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THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W

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MAY 30, 1907.

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Australia.

ON May 1st we visited our out-aparies. I had not been to them for five or six weeks before. Our main objects were to see if they had food enough to carry them on, and covers and entrances were all right. Out of about seventy only one was absolutely short of food, as in the last extracting, the end of December, we did not take too much off, but left what we thought would be sufficient to carry them on for a few months. There has been no flow since, and we do not anticipate another till August next. Each hive was opened as quietly and quickly as possible. Those that had plenty and to spare were noted. When we came to a doubtful one, a frame was supplied from the well-filled ones. The ruberoid and linoleum cloths on top were put above the brood bottom ones, so that the brood would be snug in the cold weather, and entrances were contracted. At each hive speed was the motto to save robbing. We shall not look at them for another month or five weeks.

Were our bees at home we would go round in the day-time. In hives which seemed short of food we would take a frame out, and mark the hives. In the evening would make syrup of honey and warm water, pour it from a height of one or two feet into an empty comb, giving it time to get to the bottom of the cells; then lifting cover of marked hungry hives, drop some comb quickly into its place and cover up. No robbing by this plan, done possibly after dark. Cakes of

honey and flour are now recommended by some for winter feeding, and they can be placed in quickly and quietly.

Drones are said to fly much further than workers.

In Texas, U. S. A., the current price for honey is 15½ cents.

There are 3,000 beekeepers in the county of Kent, England.

Good clover honey in England is quoted at 56/- per cwt.

Dark honey is said to be more marketable in its granulated state.

You can help the "Australian Bee Bulletin" by dealing with our advertisers.

Whiskey is said to be used in the Isle of Wight for curing diseased bees.

Pulverised sugar well blended with honey made into cakes is best winter feeding.

A swarm held in a tree by rainy weather for five days, must have been provisioned for that time.

It is expected that the future will prove that *Bacillus Alvei* is the result, not the cause of the bee diseases in cold climates.

A German has reported, by using paint to mark a queen that a young queen has led a swarm, the mother remaining and going with an afterswarm.

Not only is it necessary now to see that bees have sufficient food to carry them through the winter, but that top of hives are in good order. If there is a good sheet of ruberoid or material of that class on top of frames it is a great conservator of heat.

In 1900 the I.B.K.A. sent a circular letter to Irish hotel and restaurant proprietors "calling their attention to the high quality of honey produced in that country, and asking them to place honey on their tables." Only a few proprietors replied.

The South-Texas Beekeepers' Association put in an application to the Rail-

road Company to the effect that they want a ruling to go along with the reduced freight-rate—not to allow any one to load bees for shipment until such person first screens the car with wire-cloth in such a manner as will not allow bees to escape from the car while in transit.

The "Irish Bee Journal" says:—The Australians complain that because of the flavour of the eucalyptus, the British public will not eat Australian honey on their bread. Then why not persuade the British public to spread it on their handkerchiefs! In the time of the influenza flow, trams and trains reek with the scent of eucalyptus used as a preventative.

The "American Bee Journal" says:—We are expecting, in the very near future—say two or three years—to see such a demand for honey that it will take every pound produced, within six months after the close of the honey harvest each year. Bee-keeping is not overdone.

(We hope it may be so, but our faith in such is not very strong.)

Now, in the winter months, is a good time to remove bees. Keep the frames from shifting by placing strips of cardboard or tin across them, strips of tin at side and end, fastened with big headed tacks; and bottom board to body of hive. Do this in day time. At night when all bees are in, close entrance with perforated zinc. Do not have too much honey in hive you are shifting.

The American pure food laws are doing much good in securing only pure food, but its enemies would like to undo much of that good, so they are proposing a restriction as follows: "Provided, that no part of this sum appropriated for the carrying out the law, shall be used for the payment of compensation or expenses of any officer or other person employed by any State, County, or Municipal Government."

ROBBING.—Dust the robbers with flour. Then note the hive they go to, and exchange the hives; after a day or so replace them.

BEEKEEPING IN FRANCE.

We extract the following from the "American Beekeeper":—As soon as his bees are brought back from the heath region, the heaviest ones—those that may give more than 30 lbs of honey—are taken up. The entire contents are taken for honey and wax, after having driven the bees out and united them with the weakest colonies. To avoid fighting, a few drops of essence of mint are given the day before to the colonies to be united in order to give them the same scent, otherwise there would be considerable fighting. The light colonies are fed for the winter, a mixture of sugar syrup with one-fourth of good honey. The feeding must be all done by the middle of September. The upper entrances are closed and cushions of oat chaff placed on the hives for protection. In very cold weather straw mats, such as are used by gardeners are placed in front of the hives for further protection.

In March when the weather is sufficiently warm, a general visit and cleaning of bottom boards is done. The upper entrances are opened, and the colonies short of stores fed from two to four pounds of good honey—not more. From now until there is plenty in the field, stimulative feeding is practiced. His bottom-boards are very thick and provided with a kind of trough for that purpose. Every second or third evening a big spoonful of honey is given to each colony. During the last part of April all the colonies sufficiently strong receive a super, partially to retard the swarming. He prefers to have all the swarming done between the 10th and 20th of May.

Let A represent a colony ready to swarm and occupying the stand No. 1. B a weak colony or one among the weakest of the apiary occupying No. 2. No. 3 and No. 4 are empty stands, thus :

A	B		
No 1	No 2	No 3	No 4

A swarms and gives a swarm, S, which is placed on the old stand, the parent colony is placed on the stand of B and receives the field force of B. B is placed on a new one; say stand No. 3. Then there is :

S	A	B	
No 1	No 2	No 3	No 4

About ten days later, the colony A swarms again. The swarm a second swarm with a young queen, we can call it SS, is placed on stand No. 2, from which it came. The colony A takes again the place of B, and B is removed further, on to stand No. 4. He finally has :

S	SS	A	B
No 1	No 2	No 3	No 4

None of them will ever swarm again that year.

In the middle of June, the heaviest of the old colonies having swarmed are harvested or taken up and put new hives. If necessary two or three are united to obtain strong colonies for they have to rebuild their comb.

The colonies that have not swarmed or have not been removed from the original stand and are strong enough to swarm are now swarmed artificially and the swarms lodged in some of the hives with combs, from which the bees have been driven out.

All this must be done by the middle of June. If between then and the middle of July, there is a dearth of nectar, feeding is resorted to so that the colonies may be strong enough to go to the heath region with advantage at that date.

When they come back, the heaviest colonies may be taken up, but Mr. Havard chooses as far as possible the first swarms and the colonies displaced at swarming times.

That leaves him to go into winter quarters, chiefly with colonies having young queens and new combs.

ROBBER BEES.

As soon as robbing is noticed remove the victim from its stand. Place at once an empty body in its place. Now go to some reasonably strong colony and place a queen-excluder over the frames, and the body of the robbed hive over all. Before making the change it would be well to learn positively whether or not the robbed colony contained a queen. If there is no queen present, and no brood, supply it with a frame of brood containing hatching eggs.

If the queen is present so much the better. The robbers will enter the empty hive-body, and in a few hours finding nothing to carry away, will give up the job.

Remove the empty body the following night, and if any of the field-bees that belonged to the colony that formerly occupied the stand are in the hive, brush them into their old home, which is now on another hive.

Nine days after making the double colony, examine the comb to see if queen cells have been drawn. If none are present, close the hive.

Should there be plenty of brood, the upper body may be placed on a new stand. It is better to wait until the brood in the upper body is hatching before making the change.

If, however, queen-cells are present the two bodies must be separated on the ninth day.

This method of tiering up is quite successful to stimulate backward colonies in the spring, even should there be no robbing. When so tiered up both colonies do better than either would do if dependent upon the limited amount of heat each could develop to build up.

This plan should be followed with great caution. The robbed hive contains many robbers during the day, and if set on another hive at that time is very liable to start robbing there. Especially is this the case if it is first opened up to ascertain whether it has a queen. The better plan

would be to close the robbed hive until evening, then open the entrance to let the robbers fly home, when it can at once be set on the other hive. When the two hives are to be separated again, the stronger one should be removed to a new stand, and the weaker one left to catch the returning field-bees.—*American Bee Journal*.

Will Beekeeping Cease to Pay?

In answer to the above a writer in the "British Bee Journal" says:—Evidently the great point before us is to use every means in our power to increase the use of honey as a staple article of food. If the medical faculty would commend honey as an article of diet to those with throat and chest complaints, and make it known that a mixture of honey and butter equals cod liver oil, and moreover, can be taken and retained oftentimes when the oil would be rejected, it would tend greatly to extend the use of our bee produce. We hear of large quantities of honey being used in the manufacture of the much-advertised cough-syrups—our grandparents brewed their horehound tea and sweetened it with honey, and after a few doses their coughs and colds were cured.

ANT LIFE.

A most interesting article on ant life appeared in "Harper's Magazine" describing principally the life of the queen ant. There is need for an immense number of ant eggs, for there is great loss of life in an ordinary ant-hill. All sorts of enemies lurk in the way to devour them. The feet of passing beasts and human beings crush multitudes. These frequent losses have to be made up by the fertility of the queen ant, and it becomes necessary for her to devote herself wholly to increasing the colony. Foraging for supplies is abandoned. Household work, domestic service, nursery duty, are gradually given up, and the workers of

the growing community take those tasks upon themselves. The queen is restricted to the function of motherhood.

The ant queen's subjection to her subjects is not reached without resistance on the part of her emmet majesty. But resistance is useless, and she becomes, in the end, subject to the powerful house which she has reared around her. She is confined closely to the interior of the formicary, and wherever she goes, through chambers and halls, is attended by a circle of workers known as "courtiers"—a name that has a large and dignified sound. But the courtiers are simply a bodyguard; and their chief office is to restrain the liberty of their sovereign within the bounds prescribed by the communal needs, and to look after the eggs when they are dropped. The circle of "courtiers" never ceases to close around her as the queen ant passes from place to place. Sometimes the queen, falling into a fit of stubbornness, will attempt a course different from that which her court prescribes. Then one attendant gently nips a leg, and gives it a little push; another closes the mandibles upon the body and gives a slight pinch; a third tenderly seizes quivering antenna, and draws it to this side or that. The whole body-guard meanwhile closes around the queen, and by pushing her and obstructing her path diverts her course, or quite turns her around, her huge body, several times as large as a worker's, moving sometimes readily, sometimes with sullen resistance. Thus at last the courtiers carry their point.

Once a queen escaped from the surface gate of one of the formicaries. Not a courtier was in sight. She was free! Off she ran, as though intending to have a good romp and enjoy her freedom. But she had reckoned with her host, for she had gone but a little way when her bodyguard pursued and seized her somewhat roughly, and immediately began to pull her backwards towards the gate. She resisted sturdily, but at last gave way, and was drawn down the opening into the royal domicile. Poor queen.

How long may an ant queen live? The oldest emmet queen known to science was one preserved under the care of Lord Avebury. When this ant died her body was surrounded by a crowd of workers, who were tenderly licking her, touching her with their antennæ, and making other demonstrations, as if soliciting her attention, or desiring to wake her out of sleep. Poor, dumb, loving, faithful creatures! There was no response. Their queen mother lay motionless beneath their demonstrations. Another queen died at fourteen. The ants dragged her body about with them when they moved until it fell to pieces.—*Review of Reviews.*

HIVE COVERS.

The material I now use for hive covers is not zinc, but galvanised sheet iron (26 gauge), which can be got at any large ironmonger's at a rather less price than zinc costs. Galvanised iron will not rust or warp as zinc sometimes does under a hot sun. It is also stronger than zinc, but quite easy to cut up, with a pair of tinsmith's shears. In my hands it is no more trouble than cutting paper. Several of the first hive roofs I made caused me a good deal of trouble in covering, as the roof-boards overlapped, and in consequence the iron had to be put on in strips the width of the board, and the joints soldered. But I have overcome the difficulty now by making the roofs with only a slight pitch and nailing the boards flat on, not overlapping, then cutting the iron (or zinc, whichever you prefer) half an inch larger than the roof all round. I then bend the space half inch down and tack to the edge of the boards. On no account should any nails be used for the top of roof, or the water will be sure to find its way in. If the roof-boards are $\frac{3}{4}$ in. thick, the edges of the iron, or zinc, will tuck in nicely, and not be liable to cut one's hands when lifting the roofs off. Perhaps some would prefer to have boards for roofs slightly stronger than

3 in., but I am only explaining to you how mine are made (most of them are made from soap boxes), and when covered with iron or zinc they are quite strong and heavy enough for handy manipulating. The only remaining thing needed is to give the roofs so made a coat of white paint, to keep them from drawing the hot sun, and you may rest easy as to storms of rain, wind, or snow, as I never have any trouble on that score now.—*Exchange.*

SWEET CLOVER.

There may be States in which sweet clover is classed as a noxious weed, and so that it would be unlawful to raise it even on our own land. If this is the case it would not look well to advise raising it there. I have found that sweet clover is worth more for enriching the soil than it is for honey. I dug a few potatoes yesterday where there was sweet clover last year, and found double the yield out of the same number of hills on the same soil. Where the sweet clover grew, there was no manure last year; and where the sweet clover was not, I had a coat of manure last season. Along the railroad and highways sweet clover does not last more than a few years. It will grow where no plant will, and then other plants take its place. I have in mind a spot where the soil was removed for an embankment—3 or 4 feet of top soil, some one sowed sweet clover there, and after a few years of sweet clover other grasses have taken its place. The sweet clover produces the humus to bring about the result and this spoils the soil for its own growth.
Extracted.

In case the bees of a strong colony get ahead of the queen during the honey season, and fill the frames above the brood with honey, by reversing the frames at this time this honey will be carried up into the sections, as they will not tolerate any honey below the brood.

LETTERS TO THE EDITOR.

Briagolong, Gippsland,
Victoria, May 15th, 1907.

Editor A.B.B.,

Dear Sir,—As one of the "dames" referred to by Mr. Abram in your journal of the 30th April, 1907, I venture to hope that you will be so good as to grant me space to correct the wholly false impression that his statement, if allowed to go uncontradicted, would be likely to leave.

Briefly put, here are the true facts:—Mr. Abram came to our place at Glenbrook, and, representing himself as a person altogether unacquainted with bee culture, went on to say that his interest, having been excited by reading on the subject and being very anxious to see something of the practical side of the business, he had, by the advice of a gentleman in Sydney, come to Mr. Garrett for information.

Mrs. Garrett said to him that as Mr. Garrett was from home all we could do was to show him the apiary and appliances, as we women did not profess to instruct in apiculture.

Then asking him if he had seen the Parramatta bee farm, and his distinctly answering that he had not, she went on to say that as he had not yet, as he said, made a start, she would advise him to visit that place which was worked on the German method, which was different from the American system, which we followed; "but," she added, "I must warn you that many people who come here after visiting Parramatta complain of the scant courtesy they receive unless they go as customers."

While showing him over the apiary a frame containing both brood and honey being held up for his inspection, he innocently enquired "which was brood and which was honey"! Coming to the store-room he said he had heard we had a "machine for making combs" which he would like to see as he had never seen

one. The foundation mill was shown to him, and he remarked that he hadn't thought there was one in Australia.

On leaving he expressed his regret at Mr. Garrett's absence, and stated his intention of coming again shortly, but declined to leave his name, which we probably should never have learned but for the accidental circumstance of the officer then in charge at the Glenbrook station, having formerly been stationed at Parramatta, and therefore recognising him.

When, on Mr. Garrett's return, the identity of our visitor was revealed, we were absolutely dismayed by the thought that any *man* could descend to such depths of deception, and I quite agree with Mr. Abram, he would have been a brave man indeed, had he either given his name or called again.

Yours faithfully,
M. J. Garrett.

Briarolong, Gippsland.
Victoria. May 15th, 1907.

The Editor A.B.B.,

Dear Sir,—As Miss Garrett is sending you a faithful account of Mr. Abram's visit to my father's apiary at Glenbrook, as it was related to both my father and myself by both my mother and Miss Garrett, at the time, and for the accuracy of which I pledge my honour, I will not comment of my own on the matter, excepting so far as to observe that a person's being asked or refusing to leave his name when he is permitted by the courtesy of the owner to inspect a private establishment, is a very different thing from his refusing to give, on being asked to leave, his name if requested by a shopkeeper of whom he has purchased a pair of boot-laces. By accusing me of *assailing* the gentleman named in my letter (by associating their names with the Parramatta Co.), Mr. Abram is himself actually assailing the concern referred to, while my allegation neither

assails nor casts any reflection on either the parties or the concern.

Mr. H. Petersen's silence by no means disproves the fact that his apiary (as well as my father's), was established on modern lines, years before Mr. Abram was ever heard of, as a beekeeper, in Australia; and no amount of bluff and bluster will hide the fact that, while Mr. Carroll was undoubtedly first, Mr. Abram can have no claim whatever, his pretensions notwithstanding, to win 2nd or 3rd place.

Yours faithfully,
E. GARRETT.

Removing Bees in Skeps.

Invert the skep, and pass one or more sticks from side to side of the skep and through the combs, and then place a few corks between the combs, wedging rather tightly between the outside combs and the side of the skep, and also pin any comb from outside that is not properly attached to the skep. This should be done a few days before moving, to give time to the bees to make all fastenings secure; and for a journey I would suggest something more porous than "thin sacking," as we want to give plenty of ventilation, as well as protection from rain. The skep being now packed inverted in a box, with plenty of straw underneath and around the sides, with a lath screwed (not nailed) across box, with due care it should stand any ordinary journey, provided (a) that the combs are not of the current season, and (b) that the combs are not heavily charged with either honey or brood. At any time, when replacing a skep on its stand, it should be laid down on the side, having the combs upright, for an instant, and then turned gently over, still keeping the combs vertical.

[The above is given in *Irish Bee Journal*. We do not think there are many skeps in Australia to remove.]

PRICES OF HONEY.

Melbourne Australasian.—Honey and Beeswax: Supplies of honey are rather large, and the demand is quiet. Choice is worth 2½d., small lots fetching up to 3d. Cloudy and dark is slow of sale at down to 2d. Beeswax is unaltered at 1½ to 1/3.

Melbourne Leader.—Honey.—For prime clear garden lots there is fairly good inquiry at from 2½d to 3d; medium to good descriptions are somewhat excessively supplied and are on offer at from 2d to 2½d. Beeswax.—There is full outlet for prime clear wax at 1/3; medium to good samples, more or less discoloured, realising from 1/1 upwards.

S. M. Herald.—Honey, 60lb tins extra choice extracted 3d, choice 2½d, prime 2d, medium 1½d. Beeswax.—Dark 1/1 to 1/2, bright 1/3 to 1/4 per lb.

Maitland Mercury.—Honey, 2d to 2½d. per lb. Small tins 2/3 to 2/6.

HONEY.—

We have had a good clearance of all consignments and choice quality is selling from 3d. with a few special lots up to 3½. Medium quality lines 2d. to 2½d. per lb.

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THE LOGAN AND ALBERT RIVERS.

LOGANHOLME.

For nearly forty years Loganholme has ranked among the most prosperous communities on the Logan and Albert rivers. It bears all the signs of age; the pioneers have, in most cases, either "crossed the bar," or have removed to other centres, and their descendants, now in the third generation, are "the men on the land." Various have been the industries of Loganholme; cotton was largely grown in the mid-sixties; this was followed by sugar, but now cotton is only a memory, and the growing of cane is a diminishing quantity; both have been superseded by general farming. The district might be described as one of small farmers, and of many and varied industries. Nothing is on a large scale, but the attention given to little things, or what might be described as the accessories of farming, marks the boundary line between failure and success.

Loganholme at once strikes the popular imagination, as you meet here a type of dairyman and phases in farming unhappily too rare in the State. The history of both, dairying especially, is along the lines of quantity. Bigness is the synonym for quality, but here everything is the opposite. The industries are held well in hand, and worked for all worth, and the consequence is that the commercial output is out of all proportion to the size of the herds and area of the farms. Farming under modern conditions finds an illustration at Loganholme.

The area of arable land on some of the farms is in some instances not more than twenty acres, the balance being made up of ironbark ridges, and altogether unfitted for cultivation. Yet these farmers are large growers of maize, potatoes, and the heavier kinds of produce. The bulk of the cereal crops are used on the farm either as green fodder or in the form of ensilage. Just now Mr. J. Dennis is

chaffing a heavy crop of corn, and filling his silo for winter use. No two crops of maize, millet, or potatoes are grown in succession, as farmers say that in the rotation of crops they have one of the factors for bountiful harvests. Nothing is left to chance, and there is no waste. The refuse from the stable, cowyard, and piggery goes back to the land; even dry corn-stalks are utilised as a mulch for fruit trees. Constant and deep cultivation the rotation of crops, and heavy manuring explain the heavy crops that are harvested every year from the river banks, and explains why the quality of the land has suffered no deterioration.

But it is not in the lines of heavy produce that the greater reliance is placed; these men are orchardists, and, at times, market gardeners on a big scale. The vagaries of the maize market make that crop uncertain, and they grow fruit and vegetables for the city market. "If we strike a rising market," said one farmer, "then maize and potatoes pay: we rarely go wrong in fruit and vegetables." "During the drought from half an acre of cabbages I made £50 in the South Brisbane market, and from that little bit of land (about one sixth of an acre) I made £18 in tomatoes," was a statement made by Mr. Dennis. The river banks are admirably adapted for this form of industry, and its nearness to Brisbane adds to its value. Your orchard looks well, Mr. Shaler; what's the acreage? "About fifteen," was the reply. Then you have 1500 orange trees? "Yes, that's about it, and they are now about fourteen years old." But what about this heavy crop of weeds? That's all right; come back in two or three weeks, and you will find them all down, and being used as a mulch for the trees." Mr. Shaler and his brother own the largest orchard in the district. In many respects it is a model one, and in a good season the output must be large.

"I made my start in life with bees. This was seventeen years ago, and meantime," said Mr. Dennis, "I have purchased the property on which I live, and

am now negotiating for a larger farm. For years I got through every week a half score of pigs and four or five calves in the Brisbane market. This business I have handed over to Willie Callaghan, but there is money in bees, and I shall stick to them." Bee farmers are almost as numerous as the farms at Loganholme, and in driving through the district one comes across hives, but there is no house in sight to indicate their owner. Honey at £14 per ton, and always in demand, shows that there is money in the business. "My biggest output for one season," said Mr. Dennis, "was 15 tons." This represented £210. It is these little things, the accessories to farming, that make the industry pay.

These farmers are also dairymen, and here again the industry is not on large lines. Every farmer has a few cows, roughly speaking about a dozen, and generally of the Jersey strain. But though the individual herds are small, the aggregate output of cream is large. The cream does not in all cases go to the factory, as the demand in the city for hand-made butter is large, and at 2d. per lb. above factory quotations. This business is largely in the hands of Mrs. Dennis of Daisy Hill, and while at times she sells 100lb. per week, the demand is always greater than the supply. Dairying is one of the industries that show signs of expansion at Loganholme, and its value to the farmer is not alone represented by the monthly cheque for cream; there is money in the waste from the cow yard which is always being returned to the land.

Divesting him of his peculiarities the Loganholme farmer is bound by no traditions, and neither is he manacled by the methods of a former generation. You cannot but admire his enthusiasm in money making, and you cannot shatter his passion for dollars. — "Brisbane Courier."

THE USEFUL BEE.

Fertilize Fruit Blossoms.

From The Transvaal Advertiser.

The following interesting letter appears in the April number of the *Transvaal Agricultural Journal* under the heading "Bees as Fertilisers of Fruit Blossoms":

To the Editor,—

Sir,—It has frequently happened that bee keepers and fruit-growers have come into conflict owing to the latter stating that bees injured their fruit in consequence of which they have had them removed on the grounds of being a nuisance.

At the time, fruit growers were not aware that they were removing the very insects which were most necessary for the fertilisation of their fruit blossom, and thereby producing an abundant crop of fruit which would otherwise have failed to come to fruitage, so that they were benefiting considerably more than the bee-keepers themselves. So the bees were really a blessing instead of a curse.

It is an erroneous idea to suppose that bees damage fruit by piercing it, and the real culprits you will find are birds, wasps, beetles, grubs, and, sometimes, an abundance of rain causes fruit to swell and burst. When the havoc has been done and the juices trickle from the fruit the bees come to the rescue and gather the juices, giving a supply of honey which would otherwise be lost were they not present.

It has been ascertained that, after the removal of bees for several seasons, fruit crops almost entirely failed although the trees were laden with blossom, and when the hives were replaced, abundant crops followed, which shows that fertilisation was absolutely necessary.

This testimony proves most conclusively that the two industries go hand in hand, each being dependant on the other.

In further proof of this statement, I would refer to such an authority as Pro-



fessor A. J. Cook, at one time Entomologist at the Michigan Agricultural College, who says that, although there are solitary insects that help to do the pollen scattering the work they perform is infinitesimal as compared with that of bees, because, unlike the bees that live over winter, they are not present in early spring when the fruit trees are in bloom.

Numerous experiments have been tried on various fruit trees by surrounding some unopened blossoms with cheese-cloth, and kept covered till the bloom fell off, and others left uncovered, and, without exception, the uncovered bloom gave a very much larger percentage of fruit.

Mr. Frank Benton, of the Department of Agriculture, Washington, says for several years the cherry crop of Vaca Valley, has not been good, although it was, formerly, quite sure.

It was then discovered that the lack of fruit was owing to wild bees having disappeared, and, to test the matter, several hives of bees were placed in an orchard, with the result that good crops of cherries were produced, whilst other growers in the same valley, five miles away who had no bees only produced light crops.

Several years ago a convention of fruit growers and bee keepers in the State of Michigan assembled together for the purpose of discussing their common interests, and the fruit men acknowledged generally that bee-keeping in the vicinity of their orchards was an important factor in the production of fruit. It was proved beyond doubt that they not only secured abundant crops but more perfect fruit.

To ensure success in fruit growing it is necessary to keep bees. Besides, an apiary in or near an orchard would be a decided advantage to the fruit grower from a remunerative point of view if conducted in a practical manner; that is by using modern bar frame hives and all the latest appliances for successful bee culture. The late Mr. C. B. Simpson, Government Entomologist, was a bee enthusiast, hav-

ing imported several colonies of Italian bees, and strongly advocated bee-farming in connection with other pursuits.

For the information of farmers, honey in 1 lb. sections is retailed at 2s. to 2s. 6d. shallow frames, 5s; deep frames 7s. 6d.; liquid honey in bottles, 2s. to 2s. 6d.; which prices should prove a remunerative business to those having thirty or forty colonies of bees.

In the United States, laws are enacted prohibiting the spraying of trees with poisonous mixtures during the blossoming season, and this operation does not take place until the fall of the flower. Of course, in many instances, the law is ignored or contravened by fruit-growers who are unaware of the immense value bees are. The law was passed to prevent the destruction of bees so as to enable them to continue their work of fertilisation and, at the same time, to prevent honey being poisoned.

It might not be out of place here to mention what a value asset bees are to some countries where enormous quantities of honey are produced. Take Germany, for instance, with 2,000 000 beehives producing 20,000 tons of honey, and Spain, with 1,690,000, furnishing 19,000 tons: these two countries producing nearly half the world's supply.

South Africa with its enormous expanse of country, and climate better suited for bees than colder countries, containing a variety of bee forage in the shape of nectar-producing trees and flowers, besides grasses and various plants, might well become a large exporter of good wholesome honey.—Yours, etc.,

D. CAIRNCROSS.

Pretoria.

Teacher—What is it that bees make Tommie? Tommie—Sore spots, ma'am.

The aroma and colour of extracted honey is said to be improved by exposure to a sun bath.

A MAP IN THE BEE'S BRAIN.

APIS MELLIFICA AS A TOPOGRAPHER.

I had so often met with the general statement that swarms of bees will establish themselves in holes in trees, and yet I never met with the fact, that I began to doubt it. In the New World bees, we know, are often found storing honey and carrying on their commonweal in hollow trees; but in England we expect to find the wild honey bees about the roofs of houses and in church towers rather than in woods. However, I have quite lately been persuaded that bees do sometimes settle in trees, for I have found them there myself. Close to the church at Eversley, in a hole in a tree by the road to Winchfield, is a settlement of bees which only ceased to work when the ivy blossom was over. The ivy is, I think, the last flower-feast of the insect. It draws many eager insects either because it is rich in sweet-wealth or because it is their only source of supply at the season. Through whichever cause, the ivy on the sunny walls and the tree trunks is a buzz of little wings in the autumn. This season I have noticed many wasps there as well as flies. Trust the honey bee to discover when the ivy blossom is sweetening. What a topographer the honey bee is in the matter of things that blossom!

Say the honey-seekers of a hive have a sphere of two miles. Try to draw a bee map of that sphere, marking on the map not roads and villages and such-like but patches of plants that produce honey and pollen—in fact, a honey and pollen guide: though you have lived in the district all your life, and made a long and loving study of all its kinds of trees and flowers your map will scarcely compare in a minute the exactness with that the bee has in her brain.

Even suppose you can on your map set down as truly as the bee where is this large patch of sainfoin or of charlock, or of raspberry canes, and where are the thousand and one scattered and smaller

ones of lime, heather, wild thyme, white clover, and so forth, yet you cannot affect to set a neat, exact date to the blossoming honey-prime of each patch, great and small, as the bee will. All through the flower season, beginning with the copse anemones—for I fancy she finds something of value there—and the perfumed salallows of early spring, and completing with the laggard ivy, the bee must making and keeping up to date her brain map of the district. One blossom ceasing to yield it must be marked "off" on her map, whilst others coming on in turn must be charted with-out the loss of a day, hardly, indeed, of a honey-precious, pollen-precious hour.

A map, then, of her flower world the bee must have in her brain, and nothing in this map but what will directly serve her; other than flowers, it will exhibit only such objects, landmarks, as enable her to fly in a bee-line to the flowers. How has the bee, I wonder arranged her house in the hollow of the tree? Precise though she is in the making of each individual cell—a builder whose measurements never vary to calculable fraction of an inch, though herself without a measure—she does owe something of the precision and the ship-shape of her hive to the bee-master. It is he who hangs the nine brood and honey combs in an exact row, who fixes the supers nicely level with the ground. Without the bee-master's prompting and his foundation to work upon, her combs would be awry. In the hollow of the tree no doubt they are awry; a bit of comb here, a bit there, ledges, or ridges, perhaps, like those of the strange, leathery polypores which grow on the trunk of the old ash and elm trees. The fact that bees can live through the winter in such places seems to show that they are not quite so much at the mercy of the cold as we sometimes suppose.

No quilt or carpet keeps them warm in the hollow tree, and there is nothing to prevent the north wind whistling in. Many bees, indeed, isolated by a few

inches for a few moments from their fellows, must perish in such quarters when the winter is hard, but the bulk live simply by forming one great cluster in the heart of the honey-combs, this cluster only shifting very gradually as the cells about it are drained of honey. A seething bee cluster, hung high in the midst of the combs, looks the very contrary of all order and method. But we know that really it is the perfect plan and the only plan by which the bees can live through the hard months.

The cluster is the bees' fire, fuelled and stoked and kept at a high and steady glow by their own bodies.—George A. B. Dewar, in the *Standard*.

Bees Carrying Water at Night

The past two years, in April or May, during the hot spell, I moved my bed outside the house, and there I slept every night (weather permitting, of course,) till it got too cool (October or November). I didn't use even a tent or mosquito bar. The first night when I moved my outfit outside I could not sleep, as fleas and long-tongued mosquitoes bothered me no little. I did not sleep that night until 3 a.m. by the watch. I went to the beehives and stood there got a torch-light and watched the bees in front of their hives; not one minute, not five minutes but fully 15 minutes, going to the next hive and watching again. Soon after 3 a.m., I went to sleep and the bees were still going at this time just as described. As reported before, *never more than one bee* goes out of one hive at once after water and the next one takes wing the very second one carrier sets her foot on the alighting-board, no matter if a quart of bees is hanging over each entrance, and 2 or 3 empty supers on top. My hives stay in the shade from about 9 a.m. till 3 p.m., during the summer, and are raised about 18 inches from the ground. The orchard, and in front of the house is cultivated with horse as close as can

be done. I plough either at the first sign of daylight, sometimes during or right after a shower, or during a honey-flow—at any time while bees are flying thickest. The horse so far has escaped with 4 or 5 stings during the last 3 years when the bees were shifted from another place into the orchard. By the way I have seen or heard of these water-carrying bees many times. As I sleep outside I know that every hot night, water-carrying is going on exactly as reported except on cloudy nights. If I had bees a good distance from the house—water far for the bees to get—and were it not that I like a good many others, prefer to sleep outdoors, I would not know of this night-working shift of bees. The well is 70 feet deep, is 210 yards away the east of the house. No bees go there at night but plenty of them at day time.

SOME SOUNDS OF THE BEE.

To distinguish all the sounds of the bees would require a sense of hearing keener than that possessed by human ears, but even the dumbest ear, after long listening, becomes familiar with many bee notes, and finds meaning in what to the novice is nothing but a bewildering confusion of sound.

In practical bee-keeping there is nothing the beginner will find of greater service than to learn to interpret these various sounds from the everyday happy hum of the bees in the flowers, varying as it does in intensity and eagerness, but expressive always of satisfaction and delight, to the strange peep peep of a princess in her, as yet, unopened cell.

"When the weather is warm and honey plentiful each bee leaves the hive with a flourish. Whizz, I am off!" exclamation; or it is the hymn of gratitude for a new day and its sunshine?

"The noonday play-spell is a living song of gladness—an ariel dance in which the young bees join and learn the joys of flight—a thorough ventilation and refresh-

ment of the hive, but often a source of consternation and alarm to the beginner in bee-keeping, for he is sure that in all this uproar his bees are swarming or robbing or doing something dreadful, until he discovers it is only play and that each hive repeats this performance at the same time every day. To the uninitiated the noise is suggestive of swarming, and he watches with some concern until the bees have gone back and the usual quiet is restored.

"One of the most interesting sounds is the 'call of the queen,' or the 'call of the home'—the sound that when a swarm is being hived leads them up the entrance in such unerring lines.

"All these are sounds that one is glad to hear, but there are unpleasant sounds as well—the sound of the robber, the high angry note of an enraged bee, the bee that has a grudge against you and is determined instantly to pay it off. A bee 'calls out' when it is being captured or crushed and a queen when she is frightened. Bees annoyed by ants call in distress and spit at their tiny tormentors, like defiant kittens. The wail of a queenless colony is easily known, and utterly sad, though most pathetic and pitiful of all is the sound of bees that have lost themselves in the rain or darkness."

Writer in South Africa Poultry Journal.

BEESWAX.

The Roman Catholic Church uses large quantities of beeswax in the form of candles. That organization will not tolerate paraffine, ceresin, nor any of the mineral waxes, all of which give off a nasty greasy odor in candles while burning, while one made of beeswax leaves a delightfully permeating perfume. Then, too, the burning of mineral wax leaves a deposit that injures the pictures, while beeswax mellows and preserves them.

There are certain grades of blacking, harness oils, and lubricants that require pure beeswax in their manufacture. A

blacking using beeswax will stand more dampness than that made of any other substance.

The electrical supply business is a consumer of our product. The windings of the wire are soaked in paraffine or beeswax—preferably the latter, because it seems to be less affected by extremes of heat and by moisture. Pattern-makers are also users of our article. The profession of dentistry takes a large quantity of pure wax every year, reference to which has already been made elsewhere.

In all the arts, paraffine, ceresin, and certain other mineral waxes can be used, but, if we are correctly informed, none of them have all the desirable qualities of the product from the hive.—*Gleanings.*

Accident to a Beekeeper.

We are sorry to have to copy the following from the *Maitland Mercury*. The Windeyer family are beekeepers, and subscribers to the "A. Bee Bulletin":—Miss Daisy Windeyer, daughter of Mrs. Windeyer, of Kinross, near Raymond Terrace, was accidentally shot with a pea rifle on Wednesday afternoon. Particulars go to show that the young lady was in her room when the other inmates of the house heard a cry from her. Miss Windeyer's brother rushed into the room, and found his sister in a fainting condition. She was unable to speak, but indicated that she had been shot, and a small pea rifle, which Miss Windeyer kept in her room, was found on the floor. Dr. Meredith was at once sent for, and he found that a bullet had entered her left breast. He attended to the patient at once, and telephoned to Dr. John Harris, of Newcastle to bring his Rontgen rays for the purpose of locating the bullet. When Dr. Harris arrived he had a consultation with Dr. Meredith. At a late hour that night the bullet had not been located, but it was thought to have been embedded in the region of the heart and internal bleeding was said to have set in. The latest infor-

mation was that Miss Windeyer's condition was very serious, and the doctor's remained with her for the night. Miss Windeyer was alone at the time of the accident, and she was unable to state how it occurred, but it is thought that she must have knocked the rifle down, and thus caused the discharge of the bullet. We learnt on Thursday that the doctor's have located the bullet, but unless it is absolutely compulsory they will not operate at present. Miss Windeyer is in a very serious state, but as well as can be expected from the nature of the accident.

GERMAN-EAST-AFRICA.

NOVEL HIVE STANDS.

According to a reporter in Phalz Bzgt., this country is most favourable for bees and honey production. The honey flow is a constant one. The natives (negroes) use hollow logs for hives and hang them to the branches of trees. The sight of a fig tree with 50 hives hanging from its limbs is no uncommon sight. Next to harvesting the honey this putting up the hives includes all the work that is done by the honey producers, for the stocking up of these hives is automatic. The contents of the hives is cut out four times during the year.

The German farmers somewhat imitate the ways of the natives. They put out decoy-hives and kerosene boxes, and when these are filled, they add another box—upper story—filled with frames. Some use honey extractors to obtain the honey.

The honey is reddish in colour, seems sweeter than the honey gathered in Germany. Then honey is largely used in place of sugar by the colonists.

The most common bee—*Apis mellifica* Adansonie—has its own markings, the thorax having a reddish colour. The bee is smaller than the German bee and not very vicious—*American Bee Journal*

New Light on Brood Diseases.

A report has just been issued of the investigations made during 1905 in the Imperial Biological Institute of Dahlen, near Berlin. In this report Nos. 24 and 25 are of special interest to bee-keepers, as they treat of the experiments made on diseases of brood. The first treats of foul brood of bees, and the last of what has been called "*Aspergillusmykose*" of bees.

The Institute received 119 samples of diseased brood, and 112 of them were found to be foul brood. It is stated that bee-keepers suppose that *Bacillus alvei* is the prime cause of foul brood. The investigations of the Institute tend to show that this is not absolutely correct, and that other bacteria play an important part in the development of the disease. In other words of the 112 samples of foul brood examined *Bacillus alvei* was found only in thirteen, or in round numbers in one sample out of every nine. This unexpected result gave cause for considerable reflection and experiment. Food containing bacilli mentioned above was given to healthy colonies, and foul brood failed to break out, nor was any effect produced when the bacilli were brought in direct contact with the larvæ and nymphs in the cells.

From this it would appear that *Bacillus alvei* is of less importance than has hitherto been attached to it. Not only so, but in every case of foul brood another microbe has been found, sometimes in company with *Bacillus alvei*; but all attempts to produce the disease with it failed; therefore it cannot be considered as playing any part in its production.

In continuing the investigations a different microbe, a *Spirochæte* belonging to an altogether different family of the higher bacteria was found. It is a spiral in form, is not motile, and appeared in all the samples of foul brood, as well as in the dried masses and scales even when these were several years old.

According to the report, the researches were to be continued during 1906, and it

will be interesting to know if this hitherto unknown organism has anything to do with the disease causing so much damage to the bee-industry. In any case the results tend to show that *Bacillus alvei* is not the real cause of foul brood, and, when present, plays only a subordinate part.

No. 25 treats of what Germans call "Stienbrut," or mummified brood. In this disease the brood becomes hardened and brittle, and, what is more important adult bees are also affected. It is due to a microbe called *Aspergillus flavus*, found in abundance in the affected brood and also on the hairs of adult bees. Inoculation experiment on rabbits and fowls not only produced the disease but caused their death; from which it is inferred that this microbe is the true cause of the disease in question. We would, however, point out that too much reliance should not be placed on this, as we know that *Aspergillus flavus* is pathogenic in rabbits, whereas it is saprophytic in man. The disease seems to be epidemic in some districts of Germany. *British Bee Journal*.

EGYPT.

Apiaries are not numerous in Egypt. Schroeder reports in Ill. Monastshi, of an apiary which he, after a long search found in the little village, Esbesas, that the twenty-five colonies, which it contained, stood on two high benches. The hives were of cylindrical form, mostly of clay—some made of sticks. They were coated with droppings from the cattle, mixed with sand in such a way that each lot of hives formed one body. The owner of the bees, Halem Harnodi, obtains the honey by opening the hives first at one end, then at the other, smoking back the bees and cutting out the comb.

A German who is said to have had marvellous success in wintering bees says he takes all honey away and feed sugar instead.

CAPPINGS.

Without doubt we serve them best when we leave the matter of ventilation entirely with the bees, only arranging to give them an ample opening.—*Professor Cook in Gleanings*.

Morley Pettit, of Canada, has lost his suit of appeal. Across the highway from his apiary, a man drove his team into an oat field, and then turned back to close the gate. When he reached the team again a crowd of bees had attacked them, and attacked him and drove him away, and finally stung the team to death. I have always believed that he disturbed a small swarm of bees that were clustered in the oats. The jury brought in a verdict of 400 dollars damages; and the National Association helped to appeal the case, but the finding of the lower court was sustained. It is believed by many that local prejudice against the bees and their non resident owner had much to do with the verdict.—*Beekeepers Review*.

PAINTING HIVES :—First have all the hives perfectly dry and clean, prime with yellow ochre and raw linseed oil. Be sure to fill all nail marks and cracks. Let the priming dry, say three or four weeks, before putting on second coat, which should be strictly white lead and raw linseed oil. Be sure to let this coat dry thoroughly, leaving it fifteen or twenty days. Then give the third coat. Add to this a little zinc and use boiled oil, rubbing out thin. The other two coats should be rubbed out thin also. This paint will never peel off, as so many paints do as they will be thoroughly cemented to the wood.

Bees whether weak or strong are said to do much better when moved to new localities.

If any number of dead bees be seen about entrances they should be cleared out by using a piece of strong wire bent to a hook shape.

CAKES OF CANDY FOR WINTER:—For winter feeding, nothing is better than cakes of candy made of pure granulated sugar, and laid over two small sticks on top of the frames directly over and in reach of the cluster and covering the whole with some kind of mat for warmth. So, make the cakes 4 pounds of sugar to a gallon of water. This should be boiled carefully until the syrup solidifies quickly when a little of it is dropped into cold water. The syrup is then poured into shallow greased pans and molded into cakes about $2\frac{1}{2}$ inches thick. If these pans are large, the cakes can be broken into pieces of about 150 cubic inches; or cakes $2\frac{1}{2}$ inches thick and 6 inches wide by 10 inches long, will weigh about 6 pounds—just right for the purpose. I have used common pasteboard boxes of these dimensions, which can usually be obtained free of charge at dry-goods stores, lined them with a sheet of paraffine or butter paper, and poured the syrup into them. After hardening, the paper is easily peeled off the cakes. The boxes can be used several times, simply laying over each a new sheet of paper and roughly pressing it down with the fingers. *Gleanings.*

We made several lots of candy, with varying percentages of honey, and felt sure we had struck something good. We also made other lots of candy with dry sugar and water. These several kinds of food we gave to the bees in the cellar. What was the result? The candy that had been subjected to heat containing honey seemed to give anything but favourable results. For some reason it seemed to excite the bees. Why this should be so when honey was a constituent in the good candy we could not understand unless the cooking had the effect of making the honey into a sort of caramel—a substance that is always harmful to bees. This cooked-honey candy was very sticky, and ran down among the bees—and such a mess! The bees looked discouraged, and were about ready to throw up the sponge. How about the dry candy, using only

water? This worked very nicely. It seemed so brittle and hard that it did not appear that the bees would be able to use any of it; but in its crystal state they would use it when they would not not apparently touch the dry granules of sugar, that dropped down on the bottom board. Now, while this hard dry rock candy is all right, it is a rather nice trick to make it. If you overcook the mixture of water and sugar you will spoil it. If you do not cook it enough, the result is just as bad. It should be cooked so that it will “grain” readily when stirred. But I suspect that the average bee-keeper had better be content to make up the good candy. In doing this he should not use *confectioners’*, but *powdered* sugar. The former is apt to contain starch. He should then mix this with the best extracted honey he has, in a warm room, kneading it until he has a lump of hard stiff dough. He should allow this to stand three or four days. In all probability the dough will begin to “run” and become sticky. He can overcome this by mixing in a little more powdered sugar, kneading it again until he has a nice stiff ball, which will hold its stability. This may now be given to the bees, in suitable sized lumps on top of the frames.—*Gleanings.*

THE FUTURE SALE OF HONEY.—A writer in the *BRITISH BEE JOURNAL* says: During the last two or three years tons of foreign honey has been sold in London as “British,” and as the evil is increasing, I am not surprised that it is beginning to tell upon British beekeepers. The foreign honey I have in mind is usually sold retail at 6d. or 6½d. per lb., and in many cases the glass jars or bottles in which it is put up are labelled “Pure British Honey.” I had an argument some months ago with a man who was selling a quantity of Jamaica honey as British, and his contention was that as Jamaica is a British possession he was correct in calling it British produce. I maintain that the consumption of honey has increased enormously during the last

five or six years, but the increase has been with the foreign honey. I know several firms in London who used to sell English honey who now stock nothing but the foreign article.

W. Z. Hutchinson, says:—I want no attachments on a frame—just a plain, straight, smooth, even, $\frac{7}{8}$ frame all around. It seems a pity to me that bee-keepers will pay for these extra fixings on frames when said fixings only make the frames less easy of manipulation. Self-spacing frames staples, etc., are all right when an apiary is to be moved, but I would rather fasten the frames, even with nails if necessary, when the bees are moved if they are to be moved, than to be pestered all the season with all of these cottoglements. —Exchange.

G. M. Doolittle says in *American Bee Journal*:—I would say that I have watched hours, if not days, by the side of an observation hive to see what the field-bee did with its load of honey, and I never saw her do aught else than give it to one of the young or nurse bees. These bees hold and evaporate this nectar if no more comes in during the day than they can thus hold; but with a heavy flow they deposit it in the cells, generally in the brood-chamber, when at night all hands take a hand at the evaporation part, when it is stored in the surplus apartment, mostly by the young bees, unless there is plenty of room in the brood-chamber, in which case it is stored there.

An inch or two of drone-comb is all that is needed to satisfy any colony, and all that should be allowed to any and all colonies but those from which we wish to rear the male bees for breeding purposes; and all colonies having more drone-comb than this should be looked over in the spring, all but the one or two inches cut out.—H. Doolittle.

A German has been making a study of drones. The drone has a period of youth 9 to 14 days, in which he seldom leaves the hive; then a transition period (he doesn't say how long), when he flies more

or less; then full maturity, during which time only he is capable of service, this period being of short duration, when death ensues. This accounts for the need of so many drones. It seems, also, that drones should emerge two weeks or more before needed.—*Gleanings*.

The egg must be laid at least 37 days before the honey harvest, in order that our bee has the opportunity of laboring in the harvest to the best advantage. But how shall we secure the laying of the eggs just when we want them? There are several ways of doing this, such as feeding the bees thin sweets when you wish the queen to lay more prolifically; giving young bees from other colonies that will feed the queen an extra amount of egg-producing food; spreading the brood, etc.

For a hive stand I'd like to try a pair of triangular prisms of cement or stone-ware, each prism perhaps three inches longer than twice the width of a hive. Lay the prisms on the ground parallel to each other. Level them, and set them on a pair of hives. Resting on the sharp edges of the prisms, I should expect the bottom boards to last about twice as long as when set on flat board stands. All one would have to do would be to make a wooden V-shaped trough of suitable size, pour in the mixture, and when it sets, carefully dump it out. To facilitate the operation the trough should be greased with crude oil; and after each cast it should be scraped and re-oiled. During winter weather, when the bee-keeper has nothing else to do, he could make up quite a number of these forms.—*GLEANINGS*.

MAKING BEE CANDY:—Bee-candy should be stirred *after* the time when it is done and taken from the fire, and on until it gets so cool that it has to be poured. Less sticky and less liable to daub the bees by so doing.



CORRESPONDENCE.

P. B., Castlereagh.—Enclosed please find P.N. for 10/- due for two years subscription to A.B.B., and will ask you to discontinue sending it as we are out of the business at present; on account of dry seasons and bush fires we have lost our bees and do not think we will start again. We are sorry to have to give it up as there was a lot of valuable information and many handy little hints. Wishing you and the A.B.B. every success.

B. F., Frampton.—This season has been a very fair one with me. I am only starting to keep bees, and from four hives I extracted 532 lbs of honey. I find much interesting and valuable information in the A.B.B. Wishing you and your Journal every success.

R. H. G., Glen William:—The past year has been very fair with me, a lot better than the two seasons before. Hoping you have had a good time.

TWO SIDES OF A QUESTION.

We ask our readers to read the two following letters, and give us their opinion of same:—

April 19th, 1907.

To the Manager, Sydney,

Sir,—Yours to hand with cheque, received. I am not satisfied. The honey I sent you was pure yellow box, no inferior or dark honey amongst it. My letter instructed you to sell at 3d., I get that here at the local towns wholesale. The freight for a ton of honey per rail used to be £1 15s.; for 1129lbs., much less than a ton, I am charged £1 18s. 11d. An early explanation will oblige. No better honey ever went to Sydney.

Another matter, every one of the 20 60lb. tins were carefully filled and the

lid soldered. There would not have been 71lbs. short, as your statement makes it. Yours in earnest,

The following reply came:—

Sydney,

April 25th, 1907.

Dear Sir,—We are in receipt of your favor of the 19th inst., and regret very much to learn that you are somewhat dissatisfied with the returns for honey, but we can assure you that in selling at this price, 2½d., full value was obtained. As advised you, in our previous letter, a few small parcels were selling at up to 3d., but although we used every endeavour to do so, we could not improve upon the figure obtained. We thought it better to sell rather than hold for an indefinite period.

Regarding weight, in this connection, you have evidently overlooked the trade allowance for tare on tins, viz., 3lbs. each. We think that if this is taken into consideration, you will find our weights to be perfectly correct.

As you are no doubt aware, honey is carried at "B" rate, and the amount charged, viz., £1 18s. 11d., made up of rail £1 17s. 2d., and cartage 1/9d., you will see is perfectly correct.

Again regretting that you should have occasion to write to us,

We are, Yours faithfully,

RETROSPECT.

BY W. ABRAM, BEECROFT.

The past season was the most extraordinary I have experienced in Australia, and was due to the continuous great changes in the weather conditions. The bees were in excellent condition in early spring, getting a fair honey flow, first from iron bark, etc., and then from fruit and orange blossom, so that with the beginning of October swarms began to issue. But, alas! the weather changed

about the middle of October, and became dry, windy and dusty, and the flow ceased abruptly, also swarming; the bees tore the started queen cells down, they even reduced their breeding capacity considerably, as the weather changed from one extreme to another in succession, which went on for nearly four months in the middle of the summer. Changeable weather, especially windy, is always apt to check honey production, thus the bees were unable to gather sufficient for their requirements. Drones could only be reared by special means all the time. But at last, in March, a change took place, the weather became moist, mild, and without wind, which brought the bees to renewed activity, the blood-wood coming in bloom at the same time, and now they have not only plenty of stores, but a good surplus besides, and what is more, they are now breeding fast. This is splendid, because otherwise there would have been very few bees left in spring to start anew. In most other seasons they ceased to have brood at this time of the year. Does this not conclusively show that the weather influences the bees in their actions?

Fortunately not every district fared the same; some had fair, some excellent prosperity in bees and honey production. Some other seasons these districts may experience the reverse, as variation takes place in everything and everywhere. This brings us again face to face with the point—does beekeeping pay? In fair and good seasons it does, in bad ones it does not; the best has to pay for the bad one too. Thus it may be safely put down that there is a living in it, but the prospects of a fortune are very meagre. Those that were successful this season need not throw their honey away at any price they can get, but they can command a good price for a good article, and thus reap some benefit. What shall be done should most parts of Australia have a good honey flow is a matter that seems more remote, season after season, because bad seasons have reduced the honey-

gathering force considerably, which means less supply, whereas the demand remains, and is on the increase. Therefore, beekeeping stands a fair chance of being a paying concern for some time to come, especially if beekeepers would sell at a fair price only, and thus help themselves and the industry materially. Will they?

Comb-Honey Production.

Allan Lathan, in *American Bee Journal* gives the following as one way of producing comb-honey:—I rarely wait till the bees begin to whiten the combs before putting on supers. If I did I should be bothered by swarming more than I am. I put on supers of sections in spring just as soon as I see "graduating nurse-bees" crowding into the space back of the follower, regardless of whether there is a honey-flow or not. This first super is usually well supplied with bait-sections, and often continues to be a bait-section case throughout the season.

If this case gets filled with good honey—big IF hear—I remove it early; but as it is usually filled with a mixture of inferior honey and honey-dew in this locality, I leave it on as the *top super* till late in the season.

The bees generally take immediate possession of the first super and the hive is thus relieved of crowding. If the honey comes I do not allow the bees to crowd this case full—at the jeopardy of a crowded brood-nest and of swarming—but I early insert between it and the brood-chamber another super of new sections with full sheets of foundation. If the season continues good a third case is inserted. Whether this case goes between the two cases already on the hive, or between the second case and the brood-chamber, is a matter to be decided by the condition of things about each particular colony, and also by the character of the flow and its duration. If the second super is nearly completed I sometimes raise

both supers, and if the second super is only half-filled I insert a third case between the two.

This brings about the completion of the second super before the need of a fourth super comes; and upon the removal of the second super, the first and third supers become the first and second, the fourth being treated as a new third super. Number 1, as will be seen, is sacrificed for the good of the others. Bees will rarely swarm if this top super is filled, or nearly filled, with sealed honey, and between it and the brood chamber stands a super of empty sections. I would not convey the idea that the top super is a total loss. Far from it, for if edible the honey is not hurt by its long stay at the top, and if unedible the poor grade of honey has been paying good interest by checking swarming,

It will be noted that my plan is to keep the bees lifting all honey to the supers, clearing constantly the brood-combs for the use of the queen.

USES OF HONEY.

Honey in the water used for toilet purposes prevents and cures chaffed hands, keeping the cuticle soft and free from dryness, so that it is of almost a satin finish? Honey, almond meal, and lemon juice, form a fine complexion paste. In fact, honey forms an important factor in all emollients. A little each of honey and flour mixed together, and spread on cloth applied to boils and similar afflictions, will soon number their days.

The use of honey instead of sugar doubles the value of any cough syrup, and the family having access to honey in plenty that can not concoct cough syrups equal, or superior, to those found on sale is indeed in straits. The foundation of these may be a decoction of any herb or herbs of known value, with honey added to the strained liquor to form a syrup. One of the most simple is to boil 3 medium

sized potatoes (with their jackets on), and when done remove and pour into the potato water $\frac{1}{2}$ cupful of honey. Strain, and drink while hot. This preparation may be varied by the addition of anything you know to have been beneficial to your-self or to any of your friends.

Lemon-juice, flax-seed tea, or the two together, flavored and sweetened with honey, are great aids in the way of alleviation and prolonging life in the case of consumption.

A raw egg beaten in a pint cup, and the cup filled with hot water, sweetened liberally with honey, furnishes both nourishment and medicine in case of colds.

HIVE-CONSTRUCTION.

W. Z. Hutchison, in the "Beekeepers' Review" speaking of hive construction, says:—My plea is for simplicity in hive-construction. For plain simple frames, without projections, or staples, without any excrescences whatever. Then I would hang them in a hive that is equally simple. I believe, yes, I know, that all these "fixings" that are put upon frames and hives are a needless expense that brings no recompense.

Another writer in the same journal, says:—The wide top bars do not admit deep uncapping, and wide end-bars are inconvenient. The kind we order is a $\frac{7}{8}$ square top-bar, with double groove and wedge, for fastening in the foundation—short top bars, with end-staple spacers. This style of frame needs a $\frac{3}{8}$ thick end-bar, as it has to be nailed through the top-bar into the ends of the end-bar, with two $1\frac{1}{4}$ inch cement coated nails. The bottom-bar is $\frac{1}{4}$ inch thick, $17\frac{1}{2}$ long, and nails on the ends of the end-bars.

The same writer also says: The eight-frame hive, so common in many places, is not well adapted to the production of extracted honey. It is not roomy enough and does not afford a good queen sufficient room for the brood nest. In actual practice I have found that colonies in them

produce scarcely $\frac{3}{4}$ as much honey as in ten-frame hives. I always avoid them when I buy, and when I sell I always give them at a discount. I have also found well nailed plain bodies the equal or superior to the dovetailed in durability."

MISTLETOE.

Mistletoe (*Phoradendron flavesceus* Nutt) belongs to the family *Loranthaceæ* (mistletoe family), and is a parasitic plant on the branches of certain trees, from which it obtains a living from their sap. It sometimes kills the branch or even the tree on which it is a parasite. It occurs as an evergreen, glabrous, pendent bush, from one to four feet long, sometimes in large dense clusters, with its fiber roots insinuated into the wood of the tree upon which it preys. Its branches are stoutish and knotted, branching twos, or dichotomous, with thick and smooth, green, oval leaves generally in pairs. The flowers are small, inconspicuous, and greenish-yellow in color. An abundance of pollen is obtained from these. The fruit is a small, white viscid berry, the flesh portion of which is very mucilaginous. Birds fond of them will sometimes have them sticking to their bills, take them to other trees, where the berries with the seed are removed by rubbing them off on some branch to which they adhere, and new plants begin to grow. I have seen this pest on different species of oaks, elms, mesquite, hackberry bois-d'-arc, and other trees. It is most abundantly found on our shade trees here the hackberry (*Celtis Mississippiensis*), to which it is doing much damage. It is just as plentiful on the mesquite-trees (*Prosopis juliflora*), our leading honey-producer. The mistletoe was deemed sacred by the Druids, and is still frequently employed in Christmas festivities and sports. "Kissing under the mistletoe," according to Scandinavian mythology, is given as follows by Braver:

"The wicket spirit Loki hated Balder the favorite of the gods, and, making an

arrow of mistletoe, gave it to Hader, the god of darkness, and himself blind, to test. He shot the arrow and killed Balder. He was restored to life, and the mistletoe given to the goddess of Love to keep. Every one passing under it received a kiss as a proof that it was the emblem of love and not of death.—*Extracted.*

DAIRYING.

What Farmyard Manure does for the Soil.

The following concise article on farmyard manure appeared in "Wallace's Farmer," U.S.A.:—

We have been so insistent on the duty of every farmer, every day in the week, except sabbath, to haul out manure as fast as it is made, that we owe it to our readers to tell them just why we insist so strenuously on this point. It is not solely because it contains all the essentials of fertility, in proportions, varying according to the food which the live stock has received. It does contain all these elements, and its return to the soil is therefore necessary if we maintain this fertility, but this is not, after all, the main benefit of the manure to the soil. It is cheaper to grow clover and plough it under than it is to haul out manure, if the haul is of any great distance. The clover will furnish nitrogen, it is cheaper if the haul is long, to buy potash and phosphorous than it is to supply it in the form of manure. Manure furnishes these essential elements, but it does a great deal more. The main value of manure does not lie in what is known as its fertilising elements.

What else does manure do to the soil? First, it inoculates the soil with bacteria, and a soil that is full of bacteria is a soil in good physical condition—a productive soil. It is not necessary to give a heavy covering of manure in order to fill the surface soil with bacteria, and herein consists the great value of a manure

spreader that so far as inoculation of bacteria is concerned, the manure spreader will cover twice the number of acres that can be done under the old form of hand spreading.

Next, manure furnishes humus material, thus maintaining constantly a full supply of humus in the soil, without which the soil cannot be kept in proper physical condition, and cannot produce full crops, no matter how rich it may be in the essential elements of fertility. Land well supplied with manure will stand wet seasons and will stand dry seasons because the manure puts a soil in first-class physical condition. It is true that this humus supply can be mainly by growing clover and ploughing it under, but if manure is applied to the meadows and pastures (that is the place to apply it in nine cases out of ten, or, we might say, ninety-nine cases out of one hundred) this itself will stimulate the growth of clover and other grasses, and thus, in addition to the value of the manure for humus will largely increase the humus material that comes from tame grasses. In fact, the great secret of successful farming is to keep the manure hauled out on the pastures and meadows and spread as thinly as possible so as to cover as much of the farm as possible each year. If it is done there is no fear with any kind of decent farming and decent management any land that ever was good will become worn out and deficient in the element of fertility. Constant hauling out of manure is one of the essentials of successful farming under western conditions."

HOW TO CONQUER A BULL.

Every little while there comes the story of a deadly conflict on the part of some one with a bull. In many instances either death or serious maiming ensues. In case a bull gets a person down and they can think of it, a good way to do is to run the thumb into one of the animal's

eyes and turn his eye out on his cheek. It is astonishing how quickly this will change the current of thought in an ugly bull. The Mexicans will catch a bull by the eyelid and calm him at once. When a man gets into a close corner with a bull, anything is justifiable as a defense.

DON'T LIKE THE WORK.

The dairy cow has always been the friend of the poor farmer. The man who has milked cows conscientiously has usually made a success, therefore a farmer who is in trouble usually turns his attention to the dairy cow, and that is the situation in a large part of Minnesota to-day. The only thing that hinders a great many more farmers from going into the dairy business is the fact that there is too much hard work about it and the man who does not intend to do this hard work will stand little show of succeeding in the business.—The Farmer.

There is no more hard work in dairying than in other branches of farming, but it is a business that holds a man to the farm 365 days in the year. Well, what of it. So does merchandising, so does black-smithing, so does any kind of vocation that is energetically followed. Why shouldn't the dairy farmer attend strictly to his business? Any man that wins profit and fortune in this busy world will have to come under this yoke. The talk about dairying having too much work in it is really the plea of men who want more or less.

Travelling is a great educator. Of course it costs money, but every person should aim to travel some, even though it should not be much. The aim should be to travel in the line of one's needs; that is, to travel so that it will benefit the individual in the line of his work. The farmer, as a rule, does not travel much. Because he does not, he is apt to overestimate the importance of things that

are near. He is also apt to overestimate the importance of his own system of doing things. About the only remedy for this circumscribed vision is to do a little travelling. Going to a neighbouring county may let in much light. Going to a neighbouring State may let in more. The more light that thus comes in, the wider is the horizon of vision. Each added piece of information helps to make a broader man. Those who can, therefore, should travel a little. Money judiciously spent in that way is not lost. —*Exchange.*

The Egyptians knew something about the natural history of the honey bee, which we did not till 5000 years later. They probably knew what the sex of the workers and the queen were. The very names which the queen carried in after times up to within modern times shows that she was considered of masculine gender; while from the hieroglyphics it may be deducted that at those times they regarded the queen as a female.

IN-GROWING TOE NAILS.

W. Henty, "Firwood," Croydon, Victoria writes:—

Dear Sir.—I feel it a duty to write and thank you for your Wonderful Cure for In-growing Nails, from which I had been suffering for years. Having spent over £40 trying Doctors and other advertised cures. My own medical adviser said there was nothing for it but operation. A friend of mine sent me a paper from the Fassifern district in which the Collier Cure was advertised, and I sent for your cure, having little or no faith in it for the price. But I am glad to be in a position to write it has thoroughly cured me, and I shall never fail to recommend the wonderful Collier Cure for In-growing Nails.

I Guarantee To Cure the Most Stubborn case.

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QUEENS—Untested, 5/- each.

Tested, .. one 10/-; three, 25/-; six, 45/-

Select Tested, one 15/-; three 40/-; six, 70/-

Extra Choice, one 25/-; three, 60/-; six, 105/-

Untested from imported, 10/- each; tested from imported, 15/- each; breeders, 25/- each.

Also, Swarms, Hives of Bees, Implements Foundation, &c.

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P.S.—My knowledge and experience of nearly 40 years practice enables me to breed and supply Queens Superior to Any, possessing the Most Desirable Qualities combined. Desiring to maintain that High Reputation, I again submit for your consideration the fact that I can supply to satisfaction, if you give me description of your requirements. Thanking you for past favours.—I remain, yours truly, W. ABRAM.