.B., Beecroft, headed "For Competition." Write full name and address, but also affix a sign or mark, as it is intended to omit full name on publication, but to publish name of all competitors first issue after judging.

3. Entries for each month close on the 20th. Any subject may be chosen.

4. One judge will be appointed by the Editor, to act as single judge, but each month there will be a different judge, and his name will be published together with the results. The judge's decision is final.

5. Postal notes will be sent to winners on receipt of the judge's decision.

Our aim is to encourage juniors and amateurs to exercise their skill in beekeeping and in writing, thereby assisting one another. (The editor's son does not compete.) The most efficient beekeepers will be selected to act as judges. A copy of the A.B.B. will be sent to the one selected each month, and the results pub-

lished next issue. Competition starts now, and prizes will be offered for your work. Who will win?

N.B.—This is a money prize competition—not a disposal of queens.

(First Prize.)

DOES IT INJURE BEES TO HANDLE THEM OFTEN? A SUBJECT WITH MANY SIDE LIGHTS.

By "Honeymoon."

I often wonder how many beekeepers handle their bees as often as I do. I have been told many times that I handle my bees much too often. I notice, however, that my bees get along as well as any, and better than most. I have been told that bees should not be handled any more than once or twice in the course of a season, with the exception of removing combs for extracting. To what extent handling a colony of bees occasionally affects their "doing well?" I am not positive, but to the very best of my belief, it does not affect them badly in any meaning of the term. Some apiarists only open their hives once in a season to see if any foul brood has developed, and and beyond that they pay very little attention to their bees. Now, Mr. Editor, I am sure you will grant that such lazy beekeepers cannot expect the same results as the man who devotes his entire time to the prosperity of his colonies. Yet some beemen claim to get wonderful yields from this system of working. Neither are they particular whether their bees are blacks, Italians or hybrids; and still oftentimes get quite a handsome yield. These men get along splendidly until a real bad season comes along; and then where are they. Their bees are dead; some dead from starvation, some from paralysis, others from being too long queenless, and to wind up the dwindle takes the lot. They cry down beekeeping as being an eratic occupation and but a poor means of obtaining a living. While I advocate handling bees sufficient, I do not mean to become a crank and handle them just for the sake of seeing what they have in their hive; but I mean handle them just that amount that will help them to build up, and to see that they have every want supplied. Never at any time try to improve nature, but much can be done to assist it. Now, supposing for example, that you are examining a colony in August, you should determine whether the queen is laying worker eggs. (2) That the brood is healthy. (3) That they are well supplied with capped stores. (4) Have a look at the bottom board. If there is any refuse or wax grubs, etc., supply the colony with a clean one, and clean the dirty one for the next colony you find in that state. (5) Close the hive, seeing of course, that there are no cracks big enough to admit robbers, which will be plentiful in the spring time. You may, with confidence, look through every colony in this way, provided the sun is shining with any degree of warmth. Four weeks later will be soon enough to manipulate them again. This time see that brood-rearing is rapidly increasing. (1) Take particular notice of any colony that is superceeding their queen. Unless the colony be strong, assist them by re-queening from a nucleus. (2) Take notice all failing or poor queens and prepare to requeen them at earliest convenience. (3) Take notice of colonies that are uncommonly well forward, compared with the average hive in the apiary. These are the hardiest bees and best suited to your spring climate, and are the ones that it may pay to breed from if other good qualities are with them. A fortnight will be long enough to leave them next time, as it will be then October. Going round your apiary this time you will find some colonies with 4 or 5 frames of brood in the super, while others will only have 2 or 3 frames of brood alto-

gether. Now from these strong colonies take frames of hatching brood and insert them in the centre of the brood nests of the weak colonies. Never give more than one frame of brood to a weak colony at a time, for much of it will be chilled if you do, and in this way only wasted. Occasionally you will come across a colony wih only brood on three frames, and only a small portion of them, perhaps in one corner of the hive. These are hard colonies to manage, and the litde brood they have had better be taken away and one good frame of hatching brood supplied, and five days after give another frame of hatching brood. The next thing you will find is that you have a fine colony of bees which will yield as much as the best hive in the yard. By October 15th you will have swarms in a good season, and during the swarming season is just the time when skilled handling will pay. The amount of handling will necessarily rest with the amount of increase desired by the beekeeper. Time will not permit ing swarming season oin oin oin oin oi me to enter on to details of handling during swarming season, but I hope to give a more complete article on this subject in a future issue of the "A.B.B." When handling bees at any time when brood-rearing is increasing, see that no drone combs are allowed to stop the queen from laying on another comb. Keep all drone combs in the super, and as much worker comb as possible in the brood-nest. If any hive deserts their proper brood-nest and enter the super to breed up, put them down into the the bottom story among the best brood combs contained therein.

THOS. ARMOUR.

Fernbank, Vic.

LECTURE ON BEES AND HONEY.

(Delivered by W. Abram, Beecroft, at the St. James' Hall, Sydney, October 18th, 1909.)

(Continued.)

THE DRONE.

Of all creatures the drone has a bad reputation, as being a lazy good for nothing loafer and a big eater. Now I do not wish to run this poor chap down altogether. He is the male bee, the queen and bees are feminine; he is the biggest of the three, but he has no sting, thus he is defendless as well as despised. Gathering of food in the field is out of question, not being built that way, but he helps himself from the stores in the hive, and, though I so far spoke in the singular term, there are in the summer season quite a big number in a hive, far too many at times. The point to emphasise now is: What are they there for? They are there for a very important purpose—for the impregnation of young queens, and for that reason they are there in the right time of the season, and in large numbers. I stated before that the connection between queen and drone takes place in the open air during the warm hours of the day; now I take it thus: There may be only one or at most a few queens flying out to meet their consort, and if there were only a few drones in the district it might happen that the queen flies in one direction— the drone in another, and thus the object would be futile. But with any amount of drones about in all directions there is no difficulty in the way. Is not this another wonderful design of nature? A large number of drones are reared to assure the object for the continuation of propagation, since there is only one queen in a hive, and in the honey season the bees can afford to feed the drones as a necessary evil.

The drone which meets with a queen if a very happy, is also a very unlucky bridegroom, as there and then he looses his life, while the queen returns home and commences her maternal duties. I take it that this is a provision to prevent in-breeding. The fact of the queen and drone meeting in the air, sometimes a mile and more away from home, is another indication to that effect. Nature does not encourage inbreeding this in other instances either.

But the poor drone that lives when there is no honey flow or the summer season is at an end—what of them? They are first driven from the food in the combs by the bees, to weaken and starve them, and ultimately they are bundled out of the hive till there are none left; they, the drones, are helpless to defend themselves against their better halves—and they die for them. But in next spring others are reared again, and this history repeats itself.

With these abstracts of the wonders and mysteries of the bees I will now lead to the field, where the honey is gathered.

Honey

Honey is the product of natures' laboratory, secreted in the nectaries of the flowers and blossoms, it is therefore the most excellent of any sweets. No scientist or chemist has yet been able to produce a compound equal to it; the ingredients of honey have been analysed, and mixtures, said to be chemically the same as honey, have been made, but it requires no beekeeper of my experience to tell the difference when tasting the mixture. Therefore honey stands superior to all other sweets, more especially owing to its wonderful combination and its easily digestive properties, and this latter fact alone places honey as superior to anything else. Honey in proper quantities may be used by young and old, by the healthy and the sick, except in cases of fever, where its stimulating and heating properties would be harmful, perhaps.

Let us now see how honey is obtained.

The highest perfection of plants is reached when the plants open their blossoms. These are—to use a general term—their wedding dress, and how admirable they look, better than Solomon in his glory. In the bottom of these blossoms are the nectaries, and therein is stored, or rather secreted, by the plant, a small particle of the best product on earth—the nectar; it is the wedding breakfast, so to speak. This attracts the bees, it is their food, the means of their existence, and though small the quantity may be in each nectary the bees are there to absorb it, whenever weather conditions permit it; but they do not settle on a blossom and then suck away the whole day long on the one blossom; on the contrary they are very quick about it and as soon as one blossom is releived of its production, the ever busy bee is on to another, and thousands of other blossoms. When a load is obtained the bee flies home to unload, and then gathers more. Have you ever paused to consider what it means to collect a pound of honey? Nothing can compare with the industrious bee and its activity, and as no sweet can compare in quality with honey is it any wonder the beekeepers are generally an unsufficient remunerated lot, when we take into consideration all the facts and circumstances in connection with the production thereof and the low price at which the beekeeper sells the honey, which is actually worth much more.

Like in everything in creation male and female created He them—thus the blossoms are of two kinds, the male or stamen, and the female or pistil; the former produces pollen, the latter nectar. Both products appear in superfluous abundance as far as the requirement for the propagation of their kind goes, and they would go to waste if the bees did not gather them. More than that, the tiny drop of nectar in the cell cup would dry up to a crusty substance, and thus prevent the pistil from fruiting. But as it is, the blossoms in need of fruitification through the agency of insects invite these by their

adornment and the offer of the surplus of their very best. This act of fertilisation is mainly left for the bees to do, they are so active and untiring in their work. Compare the bee with butterflies and note the difference; the one is dextrously eager to get as much work accomplished as circumsances permit, the other is now here, then there, and just lives from hand to mouth, so to speak. Not so the bee, all its aim is to do the most possible good to herself—or rather, her colony—to the blossom, and to the beekeeper.

The pistil needs pollen grain for its setting of fruit or seed, as the case may be; the stamens have plenty, the bees gather them, and they are mainly packed into little balls in their pollen baskets on their two hind legs, but enough loose grain remain practically all over the body, so that when they next visit a blossom of the other sex, they involuntarily loose a grain of pollen and thus fulfil what creation designed them for.

From the foregoing it will be observed that the blossoms lose nothing that is of any use to them by the bees collecting the pollen and honey; on the contrary, they gain thereby. The bees are dependent on the blossoms for their food, the blossoms attain the objects of their presence—fruitification. But there is more to be said yet. Creation objects to inbreeding. It also defines the law as to kinds or species. Now, the butterfly, for instance, is not at all particular as to which blossom it settles on. Not so the bee. She possesses a very strongly developed instinct, enabling her to visit blossoms of one kind only each trip. In other words, bees do not fly from a peach blossom to an apple blossom, though these two may be quite close together; each bee chooses one kind, and gathers from that. No other inseect would do this so perfectly. No bees, no fruit, or at best a very scanty crop, is a very true saying. As to seed, a case in point is red clover. The nectaries of this plant are too deep down to be reached by the bees, therefore they hardly ever visit red clover, unless the nectar rises high enough to be reached by them. For the purpose of seeding this plant depends upon the bumble bee, which, having a longer tongue than the honey bee, can reach the nectar in the narrow nectary cells deep down the blossom. To make a reclaim some beekeepers are talking of having bred our honey bee with longer tongue, so as to be of use in the red clover fields, but it is only a reclaim. The tongue of the bee is just about a quarter of an inch in length, and it is just of the right length for the blossoms they have to visit, which are usually of less depth than a quarter of an inch. How wise the Creator has arranged that all should be provided for and live.

It has perhaps not occurred to the minds of the unobservers to wonder at any of these facts stated above, any more than to feel astonishment at the smartness of the bees to fly in search of food a distance of up to three miles from their home. They will gather food nearer if they can find it, but if it is not to be found then they go to a farther distance. Now, just fancy a tiny little insect to fly such a long distance in quest of food, and to find its home again. Why, it surpasses the ken of everything—it is a marvel which stands unparallelled in insect life—it indicates not mere instinct, but intellect. Just like the queen learns the position of the hive she came from, so do the bees, but of the latter there are so many thousands, and whilst the queen lives about three years, the bees life is only about two months in the summer time; they work themselves to death.

Another marvel is, that where there are several hundreds of hives of bees in a bee yard, how each bee finds is own hive; but with few exceptions they do. They are more sure of the location of their homes than are those who have been to the club and enjoyed themselves till an hour which is only occurring twice every twenty-four hours. If any one wants to prove my assertion, just try and remove the hive when the bees are busy at work, and soon

there will be a crowd of returning bees collecting in front of where the hive used to be. And yet again, as I stated at first, a swarm of bees may be placed within a few feet of the parent hive, and none will return to the old hive. Is this not marvellous?

There are many thousands of bees in the hive, yet try and put a bee from another hive into it, and before you can say "Jack Robinson" that bee is collared, and either bundled out, or else straight away stung to death. How do they know each other from strangers? It is a wonder.

When the honey flow is very poor, bees try to do a bit of pilfering, and to watch them in their various devices to attain access to the coveted stores is perhaps the most interesting part, were it not for the fact that robbing must be avoided by all means. But it shows that even bees try and risk their lives for pilfering. It will thus be seen that though the bees are possessed of the highest and most developed instinct and intellect of insect life, yet they have a little of greediness and unlawfulness left in them, if the beekeeper allows a chance; it is therefore greatly the fault of the beekeeper if the bees start robbing.

It is impossible to mention all the wonders and mysteries one learns in a lifetime's study in a short talk like this, but it indicates the fascination of the subject, and to get you interested in this study is my object. I hope I have succeeded.

FOUL BROOD.

Dr. Smyth has set us thinking once more in his fourth article. One of his theories is a remarkable one and can easily be tested, viz., that the race of bees which delight in propolis, are also good hive cleaners, and consequently are better enabled to clear out the first traces of disease. If this is really true we shall be grateful to the doctor for pointing it out. In working for sections the propolis loving bee is not particularly favoured, but if they are, (as Dr. Smyth contends) immune from foul brood we ought to regard them with especial favour, for it is easier to clean propolis than foul brood. There are great differences in colonies in the matter of clean floor boards, and now that Dr. Smyth has mentioned it, I distinctly remember that the cleanest kept floor board I ever saw was that of a colony who were also lavish in their use of propolis.—"Irish Bee Journal."

HONEY.—

Choice quality continues scarce and is selling at 3¼d., with an occasional lot at 3½d lb. Medium quality is worth 2½d., to 3d. per lb.

BEESWAX.—

Fair demand. Best bright is selling at 1/2½ to 1/3½ lb., and dark at 1/0½ to 1/1½ per lb.

IRELAND AT THE GROCERS' EXHIBITION.

The Grocers' Exhibition, which opened this year on September 18th, and continued until September 25th, at the Agricultural Hall, Islington, London, is said to be the chief show of its kind in Great Britain. Personally we derive a little annual amusement from the event, which arises in this way. The Committee, or Directorate, or whatever form of Gilbertian eccentricity it is that directs the show, provides, we are informed, nearly £100 worth of prizes for Bee Products, and makes a somewhat obscure announcement that the prizes are open "to Great Britain and Ireland." Why they should, ostensibly, include Ireland in their scheme it is difficult to say, for they take care to give Ireland the least possible chance in the competitions by withholding their announcements from the only Bee paper published in this country. The inevitable result is that Irish beekeepers take little or no interest in the Grocers' Exhibition, just as the Grocers' Exhibition takes little or no interest in them. The withholding of the advertisement from this Journal is, we are bound to say, not due to oversight, or accident, but to design, and it does not surprise us to observe from the list of entries that a discrimination of the kind, uncomplimentary to this country, and altogether petty in its way, has been taken notice of. It is amusing, when one has been behind the scenes, and knows how the wires are manipulated.

This year Ireland, ignoring the competitions, has gone to the Grocers' Exhibition "on its own," so to speak. The special display organised by the Irish Agricultural Organisation Society has attracted a good deal of attention. The stand occupies a prominent position in one of the central avenues, and is tastefully decorated in pale green and white. It is stocked with piles of butter, honey, cream, bacon and hams, sausages and eggs, and Irish tobacco, cigars, and cigarettes. This is the first venture of the kind entered upon by the I.A.O.S., and evidently it has served a useful purpose. A large number of the Societies combined to carry the matter through, while the Handbook, of which 10,000 copies have been gratuitously circulated, supplies full particulars of the various breakfast-table commodities which this country produces. Among these, we hope that the honey exhibit will have enabled "all the English merchants to say the same thing," and to say it in terms favorable to our particular industry.

We cannot control the weather, but we can do something even in unfavorable seasons, to minimise our losses and to increase our gains. Here there is scope for the wisest thought among our correspondents who, if they set their minds to it, and devise better arrangements, economies, systems, plans, will have served the industry materially, and have deserved well of their fellow-workers.

Local associations can be of the greatest service in two respects, as in many others to which reference is not necessary here. They can benefit their members by reducing the cost of production, and by increasing the prices on sales. In an industry such as ours, depending as it often must upon circumstances over which we have no control, the advantage of being able to control expenses and receipts is one that cannot be over-estimated. In what may be called backward districts, removed from large centres of population and often at long distances from railway facilities, it is of vital importance that organisation should be brought to bear upon the matters of purchase and sale.

The novice is not always the wisest counsellor, nor the veteran the keenest worker ; each has his place, and if he fill it well— only if he fill it well, every

honest man should back him, and help him, and give him always the good word in season.

In the rank and file there is always a percentage of grumblers. These usually are the men that do least, and talk most. they think they have performed their duty when they have adequately criticised their committees.—"Irish Bee Journal."

SHAKING BEES.

By A. Spyglass, in "The Irish Bee Journal."

I heard a great deal this year about shaking bees from their combs to knock energy into them. In the States the plan has its enthusiastic champions. But, having been out of touch with the "I.B.J.," I don't know whether "shaking" has been recommended or tried in this country. There are some first-class American apiculturalists who swear by shaking, and some who swear against it. It is worth trying, anyhow. (It never does to run away with an idea, swear as one may. The probability is that the good effects noticed were effects, not of shaking bees, but of re-arranging the combs, or of removal of brood and stores. In fact, if you get the bees into the conditions, or nearly into the conditions, that belong to swarming, you will get a fresh spurt out of them. There is nothing new about that. Already the shaking process—shaking only, is being condemned in the States by men who know very well the difference between head and harp. Adrian Gataz, in the "Beekeepers' Review," calls it "a complete failure"; with "hybrids" it was worse, for they proceeded to "shake" him! F. B. Cavanagh thinks that shaking bees is of no value whatever. It only makes them mad, loses queens, and tires him out. Editor Hutchinson has not made up his mind, but confesses to being "a little skeptical." We are not going wild over it--just yet.—ED.)

Protecting Bees for Winter by the use of Tarred Felt.

By Mathilde Candler, in "Beekeepers' Review."

I am very much interested in tarred felt, or paper, as a winter covering for bee hives; therefore I read everything that I see on that subject in the bee journals. I notice that it is often mentioned as a good protection for early spring, and I also notice some reports of failure when it is used as a winter protection. As I have been using tarred felt as a winter packing for six or seven years, and for the last three years have wintered 300 colonies or more with such packing with but little loss, I will try to explain in detail how I prepare my bees for winter.

WINTERING BEES IN TWO-STORY HIVES.

First, both of my yards are close up against a hill which gives considerable protection against cold winter winds. This is no doubt a great help, yet the paper packing was equally successful when only a high board fence surrounded the yard, in my former location. Then, I winter with a double brood chamber. I put on the extra brood chamber when I take off the comb honey supers at the close of the main honey flow. I think the bees winter better in these tall hives because they can move up and away from the entrance.

USING PACKING ON TOP.

I put a bee escape board on each hive. On this I place an empty comb super, and fill it with planer shavings or sawdust; then I put the tarred felt around the hive.

The packing or felt is in two parts—cover and sides are separate. The side paper is as high as the two brood chambers, and fits snugly around the hive, with six inches allowed for lap, and is fastened together at the back with a piece of lath.

The cover paper is of tarred felt, the full width, and long enough to reach well over onto the side paper. It is then folded snugly down over the top, and kept in place by lath nailed on all four sides. The hive cover is then placed on the paper cover, and the job is finished.

One nail in each lath is enough. I used to tack a piece of lath on each of the four sides at the bottom of the paper, but for the last two years have not done so ; if the paper fits tight, and is carefully pressed around the corners, it does not seem necessary.

HCW TO USE THE SAME PACKING YEAR AFTER YEAR.

The paper may be used again and again, if care is taken when taking it off in the spring to preserve the original creases and shapes. There is no difficulty with the sides—simply fold t together flat at one of the corners and pile them up. The covers should be nested five or six in a nest, one inside of the other, being careful not to press them down into each other far enough to lose the shape of the cover.

In order to nest them it is necessary that they be of the same size, and folded each in the same way. I fold and crease all over an empty hive body, to give them the right shape, before I put them on a hive. When the covers are nested, the nests should then be stored away, as closely as possible, so as not to give the paper room to flatten out during the summer and then lose its shape. It is almost impossible to get a flattened cover into shape again without breaking it.

USING a DRY SOD AS TOP PACKING.

This winter I tried dry sod as a top packing, instead of a super full of planer shavings, and am very well pleased with the result. I placed the sod, cut the size of the top of the hive, grass sibe down, on top of the escape board which is on each hive, and under the paper cover, which kept it nice and dry. On top of all is the regular hive cover.

Although I have used sod as a top packing only one winter, and that a very mild one, yet I cannot see why it should not be as good as sawdust or other packing, even in a severe winter, provided it is well dried out when put on, and kept so. It is ever so much more convenient for me than any other top packing I've ever used. It is right at hand, easy to cut wit a sharp spade, easy to handle, holds its shape, and does away with the need of an extra super to hold the packing. It feels nice and warm when I slip my hand under the sod. In a few cases I put it right on top of the regular hive cover, and then put paper over the whole.

I used to pack all hives with the paper cover on top of the regular hive cover ; but the paper exposed to the weather becomes woolly after a few season's use, and takes up the moisture unless it is re-painted. I re-painted with a mixture of tar, resin and kerocene oil, applied hot. To avoid the necessity of repainting I now use the paper cover under the regular hive cover.

I leave the paper on the hives until time to put on the supers for comb honey, which is usually during raspberry bloom, when the real active work of the season begins.

How many Colonies can Profitably be Kept in one Locality.

By Isaac F. Tillinghast, in "Beekeepers' Review."

It seems to me that this is a question of great importance to beekeepers everywhere ; and while travelling through several different States, and calling upon beekeepers, great and small, I have been endeavoring, by observation and comparison of results obtained, to arrive at a correct conclusion.

Theoretically, I think that it is generally supposed that there are already enough bees in most localities to keep the nectar from going to waste ; and that

if a man has as many as 300 hives in his home apiary, while, perhaps five miles to either side of him there are not more than a dozen or so within a radius of several miles, it would be highly profitable for him to estadlish out-apiaries of, say, 100 each, rather than keep together so many at home.

The Hetheringtons, of Cherry Valley, N.Y., have the credit of having produced more honey than any other individuals in this country ; and after many years of experimenting now have out-yards, some five or six miles apart, with about 300 in a place. They visit them at regular intervals, cut out queen cells, in season, to keep them from swarming, and work them for comb honey almost exclusively.

I think, however, to Mr. Alexander, of Dalanson, N.Y., is accorded the honor of successfully keeping more colonies in one yard than any other apiarist in this country ; at least, and it was with no small degree of interest that I paid him a visit, shortly, before his death, last summer, in order to learn if it were the man, management, or the locality, which enabled him to profitably keep 750 colonies in one yard.

I found no exaggeration in the number, it being above rather than below that figure, and all were crowded into a space not to exceed one acre.

In years past Mr. Alexander has tried out-apiaries, having plenty of territory around which is not so heavily stocked, but he said that he was fully convinced that with the extra care and watchfulness which he could give them a home, he could secure more honey per colony, up to 1,000 colonies, at least, in one yard at home, than from smaller numbers kept at a distance ; and this decision was based upon many years of practice under both methods, rather than from theory.

He also said that he thought writers had greatly over estimated the value of his location, as a factor in his successful management, and I confess that I could see nothing unusual about it, and believe there are thousands of others just as good, or even better, in some respects.

I asked him particularly how much honey he ever had produced in one sesson in his home yard, and he said 72,800 pounds. Think of that, ye who are afraid of overstocking your neighborhood. Over thirty-six tons of honey gathered in one season within a radius of aa single bee's flight, however far that may be.

But bear in mind that this is not comb honey, but all extracted, and he attributes a large share of the success to his being able to do just the right thing at the right time, on account of their being at home and always under control.

THE HONEY FLOW IS SOMETIMES INEXHAUSTIBLE.

Mr Alexander believes that there are days when the supply of nectar is simply inexhaustible, and finds that surprising quantities are stored by all strong colonies which have empty combs ready to receive it, but that these honey flows are of such short duration that, if the extracting is not done just at the right time, so as to give an abundance of storage room, the nectar evaporates, and is lost before it can be gathered. And herein he differs in opinion and practice from many others, in not waiting for it to be sealed up before extracting, claiming that it can be properly "cured," or thickened, by remaining about ten days in his large open vats or pans ; and thus not only more honey be secured but much labor saved in uncapping.

He believes that when the temperature and conditions of the atmosphere are favorable, nectar is constantly being secreted in the flowers, and is as constantly being evaporated and lost, so that a bee will secure just as much at each visit, at intervals of a few minutes only, as it will at each visit after longer intervals, of perhaps several hours ; and that it is almost impossible to get bees enough together to visit all the flowers, in an

average locality, as often as they may be visited profitably; and the fact that the bee continues to visit the flower at short intervals, throughout the day, is proof that it gets honey each time. Place a pan of honey out in your yard and it will soon be visited by a large number of bees, and they will continue the visits so long as the honey lasts, but when it is gone they will fail to return to look for more. This goes to prove that so long as they may be seen working on the flowers, they are finding honey, and if they fail to gather it as fast as it is secreted, they forever lose the opportunity to get it.

Mr. Alexander thinks that there are days when honey or nectar goes to waste within the reach of his 750 colonies; on the other hand he knows that there are days, and perhaps weeks, when there is not enough to supply one colony. In other words, the honey-flows are much more abundant, but less frequent, than most people suppose, and herein is the opportunity for the beekeeper to greatly increase his income by striving to bridge over the times of dearth, by artificial means, and this is just as necessary and desirable for the man with ten colonies, as for the one with ten hundred.

If the bees could be kept as busily bringing in their loads every week during the season, as they are at certain times, some hitherto unheard of yields might be recorded.

WHAT MIGHT BE DONE WITH SWEET CLOVER.

And now a word as to my own observations on how this may best be accomplished. I believe if any plant can do it, it is sweet clover. A beekeeper, located right in the city of Syracuse, showed me hives which averaged 266 pounds each of comb honey, and almost exclusively from sweet clover, of which there are many acres scattered all around on vacant lots and parks.

Sweet clover will grow most luxuriantly on railroad cuts and embankments, composed of pure sand and gravel, too poor to start any other kind of vegetation. It begins to bloom in June and keeps it up incessantly until September, and, unike buckwheat and some other honey plants, the bees hang to it from daylight till dark. If sown along highways, vacant lots, and waste places, it will rapidly seed itself and spread, and cannot fail to greatly improve the honey yield in any locality. Indeed, so great is my faith in this plant, that I procured 150 pounds of the seeds for my own use, and if the barren wastes around my home do not "blossom as the rose," it will not be my fault.

SOUTHERN CALIFORNIAN BEE KEEPING AS SEEN BY AN INSPECTOR.

By J. E. Pleasants, in "Beekeepers' Review."

Our work beng practically closed for the season, it has been suggested by some of our beekeepers that our routine of work here might possibly be of interest to some of the readers of the "Review."

According to the California foul brood law, each country may have an inspector of apiaries upon the petition of a sufficient number of beekeepers to that effect being sent to the board of supervisors. The expense is borne by the County. This has worked well in most Counties, as it usually results in a comparatively thorough inspection of all apiaries. The inspector is expected to put in his time in the field from the time the bees are in proper condition to be examined in the early spring until it is too late in the season to warrant inspection. Our season usually lasts from early in March until about the first of October. The inspector is, of course, subject to call where needed at any time.

I have filled the office of inspector in the County of Orange for the last six years. Our County is the smallest in area of the Southern California Count-

ies, but very rich in soil; and its products are of great variety. It lies between Los Angelos and San Diego Counties; being formerly the southern end of Los Angelos. The valley lands produce fruit, grain and alfalfa largely, although there is a great diversity of crops. The bees are mostly kept in the foothills and the mountain canons.

Many bee men move their apiaries back and forth from mountains to valley to avail themselves of the early nectar flow from the valley plants, as well as the fine yield from the wild plants and shrubs of the foothill and mountain regions.

We begin inspecting in the valleys for two reasons: The bees build up there earlier, and it is imperative to inspect them before being moved to the mountain bee-ranges, in order to protect the permanent resident-apiaries, which are by far in the majority.

There are about ten thousand colonies of bees kept in Orange County; and many carloads of honey are shipped east annually, barring dry years of crop failures, which occasionally occur. There are, of course, here, as elsewhere, local weather conditions which affect a nectar-flow, but rarely anything except a lack of sufficient moisture that will cause an entire failure in Southern California. There are, of course, occasional seasons of light crops. However, all things considered, our section is perhaps as near an ideal location as can be found. There is no wintering problem to contend with, and we produce a quality of honey which cannot be surpassed.

My territory of inspection lies, as before mentioned, partly in the large Santa Ana valley where the principal bee forage is fruit bloom, mostly orange blossoms; then, later, as the season advances, it extends into the foothills and higher mountains of whose character we shall speak later. For several reasons this section is much more infected with foul brood than the mountain bee-ranges. Beekeeping is one of the principal industries of the mountain ranches and is managed by skilled bee men, while, in the valley a large percentage of those engaged in beekeeping are beginners, and those who catch and rear swarms for sale, and, as would be expected, they are not as well qualified to detect and handle the disease. Again, bees swarm more here than they do in the mountains, and there are more vagrant swarms to settle in houses and barns, and in inaccessible places, where they escape examination. These causes had led to a great spread of the disease up to the time of the first appointment of an inspector six years ago; and since the beginning of my work the valley section has been the main battle ground for fighting foul brood. We have what we consider an excellent State foul brood law. It forbids the moving of bees from one County to another without inspection, and the removal from one section in the County to another of colonies known to be infected.

Our work in the valley usually takes from six weeks to two months. This being finished we go to the mountain bee ranches. These, with the exception of one small hill section lying along the coast are in the Santa Ana mountains, which run along the entire eastern line of the County. This mountain range, beginning in the low foothills which skirt the eastern edge of the valley, run back through miles of mountain territory in an increasing altitude, until it culminates in the summit peaks, at an elevation of 6,000 feet. This gives a bee range of perhaps thirty miles in length by fifteen to twenty in breadth, and, as it is, in all-essential features, the same as all Southern California bee ranges, a short description of the honey plants, etc. may not come amiss for the benefit of the reader who has not visited Southern California.

The lower foothills are for the most partly grass-covered, with occasional clumps of cactus and sages along the canons, which gradually growing steeper

and denser in growth of shrubs and timber, until the "chaparral belt" proper is reached. This is a term meaning the low-growing brush of all kinds which covers all California mountains from the foothills to an elevation of 3,000 to 6,000 feet, varying in latitude, to the edge of the pine belt. Along the canons and hillsides is considerable timber, mostly live oak and sycamore, with a scattering growth of alder and maple as we go higher. There is too great a variety of plants, both herb and shrub, to use space in mentioning all, so we will only touch on the main honey plants.

We have the three sages, the black, white and silver (very restricted) which give us our very best honey. The black is the best, giving just as white honey as the white sage, and usually yielding better. A white-flowered buckthorn is, with the wild currant, the earliest shrub for the bees to begin on; then follows a spreading annual forage plant, alfilaria, as much sought by the bees for nectar as by the stock for pasturage. The black sage comes early and stays late. Then comes the white sage with its long white stems and delicate flowers, as beautiful under the microscope as a gold-banded lily. Along, in continuing succession, come wild alfalfa (a yellow flowered species of broom) wild buckwheat, Western sumach, with a host of lesser blooms in regular succession which, not being large nectar yielders, are seldom mentioned, though they contribute their share. There is a low-growing, pungent, gray-green shrub, artimisia, commonly called "old man," which is very characteristic of our canon sides, which in early winter furnishes an abundant supply of pollen. In late summer and early autumn there spirngs up, covering the dry grain field from which the harvest has been taken on mesas and canon bottoms, two plants of much value to the bees after the honey harvest has been bees after the honey harvest has been taken by the beekeeper. These are the wooly white drouth weed and the purple "blue curls." The drouth weed gives a silver appearance to stubble fields in September, and the blue curls make an oasis of green in our usually tawny landscape at this time of the year.

In this foothill and mountain bee-range there are probably fifty to seventy-five beekeepers, some of which are in the business exclusively. Others combine beekeeping with stock raising and other pursuits. Some have homes in the towns of the valley, and spend only a part of the time on their ranches; but, for the most part, they are permanent residents and much attached to their mountain homes. I am among that number myself. There are school districts where ever needed in these sections, giving as thorough instruction in the common school course as can be had in any of the city schools. In fact, some of our star high school pupils in the cities have been recruits from these mountain district schools.

With the possible exception of Mr. Mendleson, of Ventura County, we have some of the largest and most successful apiarists in Southern California. The Emerson Brothers in the foothills number about 1,000 to 1,500 colonies. Messrs. Joplin, the Martin Bros., True, Kimball, Oderlin, and others, running from 300 to 600 colonies each, of well-managed up-to-date apiaries. Some of the out-apiaries of these beekeepers are many mil s apart. There are many attractive homes among the beekeepers of these mountain wilds, and, as a class, our beekeepers are fully abreast of the times, both as to the management of their apiaries and the marketing of their product. Most of them are subscribers to one or more of the leading bee journals.

Our me'hod here has been to examine carefully all combs containing brood, in the entire apiary inspected. Our treatment has narrowed itself down to two methods—the McEvoy treatment, always giving two shakings, and the destruction of the bees by sulphuring and burning the

contents of the hives. In the beginning there was so much foul brood in many of the valley apiaries, that it seemed a hard thing to ask a man to destroy so much of his property, as would have been necessary if we had burned enough to rid his apiary from inspecion, so we used the McEvoy treatment almost entirely. This is all right in every way where the utmost care is used, and we were quite successful with it, however; where there are only a few hives infected, I believe destroying everything by fire is perhaps the best thing to do.: Our method of burning is to dig a hole in which we place all infected matter to be burned. After it is burned, we fill the hole with earth. In this way there is no honey left scattered about to be taken up by the bees. Six years ago we found quite a large number of apiaries, where from one-half to two-thirds of the colonies were diseased; now we do not find more than one diseased to where there were fifteen at that time. In fact, we believe that we now have foul brood so well under control that it is no longer a serious menace to the apiaries of our County.

I attribute all our success to the hearty co-operation of our beekeepers in their done everyting in their power to aid the work of the inspector, and to rid their yards of disease as soon as they became aware of its presence in the colonies. So our work has now is most important duties in instructing beginners to detect the disease, and to assist those who have had no experience with it. There are many beekeepers in my territory that I feel it would be perfectly safe to leave without inspection, as they would not tolerate disease in their yards. However, all want their bees inspected, and as soon as the season opens I have calls faster than I can fill them to come and inspct beees that are to be moved.

The brood found here is American foul brood. We have also some cases of "pickled brood" and bee paralysis. Neither of these last have proven serious here.

The tendency here, as in the East, is to branch out—to "keep more bees." Mr. Hutchinson set the ball rolling, and there is no telling where it will stop. In the summer work among the mountain bee ranches my wife accompanipes me and we camp. We are usually a few days in a place. The work lies amid beautiful scenery in perhaps the best climate in the world. We have made many pleasant acquaintances and friends among the beekeepers and their families, and the work is, on the whole, enjoyable.

Bees in a Man's Pocket.—The vagaries of a swarm of bees caused some excitement at Wimborne. Leaving the hive the bees flew in large numbers in front of a jeweller's shop, and when Mr. Charles Monckton, who is an expert in apiculture, appeared they immediately settled on him, crawling all over him. He explained that probably the queen first alighted on him and then had flown away. The bees got into his pockets and made a thorough search for the queen, but all in vain. Children soon joined in the search among the bees for the queen, but she could not be found.—"Standard."

Bees and Starlings.—For twenty years bees have hived themselves in the wall of a house on Merle Common, Oxted. This year Mr. Bernard Malyn cut away the brickwork and found a large quantity of comb containing about 3 cwt. of honey, of which he managed to secure 2 cwt. In addition, he succeeded in hiving over a bushel of bees. In the hive Mr. Malyn also found a starling's nest and a qauntity of egg shells, and the occupier of the house states that a brood of starlings were hatched there this season. The bees and starlings entered their abode by the small aperture, and had lived and worked harmoniously together.—"Daily Paper."

CORRESPONDENCE.

Sydney,
January 18, 1910.

Brother Beekeepers,

Among the most regretable matters of beecraft to-day is the most pitiful spectacle of the Secretary of the R.A.S., havhaving allowed himself, and by his "official acts," his council to become involved in what may now prove to bring unexpected resuls.

I am aware, as the junior arm of your Executve which issued the new celebrated circular to beekeepers in perfect good faith, and with a view to strengthening exhibiting beekeepers and the R.A.S., and that the official has been gratiously pleased to forward, as closing their correspondence on the subject a typed letter which really amounts to a pardon.

I have alluded to this as a regretable incident because it hampers this Executive in their efforts to minimise the effects of what the writer judges to be the carefully organized dis-organization of beecraft, in the past, after an opportunity afforded by ten or twelve years of observation and a fairly good knowledge of the undercurrents.

Following, as it does, a capricious season, with the late devastating floods in many honey producing districts, with the prospect of a late honey flow or none, and an early show, your Executive and Committee may well view with regret and dismay the weakening of its own and the R.A.S. influence in the direction of obtaining an increase of the number and volume of exhibits, which may follow, but which they sincerely hope will not.

Leaving the matter with you,
I remain, Gentlemen,
Yours fraternally and officially,
J. J. BRANCH, Hon. Sec.

A customer writes:—We are having a bad time with bees in this district; no honey last season, and none so far, and the bees have some dwindling disease which is contagious and very hard to combat. I work 150 hives, and have difficulty in keeping the bees alive. No doubt, a good honey flow would remedy matters.

(Similar letters reach me very often, and from various parts. I experience the same in a way. Is it, therefore, not high time that beekeepers of 100 hives and over, and others who have the industry at heart, should club together and then try to improve their position? The Beekeepers' Union has already more members than any previous combination ever had; but still we have not, in my opinion, the majority of beekeepers, which should be the case to enable us to take a firm stand in the matter. You stand in your own light and do an incorrect act by not joining this Union now. Our motto should be 'to help one another.' Conditions change, and whilst one time some districts are favoured, at others it is the reverse. We are thus all in the same boat, and if we do not try to help ourselves, nobody else will. Thus it lays in the hands of every beekeeper to assist in the betterment of the industry, which it urgently needs, if we do not wish to slave for others, who now reap more benefit from our products than the produces does.—The Editor, W.A.)

Camp Hill,
Young,
2nd Jan., '10.

Dear Mr. Abram,

Last year I lost about 5 per cent. of empty frames, packed in newspaper and left in hives from ravages of two kinds of moths. This year my idea is to raise extra queens, if you think it wise, and place bees and queen cell in the extracted supers which are all of broodcomb, or to raise nuclei in the broodchamber frames, and when the young

queen begins to lay, then shake the bees into the supers. In the latter case I fear there will be a scarcity of pollen, and in the former my bees may prove indocile if I do not first learn the correct method of handling them.

Thanking you for many favours in the past, I do myself the honour and pleasure of again asking your kind advice and guidance.

Can you recommend a good banisher for large blue and red ants.
which are particularly troublesome, and which I have failed to eradicate by uprooting and scalding.

My apiary consists of fourteen colonies, three of which occupy double brood chambers and twenty-seven supers of seven frames each filled with brood-comb. I have six hive-bodies lying idle.

Dear Mr. Abram, will you kindly sometimes publish a calendar of work that should be done each month in the apiary. It will prove of very great help as my time is much taken up in household duties, and truly time flies.

ENTRE NOUS.—I have framed the following one for myself, but I cannot proceed any farther with it, and, indeed, this much of it may not be correct. Nevertheless, I like to let you see I try to help myself along.

About 1st Aug.—See if bees have stores after winter.

About 1st Sept.—Begin gentle stimulative feeding.

About 1st Oct.—Add supers to prevent swarming desire.

About 1st Nov.—Unite and strengthen best colonies.

About 1st Dec.—Extract when ripened.

Further I cannot proceed.

Again thanking you,

Yours truly,

MISS K. TIERNEY.

(With pure Italian bees, leaving any empty comb in hive is the best way to keep them free from moths so long as the bees have free access to the combs.

I would not advise to split the hives too much; weak stocks are unprofitable. Raise a few queens at a time, and then gradually more; but do not divide strong stocks if there is a chance of a good flow, as the honey crop is the profit.

It is very hard to banish ants. I have tried many remedies, such as kerosene, turpentine, and salt. The latter seemed to have given best results. A strong brine is made and poured all over the nest; but it requires a good quantity to be effective, and can be repeated. Good rain on it helps. Small nests are easily settled with either kerosene or turps. Who knows of a surer remedy?

Your suggestion re a calendar is a very good one and indicates that you take great interest in the matter. I will give a short monthly direction from now, the only trouble is that climatic and other conditions vary so much in the various localities that nevertheless each will have to be guided by circumstances.

I wish others would show as much interest.—The Editor, W.A.)

CALENDAR FOR JANUARY AND FEBRUARY.

Generally during these two months the most honey is being gathered, and the stronger the stocks are when there store. Remove the surplus stores as soon as most of it is sealed and extract, is anything to be got, the more they will replace empty combs where full ones are taken.

Section and comb honey should be well filled and sealed before removing; but should not be left too long finished.

Failing or inferior queens are to be removed now or in March, to ensure the best conditions for next spring.

Very old combs should be exchanged. A comb is getting out of use when it appears black by holding it against the sun.

The Editor, W.A.

A.K., Dungog.—At Dungog it is a real tip-top season for bees and everything else. The late rain has cut off the ironbark flow. We will have a real good

flow of grey and spotted gum in a couple of weeks; s arting to come out now. Hoping you are having a good season.

R.S., Parkes.—No honey flow here this season. Bees dying of starvation, except where they are fed.

BEESWAX.

PRODUCTION AND MARKETING.

By R. Beuhne, president Victorian Apiarists' Association, in the "Journal of Agriculture."

Beeswax, the secondary product of the apiary, is an article of commerce which is always in demand, with but little variation in prices for standard samples.

The production of wax by the honey bee is in a certain ratio to that of honey; thus, bees in trees or box hives yield, on an average, 1 lb. of wax to 20 lbs. of honey. With the introduction of the bar frame hive, and the method of extracting the honey from the combs and returning them to the hive to be re-filled by the bees, the ratio of wax to honey has been considerably altered, and stands at 1 to 80.. In other words, the production of extracted honey for the same weight of wax is four times that of the primitive methed of cutting out the combs to obtain the honey. As a result, he price has declined, while that of wax has advanced during recent years. The wax is the product of a transformation of the honey or nectar when retained in the body of the bee for a time under certain conditions. Many attempts have been made to turn surplus honey into wax by feeding it back to the bees, but none have proved successful from a commercial point of view. While, therefore, the production of wax to honey cannot be profitably increased, so far as its production is concerned, there is room for fuch improvement in the methods of obtaining the wax from the combs, in the handling, refining and marketing.

Thousands of pounds of beeswax are annually thrown away, or burned with old black brood combs, because the old fashioned method of boiling the combs in a bag submerged under water fails in obtaining more than a mere fraction of the wax contained in them. New comb consists entirely of wax, and is white or yellow in color, according to the flora from which the bees obtained the nectar converted into wax. When brood is reared in the cells the comb first becomes brown and, after a time, black, tough and heavy. Each bee larva, before changing to the chrysalis stage, spins a cocoon, and as generation succeeds generation in the same cells old brood comb contains numbers of these in each cell, one inside the other; but, although the appearance of the comb is entirely changed, the original wax cells are still there. When old brood comb is dissolved by boiling in water each of the cocoons set loose by the melting of the comb becomes coated with liquid wax which clings to the fibrous material of the cocoons, and but little will rise to the surface when boiled in a bag kept under water.

To obtain all the wax, or at lea t the maximum from old combs, pressure is required—something of the nature of a cheese press—a stout wooden box securely bolted together and lined with tin; inside of this is a slatted grating and bottom, leaving a chamber of 10 x 10 inches (12 inches deep) into which an ordinary sugar bag is inserted. The old comb is dissolved by boiling and poured into a bag, the latter is then folded down, the press block put on, and the screw gradually worked down. Water and wax escape by the outlet into a separating tank which retains the wax, but allows the surplus water to escape.

There are several types of wax presses, but one wood slatted is preferable to a metal one, as then no heat need be applied to the press body itself to overcome the chilling of the wax in contact with

metal. The amount of wax obtained from old black combs by means of a press, as compared with the old method is 3 to 1, while the time occupied is but one-tenth, and the wax obtained is ready for market is drawn off into suitable cooling vessels.

About 75 per cent. of the wax sold by commission agents in Melbourne is depreciated in value through having been wrongly treated at the apiary. Wax should never be overheated, and it is therefore best always to melt it on water. Wax boiled in rusty iron vessels has a dirty brown appearance; contact with galvanised iron or zinc turns it grey. Bright tin or tinned copper vessels are the only ones which do not affect the colour or character of the wax. Even the oldest comb will produce wax of a clear yellow or orange color if properly treated.

The size and shape of the blocks of wax also leaves much to be desired. The moulds used by many producers are buckets, old milk diches, kerocene tins, wash tubs, &c., into which the wax has been poured and left to set quickly in contact with the metal, instead of on hot water. The result is that the dirt, which will pass through even the finest strainer, is diffused all through the lower strata instead of being in a separate layer which can be scraped off. Quick cooling also results in unsightly cracks and clinging to the moulds. Wax is often sent to market in bags, and the fibre and dust adhering to it still further spoil its appearance. Blocks or cakes should not be larger than 20 lb.; 10 or 12 lb., however, is the best weight. There are many users of wax, such as saddlers, who do not require a large quantity, and who would buy direct at the agents if they could get wax in suitable shape. Even the wholesale buyer will rather pay a little more than re-melt, clean and re-mould. Better attention to the saving, proper handling and marketing the beeswax would well re-pay the beekeepers and add a considerable amount to the total annual value of production.

SEASONABLE NOTES.

BY F.M.R.

REMOVAL OF SECTIONS.

When from a dozen to eighteen sections have been nicely sealed over in the supers, it is generally advisable to remove them, instead of waiting for others to fill. By doing this the fine white cappings, which give the sections a clean, attractive appearance, are preserved, whereas if they are left for any length of time the cappings are apt to become soiled, and, to some extent, unattractive. Such work, however, must be regulated by the amount of time that the beekeeper has at his disposal, for it takes considerably less time to remove an entire super than it does to select individual sections. For this reason some prefer to adopt this latter method, and to remove the super bodily, substituting another in its place. When separate sections are to be removed the operator should have a number of foundation sections ready at hand to take the place of those extracted. In order to determine the state of the colonies the cover over the section should be taken off, and the smoker brought into use to send the bees down below. A cursory examination of the hives will determine whether there are sufficient sections ready to make the work advisable. During a good flow of nectar there will probably be sufficient sections filled to make this work necessary about every ten days.

THE USE OF ESCAPES.

It is chiefly the beginner who employs the section supers, because by this means he avoids the expense of an extractor and other appliances. Consequently the apiary is carried on in conjunction with other pursuits. It may therefore happen

that the owner of the hives has not the time to spare to collect the sections in small numbers. In this event it is better to delay operations until the supers are filled or nearly filled. They can then be removed bodily and others substituted in their place. When a super is to be put on to take the place of the one removed, it is necessary that the bees from the filled portion should be transferred to the lower portion of the hive. This is best managed by resorting to an escape board. After the propolis connections which join the super to the lower part of the hive have been broken, the upper story should be gently prised up with the aid of a chisel or similar implement, and the escape board gradually inserted between the compartments until brought flush with the bottom of the super. By the adoption of this method the bees will be preserved from injury, and much heavy lifting will be avoided. If the escape boards are placed in position towards evening it will be found that by next morning the filled super is practically empty of bees, and it may then be removed without difficulty.

ROBBER BEES.

Unfortunately, the natural desire to obtain honey as easily as possible is not an unusual characteristic in bees. About the time extraction from frames commences robber bees are often in evidence They may frequently be detected hovering about on or near the alighting boards, waiting an opportunity to gain entrance. Generlly these bees will seek to gain admission into the weaker hives of the apiary, where numbers offer the least resistance. An easy method of determining whether robbers are active is to sprinkle a suspected colony with flour as they emerge, and to then watch for their appearance on the alighting boards and other hives. A recent number of "Glenings in Bee Culture" tells of a novel way of getting rid of the robbers when a hive is in strong condition. Instead of going to the trouble of smoking the bees, contracting the entrances, &c., an experienced apiarist states that he simply gives the hive containing the colony being robbed a vigorous kick or two. This results in stirring up the bees, and they come out with a rush and pounce on everything in sight. The robbers are the ones that suffer, and a vigorous fight is then kept up against them. A great mistake that beekeepers frequently make is to pour volumes of smoke into a hive when robbers are trying to enter. This pacifies only the inmates, and makes them the more helpless.

THE CAUSE OF FOUL BROOD.

What appears to be a discovery of much importance to apiarists (says the "California Fruitgrower") has just been made by Henry Schultz, county bee inspector, concerning foul brood, a highly contagious and infectious disease, the cause of which has heretofore baffled investigators. Incidental facts of much interest also developed in his experiments. He gives the following account of the discovery, and the processes by which he arrived at it:—

"Early last January I discovered a colony of bees, the brood combs of which were in the most advanced stages of foul brood. The entire brood chamber was literally rotten, and the strength of the society had been so reduced and the bees were in such a degree of discouragement that I met with no opposition from them while examining their stores.

"Every comb in the lower hive was in a thriving state of decomposition, not a drop of honey was to be found, and yet no traces of moth were visible, and with the exception of the filth in the diseased cells the entire hive was comparatively clean. The colony was beyond redemption, and I decided to destroy it. In the evening, when all the bees were at home I stopped up the entrance and killed the foul brood with sulphur fumes, and afterward subjected the combs to the

strong fumes of formaldehyde gas in a tight box, to ensure that all moth larvae or chrysalis were destroyed. On the evening of the following day I burned and buried the diseased hive and bees, having previously selected one frame of brood, which I enclosed in a glass case, making it air-tight and securely fastening it at top and bottom. For nearly seven months I have kept it in my office, where I have observed several important changes. At the end of three months, I could observe with the naked eye a slight trembling of the perforated cappings of the diseased cells, which continued for several days, after which I made observations about twice a week. On August 9 several pupa or chrysalis of beeswax moth appeared on the surface of the comb, and in a few days the entire structure was tunneled and destroyed along the edges, but the centre was left in perfect condition, and suspended by silken galleries constructed by the millers. I have been asked where the moths came from, and whether they had hatched in the filth of the foul brood cells. Being of the opinion that they were direct descendants of the foul brood filth, I decided upon further experiments. I opened the glass case and selected a full-grown moth, took it to my field of operations, and laid it near the entrance to a healthy hive. I now observed my bees in a high pitch of excitement, and in a very few minutes a large number of them swooped down on their enemy like buzzards on a fallen beast. The moth was stung to death. Bees walked around their vanquished foe in joyfulness at their victory, pulling it backward and forward to make sure of its death, and then retired to their house. They knew not that their legs and bodies were literally covered with bacilli from the moth, and that a worse fate awaited them. Fifteen days afterward I opened the hive. The bees were much disturbed, and I immediately detected the peculiar odour of foul brood. Upon closer investigation I found 17 cells infected with the disease, and am satisfied that at least one cause of the malady so dreaded by apiarists has been discovered."

A questioner in the June "American Bee Journal" ask Dr. Miller if there would be danger of introducing foul brood from using the super from deseased hives. To which the Doctor replied: That would probably make no difference. And yet foul brood is such a dangerous thing to have anything to do with that I would hardly want to have in my apiary a bee journal containing an article on foul brood." If our friend D.M.McDonald should hurl the above at our thich heads, we would certainly be down and out; the more especially in view of the fact that friend Byer said in his "Notes" recently that a recent issue of the C.B.J. contained so much foul brood that he could almost smell it! The good old Doctor has lost none of his humor during his forty years among the bees. We wonder if he would let us pass through his apiary without first disinfecting us? We hope some day to have the opportunity of putting him to the test,however.
