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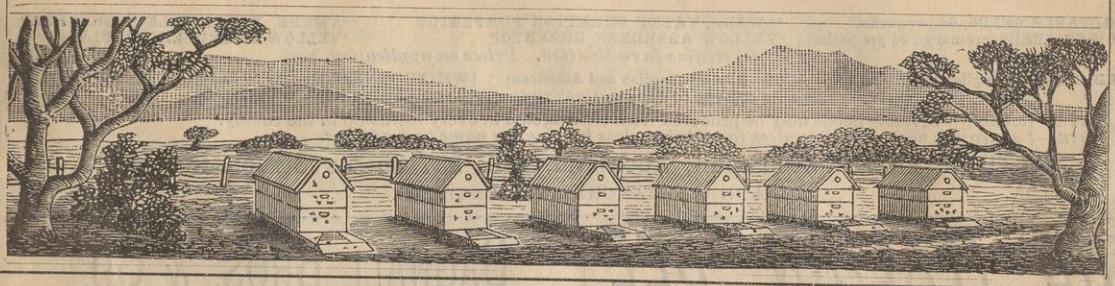
R. J. Cobb 12/9/87

THE AUSTRALASIAN

BEE JOURNAL



No. 3. VOL. 1.] AUCKLAND, N.Z., SEPTEMBER 1, 1887. [PUBLISHED MONTHLY SIXPENCE.

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THE AUSTRALASIAN BEE JOURNAL

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The Australasian Bee Journal.

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Contents.

TO OUR READERS.

Will those of our friends to whom the Journal has been sent, and who require it continued, kindly let us know? Those we do not hear from, we shall conclude do not require it. This does not of course include those we have already heard from.

Editorial.

SEASONABLE OPERATIONS.

September.

Spring is again with us, and the busy time for bees and beekeepers is fast approaching. Early spring forage has commenced to blossom, and breeding in healthy and strong colonies is now increasing rapidly, the newly-emerged bees swelling the population of the hives. The advice given last month, so far as concerns food and warmth in the hives, should be carefully attended to, bearing in mind that on the management of the apiary during the next two months depends in a very great measure the success or otherwise of the season's operations. Do not neglect the treatment for foul brood where the disease exists, for this is the best time of the year to deal with it. Mr. Herman Naveau speaks very highly of the corrosive sublimate remedy, published in the first number of this journal, having tried it with success himself.

Queen-rearing, or rather preparations for it, should commence early this month, by stimulating such colonies as may be chosen for the purpose, and, if necessary, strengthening them with frames of emerging broods from other colonies. A clean empty drone-comb should be suspended in the centre of the colony intended to raise drones, about the middle of the month, and at the end or beginning of next month, hang a frame of nearly new worker-comb in the centre of the one to raise queens, keeping the hives snug and warm and well supplied with food.

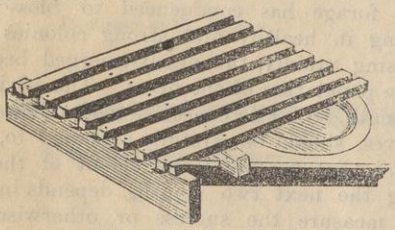
Sow honey plant seeds, finish planting, and make everything tidy about the hives. Prepare all the hives and appliances required for next season's use, and send in orders for material needed without delay.

Transferring should be undertaken at the latter part of the month if the weather is favourable; if not, let it stand over till the first favourable opportunity.

Transferring.

Bees may be transferred from boxes to movable comb-hives at any time during the summer months, but if the boxes are on hand and ready, it is better to do it in the spring before much honey is stored in the combs. A lighted smoker, a long knife for cutting the combs from the sides of the box hive,

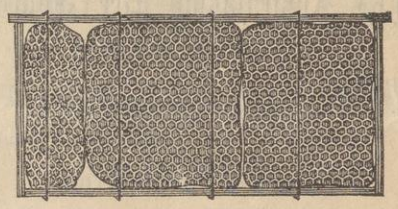
a tomahawk or hammer, an empty box, a hive with frames, and some transferring wires will be required. The latter, shown in one of the following figs., should be made of fairly stout wire (No. 16), in the following manner :—Lay a frame flat on a bench and cut the wires an inch longer than the outside depth of the frame. Make a straight hook at each end of the wires, so that they will grip the top and bottom bars. The number of wires required will depend upon the amount of comb to be transferred, but 30 to each hive will probably be as many as will be needed. Where several hives have to be done, a transferring board made like the one shown in the next engraving will be found of great service, and worth the trouble of making. It should be made of $\frac{3}{8}$in. strips one inch wide, and nailed on the bearing $\frac{3}{4}$in. apart, and the whole should be large enough to take a frame on the strips above the bearing. The spaces between the strips allow of the wires being fixed on the lower side of the frame as it lies with the comb on the board.



TRANSFERRING BOARD.

Transferring should only be done in fine weather, and the best time of the day is when the bees are flying briskly. With the smoker well going, blow a few puffs of smoke into the entrance of the box, and after a minute or two turn it bottom up and place it immediately at the back of where it previously stood, placing the empty box over it, mouth downwards, so that there is free communication between the lower and receiving boxes. Another empty box may be placed on the stand, to catch the bees as they return from the fields during the operation. If the operator is at all timid, a cloth should be tied round the junction of the two boxes to prevent any getting out while driving is going on, though there is but little risk of the bees stinging at such a time. The bees and the queen are now to be driven from the old box into the one placed to receive them, where they will cluster like a natural swarm. This is done by rapping on the sides of the lower box, which so frightens the bees that they prepare to leave it by filling themselves with honey. After the rapping has continued for some little time, a loud humming will be set up, and the first of the bees will begin to ascend. In from ten to twenty minutes, during which time the rapping should be continued, all, or nearly all the bees will have clustered in the upper box, when it should be lifted off and placed on the old stand in place of the empty box temporarily put there.

Should it be chilly or there be any robber bees about, the old box with its combs should be taken into a shed or room to be transferred. The edges of the combs should first be freed from one side and end of the box with the knife, and these parts be removed altogether, to give more room to take out the combs. Now there is only the combs containing worker brood that we need be anxious about saving, and these should be taken out as whole as possible. With the transferring board placed on a bench or box, and a frame laid on it, we can proceed to put the comb in the latter as they are cut from the box. None but perfectly straight pieces should be transferred. When the old combs are larger than the frames, they can be cut so that by springing the frames open a little the latter will go over and grip the combs securely, and they will not require any other fastening. But where two or more pieces are required, they will need fastening in the frames with the wires as shown in the next engraving.



PIECES OF COMBS TRANSFERRED TO FRAME.

Hang each frame in the hive as soon as finished, and after all the brood has been transferred, with a frame of honey for food if neeessary, fill up the hive with frames of foundation, and place it where the box-hive formerly stood. See that the frames are in their right position, $\frac{7}{8}$ inches apart with the brood in the centre, and the mat over the frames. Now prop up the front of the hive a little, spread a cloth or sack in front, and gradually shake the driven bees out of the box near to the entrance ; they will soon hasten in and if the queen be all right they will begin to fasten the transferred combs at once. The hive can be set down after the bulk of the bees are in. In a day or two the wires can be removed. The spare pieces of comb can be melted and cleaned for wax.

HEDDON'S METHOD.—If the Heddon plan be adopted it will be necessary to wait till near swarming time, and the weather should be tolerably warm. Prepare a hive by filling all the frames with foundation and after removing the box-hive place the former where it stood. Drive the queen with the majority of the bees into an empty box as in the former case, and shake them down at once in front of the new hive. Now set the box hive with its combs the right side up on a stand a few feet back from its former place with its entrance turned in the opposite direction. In twenty-one days all the brood will have hatched in the box-hive, and the young queen, if there be one, will not have commenced to lay. The bees should now be driven as before, and they can either be hived with the former lot, after killing the queen, should there be one, or they can be utilized for forming a new colony. The honey in the old hive can be extracted and the combs melted down. Should it be decided to make two colonies when transferring by this plan, the old box-hive should be put on to an entirely new stand after the first drive. Care must be taken that the brood does not get chilled after the bees are driven out. The box might be covered with sacks for a while

THE VALUE OF HONEY AS FOOD AND MEDICINE.

A LECTURE on the above subject was given by Mr Isaac Hopkins, at the Auckland Industrial Exhibition Rooms, on Thursday evening, August 18, 1887. The lecturer was listened to with great attention, and at the close a short discussion on the glucose question took place, when Mr Bell, Vice-president of the Association, urged the necessity of petitioning Government to stop the importation of this article. He, with others, expressed a hope that the lecture would be published in pamphlet form. Mr Fraser, President of the Society, took the chair, and briefly introduced the lecturer, who said :—

MR CHAIRMAN, Ladies and Gentlemen,—The subject of the paper I have the honour of introducing to your notice this evening, viz., "Honey as food and medicine," is one to which great attention was devoted in olden times. It has, however, through causes which I shall point out, received but little consideration during the past 200 years, and it is my object to-night to show you that the subject is equally worthy of our notice to-day as it was to our ancestors in former times. I might say even more so, because honey can now be obtained in a better condition and at a cheaper rate than at any former period of history.

Honey, to the great majority of us at the present time, is nothing more than so much saccharine matter gathered and stored by bees; perhaps of some little value as a simple relief in cases of sore-throat and to give to children occasionally, but for the latter purpose no better than treacle or syrup. Of its nature and true value as food, and as a medicine for the prevention, alleviation, and cure of many morbid affections of the human body, most of us know nothing. Were we as generally acquainted with this matter as our ancestors the use of honey would be much more extensive than it is. We may learn from works of antiquity how universal was its use as an article of food in ancient times, and from the fact of its being so frequently mentioned both in sacred and profane writings, as a type of things good and wholesome, we know how highly it must have been prized by the ancients. Milk and honey was considered fit food for the pagan gods. "A land flowing with milk and honey" conveyed to the Eastern mind an earthly paradise, a land of abundance and delight. It seems hardly possible for us to realise the fact that honey once formed one of the principal articles of food of man, yet such was the case. The extensive trade in honey carried on by the Phœnicians more than 3,000 years ago, and later by the Greeks and other Eastern nations, beside many other circumstances mentioned by ancient historians, give evidence of its great value as an article of commerce in those days. We are told that the chief agricultural and pastoral pursuits of the former people consisted in raising wheat, fruit, sheep, goats, and honey, from which they derived the principal part of their sustenance and wealth. The capital of Greece, when sacked by the Goths (A.D. 396), is said to have been "at that time less famous for its schools of philosophy than for its trade in honey." Indeed, so much was it prized by the ancient Greeks that they taught "that health might be preserved and life prolonged by the external use of oil and the internal use of honey." Rumilius Pollio, we are told, had excellent health and strength at the age of 100 years, and when asked by the Emperor Augustus for the secret of his marvellous preservation, answered, "*Interus melle; externus cleo*" (internally through honey; externally through oil).

The honey-bee and its products have been extolled in all ages, and although the most ancient historical mention of honey now extant dates back, I believe, nearly 4000 years, this long period is probably but as yesterday when compared with the time when man first made use of it. Paleontologists tell us that the honey-bee made its appearance on earth long ages before man, and it is only rational to suppose that our primitive ancestors, when leading a forest life, made large use of its product. No doubt wild bee nests were plentiful in the vast forests of those early times, and when, in ages after, man had taken to a pastoral life, in the course of his wanderings he would still obtain his supplies of honey from the same sources. But when, later on, he was compelled of necessity to depasture his flocks and herds within limited areas, and thereby settle down to agricultural pursuits, he would find it more convenient to raise his supply of honey on his own land, and thus, no doubt, the domestication and cultivation of the honey-bee first commenced. In many parts of Asia vast numbers of bees are kept at the present day in the same primitive fashion they were thousands of years ago, and though honey is not so extensively used there as in former times, it still holds a place of considerable importance for domestic uses. It will be asked, how honey came to lose the honoured position it formerly held? The answer is, owing to the introduction of cane-sugar. Be it remembered, however, that cane-sugar and the sugar of honey are vastly different, and that the former can never take the place of the latter in the qualities that adapt it to direct assimilation in the human system, as I will presently explain.

About 200 years ago the reduction in the cost of manufacturing cane-sugar had brought its market value below that of honey, and being a commodity far more convenient to handle it quickly came into general use, and from that time the use of honey decreased. With this falling off beekeeping in Europe gradually declined, till at length much of the skill of the old bee masters, and many of the valuable preparations in which honey formed the principal ingredient, were for the time lost. It is only of late years, through the researches of many eminent naturalists into the natural history, anatomy, and physiology of the honey-bee, and devotion of time and study by several persons to the invention of a more humane and scientific method of management of this industrious insect—men whose names will ever be connected with advanced apiculture, that attention has again been turned to beekeeping and the uses of honey. Now we can boast of knowledge in some respects far in advance of our ancestors, and the industry promises to reach a point far beyond anything they could have imagined even in their wildest dreams.

Nothing could have brought honey to the fore again but cheapening its production, and the first great step in this direction was made about the year 1850, when the movable comb-hive was invented. This opened the way for other inventions, and the honey-extractor, comb-foundation, and many minor though valuable labour-saving apiarian appliances followed in due course. Beekeepers were no longer working in the dark, the industry was based upon scientific principles, and had in consequence made such progress by the year 1877 as to fairly lay claim to rank as an important industry. Great as the progress must be considered from the date of the first important invention to 1877, it was comparatively nothing to that made since. Ten years ago the increased production of honey first began to be appreciably noticed in America. Year by year, since that time, improved apiculture has spread over various parts of the civilised world, and the gross annual output of honey at the present time has reached figures that would seem fabulous could I give them. Where it was usual to speak of a few pounds but a short time ago, we now speak of hundredweights and tons Where from 12 to 20lbs. was considered a good crop from one hive a few years ago, we think it nothing very surprising now to get 200 lbs. With the facilities for raising large crops at a considerably reduced cost, the price of honey is nearer that of sugar to-day than ever it was before, notwithstanding the latter being ridiculously low. Moreover, honey is now placed before consumers as pure and free from all impurities as when stored by the bees.

The great problem to be solved in the bee-keeping world, however, is, where to find an outlet for

the enormously increased production of honey, in other words, how are we to increase the demand. If the great value of honey as food and for other purposes were as universal y known and appreciated at the present time as it was before the introduction of sugar, there would have been no such problem to solve. But this is just where the difficulty comes in. The knowledge of the subject gradually died out among the masses from that time.

Probably there are some here to-night who practically are unacquainted with the taste of honey ; I myself had never to my knowledge tasted honey till I was near 30 years of age. The reason then why beekeepers in all parts of the world are just now complaining of the difficulty of finding a ready sale for all the honey they can produce, is because enormous quantities have suddenly been raised and the great mass of the people are yet ignorant of its worth. The consumption is steadily increasing, however, but not at present in proportion to the increased production ; the proportions are probably as one to ten. I am satisfied that the time is approaching when honey will again assume a position in every household as an article of daily consumption, when bread, milk, and honey will form the chief food of children, and when nature's perfected sweet will take the place of the inferior compounds sold as jams and table syrups. The subject is now being well ventilated all over the civilized world. Physicians, scientists, and other able men are drawing attention to it, and it is only a question of time when the demand for honey will be greater than anything we can reasonably imagine at present.

I shall now proceed to treat upon

THE NATURE OF HONEY.

While dealing with this part of the subject I shall quote principally Mr Otto Hehner, analyst to the British Beekeepers' Association, for I believe there are very few persons, if any, who have given more attention to, or can speak with more authority upon the nature of beeswax and honey than he. He says : "Essentially, honey consists of water and of sugar. Of the water I need say but little, except that I have found it to vary in quantity from 12 to 23 per cent., the normal proportion being from 18 to 21 per cent. When the percentage falls below 18, the honey is generally very hard and solid, when it is higher than 23 it is frequently quite or almost clear. The clearness and transparency of any given sample of honey does not depend, however, upon the quantity of water alone.

"Normal honey almost invariably gradually divides into two portions, a crystalline, solid one, and a syrupy one, devoid of the power of crystallising, and rather sweeter than the solid portion. Chemically these two dissimilar fractions are identical in composition, both containing particles of carbon, hydrogen, and oxygen, in the proportion of six, to twelve, to six. They are also identical in most of their chemical reactions . . . but physically they possess very widely different properties. The crystalline portion twists a ray of polarised light from its ordinary straight path towards the right side, and is on that account called *dextrose* ; the non crystalline portion turns the polarised ray to the left, and has received the name of *levulose*. Of about equal quantities of these two kinds of sugar the great bulk of honey is composed."

I would call your attention particularly to this fact as I shall have occasion to refer to it again to show the superiority of honey over all other saccharine substances as an article of food.

Without troubling you further with quotations of a technical character, I may state that honey is the only saccharine substance in which the two sugars, dextrose and levulose, appear together without artificial preparation by man. Cane sugar, when treated with acids, will yield these sugars in the same proportions as found in honey, but milk and starch sugars, and dextrine, when treated in the same manner, are all "transformed more or less completely into dextrose." The sugar of honey is technically known as grape sugar.

NECTAR AND HONEY.

We commonly speak of flowers or blossoms yielding honey ; this is an error. The sweet liquids secreted in the nectaries of flowers is not properly termed honey till it has entered the bee's first stomach, or honey-sac, and been regurgitated and stored in the cells of the honey-comb. During the t me it is in the honey-sac the nectar undergoes a chemical change, after which we get it as honey. The composition of nectar varies considerably in different plants, but all nectar appears to contain more or less cane sugar. Professor Cook says :— "Nectar of flowers and honey are quite different. The former contains more water, is neutral instead of acid, and the sugars taken from the flowers are much modified when in the alimentary canal of the bee when in transit from flower to comb. Nectar consists of sucrose, or cane sugar, from 12 to 15 per cent., and mellose, or uncrystallisable sugar, 10 per cent. The remainder is mostly water, though there is always a small amount of nitrogenous material. In honey the cane sugar is largely changed to a substance chemically like glucose. The mellose seems also somewhat modified. There is a little mannite, probably the result of chemical change in the bee's stomach. The acid condition of honey is plainly recognisable by the taste, as all lovers of honey know." We find then nectar, leaving out the water, is largely composed of cane sugar which is converted into grape sugar while in the honey-sac of the bee, and this conversion is brought about by contact with a secretion from the salivary glands of the bee, in exactly the same manner as would happen were we to take a portion of nectar into our stomachs. In fact, it is merely the action that we term digestion to bring the cane sugar into a fit state for assimilation in the bee's system. This naturally leads us to the next part of the subject—

THE VALUE OF HONEY AS FOOD.

And as Mr Frank Cheshire remarks :—"So strikingly is nature one that we shall discover in the economy of bees the key to the matter."

Before proceeding further, I may now remind you that, in a general way, foods are devisable into two classes—those that build up and renew the tissues of the body in one class, and those that supply them with force and heat in the other. All sugars, and such substances as starch, etc. that are converted into sugar in the process of digestion, stand in the latter class. Even animal fat, that forms such a valuable heat-producing food, can be traced back to the sugar and starch in plants, and therefore may be considered as sugar in a somewhat concentrated form Sugars and fat then form our principal heat-producing foods, but all, except the sugar of honey, must undergo a chemical change before they are prepared for assimilation. On the other hand honey has been already so prepared by the bees and therefore requires no effort on the part of our digestive organs. It can be assimilated at once, and this places it at the very head of sugar foods, as Mr Cheshire remarks. This gentleman, in a very able lecture upon "Honey as Food," delivered before the British Beekeepers Association, said : —

"If starch is taken as food it needs to be changed into sugar, and a special, or rather two special, ferments are provided within us to effect this change. The saliva during chewing begins to convert the starch into the soluble sugar-form, and that sugar is the kind we find in honey In cane sugar (the sugar of the tea-table, whatever its source) an alteration is also necessary, and it is brought, by contact with the mouth, at once into the kind of sugar we have in honey ; the very kind which, by absorption, can be at once taken into the blood, and do the work of yielding up its potential energy within us Mr Hehner, it will be recollected, pointed out that bees largely convert cane sugar into grape sugar (honey sugar) and so we see in honey we have completed for us those changes which are essential before sugar can be carried into our circulation. It is worthy of remark, that if cane sugar be (artificially) injected into the blood, it is immediately excreted as an intruder, whose injurious presence must be at once got rid of, but that the injection of grape sugar (honey sugar) is not followed by any such excretion." This is direct evidence of the value of honey as food ; in fact it seems to me that nothing could be more conclusive. Mr Cheshire further remarks that :—"Honey contains food in a dissolved state exactly prepared for assimilation at once, yet on this very account it should be associated with some

less easily absorbed material." He recommends it to be taken with bread.

From the foregoing we may learn how especially valuable a food honey must be to individuals with impaired digestive powers. For growing children, an easily digestible food is absolutely necessary to the preservation and maintenance of health. Starch foods, such as bread and potatoes, when given to small children, tax their digestive powers too much. For such, no food could possibly be better than milk, honey, and a little bread mixed; it is equally valuable to the aged on account of its heat-giving properties. Some one has written, "Do you wish to enjoy a green old age? Eat daily the most precious food of the ancients—milk and honey. Crumble up a little white bread in a cup with some milk and honey. This is the most healthy, the most nourishing, and the most relishing breakfast."

Notwithstanding, however, all the good properties of honey, we know that some people cannot take it without experiencing symptoms somewhat akin to poisoning I have not yet seen this satisfactorily accounted for, though I know in many cases that the particular kind of honey has much to do with it. Such symptoms rarely occur, but when they do, if the person affected will begin with a very small quantity daily—say a teaspoonful—spread on bread, and gradually increase the dose, no disagreeable effects will follow. No doubt a person with a sluggish liver could not take much honey without feeling bad effects, as much of the transformation from sugar to heat and power is accomplished by this organ. To quote Mr Cheshire again, he says:—"Sugars, as absorbed, are carried to the liver by the portal vein, and there they are quietly transformed into the rest condition (*glycogen*) and stored, and afterwards, as occasion demands, again liberated to pass, in the form of grape sugar, into the blood-current for oxidation and production of heat. If much honey be suddenly taken alone, it passes so immediately into the circulation that the transforming power of the liver is insufficient and the over-burdened organ becomes gorged, the circulation is overcharged with sugar, and nausea is the result; but if the honey be associated with say bread, the former is, during chewing, successfully entangled with the starch and albuminoid substances, and is only set free in the stomach as the dissolving processes of digestion take place. Its slow liberation permits the liver to thoroughly overtake its task, and the blood receives from time to time only those supplies which the demands of the economy justify. Bread and honey is, therefore, a combination which the soundest physiology approves."

I found it was impossible, without unduly prolonging the paper, to do more than touch upon the principal points of the various branches of the subject. I have, therefore, omitted a number of recipes I could have furnished for the preparation of different dishes in which honey plays the leading part.

(To be continued.)

BEES AND BEEKEEPING.

ON the evening of July 21st last, Mr. Obed Poole, the veteran English beekeeper, delivered a very interesting and instructive lecture on the above subject to an appreciative audience at the Auckland Industrial Exhibition Rooms, Mr. John Lamb, Vice-President of the Industrial Association, in the chair.

Mr. Poole, after a few introductory remarks from the Chairman, commenced by speaking of the utility of, and pleasure to be derived from keeping bees on the modern system. He next spoke of the progress apiculture had made in England, America, and Australasia during the last few years, and comparing New Zealand's adaptability for beekeeping with that of the mother country, said he believed four pounds of honey could be obtained here to one at home. Mr. Poole quoted from the *Australasian Bee Manual* to show the average amount of honey per hive that might be expected under skilful management. He strongly advised beginners to adopt the Langstroth hive, as he considered it in every way superior to the ordinary English hive. He then explained the manipulation of a hive, frames, smoker, honey-extractor, and other appliances, all of which were shown as well as some diagrams illustrating the relation of bees to flowers, etc. Mr. Poole spoke of the value of bees in the fertilisation of flowers and explained their worth to fruit-growers, saying that all orchardists should keep bees to secure the proper fertilisation of their fruit blossoms, even supposing they did not get one pound of honey from them. He concluded his lecture amidst applause by advising beekeepers to co-operate and form Beekeepers' Associations, and to give their local bee journal their hearty support.

The Chairman eulogised the lecture and proposed a vote of thanks to the lecturer, which was accorded by acclamation.

Mr. Poole, in returning thanks, promised another lecture shortly.

HONEY AND WAX IMPORTED INTO THE UNITED KINGDOM.

WE learn from the *British Bee Journal* that the value of honey imported into the United Kingdom for the three years ending December, 1886, amounted to £128,847. The quantity of wax imported during the three years ending December, 1885, was 4,768 tons 15 cwt., and the value £352,208. Last year the quantity imported was 1,077 tons 9 cwt., the value of which, taking it at the average value of £75 per ton, amounted to £80,808.

It is curious to note how little is the quantity of wax exported to the United Kingdom from Australasia. In 1885, out of £149,253 worth we only contributed to the value of £5,367, and in 1886 about £1,250 worth out of £80,808. The value of honey imported into the United Kingdom during March last amounted to £1,114.

THE JOURNAL.—We carefully mail the *Journal* to all subscribers on day of publication; but should any miscarry we will at once replace them if notified before the edition is exhausted.

PREMIUMS FOR NEW SUBSCRIBERS.—In order to encourage our friends to do all they can to increase our subscription list and to remunerate them for their trouble, we make the following offers:—To any person sending us the names of three new annual subscribers together with their subscriptions we will forward a packet of each of the honey plant seeds advertised; for six, a copy of the *Journal* free; for seven, a copy of the *Australasian Bee Manual*, post free. Names may be sent in as they are procured, and will be credited to the sender.

BEEKEEPING IN SOUTH AUSTRALIA.

BY A. E. BONNEY.

MESSRS. COLEMAN AND MAY'S "FAIRFIELD" APIARY.

AT the Adelaide Jubilee International Exhibition, there are several exhibits of hives and beekeeping appliances, and one very nicely-arranged case of honey. This honey is exhibited by Messrs Coleman and May, and it is undoubtedly the largest and best display ever made in this colony. The number of persons who daily inspect this exhibit is ample proof of the interest taken in it, not only by beekeepers, but also by the ordinary visitors to the exhibition. The sections of comb-honey are simply perfect, and I do not think they could be surpassed in any part of the world. A practical beekeeper would know at a glance that such beautiful white sections could only be produced by black bees, and during a strong flow of honey. Readers of the *British Bee Journal* will perhaps remember that Mr Cowan, the editor of that paper, in referring to Messrs Coleman and May's exhibit of comb-honey at the Colonial and Indian Exhibition, stated that he had never seen better filled sections at any show, and that if the honey tasted as nice as it looked, the Australian would be likely to prove a formidable rival to the English beekeeper. In South Australia this firm's honey has always taken first prize wherever it has been exhibited. Last summer, when on a visit to the Fairfield apiary, I took notes of what was shown to me, and am therefore able to give a description of this bee farm, which I trust will prove of interest to the readers of the *Australasian Bee Journal*. The Fairfield apiary is about one mile from Mount Barker, and thirty-five miles by rail from Adelaide, in one of the most fertile districts of South Australia. It is situated in the midst of a large garden on sloping ground, and I was much impressed with the beauty of the scene when approaching from the carriage drive. The long rows of neatly-painted hives, surrounded by the various shades of green of the cultivated plants, looked very pretty against the more sombre colour of the forest trees on the hill in the background. At the time of my visit there were 300 hives in the apiary, more than 200 of which were inhabited with bees, and the remainder were ready with frames filled with comb-foundation for the swarms that daily came out. The hives were the usual Langstroth pattern, arranged about 5 feet apart in crescent-shaped rows, and placed directly upon the ground. All hives were painted the same light colour, and in order to distinguish one from another, a piece of tin with a number painted upon it, was suspended to the front of each hive. This is a much better method than painting the number directly upon the hive. Large alighting-boards were provided so that in hot weather there would be plenty of room for the multitude of fanners required to maintain the proper degree of temperature. The hives had been made by several different manufacturers, but Messrs Coleman and May preferred, and spoke very highly of those they had imported from Messrs Bagnall Bros., of Tarua, Thames, New Zealand.

In a convenient place at the back of the hives was a substantial weatherboard building, 30 feet by 13 feet, which contained an extracting-room and a store-room for honey. The peculiarity about this building was that it was perfectly ant-proof, and had been made so by raising the floor two feet above the ground, and surrounding the supporting posts with zinc troughs filled with water. The troughs on the posts which came under the centre of the building were filled by tubes passing through the floor. In the store-room were twelve tin tanks, each holding 800lbs of honey, and two others holding 450lbs. The first day's extracting had nearly filled two of the larger tanks, but it was expected that in the height of the season, about three tanks full would be a fair day's work. Formerly most of the crop was taken in section boxes, but this last season nearly all the hives were arranged for extracting. Two-story hives are used with ten frames in the lower and nine frames in the upper story. The object of spreading the frames in this way in the top story, is to get the bees to build their combs out beyond the width of the bars of the frames, and thus simplify the operation of uncapping the cells. When ready for extracting, the combs are carried from the hives to the extracting-house in a special case fitted into a wheelbarrow, and then passed through a trap-door to the uncapper. In uncapping, two knives are used, which are kept hot by dipping them alternately in a vessel of water heated by a small lamp. The honey from the extractor passes through strainers into the tanks, which have treacle-gates fitted to them for convenience of filling the tins and jars. Several different styles and sizes of packages are used for shipping honey to a distance, but the favourite style appears to be a case containing two square tins, each holding 60lbs.

In summer time, working inside a building of any kind is very oppressive unless ample ventilation is provided, and in designing their extracting-house, Messrs Coleman and May have been careful to insert large windows on each side. These are covered with wire-cloth screens, so that bees cannot enter when the windows are opened.

As natural swarming is allowed at the Fairfield apiary, it often happens that quite a number of swarms will come out on the same day. Each swarm, as soon as the bees have clustered, is secured by enclosing it in a muslin bag. The swarms are left bagged in this way until the cool of the evening, when they are put into hives containing wired frames filled with foundation. Mr Coleman says that when this plan is adopted, a swarm will very rarely leave after being hived. Of course a number of young laying queens are always on hand ready to be introduced to any queenless hives. These queens are reared by Alley's method, and the little fertilising hives are dotted about the garden under shady trees. The apiary was started entirely with black bees, and the result was perfectly satisfactory. But three years ago an Italian queen was obtained just for the sake of experiment. The season was a very poor one,

and no surplus honey was taken from 150 hives of black bees, but the Italian colony gave 90lbs of honey in addition to several well-filled combs that were removed and given to weak stocks. This was a convincing proof of the superiority of the Italians, and the apiary has since been Italianised. In comparing the two races, it is found that the blacks make the nicest-looking comb-honey, but that they are much more inclined to swarm and give a very poor return in bad seasons.

The solar wax-extractor is one of the institutions at this apiary, and has proved to be a most useful appliance, but my attention was called to several defects in the construction of the machine, as usually made in South Australia.

Mr Coleman is a great advocate for using full sheets of comb-foundation, and consequently gets through a large quantity of this article during a season. He used to import it from America, but now makes it on the premises.

In this article I cannot give the quantities of honey obtained during each season at Fairfield, because I have not the actual figures by me, but may say that the returns will compare favourably with any that I have yet seen published. With good natural honey resources and modern hives and appliances, it would be strange indeed if success did not crown the efforts of two such skilled apiarists as Messrs Coleman and May.

Adelaide, South Australia.

[It is very encouraging to know that we have such skilled and enterprising apiarists as Messrs Coleman and May in our midst. Their skill and carefulness in turning out such excellent samples of honey will do much to encourage its use, and give to the colonial article a good repute in other countries. We shall be pleased to publish the figures you mention, if obtainable.—Ed.]

HONEY DEPOTS IN LARGE TOWNS.

By T. J. Mulvany.

The contents of the first two numbers of the *Australasian Bee Journal* afford abundant evidence that the revival of a special organ for its interests has at once infused new life into the honey industry of these colonies. The first-fruits of a free interchange of views between the leading beekeepers are to be found in the strong expression of the conviction which has forced itself upon the minds of all, that the only chance of placing the industry upon a solid basis lies in the exercise of an intelligent co-operation between the producers, with a view to placing their honey upon the market in such a manner as to secure a general consumption, and consequently a regular demand for all that can be produced. For my own part I have been always impressed with this view since I began to take any interest in the matter. In the first number of the *New Zealand and Australasian Bee Journal*, in July, 1883, I tried to point out "the benefit of united action on the part of producers, not in a futile attempt to keep prices above their natural level, but in the endeavour to produce the best article at the lowest price;" a year later, in the issues of the same *Journal* for June and July, 1884, I urged the necessity of developing the home market for honey "by a proper co-operation between the producers," suggesting at the same time that "such co-operation can be best brought about and guided to a successful issue by means of such a body as the New Zealand Beekeepers' Association;" and more recently, in a series of articles on the "Home Market for Honey" which appeared in the *New Zealand Farmer* (the last in the number for January of this year), I put forward pretty nearly all the views which I have formed on the subject concluding with the suggestion, among others, that "in every large town (and especially in Auckland) a sort of general honey agency might be established by some party possessing the confidence of the apiary proprietors, who should keep a honey depôt in a convenient locality where the products of the apiaries might be exposed for inspection and for sale." I allude now to these former expressions of opinion in order to show that I am not a new convert to such views, and that if I should, in the following remarks, be found to differ in some respects from others whose suggestions are entitled to the fullest consideration, it is only in minor (but as I believe still important) points of detail, and not in general principles.

The desideratum of having a honey depôt and agency established in Auckland is now provided for in a manner far surpassing my most sanguine hopes at the time when I ventured to express the wish for it. In such hands as the firm of Hopkins, Hayr and Co., and under the arrangements set forth in their programme in the first number of this *Journal*, the experiment will be tried in a manner which leaves nothing more to desire as regards the chances of success. In most of the views put forward by Mr. Poole in the first, and by Mr. Kendall in the second number of this *Journal*, I must heartily concur; but as the latter gentleman very properly remarks, the subject (that of working the market through a central agency) is a big one, and one upon which it is most desirable that every one interested should exercise his judgment and say exactly what he thinks. I shall therefore offer a few remarks, as short as possible, upon a few points in which my ideas appear to differ somewhat from those of others, although I hope it will be found, upon fully threshing the matter, that the difference is more apparent than real.

First, as to "the middle-man." Although fully sharing the feelings of Mr. Poole and S.A.B. with respect to the monstrous disproportion of the prices paid by the consumer and those received by the producer in the cases they refer to, and knowing, as I do, that it would be easy to multiply the proofs of this evil as it now exists, yet I cannot go the whole length of joining in the cry to "do away with the middle-man," if by that expression it is meant that we should act quite independently of the retail dealer. I scarcely think that Mr. Poole can mean that exactly, and rather suppose he refers to the intervention of auctioneers and wholesale dealers *between the producer and the retailer*,

as Mr. Kendall does in his last article. I think, however, that there ought to be no doubt left on the minds of the retail dealers or of the public in general as to the principles upon which we propose to deal. I, for one, have always held that the retail dealer is the proper and natural channel (in large towns at least) through which the public should always be able to obtain honey, just as easily as they do sugar, butter, or any other article of daily consumption; that all growers and retail storekeepers should not only keep a constant supply of honey both in sections and in suitable packages for their customers, but also sell it by the pound over the counter to all purchasers bringing their own vessels to contain the extracted honey; and that they are as fully entitled to a fair percentage of profits, such as may be in accordance with the usages of trade, as the producer is to the prime cost, or the carrier to the cost of conveyance from the apiary to the place of sale. I think it must be our endeavour, by every fair means in our power, to induce the retail dealers to act in accord with us in thus working for the accommodation of the public; and although, failing to receive such support as we have a right to expect from the retailers, we may be forced to take extraordinary steps in order to press our wares on the notice of the public, there should be no appearance on our side of antagonism to the legitimate course of the retail trade in any such measures we adopt for working through a general agency or honey depôts. People who live within a reasonable distance of an apiary need not, of course, purchase through a retailer, but should send their own vessels to be filled directly out of the honey tank; and housekeepers who have once got into the habit of using honey regularly, and who are wise enough to lay in a stock of 100lbs. or so at a time, can also order their supply direct from any apiary they may select, or from the honey depôt, and thus enjoy the advantage of the lowest price for large packages and cash payments; but the honey ought not, in my opinion, to be *retailed* at the honey depôts at any lower prices than the retail dealers in the same town should be able to sell at, including their moderate profit.

Secondly, as regards a co-operative company, like the British Honey Company, to purchase all honey produced by its members, paying cash for same, then selling it at a profit, and dividing the profit amongst its shareholders, I can only say, that would be a "consummation devoutly to be wished for." But I fear that, however well the plan may act in a place like London, with three millions of inhabitants living as it were within a ring fence, there is little chance of our seeing it realised in a town like Auckland, or supported, as it would require to be, by a body of beekeepers who have not as yet proved themselves to be strong enough to support properly a bee journal, or a beekeepers' association of their own. We must therefore confine our efforts to such a plan of operations as we can see a prospect of carrying out successfully.

The third and last point I wish to refer to at present is the proposed grading, tinning, and labelling of extracted honey at the central depôt. As far as this is proposed to be done by Messrs. Hopkins, Hayr and Co., that is, in the case of small beekeepers producing only a few hundred pounds of honey in the season, and which they now run into the market in very imperfect condition and through the auction marts, so far, I look upon it as a great boon to those small producers and to the honey trade in general. I should, however, consider it a great mistake to apply the principle to the produce of regularly conducted apiaries. I hold it to be quite essential that the onus of responsibility for the proper grading and pure quality of the honey offered to the public shall rest with the apiary owner, who should in every case market his produce in the original packages, with his own labels, for which he must offer a personal guarantee. I consider that the proper place to observe and fix the difference of grade, is the apiary itself, and the proper time during the process of extracting and of filling the tins from the honey tanks; and I believe that every subsequent manipulation of the honey, by melting and repacking, no matter how carefully and conscientiously done, must in some degree injure its flavour and condition. I could explain my reasons for these opinions more fully, but that I fear to be tedious, and shall therefore content myself with referring to the article already quoted, which appeared in the January number of *The Farmer*, and especially to the following passage which contains my idea of what a town agency and depôt for honey ought to be:—"Such an agency might be made use of by any number of apiaries. There should be a large store or show-room in which the products of each apiary might be displayed on separate stands, in the original packages, labelled with the proper label of the apiary according to the grade of quality, and the weight of the package (for all which the apiary owner should hold himself responsible), and marked with the selling price of each package. The price so marked should be the *retail price* at which such package ought to be obtainable at any retail dealer's. The wholesale price to be charged to dealers would of course be fixed by means of such discount from the retail prices as may be considered reasonable and according to trade wages. In this way anyone might select at such a depôt single packages from any apiaries of which he might wish to make trial, and at the same prices as he should afterwards have to pay to any retail dealer, while the latter could give his orders through the agency for such goods as he wished to obtain from any of the apiaries, and at such wholesale prices as would enable him to sell at the fixed retail rates. The consumer could thus please himself as to the quality of the honey he selects, and ascertain the proper price to be paid for it."

Bayview Apiary, Katikati.

[The particular object we have in view in establishing a honey depôt is to place convenient means in the way of small beekeepers for getting their honey put up in proper form at a reasonable cost, and so avoid sending it to the auction rooms. It would be unwise, as Mr. Mulvany remarks, on

the part of proprietors of regularly established apiaries, to send their honey away to be tinned. That ought to be done before leaving the apiary. A few samples should be put up in small clear glass bottles to accompany the parcels sent to the depôt, and as each parcel would be sold according to sample, the proprietor must hold himself responsible for the genuineness of the latter. We shall publish in due course the details of the scheme we propose to follow; in the meantime we wish to have the honey depôt question well discussed.—ED.]

BEEKEEPERS' ASSOCIATIONS.

BY O. POOLE.

As I briefly mentioned in my last, the publication of the *British Bee Journal* was quickly followed by the establishment of the British Beekeepers' Association, with the twofold object of advocating the more humane and intelligent treatment of the honey-bee, and of bettering the condition of the cottagers of the United Kingdom.

These objects are carried out:—1st, by holding annual shows at which prizes are awarded for honey, hives, and appliances, and at which manipulations with live bees take place in a specially-constructed tent; 2nd, by holding quarterly meetings, at which papers are read by practical beekeepers, any members present being entitled to join in the discussions; 3rd, by the publication of diagrams, books, and papers relating to the advancement of bee-culture; 4th, by assisting county associations affiliated to it, by providing lectures free of expense, by grants of medals for competition at local shows, the use of its bee-tents, and the privilege of obtaining publications, by the central society, at a reduced cost; 5th, by assisting its members in finding a market for their honey; 6th, by the establishment of a library of books relating to beekeeping for the use of its members.

Members are entitled to:—1, a free pass to the society's annual show; 2, free admission to their bee-tents; 3, a copy of the reports of meetings, and papers read, and discussions thereon; 4, purchase at a reduced price all other publications of the society; 5, the free use of the library.

The society proved a great success, and the first show of honey, bees, and appliances ever held in Great Britain took place, under its auspices, at the Crystal Palace, Sydenham, in September, 1874, and excited so much attention that it was visited by thirty thousand persons during the first three days of the show.

County associations affiliated with the parent society soon sprang into existence, and local shows of bees and appliances soon became common, and are now yearly held in most towns throughout the kingdom. The value of these shows, both in an educational and monetary point of view, cannot be overrated; not only do they form a pleasant reunion amongst beekeepers, but many persons who have hitherto kept bees on the old suffocation plan, or merely as an ornament for the garden, are induced to take a deeper interest in them, and adopt the humane system, not only for the sake of the system itself, but in order to be enabled to raise a better quality of honey for sale, and thus participate in the profits to be gained thereby.

The various manipulations have also proved of the greatest practical value to amateurs, who have found that by these means more real information could be gained than by days of reading.

The beauty and hardiness of the Ligurian and other foreign bees were also brought into more prominent notice, and the advantage thereby gained by the introduction of new blood into the home apiary.

Apiarian supplies, etc., became at once in greater demand, and many persons were thus afforded additional employment by their production.

But I need scarcely enumerate all the advantages attendant upon the establishment of this society, but I think the greatest was the almost total abolition of the brimstone-pit. The human apiarian knows well the value of condensed bees (1s 6d per lb in England) for strengthening weak stocks and other purposes, and most cottagers, even when they keep their bees in straw skeps, are generally willing to part with them for a small sum, and thus save themselves the trouble of suffocating them.

The establishment of such a society as this in New Zealand, on the lines I have mentioned, would, I am sure, do a similar amount of good here, and in a time of depression like the present, and more especially in a time of agricultural depression, we cannot afford to pass by a single industry, and I look on beekeeping, properly managed and carried out, as one of the best and most profitable of the many minor industries that have been brought under the notice of the inhabitants of these colonies. I trust that beekeepers will see these advantages, and that steps will shortly be taken to re-establish the Beekeepers' Association of New Zealand.

Correspondence.

TWO QUEENS IN ONE HIVE.

TO THE EDITOR OF THE AUSTRALASIAN BEE JOURNAL.

SIR,—The proverb, if such the following utterance may be termed,—"There is no rule without an exception," is frequently confirmed in beekeeping experiences; so much so, that I generally inform novices that they must be on the alert to discover their bees doing some extraordinary thing that old beemen would pronounce utterly beside all bee laws, and never known in the history of so precise an insect, which for ages has strictly obeyed the law of its being. "Well, is it not wonderful, only one mother bee or queen in each hive!" exclaims the uninitiated. "Yes," says the old beeman, "never was known to exist, but for a few minutes, more than one queen in a hive at the same time. The old queen immediately kills any young or strange queen hatched or intruding into her domain." The following incident, however, fully sustains the impression that some modern beekeepers have found from their experiences, that occasionally two queens will live amicably together, and continue maternal duties for a considerable time in co-operation, neither molesting the other. During last season, or rather the early part of it, at Brisbane, I had occasion to go to one of my stocks over which presided an imported queen, in order to obtain some eggs for queen raising, and whilst hunting for a suitable bit of comb I discovered a young queen that had apparently been depositing in the cells. My imported queens are all clipped, a precaution I always take to

prevent their taking flight, or the possibility of re-impregnation, and that I may know them at any time. This queen I now beheld had complete wings, a beautiful queen, but altogether too lively for a two-year-old imported. Being in a hurry, and feeling satisfied that I had lost my imported queen, without further ado I replaced the comb with queen in the hive, and went to another imported queen for the required eggs. I did not have occasion to open the hive containing the young usurper for two weeks. I did so then to ascertain how her ladyship was shaping (remember when I first discovered this youthful interloper there was brood in all stages in the cells). Well, just guess my surprise when I re-opened the hive, on the second comb I lifted, there was my beautiful imported queen busily, quietly moving about, depositing eggs in the empty cells. Of course this set one a hunting, and on taking out the adjoining comb I was gratified to see the *young queen* also quietly moving around attending to maternal duties. I was half inclined to continue the experiment, but not wishing to lose the imported queen, I thought it best to separate these amicable rivals, lest by some means a quarrel might arise upon some trifling household matter, and the younger depose the elder. So I simply divided combs and bees between them. On examining them some time after they were both vigorous, producing fine bees and plenty of them. The young queen and her colony I sold to go to Northern Queensland. The imported queen I packed when I left Brisbane and brought her with me to Melbourne, where I believe she now is. This is the only instance of the kind, that has occurred with me, where two queens have for so long a time lived amicably together. If we could raise a race of queens that would commence to do so, what an immense amount of trouble it would save us. Hives would never be without brood. Had the same thing happened with other than an imported queen I should certainly have continued to experiment with them, and have made possibly some discoveries of importance.

CHAS. FULLWOOD.

Melbourne, August, 1887.

[It is a very unusual thing to find two queens living peaceably together in one colony, but several instances of the kind were noted in America some two or three years ago. In each case it was mother and daughter of the Italian variety. Mr A. J. Root sold several young queens from a colony which reared another every time a daughter was removed. In the season of 1881-82 we were considerably puzzled over a case in which we found a young laying queen in a colony immediately after it had thrown off a swarm, the more so because the swarm was unexpected, there being no queen-cells in the hive at the time. The mother was a daughter of an imported Italian. We had no doubt afterwards about it being a case of mother and daughter living together, but had it struck us at the time we would have tried further experiments with that queen.—ED.]

THE HONEY MARKET.

TO THE EDITOR OF THE AUSTRALASIAN BEE JOURNAL

SIR,—In these letters I treat most of extracted honey as I believe it must ever be the main staple, for comb-honey being so much more expensive and so liable to damage, when not carefully handled, must always be more or less a luxury, and as such its production may be easily overdone. Last month I dealt with the present bad state of the local honey market, the causes operating thereto, and what is required to improve it. I will now return to the subject. It goes without saying, that at present there is no fixed retail market price for honey in Auckland; while the wholesale market is quite demoralised by unreserved auction sales and other causes combined. The present state of the markets cannot be wondered at when it is remembered that most of the extracted honey is simply labelled "pure honey" without anything to indicate from what source it was gathered What would be thought of the fruit preserver should he put up his jams (consisting of, say, quince, several varieties of plum, gooseberries, currants, etc.) in tins, all of which he should merely label *jam*, without anything defining the variety. Yet this is just what our honey producers are doing, and then wonder that their product is not a staple. Until an improvement is made on this head, consumers' tastes cannot be educated, nor the sale of honey increased. What is wanted here to place our industry on a firm basis is a depôt in Auckland for the purchase, classing, tinning, and disposing of honey. The advantages of such a depôt are many and obvious. Bee-keepers could send their honey to the depôt in large vessels, which could be returned, and thus confidence would be established among producers that their expenses in disposing of their honey would be deducted to a minimum. The production of honey would be greatly stimulated, which would increase the public wealth in accordance with the rate of profitable production. The beekeeper selling his honey in bulk could afford to sell it at such a low fixed rate that would enable the depôt to dispose of it at a price which would ensure it taking its place with other commodities of the same class. Were such a depôt in good working order consumers could always rely on getting the same flavoured honey, under the regular name adopted by the depôt for that particular grade. The depôt would be in a position to sell honey to better advantage than would the individual beekeeper. And when there was a glut in the market, they could look out for a profitable market elsewhere. The depôt's honey would soon become widely known, they would be able to guarantee its purity and quality, and a steady sale would soon spring up. I have tried faintly to trace a few of the advantages which I believe would accrue from the establishment of a depôt in Auckland. Any system of sale of honey by commission I believe would be a failure, as it has been tried without success by several local commission agents. A depôt to succeed must buy the honey from the producer, and then it would be in a position to deal with it to the best advantage. If such a depôt could not be started by a private firm, surely a company could be formed, by beekeepers taking up say half the shares, the other half to be subscribed by the general public? Or could not some enterprising firm combine with beekeepers, they finding half the capital, the firm the other half, and thus carry on a depôt to the advantage of both beekeepers, the depôt, and consumers generally?—I am, etc., G. A. G.

P.S.—The above was written about the 25th of June, before the publication of the first issue of the *Bee Journal*.

[No doubt it would be a very great advantage indeed to beekeepers could they dispose of their honey in bulk at once as soon as raised, and should any such scheme be started whereby that end would be secured, we shall give it our hearty support. We doubt very much, however, whether any private firm would care to undertake at present to purchase all the honey that might be sent in to them. It would require a considerable capital for purchase money and to provide plant and storage room. Possibly something might be done in the way our correspondent suggests, if beekeepers were prepared to find part of the capital and share in the profits and risk. We, in the meantime, are determined to do our best in opening up the honey markets on the lines we have adopted, should we get the support of producers, and are ready to support any workable scheme proposed that may prove more suitable to beekeepers; all we desire is that something shall be done to increase the demand for honey, and we don't care how this is brought about so long as it *is* accomplished.—ED.]

BEE NOTES FROM VICTORIA.—A CRITICISM.

TO THE EDITOR OF THE AUSTRALASIAN BEE JOURNAL.

SIR,—The first number of the new bee journal has come to hand, and it deserves our hearty welcome. The outward appearance is plain but inviting, and in style and contents it cannot be surpassed. Different people have different opinions. For my part I should not like to have the floor-board of a hive made of sand, for I frequently want to make a hive, floor-board and all. Further, the slugs and wood lice are so troublesome with us here during winter that, with the sand instead of the bottom-board, I think we would fare still worse. I do not like to find fault with any of the articles sent to you for publication, but I ask you the favour to criticise some

of Mr Poole's remarks. With all due regard to the Americans, I hold, "Honour to whom honour is due." A great number of the present American population are Germans. The editor of the first American bee journal, Mr A. Wagner, was a countryman of mine (a German), and the present editor of the same journal, Mr Thomas Norvman, of Chicago, is of German parentage. Now, in regard to inventions, the inventor of the movable frame-hive was Dzierzon, in Carlsmarktin, Silesia, a German. The inventor of the honey-extractor, Von Ruschka, was a German, and the engraved plates for manufacturing artificial comb-foundation were first exhibited in London (1862) by a German firm, from whom Mr G. Neighbour, 127 High Holborn, London, got his first idea of constructing a foundation roller-machine. The successful mating of queens with the desired drones is also a German discovery. The candy food for bees, containing salt, lime, carbon, and albumen, starch, etc , to strengthen weak colonies which have been affected with foul brood, came to me from Germany first, where it has been in use for more than eight years.

Now, in regard to bee journals, according to Mr Gravenhorst's last report, the number of them published at the present time is 23, and he says he reads them every one. For myself, I am favoured with this double advantage, that I can not only read them in both languages, but also write, or translate, or deliver lectures, whichever is required.

By the way, if you like, I will send my New Zealand friends a sample of our Victorian honey, and then you will see my way of putting it up for market. The Melbourne price for honey is from 3d. to 4d. Of course this is clean bush honey, but the extracted fetches no more yet. In 1886, I sold my 1lb. tins of extracted honey to the stores at 9s. per dozen ; it was retailed at 1s. each. But since then so much honey came in from the bush that the 1lb. tins hardly sell at any price. I sell them now at 7s. 6d. per dozen, retail at 10d. each. So much for the present number.

H. NAVEAU.

Hamilton, Victoria, July 7, 1887.

[We are certain that Mr Poole appreciates all that has been done in Germany and by Germans to advance apiculture, and in speaking of American beekeepers he included those of all nationalities there. Were we acquainted with the German language we would at once become a subscriber to some of the German bee journals, for we know there is much to be learnt from them. By all means send us a sample of your honey. We shall be glad of it. We have a number of samples of different kinds, but none from Victoria.—ED.]

Queries and Replies.

QUERY. - *Wood as a base for combs.* – Last year I saw in England foundations worked on thin boards, fitted on to the top bar of a frame. Ostensibly it was for use in hives intended to be sold and travel long distances by rail and cart. Has it been tried for general use? Against the somewhat increased amount of wax, and less number of frames in the Langstroth, would be set the great regularity of the comb, the safety in extracting (the wire netting could be dispensed with, I presume), and the greater durability of the combs. - MISS APOST, Bay of Plenty, July 8th, 1887.

REPLY.—We gave "wooden based foundation" a good trial some three years ago, and it proved a complete failure with us. It was placed in the hives at a very favourable part of the season when the bees were at the height of comb building, and though between sheets of ordinary foundation they remained there while the sheets were worked out and filled with honey without being touched, the most that was done to them during a month's trial in strong colonies was a little patch here and there, about the size of the palm of one's hand, drawn out about a quarter of an inch. Several beekeepers reported success with it when it was first introduced in England, six years ago, but since 1882 it has not been mentioned in the *British Bee Journal*, so far as we can find ; therefore we conclude that it has dropped out of use Nothing appears to answer so well as wire for strengthening combs, which we would recommend you to use for the purpose.—ED.

QUERY.—*Does the nectar of flowers undergo any change before being stored in the combs?* In the *Scientific American* of August 12th, 1876, last paragraph page 103, is the following statement :—"The saccharine secretion of flowers undoubtedly undergoes some change when in the stomach of the bee. Honey made from clover, sugar and water, and from fruit juice, does not possess a flavour that would reveal the source from which it had been obtained. The taste, however, is not wholly independent of its source ; certain plants yield much more delicate honey than others. The honey of Mount Hymettus, of Narboune, and of Pontus, all owe their exquisite and peculiar flavours to the plants frequented by the bees." I cull this from an article in the before mentioned journal entitled, "Bees and their Institutions," concerning which the editor says : - "The following article is from the pen of a lady, Sophie B. Herrick, who evidently understands her subject ; and it is so well written that we forbear to alter or curtail it." Now, sir, the query arises in my mind, Is it "undoubtedly" a fact that the nectar of flowers undergoes a change in the bees' stomach before it becomes honey ? Or is honey simply nectar of flowers gathered, stored, and ripened in the hive by the bees ? I have been looking up this matter, but cannot find evidence sufficient to settle the matter "undoubtedly." What are the *facts* of the case, please ? I may state that this article extends over some eight and a half columns, and is profusely illustrated, and opens up what I think are a few debateable matters.—I am, etc.—NECHTAH, Dunedin, July 13th, 1887.

REPLY.—By the results of scientific investigation we are right in saying it is "undoubtedly" a fact that nectar undergoes a change in the bees' stomach before it becomes honey. We could quote several authorities on the matter, but no doubt it will be sufficient for our purpose to mention Mr F. Cheshire, and Mr Otto Hehner, Analyst to the British Beekeepers' Association, as having, after investigation, proved the correctness of the statement. The sweet properties of nectar, in a large proportion of instances, are made up of sugar, identical with that derived from cane or beet-root, while the sugar of honey is similar to that of the grape (Cheshire's *Bees and Beekeeping*, vol. 1, pp. 263). The "inversion" of the sugar is brought about by the addition of a secretion from the salivary glands of the bee, situated in the thorax, the ducts from which extend to the upper portion of the tongue. In a lecture on "The Chemistry of the Hive," delivered by Mr Otto Hehner, before the British Beekeepers' Association, on October 17th, 1883, he said, when touching upon the action of saliva, in the digestive processes taking place in the bodies of animals, "An analogous change of a very simple nature converts the cane sugar of the flower in the body of the bee into the mixture of levulose and dextrose, which forms the bulk of honey" (*British Bee Journal*, November 15th, 1883).—ED.

EXTRACTS FROM GRAVENHORST'S JOURNAL.

IN the last number of the *German Illustrated Bee Journal*, by Gravenhorst, are three items which may be read with interest. I will therefore give them to you in English without a literal translation. The first is, "How to Tame a very Vicious Colony of Bees ;" the second, "How to Counteract Robbing;" and the third, "How to Extract Frames which have become Crystallised in a storeroom during the Winter Months."—Yours truly, F. NAVEAU.

Some time ago, when a friend from a distance visited the apiary of Mr Gravenhorst, he met Miss F. G. with a wheelbarrow, on which was a hive

of bees upside down, and the young lady gave these bees a ride around the yard. At this strange proceeding the stranger was at first surprised, but calmed down when Miss F. told him the following:—"An old beekeeper taught me years ago that when I had a colony that was very troublesome at manipulating, to remove the hive from its stand, put it reversed on the barrow, put an empty hive on the empty stand. Whilst I move on with my load on the barrow, all the old bees, and those on the wing, will return to the empty hive on the stand and will not molest me; the others remaining in the hive, from the shaking they get will fill themselves so with honey that they do not sting." This might easily be tried, only it would not do with a Langstroth hive to reverse the same. The second, about counteracting robbing, is in this way:—Whenever you notice that robbing is going on on a large scale, expose some honey in the comb easy of access to the bees and they will sooner take to the scattered honey than go to the hive for it. This seems to me rather doubtful to believe at first; it needs a trial. Now the third, about extracting crystallised honey in frames. The writer says:—"Take the frames out of the storeroom and place them in the centre of a strong colony for three days, and afterwards the honey will come out easy." This may be in Germany. I do not think it would answer well in Australia. What do you say?

[The above advice seems to us very unsatisfactory indeed. In the first place, there appears to be a great deal of unnecessary trouble in the method adopted for quieting bees. In the second place, the plan of exposing honey might draw off the majority of the robbers from the hives for the time, but would tend to make them renew the attack with greater fierceness as soon as they had got through with the exposed honey, besides tempting others to join the ranks of the robbers; and in the third place, the first thing the bees themselves would do with the crystallised honey in the combs would be to extract it themselves if they were gathering any. If Mr Naveau will kindly translate extracts of practical value from *Gravenhorst's Journal* for publication in this journal we shall be obliged.—ED.]

THE BLACK BEES OF TASMANIA, AND THEIR MEDICINAL HONEY.

IN a recent communication to the Paris *Academie de Medecine*, which is published in the *Progres Medical* for April 16, Dr. Thomas Caraman, of Forgesles-Eaux, reported upon a matter which must be regarded as among the most notable of the therapeutic novelties of the day, being nothing less than the discovery of a sort of honey, possessing in a remarkable degree the medicinal properties of the *Eucalyptus globulus*, or of some species of eucalyptus. It seems that, about three years ago, a distinguished French naturalist, M. Guilmeth, who was travelling in Tasmania, came suddenly upon a grove of gigantic eucalyptus trees, from 260 to 390 feet high, and with a trunk so large at the base that it took 40 of his Kanakas, joining hands, to reach around one of them, High in these lofty trees he discovered what he at first took to be enormous galls, but which he soon ascertained were the dwelling-places of swarms of small black, wild bees, of a variety before unknown to him. Dr. Thomas Caraman proposes for this bee the provisional name of *Apis nigra mellifica*. Besides being black and smaller than the ordinary honey-bee, this wild bee has its largest languet rather more developed than that of the domestic bee. M. Guilmeth attempted, unsuccessfully, to domesticate it in Tasmania. He caused some of these immense trees to be felled, and secured the honey. The largest individual store of honey weighed as much as 11,000lbs. [? Ed.] avoirdupois.

The honey is described as a thick, homogeneous, somewhat transparent, syrupy liquid, of a deep orange colour; having an odour suggestive at once of its containing eucalyptus principles; very soluble in water, in milk, and in wine, but much less soluble in alcohol; and very difficult of fermentation. Its specific gravity is 1 44, and it rotates the polarize ray 22°. In round numbers, 1,000 parts contain 611 of invert sugar (mostly levulose), 2 of ash, 215 of water, and 171 of active principles, including eucalyptol, eucalyptene, terepene, cymol, and odorous, resinous, and colouring matter. Its taste is described as very pleasant. Administered to dogs to the amount of from 2½oz. to 5oz. a day, it slows the heart's action, and this effect soon becomes so pronounced as to suggest, in Dr. Thomas Caraman's words, a struggle between the pneumogastric nerve and the cardiac ganglia. At the same time the temperature falls about 1° C. The effects last for at least 24 hours, and include a slight tendency to sleep, but without any symptom of toxic depression. As the result of experiments upon himself and his friends, Dr. Thomas Caramen states that on taking a tablespoonful of this honey in a little tepid water or milk after a few minutes one perceives a gentle agreeable warmth take possession of the whole person. At the end of an hour the elimination of the active principles by the air passage having begun, the voice becomes clearer, and the breath perfumed; the lungs feel more elastic, more supple. Having continued the use of it for a week, four tablespoonsful daily, the author, who speaks of himself as respectably fleshy, found that he could go up two pair of stairs two steps at a time, without stopping to take breath or feeling at all blown. At the same time there was slight diuresis, with an increase of urea, and the urine had a decided odour, suggestive of that of the *Acacia farnesiana* (the plant from which the perfume called "new mown hay" is made).

Besides his observations of the physiological action of the honey, the author cites certain trials of it as a medicine. These data lead him to consider it a valuable aliment, an efficient and palatable substitute for cod liver oil, an anti-catarrhal, an agent affecting the heart in a manner comparable to the action of digitalis, but free from the inconvenient properties of that drug, a febrifuge, an anti-parasitic, specially applicable to the destruction of the micro-organism of tubercular and scrofulous neoplasms, the *leptothrix vaginalis*, and oxyures; and finally, an anti-blennorrhagic, by virtue of its being more actively eliminated by the uro-genital tract than either copaiba or sandal oil. It is destined, he thinks, to play a great part in the treatment of laryngeal, bronchial, pulmonary, cardiac, and scrofulous affections, in malarial and typhoid fevers, in whooping cough and influenza, and in renal, vesicle, and vaginal troubles.

It may be said that Dr. Thomas Caraman holds up to our view a somewhat rose-coloured picture; but it must be confessed that there is no inherent improbability in the notion that an animal organism like that of the bee may be able to elaborate the medicinal principle of the eucalyptus in greater perfection than the art of pharmacy can furnish them. Should his impressions be confirmed, however, the practical question at once comes up as to the extent to which commerce can supply us with the genuine wild honey of Tasmania, and it is much to be feared that, in case of any considerable demand, we shall witness a repetition of what took place in connection with the supply of Chian turpentine, and more recently that of alveloz, the substitution of products more or less adulterated, if not wholly factitious. It would be interesting to know to what particular species of the genus eucalyptus the gigantic trees found by M. Guilmeth belong. Perhaps the active principles of the tree may yet be made available without the intervention of the *Apis nigra mellifica*.—*New York Medical Journal*. Reprinted in *Scientific American*, May 28, 1887, page 337.

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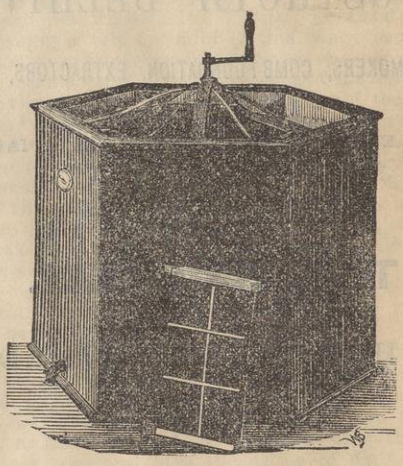

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