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

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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. 20, No 2.

MAY 31, 1911.

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
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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, 1911.

EDITORIAL.

Lately the bees are inclined to be left alone, thus there is more time now to be devoted to several matters left in obedience, and I now let you know of some of the things one is subjected to in this world of love.

It is not too bad so long as all is in aid of the industry. We cannot all be of the same mind, or the salt of the earth would go to waste. As it is, there is a chance to pick the grain from the straw by divulging knowledge that would not be published, but for arguments sake. The one thing to note is this: The fluent writer is generally not the best in practice, and I fancy that if some writers had to practice what they preach, the practical would smile at some; just as the smart writer might smile at the writings of the practical men. It is thus: We cannot all be professors, nor can all professors be beekeepers.

* * * *

Samples of Honey.

The Department of Agriculture, Sydney, is desirous of procuring samples of the different kinds of honey produced in this State. About 2 lbs. each and a duplicate will be required, labelled with the name or names of plants from which the honey derived its prominent characteristics. The Department will pay for

samples purchased, and the price thereof will be mutually arranged.

As in my opinion, this is a necessary step in the right direction, I have informed Mr. H. C. L. Anderson, Under-Secretary, that I shall invoke the aid of the "A.B.B." to have the matter published, as I believe that there should be represented honey from all parts, and of all varieties. One man can not do all this; it needs the aid of every beekeeper, and if you follow the advice, I am sure you can supply all the Department requires.

The only part of the matter is that the invitation does not state for what purpose the samples are required. You see, beekeepers have to be on the look out in more aspects than one, and if it so happened that these samples sent in, after investigation—or analysis—turned out contrary to present affairs, what then? By the daily papers, Western honey is always quoted at a higher rate than any other; but I doubt the statement, except that Western honey of yellow box does not candy as quick as most others do, and if now perchance some districts in the North would get a lift, because their honey, by expert investigation, was proved superior, what then?

At present I know of beekeepers who sell their Western honey and then buy Northern honey to supply their customers with. There are tricks in all trades, you

see. In fact, I am told that even queen-sellers buy queens and then sell them as their own rearing. Well, why not? The same thing happens even in the best regulated family—don't it, now?

Anyhow, I would like to see a response to the Department's request, and you may either send and communicate direct, or, if you like, I will act as a relieving clerk, and do all I can for you.

Nothing has been heard yet as to the shipment of honey to England. I sent about the commonest lot I had, expecting that others did **not** do the same, so as to varyate the consignment. I do not, however, fancy that the present methods is quite the best, and that senders will do well to be prepared for anything resulting.

At a demonstration on the management of bees, which I attended, it was said that when the honey flow is on the average per hive in three weeks is 80 lbs. of honey, the season lasting for about five months. That is not too bad for a beginner, is it, now?

To this I now give you an extract from another beekeeper, who has considerable more experience, and he writes:—

"Things in the bee line have been anything but satisfactory for the last couple of seasons, but the last came near a knock-out, and everywhere will be seen neglected apiaries. The poor fellow who does his best to make his bees pay is the one who suffers most. In some of these neglected apiaries you can find nearly any class of disease known to bees. I have had considerable trouble with some complaint like a cross of dwindling and paralysis during the spring, but weather conditions were so very bad, and pollen very scarce, may have been the cause more or less. In my opinion, bee-keeping will never be a success till we can get our law-makers to give us protection by a disease act, something on the lines of the fruit pest act, with an

inspector to visit our apiaries and see that they are properly attended to, and give advice as to eradicating any disease that may arise among our bees; perhaps go farther if some insisted neglecting the bees proper attention. A case in point:—This season in the spring, a bee-keeper dumped down about eighty hives in close proximity to my own apiary and left them there to live or die, and I do not think they have had an inspection since being put there; at any rate the packing boards have not been removed from a great part of them yet. Some colonies seem very healthy and others are weak with heaps of dead bees about. Boxes all cracked and holes in them. Some covers nearly off, where robbers and ants in galore help themselves to the food provided for them."

Well, now, the letter just cited explains my position as well as Mr. Arthur's, and he, to a very great extent, takes the words out of my mouth.

In this locality, by no means the best all round, there are several persons keeping bees, not as a living as I do, but they keep them, and as most of them do not pay too much attention to them, it follows that everything is not exactly as it should be, and in the long run I feel the effect of it, be that by getting my queens mismated, or in other respects. But can a law prevent such occurrences? To some extent it might. At present law rules a lot of things. But what if a law is also passed that bees **must not** work more than eight hours per day—wet or fine, and that Sunday must be observed as a day of rest! I am not a believer in too much law, but every little helps.

The Executive of the Union have not met for several months past; apparently there is nothing of importance to discuss, and I have not pressed a meeting owing to too much other work; but ere long you will hear of us again.

The "Australian Bee Bulletin," now in its nineteenth year, has repeatedly pub-

lished matters on foul brood and thus posted readers on the subject. American bee journals are full of it, and to distinguish between the mild and the serious forms, writers there use the name "European" for one and "American" for the other. In the October issue of the "A.B.B." I drew attention to the absurdity of using continental names to distinguish the disease in its phases. To this the "Am. Bee Journal" makes remarks in the February issue, and I make the following short reply thereto:—

In the first place it is important that I have cured foul brood in Europe, also in Australia, and for twenty-five years I have had no trouble with the disease, though it has been and still is rampant in the State, and I attribute my success to my careful management of my bees. In former years I had to buy bees to stock my apiary, and one time had 80 out of 100 hives diseased with foul brood; but in less than three months of hard work not a trace could be found, and ever since I have been free from the malady. Now let us see what is the case in America. There they have laws, experts, inspectors, scientists, etc., and yet foul brood is in considerable evidence. Why do they not get rid of it? It is easy enough to cure.

In the second place, is it fact, or not, that the mild—European so-called—develops ultimately into American, but not vice versa. In my experience I have found that if the former is not cured in its start it will develop into the latter ere long; but I never knew a case where the latter turned into the former. Thus I am convinced that the former is the first stage of the latter. The Editor admits that in the European foul brood the most of the diseased brood is attacked earlier than in American. Exactly my experience. That nymphs have not much to do with the case is not my expression but the American editor's. Nevertheless

I have known a case where the nymphs only were affected, and under the microscope they looked just like dry skeletons.

Thirdly, the honey bee in America is an introduction from Europe and not of American origin, and foul brood is just the same in all countries where bees are kept, no matter whether imported there or not. Therefore, the names as applied by Americans are wrongly applied.

If the editor of the "A.B.J." has read my numerous contributions on the subject of paralysis, he may recollect that I held always that this was a disease in bees and not caused by scarcity of pollen, unsuitable honey or insufficient larval food supply, and that dwindling, disappearing trick, etc., amount to the same, in different degrees. Prof. E. Zander's thorough investigations have now proved it; but Americans say: "No cause for alarm." Have they not lost enough to learn better? Re-read American bee journals of say twenty years ago, and see.

My aim has always been to practice and experiment before I preach, and thus it will be to the end.

In the same number of the journal there is the following: "Workers reared in Drone Comb."

In a foot-note in the "British Bee Journal," the Editor says:—

"Our own experience with queens confined on drone comb has been that they can lay eggs which produce workers. We recollect seeing a colony having only drone-comb at Dr. Bianchelli's apiary in Ornavasso. In this case, when the swarm was first placed on the combs, the queen was for some time reluctant to lay, but at last gave in to the inevitable, and when we inspected the hive, she was laying eggs which only developed into workers, and there were no drones present."

To this the Editor of the "A.B.J." remarks:—

"It may be interesting to inquire as to the reluctance of the queen to lay.

we may suppose that she did not want to lay drone eggs, and it is probably the case that she was unable to lay worker eggs in unmodified drone cells. So she had to wait until the workers had time to modify the cells by contracting the mouth of the cells with additional wax. There have been a good many reports of worker eggs being laid in drone cells, but probably no case has yet been formed in which the bees have not first narrowed the mouth of the cell."

The vent valve "probable" appears twice in this short say, and thus it is difficult to exactly get at the point. But has not the Editor, Mr. J. W. York, or the Associate Editor, Mr. C. C. Miller, ever thought of putting such simple tests to practice? If not, then the less said the better.

It so happens that I have made the experiment several times, and I had in spirit of wine for years samples of drone combs with bee brood in various stages in the cells, some where the bee had hatched and also the bees hatched therefrom, and many persons have seen them thus preserved, but though the capped cells looked almost like drone brood the bees hatching were the usual size, and the thus emptied cell looked like any other drone cell. It is quite natural because against the natural instinct of the queen to be reluctant to lay eggs for workers into drone cells, but when the desire for the future existence becomes pressing the queen follows nature's design nevertheless and lays eggs for workers in drone cells. Why the bees should need to modify the cells is not quite clearly explained, nor could it be satisfactorily explained, since all beekeepers know that in very newly-built cells with not more than an eighth of an inch outdrawn cell-walls the queen lays worker eggs in worker cells and drone eggs in drone cells at libetum. Surely there is no contracted mouth in either

to dictate the queen to know what egg to lay. No, she is wiser than that.

But these "A.B.J." editors have taken a fancy to me and do love to give me a lift. Here I have been rubbing it in for all the thing is worth, and lo and behold! there comes the issue of the "A.B.J." for March, and there I am again in it. This time it is in reference to my remarks: "Bees carrying Eggs."

To this the "B.B.J." adds:—

"This seems quite conclusive; for if a thing is impossible it cannot very well be done, but it would not be strange if some who think that bees carry eggs should reply somewhat in this strain.

"How does Mr. Abram know that when the glue-like substance hardens it cannot be softened again? It is the drying cut that hardens it, and if it is moistened, why will it not be soft again? And if bees can moisten candy, why can they not moisten a glue-like substance?"

Well, you see, what is impossible cannot be done, whether well or not very well. But for argument's sake I will enlighten my dear beloved brothers over the pond, though their roundabout way is not quite to my liking; why not take the full responsibility? Is it because, "do not know"? I have removed eggs from cells into other cells, but never succeeded to get a larva hatched, but when I took the cocoon with the egg, presto, it was done; thus I think that the egg alone cannot be shifted. Then I picked up the eggs the queen dropped on a sheet for that purpose and tried to stick them into cells, but devil of an egg would stick. Further, in my lengthy experience and observation I have never been able to make bees shift eggs from cell to cell, but I have often come across happenings that without further thought and knowledge would make believe. For instance, do you know that eggs may hatch weeks after they are laid, if they were, for some reason, prevented from hatching in two

days Try and see.

It is certainly a far-fetched and irrelevant supposition that because bees can moisten candy they can also moisten a glue-like substance. If they can, why not prove it, and basta. I say they cannot. Correct me if you can. Here is a chance.

O! how I will be hugged now.

It may be worth mention that some American beekeepers have made me the proposition to supply queens to them. How is that, umpire?

It is not improbable that ere long some American bee journal proprietors may invite me to edit their papers—O, yes.

If any American beekeeper or editor wishes to gain fuller particulars re foul brood, let them study their bee journals, I am not going to cite the many points under discussion; I have not time for it.

* * * *

In the month of March I received a letter as follows:—

Department of Agriculture,
Melbourne, March 7, 1911.

Messrs. W. Abram & Son,
Beecroft, near Sydney.

Dear Sirs,

Mr. A. Benson, of Puckapunyal, towards the end of January, obtained from you by purchase, an untested Italian queen together with the usual escort of bees. These were submitted to Mr. Laidlaw, the Micro-Biologist, who reports that of the 17 worker bees constituting the escort two (2) contained *Nosema apis*, one being in the spore stage, the other showing the parasite in the course of development in the epithelium of the chylic stomach.

Following the usual course I am communicating the result of Mr. Laidlaw's examination.

Respectfully yours,
F. R. BEUHNE.

This appeared to me to be a funny letter. You see it had the printed heading of the Department of Agriculture, Victoria, but there was no reference made as to the position of the writer. In all Government Departmental letters I always noticed the position of the writer, say, ———, Under-Secretary, I do not know whether the Victorian Government has not such a rule. Thus I set to think as to the next step for me to take. I decided to write to the Minister of Agriculture, Melbourne, and the following is the copy:

Beecroft,
March 13, 1911.

The Minister,
Department of Agriculture,
Victoria.

Sir,

On the 9th inst. we received a letter addressed to us, headed Department of Agriculture, Melbourne, March 7th, 1911, and signed, F. R. Beuhne.

As this letter contains serious matter, we desire to be informed in what capacity or on whose behalf and authority Mr. Beuhne has written to us. If the letter has your authority we request that detailed and full information on the subject be furnished us immediately in order to enable us to formulate our action we may deem proper to take in the matter.

Awaiting an early reply,

Yours truly,

W. ABRAM & SON.

* * * *

I have waited and waited for a reply—but in vain. Now I cannot wait any longer, and thus give the matter publicity, and for this reason: No matter what the aim or object of Mr. Beuhne was to write to me as he did, the point is, was there justification. This I am going to dispute in few words.

The queen and escort bees were sent by post. Puckapunyal is a postal place in Victoria, and I understand that mail

matters from here are sent to Melbourne, and thence to destination. This means a transit of several days. Moreover, Mr. Beuhne did not state when these 17 bees were received and prepared for investigation; but it is quite evident that three or more days intervened since the bees left here. We must now avail ourselves of what Professor Dr. Zander says on the subject. On page 10 he states: "The development and multiplication of the parasites is very rapid. Already 48 hours after infection many parts of the middle stomach contain heaps of these parasites." Dr. Maassen corroborates.

In the light of these scientists the matter under discussion assumes a very different aspect, the boomerang that Mr. Beuhne threw rebounds. The bees investigated could not have been diseased when they left here; they became affected afterwards. If they had been diseased it is reasonable to assume that there would have been others left behind, as it is not likely that I should have picked the only two out of a fairly strong hive—not a small nuclei; but if others in the same hive had been diseased, then the lot would not have prospered as it did, and I would have noticed it, as I know the malady very well.

Let us now look a little further into it. It will be recollected that there has been considerable controversy between Mr. Beuhne and myself on this disease. I always held and maintained that the enormous losses in bees was due to disease. Mr. Beuhne, on the other hand, wrangled and blamed now one thing, then another. When Prof. Dr. Zander conclusively proved it to be a serious disease, and his full report was available here, Victorian experts found something like *nosema apis* parasites, too; but not before.

Another aspect of the matter at issue is this. Have other investigations been made by the Victorian Micro-Biologist? If so, how is it that nothing has been

heard of it. I would be glad to be informed on this point. It would seem strange that all bees sent to Victoria are being investigated for *nosema apis*; but stranger still, if just the one lot was taken. I send a lot of queens to Victoria.

Yet another point is this. I have sent bees to Prof. Zander, and also to the Department of Agriculture, Sydney, but they were absolutely free *nosema* parasites, as I published in a previous issue; whilst bees sent from Victoria to Prof. Zander were smothered with them.

The readers may judge for themselves what the expert information is meant for and rest assured that if I feared anything I would not have made it public; but I want to have this fully ventilated for the benefit of the industry.

BEEKEEPING IN HAWAII.

By ALBERT F. JUDD,

President of the Hawaiian Beekeepers' Association.

Beekeeping in Hawaii can not be understood without appreciating some geographical facts. Hawaii is north of the equator. It is a full-fledged organised territory of the United States, and consists of eight inhabited islands. It is just as much a part of the United States so far as the laws go, as the Territory of New Mexico or Arizona. It is a white man's country, although the majority of residents are Chinese and Japanese. In area the islands equal approximately the area of Connecticut. We have two mountains on the large island of Hawaii (from which the group takes its name) each of which is very nearly 14,000 feet high. We have all degrees of climate except the intensely hot climate of the pure tropics. A glance at the map will show that the islands are close to the Tropic of Cancer. The cool ocean currents from the Pacific Coast, with the northeast trade winds,

make the climate never oppressive, even at sea-level.

The first honey-bees were introduced into the islands in 1857. In the '90's, beekeeping began as an industry. Its beginning was slow, and it was not until January, 1907, that the beekeepers came together and formed the Hawaiian Beekeepers' Association. Our present membership is thirty-seven, and includes all those engaged in the production of honey and wax for profit, besides others interested in the industry scientifically or for pleasure.

The honey and wax industry in this Territory is valued at approximately \$200,000. About \$30,000 worth of honey was produced during 1907, and \$6000 worth of wax. We estimate the number of colonies at present in the Territory at 20,000, and it is believed that this number can be doubled. If this is done, the normal honey flow is expected to produce about \$100,000 worth of honey and wax. The beekeepers of Hawaii spend annually between \$2000 and \$3000 for supplies, most, if not all, of which come from the mainland of the United States.

There is at present in our association a spirit of co-operation, not only among the members—resulting in an interchange of ideas on the many problems existing in the apiaries and in the marketing of the product—but also between the association and the various officials of the Department of Agriculture at Washington and the local agricultural station under whose jurisdiction matters pertaining to the industry more directly come.

At the present time the diseases of American or European foul brood are not found in the Territory. We have secured protection from the introduction of these diseases by legislation.

Another work that our association has taken up in the introduction of plants and trees to improve the bee pasturage, and satisfactory progress has been made. The

food and drug act of June 30, 1906, passed by Congress, has brought Hawaiian honeys into prominence because of the chemical composition of some of the honeys elaborated by our bees from honeydew, and we assisted in adjusting these matters by sending Mr. D. L. Van Dine, Entomologist of the Hawaii Experiment Station, to Washington. Our association also has had as its guest, recently, Dr. E. F. Phillips, in charge of the office of apiculture at Washington, who has made an examination of beekeeping in Hawaii, and whose report thereon is awaited by us with interest.

We appreciate the opportunity afforded by "Gleanings" to get in touch with the industry on the mainland. We are open to suggestions for improvement. Any thing that can improve the honey bee and its products is eagerly sought for by us. —"Gleanings."

BEEKEEPING IN THE SOUTHWEST.

By Louis Schell, Now Braunfels, Texas.

About Those Honey Recipes.

We have noticed with much interest the matter of honey-cooking recipes, and the interest that is being taken in them at the present time. We have wanted to mention this matter for some time, but we have not completed our work on the matter entirely as yet. For several years we have been at work on a list of real good honey-cooking recipes, such as can be used as per the directions given, without getting a lot of unfavorable results, as has been our experience when we tried many of the recipes that have been published. The trouble with them has been that they are very much out of proportion as regards the ingredients used; and the result is, that the much-expected honey-cake or cooky does not come up to any thing like the great expectation that most

persons have about a honey cooked article. That is wrong; and, instead of creating a greater demand for honey for cooking purposes, the very opposite is likely to take place.

strongly since our exhibitions of more

This fact came to our notice very than thirty different varieties of cakes and cookies at the various fairs for several years. Our exhibits have attracted much attention, and the demand for recipes grew, but we were not able to furnish them, as we did not have them printed. One year we distributed several thousand honey-cooking leaflets at the fairs. That was before we exhibited very many honey cakes. Later we found that the recipes were not reliable, and that it was necessary in almost every case to change the quantities given, or something else. When we returned to the fairs the next year we learned from a large number that they had not been able to get the results that we had from the recipes received from us, and we have not made use of any more of the leaflets, just for that reason.

Now we are making an entirely new list of all the various cakes and cookies tested. Of course, it will be understood that we are not condemning all the recipes; but there are so many of them that we have failed with that the entire list ought to be revised, even if some of them give good results. And, again, it must be remembered that "many cooks spoil the pie," and this may be one reason to which some of the failures may be attributed. In the meantime let us have all the good recipes in which honey is used more or less; and if any of them need trying before they are in such shape that every good housewife can use them without getting bad results, why—well, somebody will have to try them out. (We agree with you; and for this reason we decided from the very start to accept no one's word for any thing. The trouble

is, that the originator of a recipe often fails to mention some little important detail, and the result is failure. But this is also true with recipes of any kind.--- Ed.)

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JUDGING AND SHOWING.

By G. W. Bullamore, Albury, Herts.

There is no doubt that the system of judging by points will eliminate the judge who has no ideal standard of excellence. His varying awards will condemn him, while others who specialise will come into prominence owing to their regular marking. But the fatal drawback to the system is that when the points are tatted up the result, as Mr. Maguire says, surprises even the judge himself sometimes. It is needless to say that when this occurs the losing competitor is not only surprised—he is disgusted. He may be a sportsman and take it quietly, and if keen on prize-winning he may note the points and succeed the following year with what he considers an inferior exhibit. I do not think that any juggling with point values will do away with this disagreement between the best from the buyers' and sellers' standpoints and the artificial best evolved by the point system as at present understood.

I look upon the failure of the system as being due to the inclusion, for the purpose of award of points which should only be used for deciding between exhibits that are otherwise evenly balanced. Let us consider the section class.

I live in a district where the main honey source is sainfoin. White clover is not known as a crop, but occurs in the pastures. I cannot arrange that my bees shall confine themselves to this scattered growth and neglect other sources. A trace of sainfoin is unavoidable in extracted honey; my best sections are sainfoin sections. Absolutely perfect sections, if I could produce them, would never win a prize where second rate clover sections were staged. I could have no grievance if flavour were used to decide between several lots of equally perfect sections, but if it is always included it

becomes useless to exhibit. At English shows, although the point system has not been adopted by the best judges, the practice of tasting sections has come into vogue, and the result is that unevenly coloured sections have jumped in front of sets that were perfect in capping and color. I consider such awards are wrong. Skill should have greater weight than accidental factors. Sections, too, are sold by their appearance, and when the best-looking section loses, the standard of judging is false.

Flavours appreciated by the judge, such as a clover-heather mixture, are not necessarily those demanded by the honey-buying public. If the system continues, it will result in a few favoured exhibitors, and novices who know no better, having the shows all to themselves.

Disqualification for overlacing is also unsatisfactory. It is only possible to show perfect sections satisfactorily at present. Overlacing should be permitted to the extent of an eighth or a quarter of an inch, but such exhibits should be penalised. Last year I saw prizes awarded to unsealed sections because all the best exhibits were disqualified for slight overlacing. Of course the exhibitor gets a lesson, but what about the public?

In the light honey classes, (extracted) I am of opinion that there is no merit in paleness apart from flavour. If we take two mixtures of clover honey and give marks for flavour according to the white clover present, it would surely be fair then to decide according to technique in their preparation. To prevent the more skilful beekeeper from winning we wisely award marks for colour due to the same factor that has already been awarded marks for flavour. Within the limits of the class all colours should have equal values. Honey will beat glucose in flavour, but glucose beats honey in colour. It is a wrong standard. A water-white

honey should win on its merits. It should not be given ten points start. The public at present consider a rich golden colour the ideal honey colour. Their tastes are true and a water-white honey does not look better. If marks are given for colour, the light amber honey is the one that deserves it. A standard colour, with penalties for departure from it, would be far better than the present system, and in a few years show benches would bear exhibits that the public would recognise as honey without a label to guide them. There would, of course, be an infinite variety of flavours according to the blends of which the samples were composed.

We are gradually educating the public into the belief that good honey is colourless. When their education is completed it will be necessary to decolourise the honey to satisfy their requirements.—“Irish, Bee Journal.”

VENTILATION.

By T. Maguire, Enniskillen.

Why is it that so few writers in bee-dom treat of the subject of ventilation? It is surely of importance, and an interesting matter for speculation, yet I don't remember having seen an article dealing with it for a long time. It is a question on which there are doubtless many theories, so here goes to try and provoke some discussion.

Ventilation divides itself naturally into two sides—winter and summer. Summer ventilation is, probably, the one of which most theories abound, and on which the bees, if they could speak, would say the hardest things. One would like to hear their comments on the man who bores a little hole in the bottom of the hive, and has a piercing draught blowing up into the middle of the brood-nest, and especially when the said man forgets—as he

generally does—to close it up before winter; also, on the enthusiast who is always fussing at his entrances in spring—narrowing them when a cold day comes, to keep the poor bees warm, as he thinks, but really to stifle the stocks at a time when it is too cold for the fanners to stand at the door and regulate the currents; also, of the misguided amateur who narrows his entrance in winter to an inch or so and has his hives streaming with cold moisture which cannot escape.

I have studied and experimented on the subject for some years, and the theory I have arrived at is broadly this: that in summer, the doorways, if sufficiently wide and deep, will provide ample ventilation except during the excessive heat of the honey-flow, and then the entire space of the floor is hardly too much to give, but it must be closed again immediately the temperature falls. When the big heat is over, no further fussing with the ventilator is necessary until the next honey flow comes round, or the bees are being travelled to another location. My reasons for this theory are as follow: the bees have certainly a well-arranged system of ventilation of their own. Look at a crowded hive on a warm summer's evening. You will see a squad of fanners at one side of the entrance, working as if Home Rule and the British Constitution depended on their exertions. They are forming two currents, one of fresh air going in, the other of exhausted air going out. There can be hardly any doubt that fanners are also placed in such positions inside as to give the fresh air a complete circuit of the hive and to keep the current constantly circulating right through. Now, what happens when we open a ventilator in the centre of the floor? Simply this, that the poor fanners are blowing fresh air from the hole in the floor out through the entrance, working a useless treadmill, and proper cir-

culatation in the upper part of the hive is almost entirely prevented. In a very intense heat, when the hive is crowded, and a large quantity of thin honey is awaiting evaporation, it is allowable to open the ventilator, and it ought to be as large as practicable, for at that time the fanners are not able to cope with their job, and we should help them by leaving only a slight porous covering overhead: with a good wide open space below, a straight current goes from bottom to top. This cannot harm the brood as long as the temperature outside is not too low, but once the temperature falls, the ventilator should be closed immediately, and the coverings overhead replaced, when the fanners can resume their labours. If the ventilator is not closed, the brood will get chilled, and die, disease may set in, and incidentally the bees will get into bad temper and make it as hot for their owner as he has made it cold for them.

I believe that a ventilator the full size of the hive floor would be none too large if used in the way indicated, but there are some drawbacks to making it so large. In case of its being left open too long, or forgotten altogether, as frequently happens, the results would be serious, and, again, a flap ventilator, which extends behind the dummy, allows a draught under the dummy from behind, which is bad. I use 10 x 5 inch ventilators, and they do not extend more than 9 inches from the entrance. The square is covered with perforated zinc—5 holes to the inch, no smaller should be used—and is closed with a flap secured with two wedges (no hinges) running in rabbetted pieces nailed on each side of the carriers. It can be opened in a jiffy, and closed in another, but you have to go down on your knees when doing it. I regret to note our editor disapproves of people kneeling behind a hive. They might say their prayers in a better place, of course, but

then they might get a worse. It would be good practice for some of them. Some beekeepers I know of don't pray much unless when they're stung, and then their prayers are not heard—at least, I hope not.

Winter ventilation simply means leaving the doorways open from 6 to 10 inches the entire winter, having a warm, porous covering overhead. A generous-sized entrance gives the bees enough fresh air, and keeps them cold enough to prevent them flying except on warm days. In our climate they will get plenty of opportunities of flight, and unnecessary flying in winter means unnecessary consumption of stores.

Some people may disagree with these theories, but all I can say is that I have practised them for years, and have never lost a stock in winter; and in summer, even with enormous colonies, and some of them Carniolans and hybrids at that, I rarely have a swarm.—“Irish Bee Journal.”

AMONG THE BEES.

Colour and Bees' Temper.

By R. M. Macdonald, Banff.

A great deal has been written in the past on this question, and at present it is engrossing the attention of beekeepers. Many have strangely reasoned it out that because some have unfortunately received a good deal of adverse attention from the bees when clothed in black garments, the mere colour alone was the cause from which the ire of the bees arose. I never experienced bad results from such a cause and the reason is always present with me, because I wear black or very dark garments, and bees never show me any special disfavour on that account. Among my friends and correspondents are a num-

ber of clericals of all denominations, and all of them agree in certifying that they have experienced no ill effects from working among their bees when clad in the orthodox black ministerial habiliments. It is not with any of them a question of fancy, but one of simple fact—not theory.

Since writing the above, I have seen and spoken to three clergymen on the subject, and all declare positively and emphatically that the idea is a myth, without any foundation in reality. I dropped three other distant clergymen a post-card inquiring as to their experience, and all three agree that it does not make a whit of difference. One says his white shirt, if any part, gets more stings than anything black about him.

That is exactly my experience. If stings are going anywhere they will be most plentiful on the white wrists under the white cuffs, but I do not for a moment say it is because these are white, but would venture a guess that it is because some pressure has been brought to bear on the bees who have endeavoured to explore the vast void, to them, which lies beyond. I know my neck at times gets a fair share, when the veil is thrown on hurriedly, but, reasoning by analogy, it should be the white colour, and not the black coat, that should be the attraction. I feel it is neither. I presume some venturesome worker investigates as to a vulnerable point of attack and gets caught as in a trap, with the result that it vents its vitriolic venom on my white skin, not on my black garment. My eyebrows are black, not yet even a sabled silver; still stings, when they are delivered in that region, are not often thrust into the dark object, but above or below. I am not so foolish as to think that it is the colour, either white or black, which has such a fascination for the Amazonian warrior's spear-thrusts. I know it is the motion which attracts them. The eternal move-

ment of the eyelashes appears to be a menace, and these spiteful little ladies vent their ire on that which seems to them a cause of offence. A dead stillness they disregard; motion, in their eyes, is a *causus belli*, and they strike first.

My veil is black, in common, I suppose, with the majority of these indispensable pieces of armour, worn to defend us from the wrath of the bee. Has it ever been seriously proposed by any sane beekeeper that the colours should be changed in order that stings might be decreased? If so, I never heard of such a suggestion. When do we don these black headgears, if not when bees are ireful? And then, when stings are going, do these black objects suffer unduly? Some years ago I had a spiteful Cypro-Carniolan stock—patent stingers they were, too! Something irritated them especially one day, and dropping the veil, I stood stock still, to test them. This same subject had been up for discussion shortly before. Although hundreds of bees most spitefully buzzed all round this black veil of mine not one stung the netting. My grey cap was literally covered with stings where it showed above. My white shirt sleeves suffered unmercifully every time I moved my arm, and in the end, so many pierced the skin through that thin, white summer garment that I had to clear out; I am afraid in rather an undignified manner!

In the same way, my black boots never get stung, yet when the bees crawl up higher the white skin is not spared because it happens to be white, but is pierced venomously by almost every bee finding its way beneath the outer garment, which is black, by the way.

A small white spot on the top of my head, unfortunately extending in area annually, has a species of fascination for the bees at times, while the dark surroundings are left severely alone.

Leaving the personal argument alone, I tried to prove an assertion of an old-time correspondent as to a "bogey man" curing a vicious lot of bees, and erected a dark and a light scarecrow near the extra vicious stock mentioned above. Both were utterly disregarded, not one single sting being administered to either. A friend who has been in Africa informs me that he has seen the native "blacks" almost stark naked, getting off scot free, when Britishers in white raiment were severely punished while engaged in robbing of hives. One of the clergymen mentioned above humorously wrote saying he could only speak for one side, and that a baker in his Sunday suit, contrasted with the same individual in his workaday clothing, would be better evidence. Fortunately, such a case was available, and the individual consulted declared that it was a case of "six of the one and half a dozen of the other." After a lengthy experience, he is confident that his "Sunday best" is no detriment when working among the bees.

For the various reasons given, I can only conclude that colour alone is not a generator of ire in the bee.—"B.B.J."

IS "ISLE OF WIGHT DISEASE" INFECTIOUS ?

Last summer an expert wrote saying that "Isle of Wight disease" was so infectious that he could communicate it by speaking or thinking of it! Whilst touring he visited an apiary where this trouble had started, and later in the day, when passing a beekeeper friend, he shouted the fact to him. A few days later "Isle of Wight disease" appeared in his friend's apiary, and also in his own.

When the disease visits a number of hives or apiaries in succession, it by no means follows that the trouble is com-

municated from hive to hive. If it could be communicated by robbers it should be possible to communicate it artificially, and to do this is absolutely impossible (see Dr. Malden's report). I consider it to be a food trouble, and whether caused by starvation or fungus poisoning, it would affect stocks in just the same way.

If Mr. Woodley knows how the disease can be conveyed from one stock to another I should be glad to hear it. That one stock suffers after another is no proof of infection. If they get it from a common source we cannot reasonably expect them all to develop it at exactly the same moment.

When Bonner states that swarms disappeared leaving only the queen and a few bees, the explanation of the long winter will not apply. I think it is reasonably certain that if a number of pollen-distended bees were sent to the "B.B.J." with a note saying that only the queen and a score of bees were left in the hive, the owner would be advised to treat it as a case of "Isle of Wight disease." They are the only symptoms that we have to go upon.

I read that about eighty years ago, of 300 hives in one parish one stock survived the winter, and in the adjoining parish four escaped out of 200 hives. Bad weather and death and disease of bees are associated throughout the history of beekeeping. In the summer of 1894 "bees were gorged with pollen, that in times of scarcity of honey they appear to consume, which they cannot assimilate or discharge."

When a good honey flow comes we shall hear very little of "Isle of Wight disease."—G. W. Bullamore, Albury Herts, in "B.B.J."

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FEED THE BEES.**Why ?**

I send these few notes on the above subject because the last few days have brought under my immediate notice the necessity for bees being fed at once if many (very many) now promising stocks are to be preserved to reap the benefit of the coming season, and to give a due meed of profit to their owners. Bees have had during the last few weeks many opportunities for cleansing flights, and where not already dead from starvation, are in most cases in good condition; but all, with hardly an exception, are practically without stores, and unless cakes of soft candy are at once given, the loss will be great.

I have been told, when I have suggested this little help, that the bees have got over the worst of the winter, and will now do all right as they have done in the past. My reply to this was a question: "Do your bees pay?" and the majority have answered, "No, they have not done so for years." True, we have had several bad seasons of late, and hundreds of stocks have died out, but it is more bad management than bad weather that has caused this high mortality and failure.

The erroneous idea that bees are self-supporting under the present system is no doubt responsible. Bees are self-supporting, and could well do without help if beekeepers did not take the heavy toll of surplus every season, and in many cases so closely are the bees denuded of their stores that not sufficient natural food is left to keep them during the cold and inactive period of the year. A few pounds of watery syrup may be given in the autumn, but I never saw a hive yet properly fed back in autumn to recompense or make up the deficiency of the deprivation. Herein lies the root of all the evils of beekeeping, in my opinion,

summed up in two words—improper management. But to return to my subject, why feed now? Maybe there is still a little honey left within the hive; it may or may not last out until the fruit blossom comes. I noticed pollen being carried in on February 15th; where it came from or how far the bees had to travel to get it set me thinking and hence these lines. Pollen is for the young now being reared; it is necessary for their existence and well being, and the bees, alive to their requirements, are out on every available opportunity seeking for means to supply the demand. They would, however, often have been better at home. On the date I mentioned it was true the sun shone, but the wind was icy cold, and nothing but necessity brought those bees out to fetch the necessary food. How many were there that never returned? How much weaker are the stocks thus positioned than they were a month ago? Where will such stocks be in a month's time, living, as nearly all are, on something less than will properly keep them, the old bees half starved; and what about the battalions of young bees that should now be hatching? In the majority of unfed hives you will find a little patch of brood in the centre of the cluster, totally inadequate in size to compensate for the daily loss of old bees. Yet this is no fault of the bees, and the remedy is with the beekeeper. I say if your bees are still alive, don't disturb them more than is necessary, but feed them for their sakes, and for your own if you wish to make them pay and to return you a hundred-fold in the future the present trifling outlay. In good stocks breeding commences with the new year, and provided food is all right the stock will gradually grow stronger in young though weaker in old bees, but if food is short the stock will grow less, no brood be raised, and even may die outright. Such a stock will of a surety be too small

when the season comes to give a good account of itself. Why, therefore, should you run the risk of the loss when some honey now and again will induce an increase of breeding. Feed and keep the bees in good heart, save them long and fruitless journeys in search of what is not to be found, ward off disease, and eventually work them, in a few months, into such a condition that be the harvest great or small they will be ready to render a satisfactory account of themselves. They will give a return to their keepers not dreamed of by those who place bees in their garden and on their farms, and expect them to do the rest and keep their keepers. P.S.—At this time of the year I advise pea-flour candy being given.—H. W. Brice, in "B.B.J."

NON-SWARMING STOCK.

An Extended Record of the Progeny of Queen Whose Colonies Rarely Swarmed.

By E. S. Miles.

In the fall of 1896 I purchased two queens of a well-known breeder, and introduced them to a couple of weak colonies, one of which, however, starved the winter following, as this was before I knew that a weak colony would consume nearly, if not quite, as much stores as a normal colony. The other colony came out strong in the spring, built up rapidly, and did so well in every way, besides storing more surplus than the average, that I was very favorably impressed with the queen and when the bees wintered again perfectly, and were able to secure enough for a living, while all of my other colonies had to be fed between fruit-bloom and clover, I decided that this queen was the one I wanted for restocking my yard.

As this colony had not swarmed, and showed no signs of it, I was compelled

to try my hand at queen-rearing. Up to this time I had been a believer in nature's ways, as a great many writers at that time laid great stress on the value of queens reared under the natural-swarming impulse, explaining further that the only perfect queens were those reared by nature's methods, etc. However, I then had the good fortune to get a copy of that masterly book, "Scientific Queen-rearing," by G. M. Doolittle, in which we are told how to rear the best of queens without violating nature. So I determined to rear some queens from this colony by the Doolittle plan.

The season proved poor, and I was bungling in my operations, so that I succeeded in getting only three colonies that season, headed with queens from this stock. The next winter I lost the original colony through a blunder; and as the season following was not very good I did not make much increase, but did get three more queens from the best of the first three queens that I reared the season previous. However, it was a couple of years before I began to notice that the colonies having these queens seemed not only capable of getting a living when common bees had to be fed, but that they did not swarm.

For about ten years after starting with this strain of bees, and until I probably had forty or fifty colonies of them, I had no swarms whatever, while fifty per cent. or more of the colonies having queens of other stock in the same apiary swarmed, although they had the same treatment in every respect.

It should be mentioned that I make no effort to control the mating. I always try to prevent a heavy production of drones of undesirable stock, yet sometimes there were a great many common drones flying.

From 1901 to 1903 inclusive I reared a few queens from colony No. 74, whose queen was a granddaughter of the origi-

nal queen. I may have lost the record of a few colonies, but I have a complete record of eighteen colonies whose queens were reared originally from No. 74. Of these eighteen, during 1901, '2, '3, fourteen did not cast a swarm, the other four swarming once each—three of the four casting swarms only when conditions were more than ordinarily favorable for swarming, and when all colonies of common stock were swarming excessively.

Of the progeny of No. 74 I selected No. 32 for a breeder, and I have before me the record of 79 colonies with queens from this No. 32, which were reared during the seasons of 1904 to 1907. Of the 79, 62 have not swarmed to date; 14 have swarmed once each, and 3, twice.

Now while it can not be truthfully said that this stock is exactly non-swarming, yet it must be remembered that, during all this time, I purchased and brought into this apiary over 50 colonies of common bees, besides having 25 or 30 colonies of various grades of hybrids. I have also purchased of breeders over two dozen Italian queens of different strains, and in addition to all these drawbacks I have not tried very hard, as I said before, to prevent common drones from flying.

Among these colonies that have not swarmed are some that have superseded their queen themselves, a few of which have done this more than once. For instance, the breeder No. 74 that was reared in 1900 was superseded in 1904, and the second was superseded in 1908, the third queen still being in this same colony. No. 132 is a daughter of No. 74, reared in 1903, and was superseded in 1907; and the second one is now in this same colony, and they have never swarmed. No. 9 is another colony which has the same record. No. 3, one of the first reared from breeder No. 32, never swarmed. She was superseded in 1900. No. 24 is one of the four daughters of No. 74 that I mentioned as swarming, yet

this is hardly correct, for the original queen in No. 74 did not swarm, and she was superseded when four years of age; her daughter swarmed only when I was forcing the colony to finish sections by feeding. This season this same colony did not swarm, even under these conditions.

I also wish to say that, while I was breeding these queens I was working primarily for bees that would do good work in sections, and that were not too cross. If I had been selecting queens especially for non-swarmer alone I am quite certain I could have made more progress, for I was obliged to discard for breeders several colonies that were non-swarmer but had some other objectionable qualities.

Now, I have no queens for sale, and please let no one ask me whether I believe I can breed the tail off a sheep or cat, for I have never seen a bobtailed cat or sheep that had not been operated on with the knife; but I can produce a strain of hornless cattle if I have a good muley heifer. Likewise, If I tried to produce a non-swarmer strain of bees I should want to start with a colony that would not swarm under normal conditions. I am convinced that a strain that is practically non-swarmer is entirely possible. "Like produces like," whether color, shape, or disposition.—"Gleanings."

Breeding Larger Bees.

The more we study this question the more we wonder if it may not be possible. We need only consider for a moment the great work done in improving all kinds of animals, improving not only certain qualities, but increasing the size materially. It takes many generations before some of the final results are obtained; but we have the proof that all this is possible by

proper selection and breeding, and the proper care and feeding has something to do with it also. The question is, how to proceed with the improvement of the honey-bee to accomplish similar results. And then the question arises as to what would be the advantages of the larger bees. This is work for the experiment stations.

Whether an increase in the size of the cell in which the bee is reared would have any bearing on the matter could, perhaps, be observed by careful experimentation carried on for a number of years and through many generations of the bees selected for the test. Not only this, but several strains of bees should be tried—each under various conditions, since all these factors may have some important influence.

We have noticed in our observations that a great difference in the size of the workers of different colonies does exist. The progeny of a fine queen may show extraordinary size, while that of another queen may be remarkably small. After investigating more closely we have come to the conclusion that there are at least two reasons for the smaller size of the workers in various colonies: First, the naturally small size due to the queen alone; second, the decreased size of the worker-cells of old combs in which many generations of bees have developed. Such observations can be made in a neglected or "run-down" lot of bees where the old combs have been left undisturbed for years, the brood-nest being confined to the same area. In this case the size of the cells should make a difference. On the other hand, the deterioration in the quality of the queens in such a neglected condition is the main cause of the smaller-sized workers.

We have, therefore, two factors which account for a decrease in the size of the workers, so why may not other factors have some influence toward an increase in the size of the worker bees?

We grant that the use of larger worker-cells in a haphazard way will not bring any certain results. Neither can we expect that the size of the worker bees can be increased by the most careful breeding by selection or otherwise without resorting to something larger than the regular-sized worker-cells in which to rear them. But we have some faith in breeding for larger size by careful selection in connection with a gradual increase in the size of the worker-cells.—
Gleason.

BEES ESSENTIAL IN AN ORCHARD.

Blossom-spraying Bad Policy, even from a Fruit-grower's Standpoint.

By C. E. Layman.

I have been raising bees and fruit together for twenty years, and have never had any bad results from the bees bothering around the fruit except after a rain, which bursts open the ripe grapes so the bees can get at them. I have noticed frequently that, while others in this section were having no fruit (or very rough if any at all), I would have a fairly good crop of nice smooth fruit, and I am, therefore, of the opinion that the bees do a great deal more good in the way of fertilizing and making perfect fruit than they do harm to the fruit that has already been spoiled by rains or some insect puncturing it.

I have had a great deal of experience in the spraying of fruit, and have watched some of my neighbors frequently who persisted in spraying while the trees were in bloom, and in nearly every instance their fruit was damaged more or less, while my trees, which had not been sprayed until after the bloom drooped, were full of perfect fruit. There can not be any doubt about this point in my mind, as it has been so thoroughly demonstrated in this section.

I note much complaint has been made by some fruit-growers claiming that the bees bothered them a great deal in the picking of fruit. I am sure that the bees get more blame than they are entitled to along this line, as in all of my experience I have never had any trouble worth mentioning. Some, if they find a bee or two on fruit, would be afraid to go near the tree. What is necessary for a fruit-grower is to keep his fruit picked as it ripens, and keep the fruit that is beginning to decay off the trees, and there will be no trouble with bees. I figure that my bees pay me as well in the good they do me in my orchard as they do in honey and increase secured from them.—“Gleanings.”

BEES TRANSFERRING LARVAE.

An Apparently Clear Case in a New Zealand Apiary.

By H. Bartlett-Millèr.

It seems pretty well proven that bees will remove and even steal eggs upon occasion; and, although I have not noticed any reference to their transferring larvae, yet I have had two unmistakably instances of their having done so in my own experience. During September, 1909, I tried raising queens very early in the season in the Swarthmore swarm-boxes. I used combs of honey and pollen, making absolutely sure that they were destitute of eggs. The third comb, for the water, had not been inside of a hive for over six months. When I transferred larvae to the cell-cups all were rejected. I supposed the bees were sulking; but the next day, when another transferring was similarly treated, I returned the bees in the evening to their hive, and then found three cells started about the centre of the comb that contained the water—that is, the one which

had not been in a hive for six months. There were no empty cells in either of the other combs except at the corners. There can be no possibility of mistake in this case, for, even allowing that there might have been larvae in the honey and pollen combs, it remains true, nevertheless, that the bees removed such larvae to cells on this comb that had been out of use for six months.

The second case occurred during the same month, 1910, and the combs used for honey and pollen were old ones, saved from the previous autumn crop, that were sealed over solid, the empty comb used for water, in this second case, having been out of use all the winter before. The swarm-box was one of my own manufacture, and was of the conventional pattern, except that the wire cloth on the bottom covered a space of only 8 inches by the width of the box, the rest of the material being wood. I had fed this colony regularly for two weeks previous, and when grafting I put larvae in only 11 out of 32 cell-cups. To my disappointment, not one was accepted, although the cover of the box had warm woolen cloths piled on it, about 6 inches deep, and tied around the sides at least 6 inches down below the cover. A second grafting the next morning being similarly removed, I dumped the bees, that evening, before their hive, disgusted with attempting Alexander's instructions for raising early queens. Imagine my surprise, then, at finding 16 nice queen-cells started on the lower edge of that old dry comb close to the wire cloth-covered opening—exactly the number of larvae that I had transferred at the first grafting. All these were too well advanced to include any of the second grafting of that same morning.

Now, I wonder if the bees moved these larvae for the purpose of giving them fresher air. It certainly looks like it, for the top and sides covering the other boxes must have excluded any chance ventilation

from cracks; anyway, the bees moved them.—“Gleanings.”

(The whole story is, without facts, proved. Why should the bees remove larvae to cells on a comb that had been out of use for six months, and why did the bees not also utilise the second graft of queen cells if they were so handy to shift the first lot? There is no doubt in my mind but that something or another happened which caused misconception and which was not observed by the party. If bees can shift eggs and larvae from comb to comb, why not make them do it to prove the case; it should be easy enough, because what can be done can be repeated.—Ed. “A.B.B.”)

ANOTHER COMMUNITY HIVE.

By Leon C. Wheeler.

In a late issue of “Gleanings” a description is given of a community hive, and the editor asks if any one else has had any experience “along this line.” Several years ago I built a hive with this idea in view; and while it is, of course, not the same as the one described, still it is the same in principle. The original idea with me was gotten from the Ferris hive described in “Gleanings” several years ago. Instead of simply putting two colonies together, as Ferris did, however, I doubled the dose as the fellow did who thought that if a small dose of medicine was good, more would be better. My hive was made to hold 24 frames on a side with a division through the centre; in other words, there were 48 frames in the one body.

Other divisions were made in each side to make it into either four or eight compartments as desired. The big division through the centre of the hive, and also the other cross-divisions, were all made partly of wire cloth, thus giving a free passage of air throughout the hive and

giving a common scent to all the bees. The first year I used it I started it with eight nuclei which built up till I had a hive running over with bees about the close of the clover-flow. The super I used was made to hold 26 frames on a side, or 52 in all, with free intercourse throughout the whole. This was accomplished in the case of the division through the centre by means of little strips of wood set a bee-space apart, extending the whole length along the bottom and about $2\frac{1}{2}$ inches high.

This super, which I put on at the beginning of the buckwheat honey-flow, was filled full, and I extracted 127 lbs., if I remember correctly—nearly as much as that obtained from all the other colonies in the yard—as this was a very poor year for buckwheat. Since that year I have used the hive only for rearing nuclei, for which purpose it is very good; but I am confident that one could get an enormous amount of honey from it by starting in the spring with fair-strength colonies. This would be especially true in a poor year when the ordinary colonies would store but little. I rather expect to try it again next year any way.

To avoid trouble with queens getting in the wrong entrance I made some small entrances at the sides of the hive to use when mating, which gave two entrances at each side of the hive, and I never had any trouble with queens getting in the wrong entrance. Of course, if one were to use this hive for honey he would have to have a special apparatus to handle the supers, or else handle by frames. This would not deter me from using the hive, however, if I can get the extra honey which my experience would seem to indicate that one might get by the use of this hive.

That Universal Hive and Section.

This is a subject quite thoroughly discussed by men better posted than I; but my choice of a hive is the old reliable

ten-frame Langstroth hive with Hoffman frames; and I prefer the $4\frac{1}{2}$ x $4\frac{1}{2}$ x $1\frac{1}{2}$ plain sections. It would take quite a lot to hire me to change this combination, and I think you would find the same thing true in the majority of cases.

But we all have our own ideas, and I think you will find it's about like talking to the wind to try to get beekeepers to see near enough alike to accept the same styles of hives and sections.—“Gleanings.”

BEEKEEPING IN MINNESOTA AND CALIFORNIA COMPARED.

The Profits in Either Locality About the Same.

By F. A. Gray.

For the past four seasons I have been personally operating my apiary in San Diego Co., Cal. I also have two apiaries in Minnesota, which, during this time, have been run by my two sons up to August 1 of each season, when I return to Minnesota and take charge. I have been keeping bees in Minnesota the past fourteen years.

I can see no reason for giving southern California a black eye relative to the bee industry, for, on the average, large returns are secured every other year. I cannot say why this is, but that has been the record of my apiary for the past twelve years, and a good year will give much more than any one season in Minnesota; but, taken as a whole, there is about as much profit in Minnesota as in California. In my vicinity the bees in California sell for about \$3.50 a colony in two-story extracting-hives. In Minnesota I can get from \$5.00 to \$6.00 in a one-story hive.

At the present time I do not think that California is overstocked. We have bees enough, however, for the poor seasons;

but in good seasons many more could be kept on the same territory. I would advise any one who wishes to locate in southern California to buy out an established apiary, as many are for sale. While the bees gather honey any month in the year, yet the surplus is obtained usually only during April, May, June, and July.

Many will be surprised to learn that the reason for a poor crop is on account of too cool a season. My apiary is eight miles from the coast, and some years apiaries twenty miles from the coast get honey when I have practically a failure, the reason being that their locality is warmer. Rain, no doubt, is quite a factor; but all the plants are dry-weather plants, and very often with a little rainfall a good crop of honey is secured. Warm balmy air with heavy fogs in the morning gives a heavy flow of nectar.

Mr. Gibson has touched on a very important factor controlling the price of honey, when he speaks of the importance of cleanliness, proper grading, and the crating of comb honey. Far too many go into the bee business who are not adapted to it. Having been told there is big money in bees they try it for two or three years, then realise their mistake, go out of the business, usually after experiencing a loss. Bees in any country must be run on a business basis, the same as anything else. A yield in one season of twenty dollars per colony will get a lot of people into the business when they know nothing about it; but they think they can do the same the next season, when, in fact, this yield comes only a very few times in the life of an experienced beekeeper.

Let no one be deceived about the amount of work required with bees in southern California, at least during the honey-flow. It is necessary to begin to extract on Monday morning, and keep it up until Saturday night, and during a heavy flow this is hard work. Tiering up does not

answer here as in Minnesota, for the honey becomes too cold to extract unless it is close to the brood-nest. I have found that the bees can not be run the same in California as in Minnesota, for new tricks have to be learned. All these things of course, cost money.

There are some good locations for bees at San Diego Co. at the foot of the mountains. However, they are so far from the market that I would not care to take them up. In locating an apiary, I know bee-men usually follow the golden rule—that is, doing to others as they would be done by. This certainly pays, for otherwise failure is the sure result. More capital is required in California than in the East, the reason being that there must be supplies on hand for a big crop; and if there is an entire failure the supplies must be carried over for another season.—“Gleanings.”

BEES AND COLORS.

Some Proofs that Bees are More Hostile to Black Clothing than to White.

By M. E. Pruitt.

On one occasion we had dealings with an enraged colony, and I thought I would just pull a couple of black stockings over my hands (not being able to find my gloves at the moment), so that I could replace a couple of frames and put on the cover so that they would not so easily detect the scent of stings already received. Oh how I wished I hadn't! They just simply covered my hands; and when I retired from the field the color of my “gloves” was changed from black to pepper-and-salt.

The year before last I was wearing a navy-blue skirt, and the bees seemed to delight in puncturing it. I changed the navy blue for a light tan, and all was peace.

We have a Holstein cow; and every time she passes the yard, and the bees are irritated, they invariably make for the black spots.

When we are hitching up the sorrel and the bay horse I notice they begin operations on the black mane of the bay. When we have the black horse and one of the others together, the black comes in for the most points.

Our white chickens are not molested when scratching in the yard; but the Minorcas are allowed to stay hardly long enough to locate a hunting-ground.

When bees want to sting a person they generally make for the shaded parts, such as about the eyebrows, behind the ears, and in the nostrils; and, oh what a tender spot that is!—"Gleanings."

THE OVARY OF THE QUEEN-BEE

By Dr. Bruennich.

All human beings, as well as plants and animals, were once nothing but one very small cell composed of a membrane, a nucleus, and a little protoplasm. There is almost no difference between the embryonic cell of an elephant and that of a tiny fly. By continual division from that single cell, two are formed; then four, eight, sixteen, etc., until there are millions, and with the multiplication of the cells their qualities and offices begin to differentiate themselves until the wonderful being is built up. In the first little cell there is latently contained the whole future animal with all its varying psychic qualities. Is there on the face of the earth any thing more mysterious and wonderful than this minute cell, whose diameter is perhaps not more than 1-200 of the width of a line

Among the higher animals—insects included—the eggs are formed in a double organ called the ovary. Let us look somewhat closely at the ovary of the bee.

The queen, beneath the back of the abdomen, possesses two ovaries, each of which is composed of about 200 fine threads of its own contexture. For the beginning, near the breast the thread consists of cells of the general character, the mother cells; then comes the differentiation into two different shapes, the eggs and the dodder-cells, which alternate to the end. The dodder-cells are made up of a conglomerate of little cubes of albumen, in the form of a lengthened egg. These are for the purpose of nourishing the eggs and furnishing the necessary reserve (albumen); for, as we all know, the little embryo lives and develops for three days on this albumen only, without the help of nurse bees.

To every dodder cell there belongs an egg. The eggs, like the dodder-cells, are very small at the beginning, but at the end they reach their full size; neither, however, changes in general structure. The egg consists of the little embryo (nucleus), the dodder-substance, and the membrane. The latter is formed of thousands of prismatic cells (epithel), with chitinous membrane, each with its kernel (nucleus), and represents an elastic rather firm and fine skinned which serves to protect the egg from outside injuries. Where the front end of the egg touches its nutritive cell there is a small hole where there are no epithelic cells, this hole effecting the communication between the dodder-cell and the interior of the egg. After the egg is expelled with its dodder-cell, this hole is the so-called micropyle, the only spot where the spermatozoids can penetrate into the interior. Immediately after this process (fecundation) the surrounding epithelic cells join closely together and thus shut the hole.

The eggs at the end of the thread are the ripe ones, which are successively expelled. In the meantime the others follow, their places being taken by new ones

that are formed from the young embryonic mother-cells at the beginning of the thread.

The room between the different egg-threads is filled partly with blood and partly with a tight web of tracheas whose finest terminations spin around the egg and dodder-cells.

In dissecting a fertile queen the ovaries may easily be seen, for they are about the size of a pea. Without a magnifying-glass one may see the little moniliforms. The ovaries of an unfertile queen are not as easily seen, as they are less solid and much smaller, both the eggs and dodder-cells being shorter and thinner. But far more insignificant still are the ovaries of the worker bee, which normally can not be seen, for they are too minute. In case of a laying worker it is possible to find the ovaries with some preparation; but they are also very slender, consisting of only about ten of the above-mentioned egg-threads.—“Gleanings.”

BEES IN BERMUDA.

As a sequel to my inquiry in “B.B.J.” last November regarding the importation of bees to Bermuda it may interest you to know that my venture was entirely successful, and so far as I am aware, the bees I brought over are the only blacks on the islands.

There is one apiary of Italians here owned by an American, and kept in “box hives.” On account of the hordes of ants it is necessary to isolate the hives, and his are placed on a two-tier stand, the legs of which have a paraffin guard attached. Excepting one stock all his colonies seemed very weak when I saw them, a fact I attributed to excessive swarming last season, a thing which seems to be the only evil I shall have to guard against. Prices for produce are up 75 per cent. here, as compared with

those at home, and the possibilities of a fair yield seem good.

My bees were released at 8 p.m. (fourteen days after their confinement three thousand miles away). They were a late driven lot hived on four combs (partly stored), and I estimate there were only about two hundred dead; and as they had brood when they started, and were pollen carrying before mid-day, the day after their release (December 4th), which they have continued to do ever since, a goodly part of the stock now are bees raised since landing.

There is no provision in the colony's tariff for “wild animals,” not that I doubt that the customs' official would have found one, had he only thought his eyes read aright the plainly displayed label. Consequently I cannot enlighten you as to what the duty might have been. I intend to work all my stock strictly on British methods, and hope at the end of the season to be able to furnish you with a statement of my results as compared with that of the American gentleman I have mentioned. I greatly miss that extremely handy person the “middle-man” here. I find I shall have to import direct from England, or make everything I need, and after waiting five weeks pay 10 per cent. duty on its value. This, however, will be compensated for when I draw a dollar for three nicely filled sections in the time to come. Wishing that all those interested might have a good share of the glorious weather we enjoy here.—A. F. Leaney, R.A.M.C., in “British Bee Journal.”



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