

The Australian bee bulletin. Vol. 19, no. 2 May 31, 1910

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

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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. 19 No 2.

MAY 31, 1910.

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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.—MAY 31, 1910.

EDITORIAL.

Mr. J. Sullivan's letter, as printed elsewhere, affords another instance that the actions of the Union are beneficial to beekeepers, else the applicant might have secured the lease.

What we have to impress upon the authorities is that in case beekeepers leasing any area they should be exempt from ringbarking any trees that are of use to them when blooming. As at present certain conditions have to be fulfilled, and a certain amount of ringbarking is one of them, and is considered an improvement, whereas to the beekeeper it means the contrary. Now, as there are numerous cases arising in the same way, the question may not be out of place. To establish a fund to which every beekeeper contributes a small sum, such fund to be used for the purpose of defence of any member in material difficulties which he alone could not undertake to defend. In other countries such funds exist and are beneficial; but here the population is yet small. In any case beekeepers are now afforded an opportunity if they turn up at the meeting at the end of June, and there formulate their course of action for relief, be that by deputation or otherwise. Beekeepers! Make the meeting a booming success!

A new method of livelihood is now opening for literary-inclined beekeepers. Several bee journals offer prizes for contribution, and thus, with a few more papers or prizes, the successful competitors at least can make something out of it. In my time I have written hundreds of articles, and have given useful information free; but the days of free exchange of thought seems to be past. Actually, I do not know why a beekeeper should give his information free any more than other professions.

Mr. Frank Curr, Dungog, was asked to award the prizes for April competition, and has been pleased to comply with my request. I here proffer my best thanks. Mr. F. Curr also writes that he has a late honey flow from brush iron-bark.

Like a comet there appears occasionally a report of bees transposing eggs from one cell to another, but substantial proof has never been brought forward to demonstrate the facts of the case. And why not? Because bees **do not** transfer eggs. They cannot do it. The new laid egg is coated with a gluey substance by which means the egg sticks to the cell, and then hardens. If now the bees attempted to remove the egg it would get injured in its shell structure, for one thing; for another, the bees could not fasten the egg to the cell

bottom in the usual way. Try, and observe; but how anyone can see the bees deposit the shifted eggs in the bottom of the cell is more than I can grasp; and yet is believed by some.

First class honey is rather scarce and easily fetches 4d. per lb. in bulk. Canded and dark coloured honey is, however, fairly plentiful and lower in price; but as best honey is not obtainable the other finds buyers.

The Victorian Apiarists' Association will hold their Annual Conference on the 21st and 22nd. June, at Sargent's Cafe, 28 Elizabeth Street, Melbourne. Our best wishes are with them. Meetings like these, if carried out in the proper spirit, cannot fail to fraternise beekeepers and aid the industry. Your humble servant would like to be present, but the distance is so great.

A writer in a contemporary, referring to a paragraph in another bee paper, wherein the writer recommends feeding honey instead of sugar syrup, ask: "What answer would he make to the following, copied from "Gleanings," March 1st.—

"Did you ever know your bees to smear their hives all over inside? I have two that did it to-day, and yet they did not fly much. What would you do with them? Those I fed on sugar are all as nice and bright as they were in the fall. The two in question have all honey dew."

The answer is an easy one and is contained in the last sentence of the cited paragraph—The two in question have all honey dew. Honey dew is not honey, and perhaps worse as winter food for bees at rest than sugar. How the questioner omitted to note this fact I do not

know, nor is the writer asked to make further explanatory remarks than to point out again that honey is a more natural bee food than sugar. If sugar syrup is as good or better for bees, why do all beekeepers praise honey as the most wholesome and easily digested sweet? And who guarantees that some such fed syrup may not come into the future extracted honey?

Anon the foregoing, the following speaks loud; but if sugar syrup is as good, why, there must be something wrong somewhere:—

HONEY AND HEALTH.

"Honey is a medicinal curative agent, with bland, healing, feeding, fattening, nerve-soothing properties of the highest value in disease." So writes Mr. Archibald Hope, of Macclesfield, in an interesting booklet just issued, entitled "Honey and Health." Honey, he explains, is "nature's form of sugar," and he claims that honey-tea will cure indigestion, and that, if taken hot an hour before meals, it is a remedy for dyspepsia. Honey-tea" is made by dissolving a tablespoonful of honey in a cup of freshly-boiled water. The "tea" should be sipped as hot as possible, three or four times a day, before meals. Many types of colds, coughs, and sore throats, Mr. Hope says, may be cured by honey. "Honey drink," for a cough, to be taken at bedtime, is made with a tablespoonful of honey, the juice of half a lemon, a teaspoonful of ipecacuanha wine, and a half-pint of freshly-boiled water. According to Mr. Hope, "honey-tea" will help a man to struggle against alcoholism and the drug habit, strengthen the voice of speaker or singer, and improve the complexion.

When you want Honey Labels send for Samples to the "Bee Bulletin" Office.

BEEKEEPING FOR FARMERS.

BY D. M. McDONALD, Banff.

Farming goes quite well with bee-keeping if the latter is carried on in such a way that it will require a minimum of time and attention during the busy season. On almost every farm in both islands, the pastimes are favourable to the successful prosecution of the pursuit, because the bees are, at each homestead in the very centre of an abundant amount of clover of all kinds. Therefore, whichever way they wing their flight, they find nectar-bearing plants in close proximity to their hives. Some, indeed, of our most successful apiarians are extensive farmers. Accustomed to give close attention to every crop in its season, they are well fitted to discriminate when bees require being dealt with, and, going out and in constantly, they are perfectly familiar with the dates of blossoming, and the time when plants are likely to yield and abundant flow. Passing the line of hives, as they are almost bound to do several times a day, they can note the progress of the bees in their work by outside observation as very few of us can. If their work is strenuous, and their time limited—which is too often pleaded as an excuse for not keeping bees—they should be taught that the toiling workers during three-fourths of the year require practically no attention, and that, during the other three months, modern and improved methods enable them to carry on the work with a minimum of care, and at the cost of very little labour.

It is a well-known fact that we who work for comb honey have to devote far more of our spare time to our bees than those who work for extracted honey. Here is a hint to the farmer! He should adopt the extractor, and work for that form of honey which will most effectively dovetail into other seasonable lab-

ours. That, in itself, is a step forward, but we can advance on that, and give him an improved system of procedure. Here it is in brief:—

In early spring note all the best colonies—those, at least, blessed with the most bees, and especially those provided with the largest spread brood at the spring examination. When they are approaching a crowded position—perhaps towards the end of May—add a second full depth body, allowing the queen the full range of both sets of frames. This will not only provide a strong force of bees, but, during June, by supplying ample room for the bees' ingathering to be stored, and full scope for the queen's laying powers, will effectually check all thoughts of swarming. In a good year a shallow body box may be added above the top frames to allow the storing of surplus, if the forces of bees is powerful enough to require such an extensive space. If not, then they will soon after require it, as white clover yields its best. The great point is that, during May and June, the bees have required simply no attention. The adding of the deep, and later of the shallow, frame bodies, was the work of five minutes. The ample room supplied has acted as well as if a watcher had given them daily attention; better, perhaps, because left to their own devices, they have given their undivided attention to unremitting and indefatigable work. The critical period when the swarming fever is generated, has been safely passed. The bees are now increased to a mighty army, and, accustomed as they have become to storing above their brood, they are, with the chief flow on, ready to concentrate all their attention on surplus gathering. In this frame of mind, we can deal with the brood nest by curtailing the ovipositing space. Either of two courses may now be followed. Take away the body containing most brood, and confine the queen to the frames con-

taining least, but likely to be heavily charged with honey, which the bees will quickly consign up stairs to make room for future brood, and give shallow frame bodies above according to the needs of the bees. Or, secondly, the queen may be confined to the lower body by excluding zinc, leaving the second body to be used by the bees as a surplus chamber as fast as the young bees hatch out, adding, of course, other shallow bodies if needed to keep the workers actively employed. Give them ample room, and never curtail storing space. If in a purely clover, or lime tree, district, this is all the manipulation required till the end of the season compels all surplus chambers to be taken off and all frames extracted at one operation. With the exception of extracting, which may be done any time in August, when farm work is slack, all the operations advised above never interrupted any other work on the farm. Too many of those who engage in apiculture devote too much time and labour to their bees. Fussy manipulations do more harm than good.

Where heather provides a second harvest for the bees, after the clover honey has been taken off and dealt with, supers of sections should take the place of the shallow frames in early August; and, as all swarming inclination will now be a thing of the past, the super area, and, if necessary, the brood body, can be contracted to force most of the storing in the surplus chamber.

Managed thus, beekeeping ceases to be an interruption to any other pressing work on the farm, and becomes not a toil, but an interesting and fascinating hobby; one, too, that may be prosecuted in spare hours, for all the operations recorded above may be carried out in the early morning hours, during the mid-day interval, or after labour in the fields is over for the day.—“Irish Bee Journal.”

A STUDY OF THE EYES OF BEES.

BY C. P. DADANT.

The discussion of the question of distances travelled by bees in search of honey has raised the question of eyesight in bees. On this point, as in many others, there seems to be some difference of opinion.

As my readers are aware, the honey-bee is provided with 5 eyes, 2 very large compound eyes, placed on each side of the head and three small eyes called scientifically “ocelli,” arranged in a triangular position at the tip of the head.

There is uniformity of opinions to the purpose of the small eyes. Then honey-bee needs to see in the fields at considerable distance, but it needs also to see in the hive at a very close range, and entirely in the dark. The ocelli seem fitted for that purpose. Thos W. Cowan, in his anatomical description of the honey-bee, quotes Muller, a German, as remarking that, “from their structure, their power of vision was confined to the perception of very near objects.” Lowne, an English entomologist quoted by the same author, says that the function of the ocelli is the perception of the intensity and direction of the light rather than vision in the ordinary acceptance of the term. They conclude that the ocelli are useful in dark places and for near vision. Bees certainly cannot see a distance, in the dark, and the use of the eyes must be confined to a reach of less than 2 inches when inside of the hive. All apiarists who have tried handling bees in the dark know how they fly at random and crawl about over or through one's clothes. But the least motion, within a couple of inches near the entrance in a dark night will draw their attention and cause them to fly at the intruder in defense of their home. They will even resist intrusion

more promptly at night than in the daytime, probably because during the day they can better discern the actions of persons at a distance and more readily realize whether danger is at hand. Bees do not take offence at slow motions, and this is plausible. We will ourselves beware of a nervous horse and avoid his heels more carefully than those of a peaceable animal. The bees seem to have as much tact in recognizing nervous persons as the most intelligent of our domestic animals, and even more than human beings possess.

Cheshire appears to have a like opinion concerning the ocelli of the bee, saying that they are very convex and are adapted to short-distance vision. The French entomologist, Girard, expresses himself in almost the same words, saying that the ocellus presents a very convex cornea in connection with a microscopical function at very short range. One writer, however, Rauschenfels, in his explanation of the excellent microscopic studies of Count Gaetano Barbo, engraved by Clerici in the '70's, says that the ocelli may serve to see at great distances.

The compound eyes are formed of a great number of facets. Cowan says from 3500 to 5000 in a worker, and many more in the drone. Cheshire, whose authority seems to be accepted even by foreign scientists, places the number of facets in each compound eye of the worker-bee at about 6300, which would give that insect 12,600 different eyes, turned to almost all points of the compass. Most of the writers spend a great deal of time arguing whether the bee does not have a multiple reproduction of the objects seen, similar to what we see when we look through a prism. It seems to me that it is only necessary to think of our own eyes, two in number, yet not giving us a double sight of objects, to understand that the numerous eyes of the bee give her only a sin-

gle view of objects seen; but the field of vision given by so many eyes is greatly enlarged over our own. By closing one eye we immediately perceive how much reduces becomes our field of vision and we thus realize how much more and how much better we could see in all directions, if we were possessed of compound eyes, returning all their combined impressions to one nerve centre.

That the compound eyes are of use to see at a distance is doubted only by one scientist, whom I mentioned in a previous article. Mr. Bonnier, a Professor at the Sorbonne, denies the sight of bees at long distances and claims that they can find their home, if they are blinded with a preparation of darkened collodion. Yet he acknowledges—nay, he teaches—that which the merest novice in apiculture knows, that the young bee, at her first flight, carefully scans the surroundings of her hive before taking her departure for the field. The first flight of the young bees is an interesting sight, for they circle over and over again around the entrance, enlarging the circles as they go until they are lost sight of.

How far can the bees see? Some one calls my attention to the fact that Lowne has calculated from the angle formed by the lenses of the compound eye that at a distance of 20 feet, bees can distinguish objects from one-half to one inch in diameter. But they can see a field of clover 2 miles away, if the configuration of the country is such as to permit them such a range? This is a point that I would like to see settled. Personally, I doubt it very much, even though I see it supported in an editorial in "Gleanings" for July 1st. The editor E. R. Root, seems to agree with me as to the range of bee-pasture—he puts the limit at a mile and a half for ordinary range, but thinks that in a hilly country bees will fly farther because they can see far-

ther. I am inclined to think that their olfactory organs are even more acute than their sight and it seems to me that when they go to greater distances than above mentioned, it is with the guidance of the odour of large fields of strong-smelling blossoms, such as busk-wheat or basswood.

In spite of their marvellous eyes, bees make errors in location. Many young bees, after the first flight, return to the wrong hive, if they happen to be located where many hives of like form and size are closely gathered. These errors of the young bees can be most easily detected when a new race is introduced in the apiary. A few yellow Italians are readily traced to the hive of common bees which they may have entered by mistake. If the season is favourable, as they do not come as robbers, they are often very peaceably welcomed by their neighbours.

The eyes of the drone are very much larger than those of either workers or queens. They appear to occupy the entire side of the head, and join together at the top, so that the ocelli are in front of them instead of between them. Why such powerful sight—26,000 facets in the eyes of a single insect? Because the drones spend their time of flight seeking for a mate. The queen must be found and met, in the air, on the wing.

Even if we were to grant to the bee a "sense of direction," such as is claimed for them by Bonnier, which would enable them to find their home from a point not previously visited by them, and which would be a sort of instinct, we would still have to recognize that their eyes must be powerful to enable them to find the hole in a tree in the heart of the forest, when seeking for a new abode for the swarm. That the bees should find the key-hole of the honey-house, to carry away the honey,

may be explained by their organs of smell recognizing the presence of their product in that honey-house, but the hollow tree has no smell that can attract them. Can we deny the existence in them of even more acute senses than our own?—"American Bee Journal."

THE NEW SOUTH WALES & COMMONWEALTH BEEKEEPERS' UNION.

RULES.

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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 beekeepers 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 requested 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.

* * * *

A meeting of the above Union was held at Rawson's Place, Sydney, on the 16th inst. Present: Messrs. W. Abram, J. J. Branch, Henry Lord, J. J. Parry, and, by invitation, Mr. J. Rae, Eastwood. It was agreed that a list of members be printed together with the voting paper to elect the Executive for the ensuing year and be posted to every member, to enable each to record his votes.

The Hon. Sec. and Treas. stated that owing to insufficient time at his disposal, after June 30th he would not again take any office on the Executive. Mr. J. Rae, Eastwood, an energetic beekeeper, is, however, willing to accept the secretaryship, and in him the industry will secure a valuable addition.

A lengthy discussion took place as to the holding of a beekeepers' convention and annual meeting of the Union. The Hon. Secretary had been busy and submitted the charges per day and night for a suitable hall, which prices were considered very satisfactory. The date could not yet be definitely fixed, the President having been unable to obtain the information from the Railway Department as to when the excursion trains would arrive in Sydney towards the end of June. It was decided that a shorthand writer be engaged to take down the proceedings of the meetings, with a view of publication. The Executive now invite papers to be read, and those unable to attend will please send

papers to J. J. Branch, Enmore, or W. Abram, Beecroft, before the 25th of June. But the Executive expects a large attendance of members.

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 published 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.

Result of PRIZE COMPETITION—
April Issue.

- 1st "Hive Covers." Miss Penglase,
 Bushy Park, Victoria.
- 2nd—"Wintering Bees." Thos. Armour,
 Fernbank, Victoria.

FRANK CURR, Dungog, Judge.



Nangus.

Dear Sir,—Yours of 6th April to hand, inquiring how I got on about lease. I am sorry for not being able to let you know before. After writing to you, I and two others lodged applications for part of reserve also. When it came before the Land Board they were disallowed, as we applied for residential leases, and this reserve does not come under the Gold Field area. In the face of the district surveyor's report, Mr. Cornett withdrew his application in favour of us. I now have the matter in the hands of my solicitor, and am trying to get reserve cut up into 20 acre blocks. By doing this I will get the benefit of a big part of it. This was the only course I could see to pursue, as I think it would be better to have part of it than to leave it for someone to come along and take the lot. I will let you know how we get on. We will have to wait, now, I suppose, till the surveyor's and inspector's reports are sent in. Judging by the way they reported on reserve at the Land Board, I think we have every chance of getting it. By this you will notice I could not see my way clear to take the steps you advised; but

I wish to thank you very much for your advice and the interest you have taken in the matter.

Yours respectfully,
 J. SULLIVAN.

* * * *

Pomona,
 North Coast Line.

To the Editor "A.B.B."

Dear Sir,—I do not get my living at beekeeping; it is more a hobby, for I have never sold enough honey to pay for the expense of up-keep, as I have been away from home to one part of the State and another; but for the future I intend going in on a bigger scale and give more attention to them.

My occupation is house builder, but soon I will be giving it up as I am not growing younger, and beekeeping is not altogether heavy work and will keep me at home more. I have about 30 hives and will be building a suitable honey house to start with. I have found it very suitable for bees all the year round in this district; the only thing is in getting dark honey, and rather dense.

I am,
 yours truly,
 FRANCIS BALE.

* * * *

W.M., Condobolin, writes:—My bees have been very dull this year. There was no honey in the trees at all, the winter keeping dry, thus giving the yellow box a chance to come out, which, I think, they will winter down on very well. I think we are in for a big time next season. Hoping you have had a better time.

R.H.G., Glen William, writes:—The past has been only a fair season with us. We are holding our honey for better prices, if possible. Hoping you had a good time.

for the bees W.N., Sen., Eugowra, W.N., Sen., Eugowra, writes:—We have had a long spell of dry weather. On the 18th we got 80 points of rain, which was very acceptable. It is hard times for the bees in this district.

FOUL BROOD CONSIDERED AGAIN.

BY DR. G. BOHRER.

Recently I called attention to the certainty of ridding an apiary of foul brood, it being a germ disease, by removing the germs which are known to be in the honey, together with the combs, beyond the possibility of access by the bees of the infected apiary, or any other. I referred to the Baldrige method of treating the ailment, which I regard as being a successful method if the bee-escape used is a perfect one. But not as speedy as the McEvoy plan.

This season I have made it a rule to inspect all my colonies carefully once each week, excepting one colony which came through the winter and early spring strong and vigorous, and when the fruit-bloom began to show up it was as far as could be seen at that time free from foul brood; and a super was put upon the hive in which they at once went to storing honey. The combs being already constructed, all seemed to go well until they began to seal the honey in the super, when they slacked up and acted as if they might be queenless, whereupon I looked through the brood-nest and found a number of cells with foul brood in 5 combs out of the 10 this hive contained. The balance were well filled with sealed honey. In the meantime there was a free flow of alfalfa honey, and the bees of other colonies paid no attention to this infec-

ted colony while the hive was open. I at once determined to treat them on the McEvoy plan and prepared a hive to receive the bees by putting starters of comb foundation in each of 10 top-bars, leaving off the end and bottom bars. The starters were about one inch wide. There was no other colony nearer than 6 or 8 feet of the one to be treated.

About 7 p.m., I lifted the colony from its stand, setting it by the side of the same, and placed the hive for their reception on the old stand. Then I at once opened the infected colony with as little disturbance as possible, in order to prevent them as far as could be, from filling themselves with the infected honey of their hive. I lifted out one frame at a time, and did not shake, but brushed the bees off in front of their new home. The brush I used was simply a bunch of catnip in full bloom. This would not scratch the combs, so that no leakage of honey could take place. While in case I had used a rough brush, or shaken the bees, more or less honey would in all probability have been scattered about the hive.

All the combs were put beyond the possibility of being reached by bees. The bees all ran into their new home and at once went to work with renewed energy. And at the end of 48 hours, the bees not having been gorged with the honey of the old hive, had by this time consumed all the honey with which they had left their old home. So that it was safe to give them full sheets of foundation, which I did, and now they show no symptoms whatever of disease but are hard at work, so much so, as any colony I ever had in my possession. Had these bees been gorged with honey at the time I transferred them I would have left them 24 hours longer on the starters I first gave them. In the mean-

time I shall look them over carefully during the next 6 weeks following their transfer, and if a vestige of the ailment shows up, I will destroy the colony, as it will be too late in the season for them to build another set of combs and lay up stores for winter. But I feel confident that the source of the disease has been entirely removed, so that the effect must and will cease.

CAUTION NECESSARY.

It will be observed that I stated that there was no other colony nearer than 6 or 8 feet from the one I treated as described. Had there been, I would have closed the infected hive late at night when all the bees were inside, and removed it entirely beyond the range of the bees of the apiary, and then treated them. This I would deem necessary in order to prevent any of the bees, young or old, from entering any other hive carrying diseased honey with them.

I also deem it proper to state that I have made it a never failing rule to disinfect my hive-tool thoroughly after opening any of the infected hives of my apiary. I also thoroughly cleanse my hands after opening any diseased colony, and before opening another. To neglect this leaves a possibility for the disease to continue to lurk about the apiary, and it is in all probability due to some such neglect that leads some (but very few) to assume the ground that, treat foul brood as we may, it will appear again. And I will here state, that if such persons are really sincere in this belief, they stand in their own light as well as that of their fellow-keepers, in keeping bees after they know their apiaries are infected. For an apiary infected by foul brood can not prove a source of profit to its owner, but, on the contrary, must result in loss to him, and serious loss to his neighbor beekeeper, if not financial ruin.

In conclusion permit me to state that some seem to think it a dishonor to have foul brood among their bees. While I do not take this view of the case, I think it shameful and dishonorable, as well as intolerable, for any one to keep it, and thus favour leaving open the way to harboring and spreading the abomination and source of financial injury, for any one must be either shamefully ignorant or grossly dishonest to do so. But I sincerely hope we have no practical beekeepers who assume such illogical, unreasonable, and untenable ground.

As to the matter of selecting a competent inspector of apiaries, the beekeepers should formulate a law upon the subject, that none but persons well versed in the habits and management of bees can hold such a position. And as to the matter of judgment to be exercised upon the part of such officers in executing the law, I think there need be but little apprehension of fear, for all have the right to show that such officer is guilty of an abuse or maladministration of the law in case he unnecessarily destroys property that can be put to valuable use, together with the unnecessary destruction of bees, comb, honey, hives, and other appliances about an apiary. It should, however, be provided by law that there must not, and shall not by law that there must not, and shall not be any unnecessary delay about the matter of ridding an apiary of this ruinous pest. To begin to borrow trouble that is not in sight is equivalent to the fear of that 80-year-old bachelor who was seen weeping bitterly, and upon being questioned as to the cause of his grief, his reply was that he was thinking what a terrible affliction it would be after he was married and his oldest boy should fall in the fire and get burned to death! —“American Bee Journal.”

SELLING EXTRACTED HONEY.

BY G. A. BARBISCH.

For years I have been in the habit of selling extracted honey from 8 to 10 cents a pound, according to the amount taken by the purchaser. Two years ago this summer while out on the road taking orders for extracted honey, I met another beekeeper who lives within 4 miles of my home. Enquiring what he charged for good, well-ripened honey, he told me 9 cents a pound. What was my surprise when a few days afterward I learned that all round in my neighbourhood he had offered honey for 7 cents a pound, simply to cut down the price for me; and still greater was my surprise when I again learned that within a short distance of his home he sold honey for 9 cents a pound. Is it not a disgrace that there are such beekeepers in Minnesota? Of course, an intelligent and up-to-date beekeeper would do no such a thing. It is only those shiftless and ignorant beekeepers who have no respect for their fellowmen who can do such a thing.

But right here let me say that nine times out of ten, if you ask any of those beekeepers to subscribe for a bee-paper they will say, "No," telling you they do not need a bee-paper because they think they know all they need to know. I have read and studied a number of the best bee-books, take three bee-papers, and every time I find something new and of great interest and sometimes worth dollars to me. When will the beekeepers of Minnesota wake up, organize and demand reasonable prices, as other intelligent beekeepers do in other States? Why should we sell our best honey for 7 cents a pound when we could just as well get 2 to 3 cents more? We all know well that everything has

raised considerably in price the past years. Why should we sell our honey as cheaply now as it was sold 10 or 15 years ago

To give an example of what honey will bring if not misrepresented, let me state the following: Last summer a man in New Jersey wrote to me asking for samples and prices of my honey. I wrote and told him I could not sell and ship honey such a distance unless I would get 9 cents a pound. Great was my surprise when I received a letter from him a few days afterward stating that he would gladly pay me 10 cents a pound, and would pay for the cans and freight besides. Of course, I sold him a lot of honey, and what satisfied me most, he and all his customers are well pleased with the honey, and he has already placed a large order with me for the coming season.

For the past two years I have not been blessed with good health, but how thankful I am that I am still able to look after my bees! How I love to watch the bees bringing in loads of pollen and nectar, how busy they are all day long, and what a great lesson they teach us who are trying to walk uprightly! How as the bees' toil sweetens others, so must we toil and work for the good of our fellow men, and try to make life sweet for others, then when we have reached our journey's end in this world, how pleasant it will be when we look back to the past with the assurance that we have done what we could, and when then our eyes shall close in death we will be able to say with the Apostle Paul, "I have fought a good fight, I have finished my course. I have kept the faith. Henceforth there is laid up for me a crown of righteousness."—"American Bee Journal."

Extensive Beekeepers can't afford to rear many Queens.

BY. M. A. GILL.

Editor "Review":—You have asked me to write an article to the question, should the honey producer rear or buy his queens? I will say in the beginning that this to me is a much mooted question. Dr. Miller, at a National Convention, once gave me a good scoring (in his kindly way) for advocating the buying of queens in a wholesale way. And he so impressed me with the argument that I could raise better queens than I could buy, and so much cheaper, that the next year I tried his plan. Perhaps not his individual plan of rearing queens, but the plan of raising my own queens instead of buying.

At the close of the season, or, at least, next spring, I was convinced that I had lost both honey and money. If I know anything, I think it is along the line of producing honey in a wholesale way and, at the same time, gradually increasing the number of bees for a term of years, and I confess that I am handicapped by lack of knowledge and experience as a queen breeder; and still worse handicapped for want of time, with 1,200 colonies of bees on my hands, to rear queens just at the time I need them most.

It is utterly impossible and impracticable for the large honey producer to keep on hand all the laying queens he will need at all times, and, even where he has anticipated his needs, and has queen cells on hand, he will often find that his cells are in one apiary, and his need of queens are at another; besides, as there is "many a slip" twixt the queen cell and the laying queen, I have found it profitable to buy queens in a wholesale way; having them arrive at

regular intervals, and carry them with me to meet the needs at the different apiaries. Especially, is this true during the month of May, in this climate, the difference between a ripe cell and a laying queen might mean a case of honey, which would buy half a dozen queens; and, during the month of August it might mean the difference between a live and a dead colony the following spring. However, I make it a practice to raise all the good queens I possibly can myself, and think that perhaps if I had only one or two apiaries I would be able to produce nearly all I would use, but would always aim to have a few available queens on hand, for, during May and June, the difference in the value of a laying queen over a prospective one is many times in favour of the former.

That state of perfection which we would all like to arrive at is so hard to attain that I find at least ten per cent. of all the queens I buy are not worth introducing; but even with this array of facts against the queen breeders, I can not find it in my heart to condemn them; for, among queens of my own breeding I find that at least five per cent. are worthless; and even two to three per cent. are found defective among the natural queens of the old let-alone-farmer-beekeepers. So, after admitting the handicap of so much handling and mailing of queens, I have concluded that the queen breeders with which I have dealt are giving us very good service.

Finally, I have concluded, after having years of experience with buying queens in a wholesale way, that it pays me to buy queens liberally to replace superannuated ones, when not prepared to supply them at once with queens of my own.—"Beekeepers' Review."

Manipulation and Suggestions on Wintering Bees.

BY J. A. CRANE.

Of all the many questions discussed in the bee papers, how many are ever settled to stay? What I mean by that is that we think we know something to be a fact at one time, that we are not so sure of it at another time—or we are sure it is not so at all. In such cases we are very apt to charge it up to our scape goat "locality."

UNCERTAIN EFFECTS OF DROUTH ON WHITE CLOVER.

Take, for instance, the questions so freely discussed last winter as to whether the dry season had killed out the white clover. I was very much interested and could hardly keep from joining in, as from previous experience, I thought I knew the right of it. Several years ago we had similar drouth, with the result that here, at least, the white clover was entirely killed out. We had no crop in three years, and I thought we were in for another short crop. The facts are otherwise, as while it lasted, we had the best clover flow that I have known since I kept bees. It lasted only a short time, however, as it was cut short by another severe drouth before it should have been more than half over. Since the fall rains have begun, the clover shows fine for another year. Now this is one of the things I can not understand. Why a drouth should kill it out one time and not another. I should like to know how some of the other positive ones came out.

INTELLIGENT MANIPULATION VERSUS "SHAKING."

Another fad which made a little commotion, is the shaking of bees to give them energy. How can we reconcile

this with the statement that opening a hive and manipulating it will stop the bees from gathering any more honey on that day, or that a colony with a good queen and plenty of honey should not be opened or fussed with at all, as it will build up stronger by letting alone than with any manipulations which it is possible to give. Now I have little faith in indiscriminate shaking, but I do believe that intelligent manipulation is the keystone of success in localities where the honey flows are short and have intervals of scarcity between them. I have always opened hives any time of the year that I wanted to make an examination, whether it was January, or May, and have never noticed any bad results from doing it. I also always begin to open up the hives as soon as the bees begin to fly freely in the spring, and I think that for the first part of the season, or until pollen becomes plentiful from soft maple or willow, that the cleaning of the hive and frames is sufficient "shaking".

BENEFITS FROM SHIFTING COMBS.

When, however, new pollen begins to come in I want to see the inside of the hives often, and right here I want to say that Doolittle's plans of interchanging brood combs is one of the best money makers for beekeepers that I have ever found any where. When shifting combs I also bruise the cappings severely on all combs to be shifted. I have often stated that the brood intelligently manipulated once a week and some honey started to leaking each time, was the best spring stimulant that it was possible to give the bees, and the fact that I generally have about all my colonies with brood in all the frames, most of them solid full, about the time honey begins to come in, is

the best argument for shaking bees that I can find. When the honey flow is on and the bees begin to store honey in the middle combs in the super, I change the fuller ones to outside, for the same reason, and I believe it causes the bees to work harder to fill in the empty comb between those containing honey, than if left to store it outside of the main bunch. I certainly endorse the shake up plan along these lines, at least, as I believe the bees will use up much more of their honey in brood rearing than by any other plan that I have ever heard of.

SOME POINTS ON THE WINTERING OF BEES.

The wintering problem is again with us, and I dislike to butt in among the old veterans with any new ideas, but my candid opinion is that the best way to winter bees, for nearly all beekeepers, is the way that they are familiar with, and with which they have had a fair degree of success. It seems to me to be folly to try to winter bees out of doors in a cold climate, in anything except a well-packed chaff hive, and from an experience of sixteen years, with from thirty to seventy-five colonies, in which time I have never lost a colony that had enough honey to carry them through. I will just give a few points that I think I know to be essential. I have noticed that several writers say that the hives need to have from three to four inches of packing on the sides, and top, also on bottom. I never had a hive with bottom packing, and I don't want any. Many of my hives have half-inch bottoms. One thing that I do want is a hive-stand the same size as the hives, made of boards from six to eight inches wide, fitted close to the ground, making a sort of dead air space under the hive. My hives, while

strictly uniform on the inside, are of various styles as to outer case, with packing ranging from one to four inches. Since I procured my saw, and make all my own hives, I have one and one-half inches for side packing and find it ample; and the hive is much easier to handle than the larger styles. As to the proper top packing, I began keeping bees when the upward ventilation and porous packing had the preference, and I used that plan for several years with success; then, when the sealed cover began to be advocated, I, of course, tried that, also, with good success; and I believe many of these things are immaterial to go good wintering. If the bees have plenty of stores of good quality, I care little whether they have a burlap quilt or a board over them, so that there is enough loose material over all to keep off sudden changes from the top of the cluster. As to the sides of the hive, it makes little difference if a little ice should form there for a few days, as there are combs between the sides and the bees.

One single fact I will confess; it must be mine, so far as I know, as I have never heard it recommended by any one else. It is that of keeping the entrances free from snow. I seldom let the hives remain covered all day unless it be during a storm. Several years ago two of my friends each had more bees than I did. The winter was quite severe, and our bees were all drifted under for a long time. I kept my hives shoveled out down to the entrances all winter, and my friends did not, and the consequences are that they both buy their honey of me now, and have ever since that winter. I have a friend with a good apiary who winters successfully in his house cellar. A few years ago I tried his plan with a few colonies, with the result that I lost nearly all of

them. Then, after a year, I thought I had learned the trick, and tried it again with similar results. Why did I try a new plan when I was having good success with the one I had? Well, simply because good beekeepers in whom I had all confidence said it would save stores for them, and I wanted to save some of that honey for myself, but have not yet succeeded. We have weather here, near the south shore of Lake Ontario, all the way down to twenty degrees below zero, although that is not usual, but ten below is nothing strange, and in the year 1905 the bees were confined without a flight for eighty five days. I do not mean to discourage cellar wintering in the least, as I believe it is all right in the right hands, but to warn any one against making radical changes until sure of getting something in the trade equal to what he is discarding.—“Beekeepers’ Review.”

HONEY.—

Choice liquid is selling slowly at $3\frac{3}{4}$ d., and good liquid 3d. to $3\frac{1}{4}$ d. per lb. Candied is quiet at $2\frac{1}{2}$ d. to 3d. per lb.

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—SYDNEY—

SUGAR THAT KILLS BEES AND BABIES.

Under the title of “Sale of Yellow Crystals as Demerara Sugar,” Thos. Wm. Blake, M.D., relates an experience in the “Times” Newspaper the interest of which is only excelled by its seriousness, as disclosing a fact in the physical degeneration of the nation.

Continuous rainfall having prevented his bees from gathering honey, he supplied them with what was sold to him as Demerara sugar, a food he knew they liked best. To his great astonishment, this was turned out of the hive by the elder bees, though they had neither food nor the chance of obtaining any. He was further surprised to find it undissolved by the rain. Analysis proved it to be a sham sugar, chemically manufactured in Germany, and purchased chiefly by the British poor, who were more easily deceived than the bees, at least old and strong ones, for the young ones ate it, with the result that three hundred were found dead or dying outside the hive the morning after their chemical feed, and, to judge by their death struggles, remarks Dr. Blake, they must have suffered great pain. The next night they were fed with pure sugar, which was devoured without injury. A second feeding with the sham sugar produced the same results, since when they have thrived on pure sugar.

A fair and simple test of the purity of sugar can be made by placing some in a glass stoppered bottle for a few days, then remove the stopper, when, if the sugar is chemically prepared, the odour will be disgusting; but if pure cane sugar—the best and most nourishing of sugars—such as our grandmothers used, only the sweet odour of molasses will be given off.

Further testing showed that the chemically-prepared sugar remained undissolved even after being boiled in test tubes. In twelve hours a "sub-deposit" appeared which proved to be a mineral-oxide, which the addition of strong nitric acid—and again boiling water—would not dissolve. Tin is the hardest of mineral oxides to dissolve. An analytical chemist of high standing informs me that these sham sugars are treated with chloride of tin, which causes the intensely disagreeable odour.

"Now, here is a key to a cruel fraud," concludes the public-spirited writer, "and, in my opinion, throws light on the grave questions on causations of increased infant mortality, due chiefly to diarrhoea and enteritis. We, the faculty, know that these metallic chlorides produce both these effects. This metallic-dressed sugar imported from abroad—chiefly Germany—has, I have no doubt, killed more babies than bees, especially in poverty-stricken towns where it is used in feeding-bottles, with their gruel, or infusion of bread-crusts, as a chief substitute for milk for infants. In the country the poor children get natural feeding, and the mothers are better nourished to supply it, and their progeny are therefore stronger. Hence the difference in infant mortality in towns and country, and the physique of the survivors. An ill-nourished baby will not develop into a strong man. I blame the sugar brokers and not the retail traders in putting this chemical sham-sugar on the market, and also the Government and those in legal authority in not prosecuting them, the brokers, instead of the innocent retailers."—"Herald of Health."

LATE EXTRACTING OF HONEY.

In years gone by I extracted before all the combs were fully sealed; of late years I have not done so. I am convinced the former practice was the better way for several reasons. To me the strongest reason is that you do not have to be constantly trying to circumvent a mighty army of robber-bees. 'Tis no fun to have such bees everlastingly poking their noses into every hive you open and into every lot of honey, comb or liquid, that you have to, of necessity, leave exposed for even ever so short a while.

Some will tell you that you get a much better honey by leaving it on the hive to the end of the season. I have not so found it; I have had just as excellent honey in quality and body, when I extracted it every few weeks as I have had by allowing it to remain until the end of July. Besides, you cannot keep the different grades of honey separate; you get a stiff, mixed-up conglomeration that has a sort of composite colour and a bastard flavour. Some might like it: I surely don't.

Then the labour of it; you cannot work so fast or so nicely with the late, pasty honey. It won't uncup easily; it won't extract speedily; nearly half remains in the combs unless you give the combs a "Virginia Reel" that knocks the very life and usefulness out of them.

Then, too, you have a time of it getting the thick honey to pass through a strainer, or even to flow through faucet or from bucket. Such is the thick honey I have had to deal with. And if after all this trouble I could get a better price for it I might be somewhat compensated. But too often it has to be sold for less than the honey that is taken as the flowers bloom, and that is of fair consistency and delightful flavour and sparkling clearness. Be-

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sides, your crop is not so large, for by keeping the bees busy with frequent extracting you naturally, I might say, get a greater quantity, and that's what we are all after, so long as other things are equal.

It may be possible that beekeepers in other localities may find it more to their interest to extract at the end of the season; if so, do so, but for me I find it otherwise, as stated.—“American Bee Journal.”

GENERAL NOTES.

By F.M.R.

DISINFECTION OF HIVES.

The wholesale losses of swarms, consequent upon the visitation of a disease resembling *Nosema apis*, makes it necessary that some steps should be taken to prevent the further spread of disease. Unfortunately, all apiarists, when they find their colonies affected with foul brood and other diseases, do not take the precaution of disinfecting their empty hives before putting them away or using them again. There really is no excuse for this carelessness. Of course, some argue that there is no need to disinfect hives that have contained swarms weakened by many of the minor diseases or pests, but, on the other hand, it is safer to do so, for the germs of disease may remain in a hive for many months before breaking out afresh, or after the first outbreak no further losses may be occasioned. But the methods of disinfection are so simple, and the cost of the work so cheap, that the wiser course to follow is to err on the side of carefulness rather than on that of carelessness. From fifty to a hundred hives, or even more, may be treated in a couple of hours under systematic management. Both fumigation by the use of lighted sulphur, or by using bi-sulphide of car-

bon, are effective means of cleaning out hives, and the cost with either material is trifling.

STACKING THE HIVES.

In the course of treatment, it is necessary that every part of the hive should receive attention. The bodies, covers, frames, bottom boards, and supers are all equally likely to harbour disease. To cleanse portion of the hives without treating others is scarcely worth the time and labour involved. If, first of all, the frames are removed from the underneath hive, and the jar containing the sulphur is ignited and placed on the bottom board, the remainder of the bodies, together with the frames, may be stacked one on the other to any height desirable. When the topmost hive has been placed in position, its cover should be firmly secured over it to prevent the escape of the fumes. During the greater part of the time in which the sulphur is burning, the entrance to the underneath hive should be kept open so as to create a draught, and later it may be closed by throwing a few shovelfuls of earth in front of it. This will probably cause the ignited sulphur to cease burning, and the hives may then be allowed to stand for some time, to permit of the fumes doing their work thoroughly. When bisulphide of carbon is employed, it should be placed in a vessel, and hung from the cover of the topmost hive, as the action of the fumes from this chemical is to strike downwards. The remainder of the lids and bottom boards should next be treated by immersing them for a few minutes in boiling water.

TREATMENT OF FRAMES.

Where inroads have been made into the strength of the colonies by the moth or other pests that, if left in possession would make the comb wormy and use-

less, preference may be given to the bisulphide of carbon treatment. It is easier to use, and both quicker and more effective in its action. The only thing necessary in its use is care. This chemical is highly inflammable, and should therefore be kept well away from fire. The frames to be treated should be left hanging in their usual position in the hives, but the top and bottom boards should be removed to allow the fumes to travel right through the stack. After the bisulphide has been placed in the hives, it is a wise course to envelop the whole stack, by covering it with a tarpaulin, so as to prevent the escape of fumes through the cracks and entrances. The same chemical may be used for getting rid of the ant difficulty. Where mounds exist in close proximity to the hives, a crowbar should be used to open them up to a depth of a foot or two. About half a pint of bisulphide should then be poured down, and the holes filled with earth and well trampled down. Usually one injection of this nature is sufficient to kill or dislodge the ants, but, if necessary, further similar treatment at the end of a month will rid the apiary of this pest.—“Leader.”

AMONG THE BEES.

FERTILE WORKERS.

Reim, about a century ago, discovered that quite a number of worker-bees were able to lay eggs, but he seems to have made no investigation as to the why and wherefore of this strange anomaly. The patient and indefatigable Huber verified the discovery, and by diligent research proved that their origin is brought about in hives for some time queenless, which have failed to rear a fertile queen as a successor to the one lost or deposed. It is a well-known fact that an egg which would produce a simple worker can, by the bees' prescience, be converted into

a queen if the workers begin a special treatment in time and enlarge the cell to one of royal shape and size. The royal jelly, by whose potent power this wonderful transformation takes place, is lavishly produced by the bees in their eagerness to rear a mother, and it is natural to think that some of the larvae in cells in close proximity to the royal cradle may by chance or design receive limited supplies of this highly-concentrated food, with the result that their ovaries, dormant in the real worker, may be partially developed. The supply being only partial, full motherhood is denied them; but they have the marvellous power of laying eggs, out of which, however, only drones can be reared. So far they can act almost to the same degree as an unfertilized queen, which can lay only drone-eggs.

Fertile workers appear in hives more commonly than is generally known, but they are not allowed to exist when the colony is headed by a fertile queen. In queenless hives they may, and as a rule do, exist in considerable numbers, and become a nuisance, as the workers really treat them as queens, with the consequence that such hives will seldom accept a queen, however carefully she may be introduced. Possibly many rejections are due to this undreamt-of cause. Their presence in a hive may be discovered by the peculiar manner in which they deposit the eggs in the cells. They have a preference for drone-cells, but are not specially discriminating. Fertile queens lay eggs systematically in close batches, one in a cell, unless they are extra prolific, or bees are so few that they cannot cover them. In these cases they duplicate, but instinctively keep in or near the cluster. Fertile workers roam over the combs, laying a few eggs here and there in a way no queen ever does. A good illustration of their style of depositing can be seen in the “Guide

Book," page 13. Of course, as they can only lay drone-eggs, the stock pestered by their presence will quickly run down and soon become extinct; so it is well to discover some means of getting rid of these anomalies.

SOME CURES.—1. Perhaps the best plan, and the one saving most trouble, is to break up the colony and place one frame in as many hives as they number. Important as the partly-developed would-be matrons assume themselves to be in a hive where they try to share the burdens of motherhood, they are nonentities where they now find themselves, and are either evicted or forced to desist from annoying the community. In any case, their presence fails to create any baneful influence. 2. Take the hive on a mild, sunny day to a quiet corner of the garden, spread a cloth of newspaper on a walk or level space, and dump the whole colony down thereon. Shake every bee off the frames one by one. Rearrange the frames in the body-box while the bees are still dazed by their unwonted treatment, and carry it to the home stand, placing everything in position as it was before the "earthquake" disturbed their equanimity. The shaken bees ("shaking" does good here), on regaining their senses and finding themselves not a farthing the worse, look about them, crawl a little to certify that no limbs are broken or out of joint, and then take wing. Naturally they all take a bee-line for home. The would-be matrons, not having been "fielders," do not know the way there, and if they attempt entrance into any hive are treated as undesirable aliens. 3. Such colonies are rarely inclined to accept even a fertile queen, but cling to these fertile weeds, even to their own undoing. Try this plan: Coat a queen with the honey from one of the frames which have been shut off for some time by double excluder-zinc at one side of

the hive, and let her act as queen of that frame for some hours. Shift this frame to the centre of the hive late in the evening, with the adhering bees, the queen, and the eggs she has oviposited. The bees defend her majesty if the others molest her, but they rarely do. 4. Stupefy the bees, as was commonly done of old, by fumigation, or, another ancient practice, "drown" them, and let the queen run in with them on to the combs when they are resuscitated, and they will depose their rivals and accept her as their queen regnant (I do not strongly recommend this plan, as better means have superseded these old recipes.) 5. I have left my best "wine" until the last. Confine the bees of the hive to, say, five or six frames. Place a "Wells" dummy alongside of these, and carry a small nucleus lot of two or three frames and place them in the vacant space. Of course, the bees are headed by a fertile queen. I think in twenty-four hours the dummy may be withdrawn and all the bees treated as one stock; but to make matters more certain it would be better to add only one frame at a time daily to the nucleus.—D. M. M., Banff., in "B.B.J."

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If Retreat is necessary, Let it be done in good Order.

BY W. Z. HUTCHINSON.

In telling, recently, in the "Review," of the mistakes that I had made in a beekeeping way, I mentioned that of trying to winter roo colonies in the cellar by confining the bees to their hives with half-stories under the hives, and wire cloth over the lower sides of the half-stories. I thought that the screen was so far below the cluster that the bees would not know that they were shut in; but the warm weather, high temperature, aroused them, and soon the screens were covered with a mass of frantic bees. When the winter was half-gone I saw that there would be no live bees left in the hives by spring, unless some radical measures were taken, so I took them out of the cellar and moved them to the yard in the edge of the woods, and removed the half-stories. A few of the colonies were dead, many contained only a handful each of live bees, while a few were in a passably fair condition.

There was no question that the bees and I must make a retreat; that things must go backwards, or downwards, until the coming May. It would be sad, heart rending, "blasted hopes," and all that, but I set my jaws together, planted a heel firmly on the ground, and resolved that, if retreat must come, it should be done decently and in good order. Not an inch should be relinquished without a fight; and there should be no panic. In spite of all I could do there would be a big loss, but no stone should be left unturned to keep it as low as possible.

HELP FROM PROTECTION.

First, I contracted the entrances to about half an inch square, then I made some division boards out of brood-frames by nailing a sheet of straw board on each

side of a frame, and filling the hollow space with sawdust. The sheets of straw board were cut such a size as to reach the sides and bottom of the hive. One of these division boards was placed against the side of a hive, the bees against this, then, next to the bees, another division board put in, care being taken that at least one of the combs between the division boards contained plenty of honey. Any colony that could not cover three combs fairly well, was united with another colony. A quilt was spread over the tops of the frames, then on top of all, was set one of the half-stories with a wire screen tacked to the lower side, the half-story being filled with sawdust. Of course, this work could be done only on warm days, but Nature seemed to favour me in that direction, giving me one every week or two.

CARE OF EMPTY COMBS.

In spite of all this, colonies would dwindle away and die. I expected that they would, but I was doing all that I could to prevent it. Good care was taken of the combs. They were not left with dead bees matted between them to mould, and rot, and spoil the combs. All were carefully cleaned, when necessary, and stored away in empty hives, carefully closed against mice and squirrels. Empty combs put by themselves, those with a very little honey by themselves, and those with a lot of honey by themselves. If I needed a comb of honey at any time, there was no time lost in hunting over a lot of combs to find it.

When the lowest ebb was reached, when the colonies stopped dying, and some of them began to increase by the hatching of brood, when things finally started on the up-grade, 45 hives contained live bees; perhaps half of the colonies were on three combs, each; one-fourth on four or five combs; the rest occupying full hives. When settled

warm weather came, and the bees began to crowd against the division boards, I pulled out the boards and let the bees spread out as fast as they thought best. When I thought it was late enough to be safe, I opened up some of the hives of combs and allowed the bees to clean out the honey.

I ought not to have sold any of these bees, but I had done so, and accepted the pay for them, before I had expected any such denouncement; accordingly, early in June, 25 colonies were prepared for shipment by robbing weaker ones of combs of bees and brood. This left me with 20 of what were really three-frame nuclei, the fore part of June. There were some 500 or 600 empty combs, and these I guarded with jealous care all summer. We all know that in a lot of combs like this, the bee moths larvae will make sad havoc, sometimes, with some of the combs, and leave others untouched. I sorted them over quite often, and when I found a comb showing signs of the beginning of this destruction, I used this comb in making increase. By placing the comb an inch or more apart, and exposing them to the light and air, such mischief can usually be prevented. I tried this, but mice and squirrels made such havoc that I had to shut the combs into the hives.

REINFORCEMENTS—TRANSFERRING.

About July 1st I bought ten colonies of bees and added them to my apiary. This, and the manner in which I used them, can scarcely be called part of a retreat; it might more appropriately be called turning the tide of the battle by means of re-inforcements. It is a little early in the season to tell how I managed them, but, it will probably be read with more interest now, right on the heels of this retreat, than it would be later in the season.

These new colonies were in hives of an odd shape, hence I could not use them in connection with my old colonies. I wished to use the bees and brood in building up my weak colonies, and, eventually, to transfer the combs to the regular Langstroth frames, and I wished to do this in the best way and with the least labour. Here is how I managed: First, I set these ten colonies down right close by the side of my ten weakest colonies. After they had been there two or three days, until the bees had thoroughly marked their locations, I then moved the hives and set them by the side of the ten other colonies. Of course, the flying bees returned and joined the weak colonies, giving them a handsome boost. About a week later these ten colonies that I had bought were given independent locations of their own; the flying bees, of course, returning and joining the colonies by the side of which they had been sitting. About a week later a hive full of empty combs was placed on top of each of these ten colonies. A week later, the queens of the most populous had mounted to the upper stories, and started to use them as brood nests. The upper stories of combs, to all of them, were now placed upon the stands, the old brood nests being moved away and set by the side of the ten weakest colonies. Before moving any colony away, however, I saw to it that the queen was in the upper story left upon the old stand. If she had not already gone there, I hunted her up, and placed her there, shaking off some of the bees with her. In fact, I shook the bees off perhaps half the brood combs into the new hives left upon the old stands. These newly formed colonies on the old stands now had queens, all of the flying bees, and nearly half of the nurse bees, and they built up nicely. The old hives were now queenless, and robbed of their flying bees, and half of their nurse bees.

About ten days later I shook a good share of the bees from the brood combs of these hives into the hives standing by them. I preferred to have the work of those bees in the hives containing queens. At the end of three weeks, all of the bees in those old hives were shaken into the hives next to them. The combs were now entirely free from brood. The honey harvest was soon over, and, when it was, the bees came and carried away what honey was stored in these old combs, thus leaving them free from both brood and honey. They were nice, straight combs, and it was not much work to cut them out and fit them into Langstroth frames. I hung them in upper stories, and set them over full colonies, that the bees might trim things up and weld together the joints in the combs.

Fall found me the possessor of 41 colonies in ten-frame hives; combs fairly loaded down with honey, and stocked with young bees; besides I had 70 full combs of honey saved for spring feeding. These colonies are wintering perfectly, and I have all of those empty combs, and I am looking forward to making things "hum" the coming season.—"Beekeepers' Review."

SHAKING NOT A STIMULUS TO

BY LEO E. GATELY.

Without questioning the accuracy and good intent of the many recent reports seeming to show where beneficial results emanated from shaking sleepy colonies of bees, I wish merely to draw attention to a prevailing error many are spreading through an erroneous belief in some mysterious cause, while all such benefits really spring from conditions brought about during such manipulations. Let us lay aside preconceived notions, tradition, and prejudice, and examine this subject with a desire to know the truth.

From the start the mistake in concluding that benefit can be derived purely through the act of dislodging bees from their combs into a pile in front of the hives, is obvious by the claim that such proceedings bring colonies into the same psychological condition characterizing newly-hived swarms. While newly-hived swarms do generally display a degree of energy impossible to be secured from old colonies, it has been conclusively shown that such energy is not the result of having swarmed, or the handling received through hiving, but wholly from certain conditions under which the bees labour in their new environments. The underlying cause, generally, will be found to lie principally in the broodless condition of such swarms, permitting a greater force of bees to engage in nectar gathering. Also, the honey old colonies are compelled to use for breeding purposes, newly-hived swarms store in the supers. That increased energy never arises simply through the act of swarming is manifest from the equally great energy displayed by brushed swarms. Such energy, then, is not the result of mental conditions, but of surrounding circumstances and influences.

Colonies during a good flow, that refuse to do super-work for reasons apparent only to themselves, can be often led into so doing by arranging more favourable conditions under which bees are naturally inclined to do such work—never through shaking alone. Good colonies that will ignore the surplus receptacles while others are busy in the sections, are occasionally of inferior stock, but are more often labouring under adverse circumstances. While shaking may correct the unfavourable conditions through breaking up and disarranging the order of things, whatever the cause may be, it is the bee-

master's business to locate the trouble, and remedy it effectually and intelligently. Certainly the mere manipulation of shaking bees on the grass and of shaking the bees out of their hive to causing them to crawl back into their hives is of absolutely no value, unless connected with a change of hive or of combs. Though it would be illogical and inconsistent to anticipate beneficial results from indiscriminate shaking, intelligent manipulation is imperative and indispensable to successful honey-production.

With sectional hives the purpose of shaking can, by the transposing of brood-sections, be accomplished scientifically in 5 minutes time. To create increased activity it is necessary only to interchange the two divisions of the brood-chamber. This operation practiced at the time of supering will cause the bees to begin work in the sections without delay.—“American Bee Journal.”

CAPPINGS.

The “Canadian Bee Journal” says: Wearing a queen out in one season is a new experience to us, but it has happened. And, so far as we can see, she was a good queen, too. we gave her the run of both supers until the honey flow. The excluder was then put on, and she was confined below. But as fast as she filled the combs we lifted one and two up, and kept her going full speed. Finally, we found a somewhat sudden stop, and queen-cells started. That hive was watched. A later examination revealed the fact that a new queen had hatched. But we could not find her. The old clipped queen was still there with a very small bunch of brood. Now, keeping in mind that the young queen had hatched but could not be found, how were we to size up the situation? Had the bees swarmed out already, and the old queen

crawled back because of being unable to fly? Or had the young queen gone out on her honeymoon trip and a small swarm gone with her? Or were the bees intending to supersede the old queen? What was the situation? How should we act? This is what we did: We took a frame of brood from above with a queen-cell on it, and placed it below. This was for safety in the event of the young queen being lost or gone with the swarm. We closed the hive and let it go for six days. On opening the hive again we found an entire absence of eggs and only capped brood. This told us the old queen was gone. We had now to make a diligent search for the new queen, as we supposed she must be there. Fortune favoured us at last. We found her. The whole complicated situation, therefore, was solved. The bees were superseding, and, be it remembered, they were superseding a new queen placed in the hive last midsummer. This bears out Mr. McEvoy's claim that queens can be exhausted in one year if worked to the fullest extent. However, this experience did not take place in the other hives, equally as strong, that were given a new queen at the same time last year. The above statement of exhausting the queen must therefore be modified, and and the conclusion arrived at that the superseded queen was not up to standard strength for the work she was called upon to do. We have written the above simply to show how difficult it is to lay down any hard-and-fast rule with regard to the presence of queen-cells and the evidence of swarming. It was difficult to decide in the first instance whether these bees are about to cast a legitimate swarm or supersede. In fact, the point is not yet clear, in that perhaps the bees did swarm, and, finding the queen unable to go with them, they decided to dispose of her. This is an example of what caution and skill is required to manipulate bees, and how easy it is oftentimes to make a mistake.

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