The Australian bee bulletin. Vol. 16, no. 4 July 29, 1907

West Maitland, N.S.W.: E. Tipper, July 29, 1907

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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
Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

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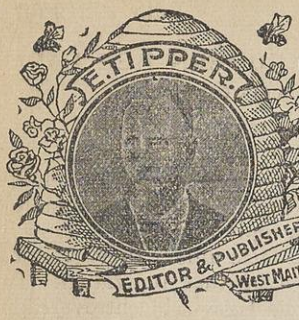

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Circulated throughout the Commonwealth of Australia — New Zealand & Cape of Good Hope

MAITLAND, N.S.W.—JULY 29, 1907.

The following is the list of advertisers in our present issue, all of whom we would recommend our readers to patronise:—

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ON July 22 we went to our three out-apiaries. We were two days away. Thanks to the care we had taken in the fall of the year to see the hives were provided with sufficient honey; also the entrances contracted; and ruberoids taken from top and placed above bottom box, we were well pleased to see what condition they were in. A little honey was coming in; brood was in all of them, and we trust when we visit them in a month's time we might be able to do some extracting.

A clipped wing never grows again.

A very useful tool in an apiary is a small magnetic tack-hammer.

The addition of one per cent of nitric acid to wax bleeches it perfectly.

To quiet bees in travelling spraying with water is recommended instead of smoking.

The Americans report unusually severe April weather, giving bees no chance to fly as usual.

Squirting kerosine oil about the hive entrance with an oil can is a good remedy for robbing.

To get the best queens, the cells should be raised in populous colonies, and not removed till the cells are sealed.

Heddon, the inventor of the Heddon hive, is the inventor of several wooden minnows for bait casters in fishing.

The "Irish Bee Journal," having become the official organ of the Cumberland and Perthshire Beekeepers' Association, has very much improved its title page.

We are receiving complaints that the "A. Bee Bulletins,' regularly posted at the office to Kemp's Creek, Liverpool, are not delivered. If it continues we shall have to complain to head-quarters.

Rather than spend good time, which is money, nursing up or uniting puny colonies keep enough colonies in each yard, exclusive of these weaklings to gather what honey the location produces.

A driving accident near Bristol the other day was seriously complicated by one of the victims being pitched over a hedge and on top of a beehive. The man was badly stung.

Bees should be disturbed as little as possible in winter because as soon as they are disturbed they take into their bodies more food than is required for their existence and welfare, thus placing them (with the best of food) in the same condition that they would be with poor honey.

VENTILATION.

The bees ventilate so effectively, as they fan the hive-entrance, that it is found entirely unnecessary to arrange for any further ventilation. It is, without doubt, best to have only the one opening to the hive. In the bee-tree or rock cavity the bees have but this one opening, and yet from their great activity they must have great drafts of pure air, and so they have developed their ventilating habit, which is very perfect. 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*.

E. W. Alexander reports in "Gleanings" he has a hive with seven queens in it, all loose in the cluster of bees, and doing well.

THE FIRST MODERN BEE FARM IN AUSTRALIA.

Editor A.B.B.,—

I do not, as a rule, take up much of your space, and really think it is waste of time to do so in reply to a man who will not accept solid facts unless they tend to the glorification of that individual. In your March issue I gave incontrovertible facts, showing that Mr. Abram's claim to have started the first modern b e farm in Australia, was a most preposterous one, and, instead of accepting these facts, and admitting in a gentlemanly way, that he was assuming too much, he became personal and tried to be nasty. It was rather bad taste on his part to attempt to belittle me by referring to my *smallness*— and very bad judgment too - considering that I tip the beam at only 4 lbs. less than 13 stone, but this is not the only instance of error and poor judgment on his part. I am sure, Mr. Editor, that we want nothing personal in our journals— we simply want facts, and honour to whom honour is due.

I was very pleased to note in your last issue that that respected old pioneer, Mr. I. Hopkins, had taken a hand in this controversy, and the further facts he furnishes, show conclusively that Mr. Abram has not the shadow of a right to the honour he would so covetously assume.

In response to Mr. Hopkins' request, I have much pleasure in sending on to him "Carroll's Little Bee Book," which will bear out the claims I made in your March issue. For the edification of your readers who are interested in the early history of beekeeping in Australasia, I will give the title page of this little work (probably the earliest of its kind in Australia) also some facts connected with the author of it. The title page of it reads as follows:—"My Little Bee Book. Being a principal treatise on bees, their management and culture, in Australia, by J. Carroll, Bee-Master to His Excellency the Marquis of Normandy. 'Brisbane

Courier' General Machine Printing Office, George Street, 1874." In this work, now 33 years old, will be found Mr. Carroll's advertisement of simplicity hives, improved honey extractors, uncapping knives, etc., etc., and in the text is a reference to the honey extractor which he imported in 1873, and which Mr. Angus Mackay (afterwards of the Dept. of Agriculture, Sydney) immediately improved. To show further that Mr. Carroll kept up to date in those times, I need only mention that he was a regular subscriber to the "American Bee Journal," and to that most practical journal, "Gleanings in Bee Culture." In the July issue, 1873, of the latter journal will be found a most interesting letter from Mr. Carroll, which winds up as follows:—"Do you want to know what I think of your new hive? Well I have had timber cut for 200 of them, and intend to give it the following name: Novice's Hive of Hives." In November issue of "Gleanings," 1874, is another bright letter from Mr. Carroll relating his experience in endeavouring to introduce Italian bees to Australia. He mentions that Moses Quinby (one of the world's foremost beekeepers at the time) sent him two colonies from America, but both arrived dead, and, he continues, "if Mr. Quinby or any other beekeeper in America will try their hand at sending a colony of Italians, and if the queen is only alive when I receive them, I promise to forward by the return mail 25 dols., and if it proves a failure I will pay the *usual* charge. I refer them to my banker in Queensland, any member of the legislature, any newspaper editor, or to the Governor himself. Money is no object providing we can get the bees safe. I have tried from Neighbour & Sons, London; some bees arrived, but the queen was lost soon after leaving England." Other interesting letters appear from time to time, but I will quote one more only, written in Nov., 1878. "I must tell you of another failure; 10 small boxes each containing an Italian queen, were sent from the apiary of Fiorini of Venice; they arrived here on the 14th of May, all *dead*. There is another consignment due here to-day, but it has not yet arrived. I am doubtful about their safety. With regard to water, I have sent upwards of a thousand colonies away during the last 7 years and never lost a single stock. Water is no new thing with me; I have used it for more than 7 years and have never sent a colony away without it. Some of my bees have made a journey of 3 months and 20 days, travelling on bullock drays, and in the broiling sun (how is that for high, Novice?) and arrived safe and sound at the station. . . . I am going back to the good old Langstroth frame (there is none other), and will hang it in the chaff simplicity.'"

I don't claim, Mr. Editor, that Mr. Carroll did more to establish a system of modern bee-culture in Australia than any other man, but I do claim that he was years before Mr. Abram in introducing modern principles. To my mind the post of honour belongs to Mr. I. Hopkins, who through his splendid work, "The Australasian Bee Manual," and the journals he so ably edited, did more than any other man to place Australian beekeeping where it is. Don't I remember well, in the early eighties, paring over his fascinating and most instructive manual, figuring out the dimensions of his hives and frames, and then working exactly to these dimensions—which dimensions I may say are now the standard in Queensland.

Mr. Hopkins states that Mr. Fullwood visited him in 1884, but I believe it was in 1885 that he made the trip—anyhow I have his "write up" of Mr. Hopkins' establishment by me now, and a very flattering one it is too. He also gives his impressions of Mr. Abram's apiary that he visited on the same trip, and the comparison is interesting.

I might mention also that Mr. Fullwood was one of the brightest beekeepers Australia ever had and was practising, and advocating in the journals, the most

up-to-date methods years before Mr. Abram arrived in Australia. Queenslanders are proud of Mr. C. Fullwood and the work he has done for beekeeping throughout Australia—a work too, I may add, that Mr. Fullwood never boasted of. At some future time I may give you further particulars of his invaluable work.

Now, Mr. Editor, from the facts that have been presented, and particularly in the face of Mr. Hopkins' letter on page 69 of your last issue, Mr. Abram should at once admit that he is behind—in fact, hopelessly distanced—in the race for the honor he wishes (alas! so fruitlessly) to annex.

H. L. JONES,
Goodna, Q.

Bees as Chemists Assistants.

The bees were in a glass bottle, buzzing fiercely. They rested on a very fine wire netting, and below the netting was a transparent fluid. Every little while the chemist stirred them up with a tooth-pick, and their wrath redoubled. "I am extracting their venom said the man. "I am making them sting everything in sight. The venom drops down through the netting into that liquid, which is alcohol, and I make medicine of it. These angry bees, in a word, are assisting me to make medicine. "Bees' venom—'apis,' as it is called—is used as a remedy for gout, rheumatism cancer, and a dozen other ailments."

Julius Hoffman, the inventor of the Hoffman frames, died very recently.

One American reports his bees worked on a honey flow three miles away, neglecting one a mile away, and Carlniolans were seen working five miles away, no others being in the country.

The only legitimate use of sugar in a honey-producing apiary is to get the bees through the winter or through a time of dearth till the flowers come again.

SOLAR EXTRACTORS.

R. C. AIKIN WRITES IN "GLEANINGS."

One not having tested the matter would scarcely believe how much honey can be saved by the solar in a year. Then, too, the prettiest yellow wax obtainable by any process is that from the solar. Burrcombs are almost pure wax, and leave very little residue except the propolis that is craped off with them, and these give the very finest of wax by the solar process. If melted with water the propolis will taint the wax. By all means have a solar, and use it for rendering everything containing honey, all burrcombs, and also all dry new combs that do not have many cocoons in them; but when it comes to old black dry combs it is of no use to put these through the solar, for the slumgum will so nearly absorb all the wax that it will not pay at all. Reserve such for water and the press to go in with the solar slumgum.

SOME THINGS I HAVE LEARNED ABOUT SOLAR CONSTRUCTION.

Never use wood about a solar. Take wood that is seasoned to its best, and, when subjected to the great heat of the solar, then get the effect of the rain, of internal moisture in the form of steam or vapor that will sometimes be in the machine, then dried out again, and so on from day to day, and it will not stay in shape very long. I used to use wooden sash-bars, but it would not be long before the putty was peeling off and the thing was in a bad and leaky condition. As the years went by I used less and less wood in any part of my solars until about the only place I would permit any was for plates on top of the side walls. At this point I thought I must have at least a strip of wood to fasten the rafters or sash-bars to (the walls being of brick), embedding them in mortar; but even then moisture would get to the wood and swell it and break the mortar loose. I now leave out all wood, using for the sash metal bars, and for the walls brick;

then imbed the ends of the rafters and the edge of the glass in the same mortar used in laying the brick.

For sash-bars, if one can readily get such as are used in greenhouse work they are all right: but I did not have access to anything of the kind, nor to any machinery that would make what I wanted, so I went to the store and bought common bar iron, for a 5-foot reach, using 3-16 by 1¼ inch. In these I drilled holes about every 12 to 16 inches, a little nearer one edge than the other. Next I took common galvanised iron strips, about one inch wide (a little less will do), and bent these, forming what would be just about equivalent to the half of a common T tin. Two of these put together would form a T. These strips were punched with holes to match the holes in the bar-iron and so adjusted that when one was set on each side of the bar they formed a rest for the glass

To get these bars made into a sash I had holes drilled just about in the center of the width of each bar, one at each end and one in the middle of its length. The bars are about 5 feet long—these to take a ⅝ rod. I forgot to say that the right-angle galvanised strips were bolted to the bar with stove bolts. These ⅝ holes are made through the sheet metal too. Next I took old gas-pipe and had it cut at the plumber's into lengths corresponding to the width of the glass to be used; then I began to thread the bars on to the rods, slipping on a bar, then a piece of the pipe, then a bar and another piece of the pipe, and so on until I reached the end of the rods which are as long as the sash is to be, then by a tap on each end of the rods all was screwed up tight. This sash or rack I placed on the solar walls, and afterwards placed the glass and puttied it in. A small sash could be made complete before putting in place, but a large one is altogether too heavy, and not rigid enough to handle. Build it right on the walls.

POSITION OF GLASS IN REFERENCE TO SUN'S RAYS.

Some think the glass must be, as nearly as possible, so that the sun will shine directly through—that is, it should directly face the sun; but while the power of the sun may be a little greater shining through a glass at right angles, yet with changing condition it becomes impossible to have it so. I do not believe there would be a tenth enough gain to justify building even a small machine calculated to shift toward the sun as it goes over. In the evolution of solar building I gradually changed from the long north and south form to making the length east and west. After finally deciding on the east and west form I built with a three-slope hip style; but this form entails cutting glass into diagonal pieces, and, altogether, is very much more difficult of construction. I now build with a gable, or, rather, half gable, as the main proof has but one slope lean-to style. My present machine is 5 x 16 feet, and is built against the south side of a 10 x 16 building, with the opening into it from the main building. So far as the solar is concerned it does not have any outside opening whatever. An alleyway runs along the north side, from which the work of filling in the comb, of stirring as it melts, and of removing the slumgum is done. In this alley I can walk perfectly upright with a can of honey or whatever I wish to carry on my shoulder.

I have three melting-pans made of galvanised iron—a 3 x 6 in the east, sloping west with a slight dip to the northwest, with discharge at the northwest corner, and a similar one in the west sloping east, with discharge at the northeast corner; and the third one, a 2½ x 4 between these, slopes to the north, with a discharge at both northwest and northeast corners. The incline of these pans is about an inch to the foot.

The alleyway runs along the entire north side, except that in the east end I

have a furnace made of brick, with an old cook-stove top for a cover. Grates are built into the furnace, and an old cook-stove oven door with its frame is used for a furnace-door, and this door opens on the *outside of the solar*. Never, under any circumstances, have the furnace or ash-pit open inside of the solar-room. The ashes and dust from them are a perfect nuisance inside. This gives me the entire top of that cook-stove on which to cook anything I wish on the inside, and to radiate heat for heating the solar; but the fuel and ashes are all handled from the outside.

Along the south side of the alleyway is a brick wall. This wall and the outer south wall were built up about four feet high, and then sheet metal laid on top of them, and then the outer wall continued up about another foot to receive the south end of the rafters or sash, and the inner wall built about two bricks on the sheet metal. This sheet-metal floor at the east end is covered with mortar to break the force of the heat at this point, else the wax and honey over it would burn with a hot fire in the furnace; and it is also about three or four inches higher than the stove-top of the furnace. All the smoke and fire from the furnace pass under this metal floor the whole 16 feet to the west end, and pass into the flue or smokestack at the northwest corner, and a few inches above this floor are the melting-pans resting on old boiler-tubes for supports.

Canning Fruit with Honey instead of Sugar.

A writer in a recent issue of "Gleanings" gives his experience of using honey when canning fruit, which should prove valuable to many housewives. He says:—Now, I come to the canning of fruit with honey. We always put up from 100 to 200 Mason jars of fruit every year, and I cannot remember when we lost a can. First, the can must be hot before the fruit is put in. Then the fruit must be thoroughly heated through before it is put into the cans. These particular points must not be slighted, but they often are. Better boil the fruit more than necessary rather than too little. Boiling extracts the colour from the fruit more or less, but that is only its looks. Put the honey in at the last, and fairly heat it through. Suit to the taste as to the amount of honey to use. Put the caps on the jars while the fruit is hot. Have the caps hot, right out of hot water. Screw them on with a cloth to permit the hand from being burned, then the air within the cap will be hot. Set the jars aside to cool, caps down, on the table. Examine them every hour as they cool, and turn the caps on tighter. As the fruit gets cooled it occupies less and less space within. It must draw air in order to fill the vacancy which would occur. This must be prevented. If no air can get in, the cap will be drawn in a concave shape on the outside. This may indicate the perfectness of the work; but not always, because the caps may have been concave before being put on. Watch this so as not to be misled by it. By the following morning the fruit will be cold, the jars standing on their caps. Examine for small air-bubbles passing upward next to the glass If there is, it gets in between the cap and the rubber and will spoil the fruit. Do not wait until the day gets warm, nor take the jars to a warm room to make this examination. Do it in the coolest part of the morning. That is when the contents would be most contracted, and would be drawing the hardest to bring air in. When the fruit warms up a little the draw would be in the other direction from inside outward. It is impossible to can fruit and not leave a small space to be filled up with air. But air is no injury if it is hot. If the cans are set right end up, the air-space would be situated at the top of the jar, next to the cap where the air would be admitted. If the caps leaked air, the air which came in would join with the

air already in the jar, and there would be no chance to observe its entrance or progress. But with the jar standing upside down, the admitted air will traverse the whole length of the jar before becoming settled at the uppermost portion. If you see small air-bubbles following one another upward, just get at the "old man's" beeswax and rosin-dish and brush which he uses to fasten foundation in brood-frames (3-5 beeswax and 2-5 rosin melted together), and put a good coating all around over the rubber. covering the edge of the cap. After this, keep the jars standing upside for a week or more. Watch for bubbles on cool mornings; and when the day warms up, look the jars over to find juice sizzling out from under the edge of the caps. They cannot drive air out, because the fruit is next to the cap, but fruit-juice will be forced out instead. Put on more wax. Finally the fruit-juice will become thickened also, and thus all openings will be closed.

It is preferable to keep jars of fruit in an even temperature.

Do not say you followed the above directions and the fruit spoiled. Under my table is a row of Mason Jars of tomatoes and beans that have been there two years, and they are in perfect condition, and tomatoes are the most difficult of all things to can.

BESET BY WILD BEES.

Bees abound in certain parts of Abyssinia and, as the land is almost waterless in the dry season, the insects suffer much from thirst. In "The Source of the Blue Nile" is an interesting account of the manner in which, on his journey, the author was mobbed by bees which were after his drinking-water.

From the account he gives we get some idea of the way the dear delightful "busy bee" of our childhood's maxims can make himself formidable when he and his fellows are all bent on obtaining the same thing—drink.

Says the writer: "Every drinking vessel was crowded with them. Our boys drank from calabashes and when they were put upon the ground bees clustered on the edges and crawled toward the liquor. Impatient successors thronged upon the first comers and pushed them into the water, so that in a few minutes the surface was a mass of "struggle-for-lifers." In spite of the heat we had to keep moving; for when we settled, so did the bees—all over us.

"We halted for luncheon in a small ravine, and the bees did not find us till we had nearly finished the meal. We smoked them with cigarettes, cigars, and a bonfire, to no purpose. Then we shifted our quarters, but they followed. All of us were stung, and were not quit of them till we mounted our camels and outdistanced the swarm.

"They get their honeyfrom the flowers of the mimosa-tree. We camped that night among the mimosas, thinking we had been delivered from the plague of insects, but we were mistaken. A host of the honey-seekers thronged and crawled on one's candle, one's book, one's face, and one's hands, adding injury to insult by stinging us. It was more than twenty-four hours before we were free from them.—*Exchange.*

PRICES OF HONEY.

Melbourne Leader.—Prime clear garden lots are selling steadily, sales being effected at from 2¾d to 3d.; medium sorts offering at from 2¼d to 2½d. Beeswax—There is a strong demand for prime clear wax, of which supplies are insufficient, buyers offering up to 1/3; medium to good descriptions are to be had at from 1/1 upwards.

Melbourne Australasian.—Honey is quiet. Good to prime is quoted at 2½d to 2¾d; cloudy and dark lots are slow of sale at 2d nominal. Beeswax—1/2 to 1/3.

S. M. Herald.—Honey, 60lb tins extra choice extracted 3½d, prime 2½d to 3d, good 2½d, inferior and candied 2d. Beeswax.—1/2 to 1/3, bright 1/3 to 1/4 a lb.

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

HONEY.—

Stocks are considerably reduced, and there is no difficulty in selling choice quality at 3¼d. Medium lines range from 2d to 3d., according to quality.

BEESWAX.—

This line is plentiful and is slightly easier at 1/2 to 1/3.

Spring Diagnosis and Management in Out-apiaries.

M. V. FACEY.

As soon as weather permits in the spring, I make my first round of my bee yards. I want warm days for this round —bright and sunny if possible. By this time nearly all hives having good queens will have larvæ or eggs in the hive. All others, unless there is a special reason for the conditions, may be considered queenless; or, if not queenless as having a worthless queen. From such a colony I remove one-half, or more, if it can stand it, of the combs. I then go to the nearest colony that can use to good advantage the amount of bees in the queenless colony, and remove one-half of the combs from this colony also; but place the combs left in the hive on the opposite side of the hive, as compared with the first one. I then place the queenless colony above the hive so prepared, and on my next round I place the combs down, carefully so as to disturb the bees as little as possible to the lower hive. United in this way there is never any fighting. Sometimes however, when I am in a hurry, I remove the combs as above, then leave them for 10 or 15 minutes to allow bees to cluster and place together *immediately*, with each lot of bees on their own frames and on their own side of the hive. A union made suddenly in this way is *usually* satisfactory, but now and then there is some loss of bees, especially if no honey is coming in. The work need occupy only a few minutes to manipulate the colonies as above, and in case but little stores are coming in, *i must not* occupy more than a few minutes. It is hardly necessary to tell a bee-keeper that all work inside a colony of bees must be done as expeditiously as possible, either when the weather is cool or when there is only danger of robbing.

TREATMENT OF WEAK COLONIES.

Early in my bee-keeping experience I often doubled up my weak colonies in the spring, but unless one of them is queenless, I hardly ever do so now. The bees in a colony weak on account of winter losses are generally more feeble than in strong colonies, and therefore when a number of weak colonies, whether two or more, are united the queen is stimulated to rapid brood rearing, the bees are likely to die off quite rapidly; and before there are young bees to take the place of the old ones, the bees may have to so contract their cluster as to expose the outer edges of their brood nest and the death of the colony is often the result. In this way a hive of enfeebled bees united with a weak colony of stronger bees are often a real detriment to them.

Where I find a weak colony on my first trip after taking them out of winter quarters, I contract it so as to rather crowd the bees, and, at the same time, I give them a good frame of honey, if they should be short, from a stronger colony. I then close the hive as snugly as possible and also contract the entrance so only two or three can pass at once and then, leave them. Having only a few combs the queen cannot extend the brood nest greatly; and having an excess of bees such frames as they have are usually well filled with well-cared-for brood; and before the old bees have dwindled so as to endanger the brood, the young bees are hatching, and the safety of the colony assured. Such colonies can usually be built up so as to be ready for business at the commencement of the surplus honey; but, if there is any reason to fear that they may not be, after the weather has become warm and settled and the colonies are all well-stocked with young bees it is quite an easy matter to build them up as we please.

OPEN-AIR FEEDING IN THE SPRING.

On this round I also look after their stores. I equalize the stores in the hives; and this does not need to take over an hour, or about that to the yard; and then if the honey is not coming in and I decide that they need feeding, I mix up

granulated sugar and water between one-third and one-half part by measure of sugar, and one-half to two-thirds water, stir up cold and feed this in some handy and sheltered spot near the yard where the bees will fly to and from to feed, but do not need to expose themselves. In the early spring I find bees will take their feed better in this way than the other, they are less inclined to rob, and with me they have built up better.

There is the fear with a great many that out door feeding, their neighbour's bees may get the benefit but in early spring feeding bees do not seem to go far after sugar syrup ; and even in summer, they do not do so.

I had two lots of bees for awhile only a little over a mile apart, with one fed and the other not, and still the latter did not visit the feed of the first. As a rule however, my bees are snfficienly apart from all others so that there could be very little loss from this source. The amount fed may run anywhere from one pound per colony to six pounds, according to their needs. If they should possibly need over six pounds it is better to pass around again in eight or ten days' time and give them what additional amount they may require, but I have never had bees require over six pounds. For these outside feeders I have found nothing better than the large wooden candy pails with plenty of floats in them, and a bridge leading to the top. This last may not seem necessary, but it lessens the number of lost bees, of which there are a very few, and does not cost much time and no expense. These feeders should be protected from the weather. Where only an occasional colony is to be fed I prefer a division board feeder, slightly cut down on the side next the bees or a feeder which permits of removal being attached to the back part of the hive.

If your yards are conveniently located, the regular visits, after the first visit in the spring, should be about every eight or nine days. On the first and second visits, putting your bees in order, there will be very little to be done, as about all there is to keep track of is their stores. If the weather has been unfavourable some colonies will need feeding, but if it has been favourable there may be nothing done. I look at a few of the weaker and lighter colonies to ascertain something of their food needs, and brood conditions; and if I find any of them in need of stores I supply them; but the great majority of the hives I do not even open. I just pass along and estimate conditions from the conduct and appearance of the bees. A very accurate idea of their condition may be obtained quickly in this way. On these two trips, ten hours ought to be sufficient, under ordinary conditions, for at least 500 colonies of bees. I especially avoid handling combs or opening hives, except where absolutely necessary, during those two trips, as the bees need all tne heat obtainable, and any operation causing any loss of heat should be discouraged.

WHY STRENGTHENING WEAK COLONIES IS UNPROFITABLE.

Where bees in the spring have their vitality so weakened that they persist in dying off in spite of all we can do for them, it is both economy of time and economy of bees to give them their way. We can only strengthen them by giving them either hatching brood or bees at a time when every colony can utilise to the very best advantage all the bees or hatching brood it may have; and further, after we have given the invalid colony a card of hatching brood the bees will often leave the young larvæ on the outer edges of the comb poorly cared for or utterly neglected.

The loss, however, from spring dwindling is very small with me, amounting to only about one per cent., which is not nearly so much as it was when I fussed with them

As we extend our out-yards we learn to handle our colonies more and our frames less. A glance at the entrance,

and a look at the bees beneath the cover, will give us a very accurate idea of the condition of a colony. It is on such a diagnosis that I put on all my supers; merely looking at a colony here and there where I might have a slight doubt. In the same way you can readily ascertain whether a colony may be in need of stores or determine the queenless ones. In the swarming seasons you can generally determine the colonies about ready to swarm by the same method. If I am buying bees, and given my selection in a yard, I select the colonies I buy in precisely the same way, and I know of no way I could make better selections.

DROP "FUSSING" WHEN RUNNING OUT APIARIES.

In handling bees in out-apiaries we soon learn to drop all *fussing*.

Instead of spending half an hour on a single colony, we do the same amount of work for half a dozen colonies in the same time. The question may be asked, is it as well done? In answer I would say it is *better* done, with larger crops, and better results in every way, but it requires a very intimate knowledge of the economy of the hive; it also requires experience and close observation; but when you have acquired the knowledge and experience it means that the bees are perfectly under your control; and this means that you are no longer confined to one or two ways of doing anything, but you can do the same thing in a dozen ways, quickly, and, as a matter of course, and yet be able to forecast the direct result of your work almost to a day, directly up to the time you next visit your bees; and, in this way, visiting my bees every eight or nine days, my orders to the people where my bees are located are to *pay no attention to them whatever*, and I can take a day off at almost any time, except it be during the surplus season, and when Sunday comes I am always entirely free. The only season when I am greatly rushed is the honey season, and then I, or rather we, have to hustle.—*Beekeepers Review.*

BEE STING POISON.

A writer in the *American Bee Journal* gives the following history of a bee sting:—June 17, 1906, at 3.30, pm., stung on neck near larynx by honey-bee.

Fifteen minutes, body very red all over, papillæ erected (goose-flesh) all over.

Twenty minutes, face swollen to bursting; applied cold wet cloths to face and lips; nasal passages closed; hands swollen, with intense itching; pulse ninety six, full and strong.

Thirty-five minutes great pressure in head, throbbing of carotids and in ears; sensation of chilliness, but surface congestion not subsiding; temperature 97.7 degrees; pulse eighty, small.

Forty minutes, swelling and redness of face beginning to subside, burning and itching of scalp very marked; headache; pulse seventy eight; medium temperature 97.8 degrees; drank a glass of water.

One hour, swelling of face and surface congestion subsiding; some chilliness; temperature 97.3 degrees; pulse sixty, medium.

One and one-half hours, face still somewhat swollen, but surface congestion mostly subsided; tired, depressed feeling temperature 98.0 degrees; pulse 62; drank a glass of water.

Two and a half hours, swelling of face almost gone, swelling of hands all gone, and hands cold; sensation of coldness predominant; temperature 98.0 degrees; pulse sixty two; took dose of whisky.

Four hours, ate small meal, the first since 9.am,; slight nausea afterwards.

Six hours, bad headache; face slightly flushed and swollen; slight eruption or rash on chest; *bee-odor* on skin very distinct. This was proved by three persons besides myself. Reminded some of us of formalin.

There was not much local swelling caused by the sting at any time, but the place was sore to the touch. My idea is that the whole charge was injected into a large blood-vessel, and carried all through the body at once.

On former occasions nausea was a more pronounced symptom, all the other symptoms subsiding for a time after vomiting, but returning again. The rash was also more marked.

Not being a "medico" I may have missed some points, but I a least did not complicate the symptoms by taking medicines, for my treatment is given in full above. My apiary is not so large as it was once, as my experience is making me a little shy of the sharp-pointed bees.

AN INDUSTRIOUS BEE.

There were thrown out from a hive late one afternoon and early evening a hundred or more dead and dying bodies of some stranger bees. They lay in front of the hive, scattered over a space of two or three square feet, some having crawled before dying not less than two feet from the hive. The following morning, while standing by the hive, I saw a bee tugging at a dead worker on the ground. She pulled this way and that, and finally, by a great effort, mounted with her burden and disappeared in the distant air. I naturally thought that she had just brought the dead bee from the hive, but in less than a minute back she came and hovered about the ground as if in search of something. Then alighting by another dead body she grasped and pulled at that, and flew away with it. Again and again I saw her repeat this act, never once entering the hive never once seeking the society of her living sisters, but plodding away by herself, clearing the ground in front of the hive of the dead bodies. Later on another bee joined in the task, and a few hours later, when I took note of the progress of the work, I found the ground completely cleared of the dead bees that had been thrown there the evening before. The task was a self-imposed task. An amount of work was done which relatively would be beyond the possibilities of the strongest human being. It would only be fair to say that to do a proportionate amount of work a man would need to carry fifty bodies of his fellow men to the top of a high hill in a space of 3 hours.—A. Latham in *American Beekeeper*.

IN-BREEDING.

"I have watched results of inbreeding in my herd for years, and until I can discover some evil effects from it—and I have not yet—I shall continue to practice it." A friend has one exceptional boar known as Longfellow, 16,835; he says concerning the stock:

"In my breeding operations I reasoned that if the Longfellow blood was the best to be found (and I have no reason to change my mind yet), and, if I used a boar not related at all, as most would advise, I would lose at first cross half this good blood, and upon another like cross a quarter more leaving them only one-fourth the Longfellow blood. This I reasoned would be losing a good thing too rapidly. I think I have continued to improve my herd, being now able to produce a larger percentage of really superior animals than at any time in the past."

In breeding it is generally believed that inbreeding is detrimental or fatal, but, fortunately, breeders are now seeing that the idea is usually without foundation. Of course, inbreeding accentuates common weaknesses but we should use it in accentuating strength, as it will when properly directed. Think what it would have meant to bee-keeping if the blood of the Cyprian queen whose bees produced 1,000 pounds of honey had been preserved by inbreeding; and what it will mean if some of the present good queens are kept by this method. I do not advocate universal inbreeding, for it is well known that inbreeding is, generally speaking, not natural, but, even in nature, it is frequent, and it is by no means universally true that it is detrimental. Therefore, if there is reason to think that it is best, it should be fearlessly practiced. How this

prejudice against inbreeding arose, I do not know, but we all know how general it is. Nevertheless, it is true that the breeders of stock who now practice it are the ones who are getting results of lasting value. On one or two points, I do not wish to be misunderstood. I do not wish to condemn the breeding for color or for long tongues. I really consider color selection a fad, but there are those who prefer the lighter colored bees, and as long as there is a market it will pay to select them. Long tongues would be an advantage doubtless but in whatever way we are breeding let us not forget that increased honey-production is the essential. If these bees have longer tongues, all right and well, but the selection should be made by the scales.—Dr. Phillips in *American Bee Journal.*

HIVE VENTILATION.

It is not generally known, but most beekeepers will inform you that such is the case, that each bee-hive has a corps of what could properly be termed "ventilating bees" During the hot season these ventilators station themselves at the entrance to the hive and fan the interior with the incessant motion of their wings. These ventilating corps are usually in relays of from four to a half-dozen, and they are relieved at short intervals by fresh workers, who keep up the fanning process. They are kept at work by a sort of patrol of bees, which insures incessant activity on the part of the fanners during the time they are at work. This tory may sound strange to those who know but little concerning the wonderful intelligence of bees, but it is a scientific fact that has often been authenticated. It might be said further that not only may ventilators be found at the entrance, but also throughout the hive. To "fan the interior" sounds as though the ventilating bees at the entrance were blowing air into the entrance. Instead of that, one can easily tell by holding the back of the hand near the entrance that a stream of air is being forced outward. Instead of only "four to a half dozen" being seen at the entrance, a much larger number may often be seen. —*American Bee Journal.*

THE HARD WORKING ANT.

It is perhaps worth noting that the worker castes are never seen at play. If records have been made by other observers of such light behaviour on their part, the author has not noted them. The truth seems to be that their life is so strenuous from its first experiences of imagohood to the end of their career that there is no time for recreations of any sort. Work, work, ceaseless work on their endless round of duty, is their lot, varied only by scant periods for eating, for sleep, for personal cleansing, and occasional mutual "shampooing." The amusements of ant communities, such as they are, are limited to the dependent leisure classes. However, it must be remembered that all of the routine labour is not of the exacting sort, like mining and nursing. Moreover as we have seen, the liberty to "knock off work" at will is one of the inalienable priveleges of the caste workers—one that is freely used, but apparently never abused. No doubt under such a rule, they get more satisfaction, one might even say more enjoyment, out of life than winged idlers whose career is shut in and restricted at so many points that they seem to be little more than privileged prisoners of state.—H. C. M'Cook in "Harper's."

Queens should be replaced every two years. If they do not supersede themselves get fresh ones from good breeders.

The marking of a queen with paint, as is practiced by some bee-keepers in Germany, has developed the fact that sometimes a prime swarm issues with a virgin, while the first after swarm may be led out by the old queen.

CAPPINGS.

For preserving wood pure beeswax might be used, but aside from the fact that pure beeswax is more expensive, it is noticeable that it does not soak into the pores of the wood as readily as a preparation containing tallow or even lard. This preparation, melting at a lower temperature than pure beeswax, is also less apt to crack or peel off when the weather is cold. It may be used for a number of requirements. Mixed with a small quantity of wood ashes and resin it will make a liquid cement which is used to stop large cracks in wood, whether feeders or other implements; even such things as water-barrels that are damaged may be made whole by using it. But in any case, remember that the wood must be dry before any such preparation is applied, for the least amount of moisture would prevent the soaking of the wax in the pores of the wood. Water is used to prevent wax from sticking to objects that are dipped in while hot.

One winter I lost more than 60 percent of my apiary, and might lay the loss to winter; but it so happened that the fall before the hives were very light in stores, and I followed some directions about feeding by laying a cake of candy above the frames. Such a sight as there was the following spring, I never wish to see the like again! These cakes of candy were made of honey and syrup and were not grained. *Never feed with cakes of candy over the frames unless those cakes are fine grained like the inside of a chocolate cream.* Never put honey in with the sugar of which these cakes are to be made, for the honey will prevent the graining. Cook the syrup to a temperature of about 233 Fahr., and set aside where it will cool. When nearly cool, stir it slowly till it grains. Just before it gets too stiff turn it into dishes to harden. A temperature of over 233 will make the cakes too hard, while under 231 the cakes will be rather soft. The cakes which I made in that disastrous winter ran down over the combs and daubed the poor bees, resulting in the stickiest, daubiest mess that ever I saw.—*Exchange.*

Populous colonies store a lot of honey and schemes for uniting the workers of two queens in one super have been rife, but I greatly doubt the advantage of unusually populous colonies, I think the same force of workers in two hives would accomplish as much. There must be sufficient numbers to keep up the heat, to gather the nectar, and to build the comb and feed the brood, but it is questionable if it pays to go away beyond the normal. Some of the greatest yields of honey, in proportion to the number of bees, that I ever witnessed, came from two and three frame nuclei.—*Extracted.*

To keep down weeds and grass in front of hives:—Mix two ounces of carbolic acid (98 per cent.) with 1½ gallons of water—perferably hot water. This will destroy even thistles and nettles, and the seeds, too.—*Exchange.*

The extracting of wax is a messy job, and because of this disagreeable feature various other means of obtaining it have from time to time been devised, but classified with reference to the principles involved, they may all be brought under three heads, namely, the sun or solar; the steam and the hot-water methods. Practically there is but one solar method, but of the others, the steam and the hot water, the variations and the combinations are too numerous to mention in detail. The solar extractor, is an excellent method of obtaining wax from cappings. The wax is of superior quality, which is attributable to the bleaching power of the sun, but mostly due to the fact that cappings are nearly pure wax with very little dark coloring matter in them. For extracting cappings the solar is, perhaps, the most economical, as there is no expense for fuel, and no time required in its operation, except to fill it and to remove

the wax. Moreover, in the extracting of cappings the amount of slumgum resulting is very small. When it comes to extracting wax from old combs the solar method is about the least desirable. Some wax can be obtained, but scarcely enough to pay for cost, maintenance and operating the machine. The difficulty with the solar method, in extracting old comb, is that the latter is usually largely made up of cast-off cocoons of the larval bees, pollen, propolis and other foreign materials, which act as a sponge to absorb and hold the wax, preventing it from flowing out into the receptable when melted The extractor becomes choked with slumgum from each filling, and this refuse contains from 25 percent to 30 percent of pure wax. The percentage of wax remaining in the slumgum from cappings is even higher, but the small quantity of such refuse makes it of little consequence. The solar extractor is perfect as far as perfection may reasonably be expected in it; that is, to get out all the wax that will drain off it by gravity. It is simple and cheap to construct and operate, requires no artificial fuel, and is no more mussy than any other method. But a good, modern pressure-machine will do the work of extracting both the old comb and the cappings, and such a machine should be used by every apiarist, the solar method being supplemental thereto. *Exchange.*

[We have a copper tank that will hold two sixty pound honey cans. An inch thick board that fits into it with a number of inch holes bored through it. The wax or cappings is put into a Hessian bag, and sewed up, then well boiled; the board placed on it. On that board, upright, another say a foot long. A pole say 10 feet long, on top of that with a heavy weight at end, and like a cheese press. As the slum gum or cappings melt, the wax rises through the holes and settles on top.—ED.]

CONTROLLING UNDESIRABLE INCREASE. —The following is E. W. Alexander's recipe for above in "Gleanings":—When the swarm comes forth it is hived on frames of foundation. The hive containing it is then placed on top of the parent colony, with the *entrance in the opposite direction.* On the evening of the fourth day the newly hived swarm with its partly drawn comb is lifted off and set to one side temporarily. The *parent* colony is now opened up, the combs are all removed, and shaken two or three feet from the old hive-entrance After they are clear of bees they are inspected carefully, and any queen-cells found are destroyed, after which the combs are put back in the old hive. The newly drawn combs of the swarm in the hive set aside temporarily are next shaken right over the first lot of bees. The queen is hunted up, when she is started for the entrance of the old hive. The bees of the two shakings mingle together, finally crawl into the parent hive, and begin housekeeping anew as if nothing had happened. Perforated zinc is then put over the hive, when the partly drawn comb of the swarm is placed on top in a super. If extracted honey is not the object, a comb-honey super is put on instead. The philosophy of this plan is that the natural bent of the bees to swarm is satisfied. The honey in their honey-sacs has been converted into wax and built out into combs. Cells of the parent colony have disappeared. The old queen goes to work as if nothing had happened. Mr. Alexander explain that this plan is, in his experience, almost infallable in keeping down increase and preventing further swarming: and, further, that the two united forces will produce more than the two forces run separately in separate hives.

When you see unusual activity at the entrance, especially if the colony is weak, catch one of the bees that comes out with considerable hustle, kill it, and see if it has any honey in its sac. If it goes *out* with a full sac, you may count there's robbing. Close the entrance so that only one or two bees can pass at a time, pile hay or straw at the entrance and at the sides till as high as the hive, and drench it well with water. In a large number of cases of robbing that occur in spring, it is because

the colonies are queenless and practically worthless, and the best thing in such case is to let the robbers carry out all the honey without disturbing them. About the worst thing is to take the hive away, for then the robbers will pitch into the adjoining hives. If you take the hive away, put in its place another hive just like it, with a comb or combs having just a little honey in them, letting the robbers clean out the little honey without disturbing the neighbouring colonies.—"Am. Bee Journal."

Preservatives for Hive-Wood:—Perhaps my experience of over fifty years with paint as a wood-preservative may be useful to readers of the B. B. J. I may therefore, say the ordinary house-painter will always thin his paint with "turps," his reason for doing so being that "it lays on so much better." But my experience has convinced me that in the hot sun the paint cracks—possibly only on surface—and if rubbed with the hand it comes off like whitewash. On the other hand, if best genuine white lead of first quality and seasoned linseed oil of good quality, with equally good "driers," only are used in mixing, we have a durable paint for our hives that will last eight or ten years without their needing to be repainted. The paint so made covers far more surface and lays on more evenly than the ready-mixed tinned paints, so much of which is adulterated, chiefly with sulphate of barytes. For bee-keepers' use, then, I maintain that the best goes farthest, is most durable, and is the cheapest in the end.—Writer in *British Bee Journal*.

My observations have satisfied me that those who claim that bees go only 1½ miles, have a poor strain or race of bees, or else there are many conditions governing those things about which we know but little. At any rate, I have learned to despise a race of bees that are not good for a crop of honey if it is to be had only three miles of them. Choice colonies gathered 210 pounds of honey in 14 days bringing it from a distance of three miles How is that by the side of your 1½ mile stock. Writer in the *American Bee Journal*.

I would like to say that the first thing I consider is selecting a queen-mother with the honey-gathering qualities first, looks next and gentleness for the third place; and I will say that I used to breed three different strains of Italians, that I called improved Italians; then home bred Italians, and then the goldens. It decided the goldens had nothing but looks and I quit them and since then I have bred the three-banded Italians, and I think I have better results in queens and honey-gatherers also. Writer in the "American Bee Journal"

The secret of success in bee-keeping is to make your colonies big, as big as you can when they have work to do but let them be smaller or medium when idleness is forced upon them. Study your flora and know the times that colonies need to be big, and then plan to have them big at those times so that every eagerly industrious bee will have full opportunity to do her best.

Parthenogenesis.—What is this doctrine, that is so exceptional, that the great man discovered? Usually an egg will not develop until a sperm or male cell enters it and becomes incorporated with it. In case of bees, Dzierzon discovered, the egg, if it is to develop into a drone or male bee, never receives a sperm cell; that is, it develops without fecundation. There are three cases in which such development will always occur. In case eggs are laid by a virgin, either queen or worker, they will develop, but only males will result. In case a queen becomes old, and all the sperm cells are used up, then she becomes a drone-layer, as no eggs after that will, or can, be fecundated, and yet they develop. Any queen, as she lays the eggs, may withhold the sperm, at will, and so only drone eggs will be laid.

Cement hive stands, made by using a wooden mould, in the shape of a cross, can be made cheaply, and are very lasting.

CORRESPONDENCE.

C.E.B., Loch St., Coberg, Victoria.—Will you kindly discontinue sending the "Australian Bee Bulletin" to me, as I find that my district will not allow me to profitably keep bees, and am therefore giving up keeping them.

W.A.H., Tungamull, Rockhampton, Queensland.—I enclose 5/6 for subscription to "A.B.B." I appreciate the "A.B.B." very much and hope you will be able to continue the publication. Wishing you every prosperity.

[Thanks! We are happy to say every month is adding to our list of subscribers.—ED.]

T.E.W., Queen St., Moruya.—This has been the best season for honey, for 3 or 4 years, and very good quality as well. The only trouble is that it candies very quickly. My bees have been very free from foul brood this year, which is a lot to be thankful for. Do you think it is dying out? I notice there is not so much printed about it as formerly.

[See what Mr. McEvoy said about it in last issue.—ED.]

C.Y., Mt. Keira, Wollongong.—Bee matters are very dull down this way; three bad seasons, one after the other, has left beekeepers with about half what they had. The experience of W. Abram was the same in this district. I never saw bees work so well in winter before, but the cold wet weather this last week has stopped them. Hoping for a better time next season.

J. McF., Lyndhurst, N.S.W.—The past season was only fair, summer too cool for the secretion of nectar. Hope you had a good season at Willow True.

H.J.G, Christchurch, N.Z.—I received copy of the A.B.B., the same old book, very good. You will not remember me, I was a subscriber to the B.B. about 10 years ago when I came to the town of Christchurch, N.Z, bent on making a start in the country of what I had learned in Australia about beekeeping through the A.B.B., and a few friends up in and about Maitland. But Christchurch was not a place for bees. I could not find a beekeeper for some time, and the bees in boxes I could get for paying a few shillings in return. Then I sent to the Falconer Co., America, and procured a fine lot of bee goods and showed them at the opening of the Agricultural Hall, Christchurch, which drew large crowds for information about the bee goods, a good many of them had kept bees in the past, but since the bar framed hives had come into use no bee had come about, and the drones used to rob all the honey. Up in Auckland is the only place where there has been much beekeeping. But Canterbury is coming up now. I think I must have given the bee fever to about 50 of them. My daughter has charge of a honey store next to my shop. I have 25 colonies, and buy as much honey as I can get hold of, the price wholesale 4½d., and pay for the tins. My production of honey took one gold, and three silver medals in the home industry of the exhibition. Now I am going to try your honey in spite of the duty, if the beekeepers will give me a chance. I cannot get any more here this season, and perhaps not enough next, so please let them know I want to do business.

W.J.P., Glenorchy, Vic.—We did not have so good a year as we expected, the summer being too cold. Hoping you have had a good year.

A queen can make a better stagger at flying with both wings clipped than with only one (try it with a pigeon and see). I'd rather have the wings whole on one side to pick up the queen by.

THE MEDICAL SIDE OF BEE-KEEPING.

DUDLEY B. TRUMAN.

In the bee press there are constantly being made so many wild statements upon the medical side of beekeeping that a few remarks tending to show the lines upon which investigation may be carried out, will not, I think, be altogether out of place.

These remarks will center about two diseases—rheumatism and diabetes; and the second of these I especially hope you will consider carefully, as I think it opens up a possible new source of profit to beekeepers.

With regard to rheumatism, on the one side we have the medical scientists stating that it requires thousands and thousands of bee stings before the slightest trace of a cure is obtained.

On the other, we have the positive statements of numbers of beekeepers that they have been cured of their rheumatism by taking up beekeeping.

How can these two opposing statements be reconciled?

Let me begin by telling you one of my little stories. About two years ago a beekeeper of a finely bilious description arrived here from Canada. He claimed every invention under the sun,—smokers, movable frames, extractors, and among the rest, the rheumatism theory. He stated that he had been the first to communicate to the papers how bee stings had cured his rheumatism, and how he had become so innoculated that he could no longer feel the stings.

Unfortunately he proceeded to demonstrate, and in the course of the demonstration he happened te put his hand in a gloveful of bees. That disposed of the innoculation theory with a rush.

This set me to questioning about the rheumatism part of it. I examined his finger joints, and asked sly questions of his wife, and I thus found that he had undoubtedly suffered and was undoubtedly cured. Indeed the knots in the joints could still be felt.

But there was one point that he let drop which gave me the hint:—From the day he took beekeeping he had never been without a jar of honey on the breakfast table.

And now for the theory of the thing. About the causation of rheumatism little is known, but this much is certain. The immediate (or perhaps I should say the mediate) cause of rheumatism is "sarcolactic acid," an acid that is formed from change in muscle sugar. Is it not possible that the taking of honey affects the formation of this muscle sugar, just as honey mixed with glucose (dare I say it?) affects the glucose?

Or, here is another suggestion, if that does not please you. Formic acid, the acid of honey, is similar in its action to salicylic acid, the anticeptic that is now taken into the stomach as a cure for rheumatism.

And lest you should think that this is a pure speculation I may say that for the last two years I have been experimenting with this method of cure and am personally quite convinced that it is practicable where the rheumatism is purely chemical and has not gone on to the stage of actual deformity and its accompaniments.

And this brings me to the second of the two diseases I purposed to refer to. A disease that I somewhat grudgingly speak about, and only publish because I have not here the opportunity of carrying out the ideas that I have conceived.

In the former paper you may remember that I hinted at 'a constituent of honey more valuable than honey itself.' I had in my mind at that time the action of a certain product that I am now going to speak about.

Let us first consider the facts perfectly impartially. A bee goes to a sappodilla, a plum, or an apple, or an old molasses tub. And from these it obtains "dextrorotary" sugar or dextrose. There is no question about this. A scientist can put it under the parlariscope and see it just as

you can put a big bug under the microscope and see that it has six legs. In the same way, so Prof. Cook informs us, the sugar from flowers is mostly dextrose.

Under the action of a ferment given it by the bee this dextrose becomes "digested" sugar, laevulose, or honey.

Further this action occurs, in the main, not in the bee's body but outside of it. This point is borne in upon us by (1) the phenomena it explains.

(a) Green honey when left on the hive or kept in the sun at body temperature ripens; *i.e.*, it loses its dextrose taste and takes on the oily taste of laevulose.

(b) Alexander, by placing honey in warm tanks can artificially "ripen" honey even before sealing it.

(2) by the fact that honey is not "ripe" till after it is sealed up from the care of the bees in the hive.

(3) By analogy. For we know that human saliva can act upon starch in a similar way outside the body, provided the body temperature can be maintained. Why therefore should not bee-saliva act upon sugar outside the body in a similar way?

From all these considerations I came to the conclusion that we had in honey a constituent capable of acting upon sugar outsids the hive and changing it into "digestible sugar." This constituent is bee-saliva, or to designate it more accurately, honey-ferment.

Next let us consider diabetes and the pancreas.

In diabetes we have in reality a mixture of diseases. The form due to cancer, of course, cannot be cured except by a knife. It is the medical forms of these diseases that we are considering.

These forms are due to the disease of a gland known as the pancreas or sweetbread, and it is important to the subject in hand that you should understand the action of this gland. The gland pours its secretion into a U-shaped tube just beyond the stomach where almost all the digestion of our food takes place. Normally the pancreas here changes the sugars that we eat in the form of dextrose, into the form laevulose in which we absorb them. But when, as in diabetes, the pancreas fails to secrete the necessary ferment, and hence the sugar is absorbed in its unchanged condition and produces the characteristics of the disease.

This missing ferment is, however, the same in its action as bee-ferment; and there seems no reason why the latter should not be used instead of it.

There remains, therefore, the one problem of how we are to extract this ferment—the bee-ferment. And it is here that my remoteness from a laboratory prevents me from pursuing the subject. Had I the means of testing my results I should first try precipitating it with alcohol and re-dissolving with water, but as I have not, I must leave the investigation for the sceptical to disbelieve, and the open-minded to carry on for me.—"American Beekeeper."

Introduction of Bees into New Zealand, 1839.

A HISTORICAL NOTE.

BURTON N. GATES

The New Zealand expert on bees, Mr. I. Hopkins, in his annual report to the Department of Agriculture, for 1906, makes official record of the first landing of bees in this country.

"It was on the 13th of March, 1839," writes Mrs. Gittos, wife of Rev. W. Gittos of Auckland, N. Z., "that the good ship James (Capt. Mark Todd) anchored off the Mission Station of Mungunga, Hokianga. She brought a party of missionaries, among them Rev. J. H. Burnby and his sister, Miss Burnby. This lady brought with her the first bees I ever saw. They were in two straw hives and were placed in the Mission churchyard being a safe place, free from the curiosity of the natives, who had never seen the busy bees."

In the next few years, at different points, several other consigments of bees were landed.

In 1840, "Lady Hobson, wife of first Governor of New Zealand, brought with her bees from New South Wales."

"In 1842, Rev. W. Cotton, brought bees with him from England, to the Bay of Islands." Just previous, in the same year, there were bees landed at Nelson from England, "sent out in the ship 'Clifford' by Mrs. Allom, mother of A. J. Allom, of Auckland, and for which she eventually received the silver 'Iris' medal awarded by the Society for the Encouragement of Arts, London.

A Good Trick

Many bee-keepers have sometimes observed that one or perhaps a few of their colonies were gathering honey rapidly while the others were doing nothing. The plain reason of it is that the working bees had found something to gather that the others had failed to discover. Perhaps merely a single field of buckwheat at a distance of two or three miles. That kind of situation often occurred in the locality were Gravenhorst was living. In such cases he exchanged combs with adhering bees between the working and the non-working colonies. The working bees taught the others in the same home where to find the place and in a day or two all the colonies were at work. —Le Rucher Belge.

NOISE AND BEES.

A correspondent states that during the Franco-Prussian war, one of the battles took place near an apiary. He was himself both a soldier and an apiarist, and kept "one eye on the enemy and the other on the bees." He says they did not seem to be disturbed in the least by noise of the battle. They were flying in and out as usual. One swarm came out, flew around a while and settled on an apple-tree, just like it would have done ordinarily.—La Gazette Apicole.

CAPPINGS.

Not since 1881 has there been such a backward spring over the United States generally; for, judging by reports, it seems to have been almost universal. The exceptionally warm weather during March was followed by chilly and cold weather, for nature seems to have a fashion of striking a balance when she gives us one extreme by giving us another. As heretofore, so this year, the golden Italians have suffered from spring dwindling more than all the other bees, notwithstanding some of them were populous the previous fall, with plenty of good stores and protection —*Exchange.*

Few seem to realise that, unless the hive is so filled with brood at the commencement of the honey harvest that it comes out to the frame-bars in the most of the combs, there is not so good an assurance of a good crop of section honey, no matter how profusely the flowers may bloom, nor how abundant the secretion of nectar in those flowers. —*Exchange.*

Dr C. C. Miller says in "Gleanings":— "Of all the veils I have tried, I like none better than the plain bag open both ends. Get bobinet, which goes also under the name of cape net or lace net, and is about 21 inches wide. It must be black if you care to preserve your eyes, also if you care to see clearly. Soak it in hot water to take out the starch. Cut a piece as long or a little longer than the circumference of your hat-rim. Sew the two ends together, and make a hem at each end of your open bag, through which you will run a rubber cord. The upper cord will hug the hat at the place on the hat band. Cross bees, when making an attack, fly in a horizontal line, so they do not often get under the veil, even if the rubber cord does not hold very close about the neck. Still, they get under sometimes, and a little kink to prevent this I con-

sider of much value. It is the invention of my good sister-in law, Miss M. Wilson. She takes a safety-pin of liberal size with which she pins the lower edge of the veil to her dress, at the middle in the front. There is no face-piece in the veil. A face-piece of tulle, a gauzy silk material (the bobinet is of cotton), is very nice, making practically no obstruction in the vision but always getting torn.

Isn't that hat a beauty? It was sent as a gift of a Cuban friend who promised to send me another when it wore out. I think he must have chuckled when he made that promise, for it looks as if it might last a life ime. It is of palm leaf, and so tough that, although it came through the mail done up in a tight wad not a strand was broken.

The alighting platform that I like best is a large piece of board the full width of the bottom board of the hive, and at least 18 inches long. At each side, about 6 inches from one end, I fix on a leg long enough to keep it the required distance from the ground. The legs are fastened with screws, so that they can be moved back or forward as necessary when fixing the board to the hive. They are also pointed to allow fixing easily into the ground. At the other end of the board, and about 2 inches from each side, I nail on two pieces or strips of tin or zinc, allowing them to project far enough over the end of the board to be fixed to the hive entrance board by a couple of screws. A platform like this is easily removed and replaced at any time, in order to clear away grass and weeds, or to move the hive to a new position. Alighting boards should never slope to the ground, as that gives toads, mice, etc., a clear road up to the entrance, and the debris thrown out from the hive rolls down and accumulates at the bottom, attracting robbers to the hive. With a drop of several inches, a scavenging bee can generally take wing from the edge of the board, and this ensures the refuse being carried clear away from the hive. One should always see that grass and weeds are cleared away from about the entrance.—W. Avery in "Irish Bee Journal."

In hunting for eggs it is best to do it on a sunshiny day, back to the sun, or toward the brightest part of the sky when the sun does not shine. No person, no matter how good the eyesight may be, can well see the eggs of the queen-bee in the bottoms of the cells when he stands facing the sun and holds up the comb so that the cells containing the eggs are in the shade. Turn your back to the light, and hold the comb so that the rays of the sun can strike the bottoms of the cells you are looking into, when you will see the little eggs, about a sixteenth of an inch long, and as large around as a fine sewing-needle, attached to the bottom of the cells.—Doolittle in "Gleanings."

Every well-regulated apiary, no matter if it does not contain more than five colonies, should have water standing or running in it, and a towel near by, for just the purpose of washing the hands, and the tools used during the manipulation of bees, for the operator is liable at almost any time to get either his hands or the tools used daubed with honey; and I know of nothing more annoying than to try to work further with the bees when anything that must be used is daubed with honey. As soon as you get through with that which is necessary to have honey on it for the time being, wash the hands, tools, etc., and wipe them, and your trouble is all over.—Doolittle.

Theoretically, selection by isolation is perfect, but in practice there are great difficulties in the way of it. However, there is another method of breeding by selection, namely, "selection by colour." This method seems to be very hopeful, and appears to be working most satisfactorily in my apiary. By breeding a variety of bright yellow bees and then mating them in a district where only black bees are kept one can, without isolation, select the queens that have

been fertilised by yellow drones from those fertilised by black drones by the colour of the workers produced by them, and one can breed by selection in this way for the improvement of any character. I believe that the difficulty of drone selection can be satisfactorily overcome by this method of colour-selection combined with as much isolation as is practicable. Of course black bees cannot be bred by colour-selection, but healthiness should be one of the chief objects of breeding bees by selection. Now breeders of all kinds of animals and plants have found that long in-breeding of a single variety tends to diminish disease-resisting power, and that it is by crossing varieties that vigour and disease-resisting power are increased. There is much evidence to show that in-bred English bees are particularly susceptible to disease, and that cross-breeding them with other varieties has increased their vigour and disease-resisting power.—"British Bee Journal.'

"Gleanings" says: The matter of flight, if virgin queens, would not have prevailed except that it is wisest and best. It brings danger, and must have more to recommend it or it would not be as it is. It is probable that the exercise is called for to make the sexual act complete; and so if we could succeed in mating in quiet, we would doubtless find that we had queens that were worthless.

New Zealand.—The "New Zealand Farmer" says:—Beeculture throughout the colony is making immense strides as the result of the e couragement given to it by the Department of Agriculture, and with the exception of South Canterbury, North Otago and Waikato districts, the past season was a very good one indeed. The January floods interfered with the honey flow in Waikato, and drought prevented the flow in the other districts mentioned. Mr. Hopkins estimates approximately the output of honey for the season for the whole of the colony at or nearly 900 tons. He bases his estimate on the quantity given in the census papers for the previous season (about 450 tons), which was an exceedingly poor one, and he is certain that fully twice the quantity or more was raised this past season, the same applying to the output of beeswax. Reckoning the honey at 4d. per lb., and the wax at 1/3 per lb., the total value of both, according to the above estimate, is £37,550. Mr. Hopkins is sanguine that in a few more seasons it will reach £100,000. The demand for the local markets still exceeds the supply, so that there is no need at present to seek other markets for honey or wax, and when the time does come for doing so, there will be no difficulty whatever in disposing of the surplus of our best honey in the United Kingdom at good prices.

Dr. C. C. Miller says in *Gleanings*:—"We must convince mothers that honey is the best sweet for children. If we succeed, there need be no worry about the sale of honey." That's what ye editor closed with, p. 541. possibly for want of room to say more. If the column had been longer he might well have added: "This for two reasons: First, the child that eats honey is likely afterward to be a man or woman that eats honey; second if honey is kept on the table for the children, the grown-ups are more likely to eat of it too.

The eye plays the largest role, in the way that a bee finds a flower, of any sense which the bee has. For example a dahlia was covered up in part; in some cases the rays were left exposed, in others the disc was uncovered. but whatever was left exposed, was sufficient for the bees to locate the nectar by. In other instances, an experimenter, covered up the flower with a leaf, as a grape leaf, and not until a bee stumbled around underneath the foliage and ran against the covered bloom, did they succeed in finding the nectar.—Exchange

DAIRYING.

CAN WE AFFORD TO FEED GRAIN TO OUR COWS?

This question is ever present with the dairy-farmer. It will not down. Some answer it confidently by saying "Yes" Some shake their heads doubtfully and say, "I hardly know." Others declare, "At present prices of such feed it doesn't pay." If we take the census of these farmers, we will land on about this ground:—

That those dairy-farmers who feed a grain ration are, as a rule the most prosperous. They will tell you that it pays, providing you will take care to do two things:—(1) Have good cows. Either breed them or buy them; don't keep a poor cow a minute longer than you are obliged to for she is a constant loss. A cow must yield 200 lbs of butter a year to barely pay for keeping. From this conclusion there seems to be no escape. If you want more, you must have a better cow.

(2) Take care that the cow is stabled and handled in a way most favorable to milk production. If by your fault, you hinder her in her best work, she will surely charge you for it and you must pay the bill.

These are the two general conclusions and conditions that surround the question. From these two we may go on and deduce a score or more of other important conclusions. For instance: (1) The problem is so difficult that only men of active, well-informed minds can make a good success of it. (2) That we must be dairymen, using dairy-bred cows, and a good supply of dairy intelligence in feeding as well as in providing the right conditions to surround the cow. (3) That if we produce cows by breeding, we must look into the laws and principles of dairy breeding. We must not come at it in loose, haphazard ways for we are doing work for a long time. We must understand that the breeding of profitable dairy cattle is based on just as distinctive, well settled principles as is the breeding of trotting horses, beef cattle, mutton sheep, or game fowls. (4) Because of loose, haphazard ideas of dairy breeding among farmers, we have the abundance of poor cows and the scarcity of good cows, that is seen on every hand. (5) That breed is a very important thing, if it really means what it should; if the development of dairy qualities, dairy type, dairy individuality has been made the leading purpose. A cow or bull so bred is much more apt to give desirable results, than any other. Hence, when we choose from a certain breed, it is well to be assured of the skill and wise judgment of the breeder. There are wise men and foolish men among breeders. As he is, so are his cattle in a very large degree.

(6) If we buy our cows, we must be a good judge of a cow, else we will be throwing away our money, feed and care. To be a good judge of the dairy quality of a cow, one must have a natural love of the animal, well supplimented by a study of the external signs of dairy capacity. (7) If we do well with the cow, we must have also a good judgment of true dairy conditions. Now, all these things call for study, thought, information. A successful dairy farmer must give himself a dairy education, the same as a good lawyer must have a good legal education. It is nonsense to suppose that so deep a subject, one that means so much can be solved successfully without a well-informed mind. And all this talk has come logically from the single question: Shall we feed grain to our cows? Verily, the cow is a fruitful subject.—*Exchange.*

Roughly speaking all bees are divided, or may be grooped under two heads, those in which the mother or the queen lives to see the brood appear, as is the case in the higher bees, the honey bee, the bumble bee, and the mosquito-bees or stingless-bees (meliponinæ.), and into those in which the mother dies before the brood appears.—Exchange.

Rendering Wax.

When melting combs, especially old combs, add plenty of salt to the water. That will help considerably in separating the wax from the impurities. A second melting is usually necessary. This time instead of salt, add a little gelatine, stir it in well, and arrange so that the wax will cool down as slowly as possible. In cooling, the gelatine will coagulate and draw from the wax all impurities into the water below.—Le Rucher Belge.

Cure for paralysis :—Take equal parts of honey and granulated sugar; melt a pint together to each hive that is affected. At sundown, remove the top and pull the cloth off and pour this warm liquid over the brood frames and contract the entrance. The bees will eat this liquid. The next morning if it is warm they will come out and take a cleansing flight and come back to their hive all right.—Exchange.
