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THE NEW ZEALAND AND AUSTRALIAN BEE JOURNAL.

Devoted exclusively to Advanced Bee Culture.

VOL. I. No. 8.}

AUCKLAND, N.Z., FEBRUARY, 1884.

{ Published Monthly,
Price Sixpence.



PUBLISHED MONTHLY.

I. HOPKINS.....Editor.
H. H. HAYE.....Business Manager and Publisher.

TERMS OF SUBSCRIPTION :-

Per Annum (in advance) 6s.
Half-yearly " 3s.

Post free on day of publication.

On account of the Postmaster-General declining to register this Journal other than as a Magazine, book rates of postage are charged to places beyond New Zealand; consequently, we shall be obliged to charge 7s. per annum to foreign subscribers.

All correspondence intended for publication to be addressed to the Editor, Matamata, Auckland, New Zealand, and business communications to the Publisher, P.O. Box 186, Auckland, New Zealand.

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CALENDAR—FEBRUARY.

FOR the first time this season we have to record the fact that for a short period our bees have had an opportunity of gathering a considerable amount of honey. From the commencement of January to the date of writing (22nd), we were blest with short spells of splendid honey weather, when our hives, which had previously become rather light in weight of honey, were rapidly filled, and top boxes became the order of the day. The weather has now again broken and heavy rain set in, which, from present appearances, is likely to continue for a day or two. We have had lately some very cold nights, the thermometer registering 36 degrees on the night of the 19th, and on several occasions falling below 40 degrees. The rain now falling will, no doubt, have the effect of prolonging the blossoming of the various honey plants now in flower, and we shall not be surprised to see the honey season last a month or six weeks later than usual, although we do not expect it to be anything near up to the average.

We do not remember ever having seen dandelions flowering in such profusion as they have done during the last few weeks. Our paddocks in consequence have appeared as if covered with immense yellow sheets, which on a bright day could be seen for miles. The honey from dandelions, although not nearly so plentiful, we consider almost equal to white clover honey. Thistles also appear to be more plentiful this season than usual. This is another excellent honey-yielding plant. Thistle honey is considered by some to be superior to clover honey. Whether it is so or not we cannot say, but we do know that it has a most exquisite flavour and colour. Amongst the honey plants we are cultivating and have in flower at the present time, are: figwort, giant mignonette, *limnanthus Douglasii* mustard, and a little mellilot clover. All these, without doubt, are first-class honey-yielding plants, and well worthy of cultivation on a large scale. Our giant mignonette has been in blossom about two months and apparently will remain so for at least another month or six weeks, and whenever the weather will permit it is

covered with bees from morning to night. Figwort, of which we have about 1400 of last year's plants set out for seed, is now coming into blossom. Judging by our experience, we believe this plant to be one of the very best to cultivate for honey. *Limnanthus Douglasii* has been in blossom about one month, and shows no signs at present of fading; this also keeps the bees busy, and is valuable to the bee-keeper as it may be made to blossom in very early spring. Mellilot clover we take to be equal to figwort for honey, and like the latter remains in blossom for about three months, yielding honey the whole time if the weather is at all favourable. We have about two acres sown with spider plant, figwort, and mellilot clover seeds; the plants are up, but are coming on very slowly. We intend to give shortly an article on "Planting for honey," when we will go into this matter fully.

We have had a slight touch of the "swarming fever" that we predicted would come about the first opportunity. Some of our colonies have persisted in spite of all we could do to prevent it; however, by "doubling" and returning, we have managed to keep down our increase within what we think reasonable limits considering the season. Swarming should now be kept down by all possible means, and the weakest colonies strengthened by giving an occasional frame of brood from the strongest. Nuclei may also be built up now in the same way. Our caution with regard to taking surplus honey, given in last month's calendar, should be attended to, as every week will now make a vast difference to the length of the remaining part of the honey season. We have not yet heard of much surplus honey being taken; but, on the contrary, up to a late date the reports received have all been to the effect that little or none was expected.

We have just had some enquiries *re* marketing honey, and are now ascertaining the price of labels, &c., with a view of giving an article on this subject in our next issue.

COMB-FOUNDATION AND HOW TO USE IT.

We had almost thought that every bee-keeper in the Australasian colonies knew by this time what artificial comb foundation is; but, judging from occasional letters we receive, there are some who have only heard of it for the first time through the JOURNAL, and we have been asked to give the particulars of what it is and how it is used.

Comb foundation is thin sheets of beeswax bearing the impressions of the base of the bees' cells on each side of the sheet. These impressions are made by passing the sheets of wax between engraved rollers, which are usually made to impress worker cells, of which there are 25 to the square inch. Very little drone cell foundation is made or used now, as it has been found to encourage the breeding of drones, a thing not desirable, as sufficient drones can be bred to answer all purposes in hives where all worker foundation is used. Should a little extra drone comb be required it can easily be secured by putting a frame or two in a hive during the honey season, containing a narrow strip of worker foundation as a starter or guide. These frames should be put either in the top box or at the sides of the brood nest in the lower box; the bees will then fill the frames with drone comb. The foundation as usually made is about $\frac{1}{8}$ of an inch thick, including a small

portion of the side walls of the cells. The prepared sheets are then cut to fit the frames of the hive, but are not cut to the full size of the insides of the frames, as sufficient space must be left between the sheet and the frame all round to allow of expansion, as the heat of the hive and adhering bees cause the sheet to expand, and if there is not space to allow of this, the sheet would bulge out in places and so spoil the combs. The sheets are fastened into grooves running along the underside of the top bars of the frames, one edge being first pressed in and a little melted wax run along each side. About $\frac{1}{4}$ of an inch space at the sides and $\frac{1}{2}$ of an inch at bottom is usually allowed between the frame and sheet, thus the sheet is hanging loosely from the top of the frame, as in fig. 1. To insure the combs being built within the frames, the hive should be standing perfectly level so that the frames may hang plumb. Sometimes the sheet may be thrown slightly out of plumb by an unequal weight of bees working on one side, or the lower edge of the sheet may curl a little and encroach on the space required for the adjoining comb. There is a very simple device, however—shown, in the engraving—which will prevent the sheet getting out of place and help to support it while being worked out:—

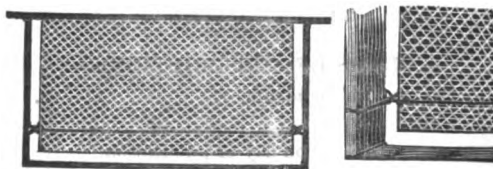


Fig. 1

Fig. 2.

Fig. 1. represents a frame of comb foundation. Fig. 2. is a section of Fig. 1. About $1\frac{1}{2}$ in from the bottom of the sheet, a thin piece of twine is passed round one end bar of the frame, then crossed (as shown in fig.), and one part taken along each side of the sheet, crossed again, and tied at the back of the other end bar. The twine need only be tied sufficiently tight to prevent it slipping down the end bars. There is another method of fixing the twine, *i.e.*, by boring a small hole in each end bar and passing the double part of twine through one, putting a small toggle in the bight, and fastening the two ends after passing them through the other hole. This simple arrangement will be found of great value in securing straight combs. The twine may be removed after the combs are fastened to the end bars. For particulars regarding the value of comb foundation to the bee-keeper, we refer our readers to chapter VII. of the *New Zealand Bee Manual*.

SUCCESSFUL IMPORTATION OF ITALIAN QUEEN BEES DIRECT FROM ITALY.

In our December issue we stated that we expected shortly a trial consignment of queens from Italy; these queens have now arrived, and the venture has been attended with what we consider a very fair amount of success.

In July of last year we sent an order to Italy for eight queens, merely as an experiment, to test the matter whether they could be forwarded successfully such a long distance or not. We received a letter in due course, stating that they would be shipped at Naples on the 10th of November, 1883, on one of the "Orient"

steamers. The next mail brought us the bill of lading and the bees. They landed in Auckland on the 9th of January, 1884, and reached Matamata on the 11th, when they were unpacked. The package containing the queens consisted of a framework made to hold eight miniature hives, each hive being about 7in. square, in which was three small frames of comb and an arrangement for supplying the bees with water. Into each of these hives a queen had been placed, accompanied by about 200 workers, air being supplied through holes in the hives, covered with wire cloth. On opening them we found four queens alive, with a few worker bees to each, the remaining queens and bees being dead. As those that were alive appeared to be weak from their long confinement, we gave them some fresh honey and water, and allowed them to remain in the small hives till the following day. By this time they had recovered strength, and the queens had become quite lively. We then caged and introduced them to small colonies, using the cage described in the October number of the JOURNAL. In less than twenty-four hours they had been liberated by the bees, and have now taken up their duties apparently none the worse for their long journey. Great credit is due to Mr Chas. Bianconcini—the gentleman to whom the order was sent—for the admirable manner in which the bees were packed, as the success or otherwise of a venture of this kind depends solely on the packing. Two of the miniature colonies had died from sheer starvation, as they had neither honey nor water left; the other two had plenty of honey but no water.

This introduction of bees direct from Italy marks another epoch in the history of bee-keeping in New Zealand. Should sufficient inducement offer, we will send an order for a large batch, to arrive here in October next, so that if any of our customers would like an imported queen, by notifying us before the end of April we will arrange to get them one; the price would be about £2 each. With the heavy expenses, risk, &c., this is the lowest price we could supply them at. We should give them a fly, and re-arrange their food and water before sending them on to their final destination.

OUR COMB-FOUNDATION.

SOME few weeks back we received a letter stating that a report was being circulated that we were adulterating the wax from which we made our artificial comb-foundation with paraffine or some composition. This, of course, was tantamount to accusing us of roguery in selling our customers an article made from other material than what we represented it to be. We at once wrote a letter to the gentleman whom we were informed had made statements to the above effect, telling him of what we had heard, and asked him if it was correct; after waiting several weeks for a reply, we received the following for publication:—

To the Editor A. and N. Z. BEE JOURNAL.

SIR,—Having heard statements made which caused me to think and believe that the material used in the making of your comb-foundation was not pure beeswax, but some kind of composition, I forwarded a sample of it to Mr Pond, Analyst for Auckland Province, for analysis, and I herewith hand you a copy of his report for publication in the JOURNAL. The sample was taken from a box obtained from Mr Hayr, in the ordinary way of trade, and that gentleman had no idea that any of the purchase was intended for analysis. I have to congratulate you on the

result of the test, which I may state was also made without any knowledge on your part, and I trust that the publication of Mr Pond's report will have the effect of causing all the bee-keepers in Australia and New Zealand to do as I have always done and recommended, viz., use the foundation in full-sized sheets, and not in starters only, the latter practice being, in my opinion a "penny wise and pound foolish" economy.—I am, yours, &c.,

JAMES DALZIEL.

Pukekohe, December, 1883.

The following is the report of the analysis:—

Dr. DALZIEL, Pukekohe.

SIR,—I have made an extended examination of the sample of artificial comb submitted by you on the 6th inst., with the result that I find it to be a fairly good sample of beeswax, containing no foreign substance.

Melting Point	145° Fah.
Specific Gravity	·96,117
Ash	A trace

Substances not wax, fragments of bees' wings and legs, pollen grains, and water.—I have the honour to be, Sir, your obedient servant,

J. A. POND,
Colonial Analyst.

Laboratory, Queen-street,
Auckland, December 12, 1883.

Although Dr Dalziel has done what, of course, he had a right to do to satisfy himself whether we were practising an imposition or not, i.e., in getting an analytical test of the comb; still, we think he should have done this in the first instance, as soon as he suspected it was adulterated, or at any rate, before he made mention of it to others, and not have left it till written to on the subject.

With regard to our comb, we may state that in making it we could not possibly be more particular in keeping it free from impurities than we are. The beeswax of commerce is usually in a very dirty state, especially on the outside of the pieces; these are all thoroughly scraped, and every ounce is then put through a double refining process, in special boiling water baths, before being made into comb. We sometimes get amongst the large quantities of wax we purchase pieces that have been adulterated, but having now handled some tons of wax, we can easily detect them; these are laid aside, to be sold eventually to a candle factory; at present we have nearly a half cwt. on hand. A second thought should convince any person that whatever is sent out from the Matamata Apiary is, as far as we can possibly know, exactly what it is represented to be, for we should have everything to lose and nothing to gain in deceiving our customers, and we know that the proprietor would not lend himself to any kind of deception.

Since we have been connected with the bee industry we have done our utmost to promote it in every possible way, sparing neither trouble nor expense to further the interests of bee-keepers, and we believe those who have known us longest will give us some credit for honesty of purpose in this respect. Should, however, there be any kind of misunderstanding amongst any of our customers with regard to goods obtained from us, we shall only be too glad to explain or rectify any mistake that may have been made when notified.

WE are again indebted to our esteemed correspondent, "T.J.M.," for a very interesting paper on the "Geographical Distribution of the Honey Bee," the first part of which appears in this issue.

The advancement of knowledge in apiculture, and the introduction of several varieties of the honey bee

into countries where formerly the German bee only was known, has, of late years, caused considerable interest to be taken in this subject, more especially amongst practical apiarists, some of whom, with an eye to business, have spared no expense or trouble to ascertain whether there are any new and improved varieties as yet unknown existing on the face of the globe. Our correspondent's paper will be found to contain much valuable information to the practical bee-keeper.

ENGRAVINGS.

WE intend shortly to have engravings made for the JOURNAL of the various appliances we have, and any of importance, that may from time to time be brought into use. We shall be glad to receive from any of our readers, diagrams and description of improved appliances.

GEOGRAPHICAL DISTRIBUTION OF THE HONEY BEE.

BY T. J. M.

AT one of the usual yearly congresses of bee-keepers from all parts of Germany, held in the year 1862 at Potsdam, near Berlin, Dr. A. Gerstaecker read a paper upon the "Geographical Distribution and the Varieties of the Honey Bee." That was, I believe, the first time that the subject was treated in a comprehensive manner with the aid of scientific knowledge and historical research, and it must therefore be regarded as an important contribution to apiarian literature. Four years later Dr. G. published an article in a German periodical,* giving the substance of his former paper with some additions and corrections rendered necessary by further investigations made in the mean time. This letter has come under my notice since I wrote my remarks on the closely-allied subject of "Climate and Bee-culture;" it seems to me to throw light upon many points which I have hinted at as worthy of consideration, and as many of the results arrived at by the Doctor will no doubt be new to the majority of the readers of the BEE JOURNAL, as they were to myself, I think it may be useful to give a short resumé of them here, adding a few observations gleaned from other sources, and bearing more particularly upon the subject as it relates to this part of the world. Dr. Gerstaecker commences by stating that up to within some ten years of the time when he was writing, bee-keepers knew only one sort of honey bee—that which had been reared for ages, the *apis mellifica*, of Linnæus—but they then (in 1862) distinguished the German from the Italian bee. The latter had, in fact, been noticed in the beginning of this century by Spinola, and by Latrielle, as a separate species of the genus *apis*, and was named by the former zoologist, *apis ligustica*. Nevertheless it proved to be only a coloured variety of the same species, the size, as well as the structural peculiarities of the insect, being the same in every respect, and the two sorts admitting of cross-breeding to any extent, whereas if they belonged to two separate species the offspring would, in all probability, consist of unprolific hybrids. The knowledge of the practical apiarist was, at all events, then confined to these two

varieties of the honey bee, and they were supposed to be indigenous almost exclusively to Europe, the northern coast of Africa being their supposed boundary on the south, and the coast of Asia Minor on the east. When Dr. G., however, undertook his investigations he obtained samples of a large number of varieties mentioned in the works of Fabricius, Latrielle, Lapeletier, and others, as being found in various parts of Africa and of Asia, north of the Himalayas, and subjected them to a minute examination comparatively with each other, and with the two varieties already known in Europe. He soon satisfied himself beyond all doubt that they were all merely varieties of the one species, the *apis mellifica*, differing only in colour and size—all capable of being cross-bred and of being utilised by the apiarist. He also found that this one species, represented by so many different varieties, was spread over a vastly larger area than had been supposed, comprising nearly the whole of Europe (up to 60, and even 64, degrees of north latitude in some places), the whole continent of Africa, from Algiers to the Cape, and from Senegambia to the Red Sea, and the whole of Asia Minor, Syria, and Persia, and other portions of Asia north of the Himalayan range up to Eastern Siberia and China.

Out of the numerous varieties brought under review, six have been selected as being of sufficient importance to be separately dealt with. These, with their distinguishing marks and the regions to which they seem particularly to belong are classified and described as follows:—

1. The single colored, dark, northern or German bee (*Apis mellifica* of Linnæus), found in the whole of north and middle Europe, and also in South France, South Spain, Portugal, a few parts of Italy, in Dalmatia, Greece, at the Crimea, and along the Coast of Asia Minor, including the adjacent islands. It is also found in the African Continent, at Algiers, Guinea, and at the Cape of Good Hope, to which latter place, however, it was possibly introduced direct from Europe. As a very slight sub-variety of the same may be noted the Hymettus bee (*Apis Cecropia*), differing only in being slightly smaller and more hairy, often also showing reddish spots on the sides of the second abdominal ring. This bee is found in south Spain as well as in Greece, and even in some isolated cases in Germany.

2. The Italian bee (*Apis Ligustria* of Spinola), of equal size with the German bee, but with golden yellow color on the first three abdominal rings, whilst the back plate (between the wings) is still of a dark color. It was first noticed by Spinola as being peculiar to all parts of Liguria. Its first or original habitat was difficult to be ascertained in 1862, as during the previous ten years it had been artificially distributed to many new places. Although to be found in various parts of middle Italy it is by no means general in that country; besides the province of Liguria, the southern slopes of the Tyrolese and Swiss Alps would appear to have been its original home. The introduction of this variety into Germany was first effected by Von Baldenstein in 1843, but without much importance being attached to it until its repeated importation and acclimatisation by Dzierzon in 1853, attracted the attention of all bee-keepers. How generally it then became adopted, and how great the preference given to it over the German bee is well known. According to Tegetmeyer it has

* "Ergänzungsblaetter zur Kenntniss der Gegenwart, vol. I., Hildburghausen 1866.

also been naturalised in England since the year 1860.

3. The Italian bee, with yellow back plate, otherwise of the same size and same color of the body as the last. It is found in South France, Dalmatia, Banat, at Sicily, and at the Crimea, in the Islands and on the Coast of Asia Minor, and in the Caucasus, and in many of those places in common partly with the Italian (No. 2) and partly with the German bee.

4. The Egyptian bee (*Apis fasciata* of Latrielle). It is nearly one-third smaller than the German or Italian bee, its body coloured like the latter, and the back plate also yellow, the hair of the chest and body whitish. Its proper habitat is Egypt, Arabia, and Syria, but it is found with scarcely any observable difference on the northern slopes of the Himalayas and in China. It was introduced into Germany in 1863 by the Acclimatisation Society of Berlin, and thence into England in 1865.

5. The specific African bee (*Apis Adansonii* of Latrielle) is of the same size and colour as the last, but differs in the greyish yellow colour of the hair on the chest and body. It is spread over the whole African Continent, with the exception of Algiers and Egypt, from Abyssinia and Senegambia to the Cape of Good Hope.

6. The remarkably black Madagascar bee (*Apis Unicorn* of Latrielle) is something smaller than the German bee, all dark coloured, and its hairs black. It is confined to Madagascar and the Mauritius.

From this review of the distribution of the honey bee in the Old World, Dr Gerstaecker turns to those lands to which it has been introduced from time to time, as shown by historical records, namely, to N. and S. America and Australia.

(To be continued).

APICULTURE IN QUEENSLAND.

BY. O. FULWOOD.

We have been having a grand time of it this season with the honey gatherers; it has been dry and not too warm, hence there has been less swarming and more honey than was the case last season, which was warm and damp; so that there was just enough fodder to keep a mass of brood rearing, and no surplus for the owner, but too many stocks. The honey we have been getting is remarkably thick, great care being required in extracting—in fact it was almost impossible to get it from the combs. I am a strong advocate of wired frames after some experience with both. By that means we ensure straight and good comb within the frame, and it will hold its own either in the extractor or on travel. Unless something superior to wiring is discovered I think this will become the rule; I shall not be satisfied until all mine are wired, except those required for queen raising, a comb one can cut up is then most useful.

The successful introduction and establishment of Italians has aroused some enthusiasm, and induced numerous enquiries from all quarters. Victoria, New South Wales, South Australia, are sending to Queensland for Italians!

Why not send to Italy? Bee-keepers must learn how to deal with queens arriving with just a few workers, so as to ensure almost universal success. Of course, there is some risk; this gives zest to the enterprise and tests a man's pluck and skill.

The means of obtaining genuine information are now so numerous that all persons feeling any inclination to succeed in bee-culture need not remain ignorant of any of the modern modes of operation. Ignorance does prevail to a great extent. Persons who have had numerous stocks know but comparatively little about bee management, in fact bees have been left to manage themselves. How such persons stare in perfect amazement when informed of some of our new-fangled notions, yet not much new is there under the sun in bee-keeping except in practice.

This ignorance must pass away before the disseminating of bee literature, and the practical teachings of modern exhibitions.

The supplanting of the black bee by the yellow-banded ones, the introduction of movable combs, extractors, etc., etc., will work out a reformation, and awaken an intelligent interest in the charming and profitable pursuit of apiculture. I note that some one was asking about a house apiary. My experience with one for several years leads me to this conclusion: That if I were working on a large scale I would have the major part of the bees out in the open, but at the same time would like a house for a number of hives for experimental and queen-breeding purposes, where I could handle them in any weather. My opinion is that a combination of various plans gives the apiarian the advantage over those who rigidly work only on one line.

Brisbane, Queensland, Dec., 1883.

MEMS. BY AN OLD BEE-KEEPER.

Continued.

A FEW weeks ago one of my hives was not working well, and I stood by it some ten or twelve minutes to notice the bees. To my very great surprise, three Ligurian bees came to the entrance and two of them went into the hive. That stock died a week or two after. Now, I don't know any person, except Mr Kohl (or Karl), who keeps Ligurians, and as the crow flies his place must be fully three miles from here.—To return to Mr Fox: After the lecture and meeting was over he returned with me to my house, where he slept. I asked him when he had written his lecture, and he said about ten or eleven years ago. Then I advised him to see his cousin, B. Fox, the dentist, at Exeter, also Mr Woodbury, as there had been a revolution in bee-keeping during that time. He did so, and in a few months after he wrote me to say he was a convert to the new bar and frame hive system. About this time Mr Woodbury wrote asking if I could spare him a queen, either fertilised or maiden. I called upon Dr Jewel, of Dartmouth, formerly of Cornwall, and an old bee-keeper, telling him that I wanted to send a live queen by post to Exeter. He gave me a round, flat wood box, about three inches diameter; with a bradawl I made about a dozen holes in the top and bottom of the box. Into that box I put the queen and a few workers, pasting the address round the edges. It was duly posted, and Mr W. got it safe on the same day, a Saturday.

A few weeks after I was going to London by rail, and Mr Woodbury saw me on the platform at Exeter, when he told me that instead of going to church the day after he got my queen, himself and a friend dissected her and another queen under a powerful microscope, one being a fertilised queen and the other a maiden queen. Their object was to discover the differ-

ence in the ovaries of the two queens. In one of the latter's ovaries they could see nothing but a pure liquid, and in the fertilised queen what appeared like thousands of wriggling mites. Perhaps it will be well to explain here to new beginners in bee-keeping that a maiden queen can lay *drone* eggs only, but that the same queen fertilised has the power, *at will*, of laying either working bee eggs or drone eggs; and in proof of this she always drops the eggs in the cells adapted to bring them to maturity, the drone cells being much larger than the working bee's cell. The drones are males, but the working bees are neuters, or undeveloped females, and from young neuter eggs the bees can raise the full-developed female, or queen; and it is by acting on this wonderful provision of nature that queen-breeders, for sale, work.—In 1863 I removed from Dartmouth to Exeter, taking one stock of bees with me, but they never did well, although I tried various hives, including the Stewarton Hexagonal hive and a modification of the Polish hive. I would strongly advise all intending bee-keepers to confine their attention to the bar and frame hive, or Langstroth principle, it is far the best and most profitable. In New Zealand, time is money, and to spend your time and labour in trying the various systems of collateral or nadir hiving really means so much loss of money, and is very apt to greatly try one's temper. I recollect calling upon Mr Woodbury one day, when he greeted me with—"Well, I am glad you are come; I want to show you an improvement." We went into his garden, where he had over 20 hives. He walked up to the back of one and lifted off the cover. I asked about his bee-dress. "No," he said, "I don't use it so often." His improvement was having the top board, *now a mat*, in two halves, so that you could operate on one side of the hive without disturbing the other. The moment he lifted one board, four or five bees sent their spears into his neck. He dropped the board and walked away. It so happened that within a fortnight before he had been writing for a periodical about the docility of his Ligurian bees, so I told him that he had not mentioned this particular hive, and they were reminding him of their capabilities. On another occasion I called to tell him that I had been to an horticultural exhibition, where prizes were given for the best super of honey collected that season. I was surprised at the weight, and felt convinced that it had not been all gathered that season, and told him so. After a long talk he said, "Well, I have known it done in this way: a large super with glass sides was placed on a very strong stock, covered with a stout box; at the end of the season, the super was taken off and the bottom was covered with good clean white paper, pasted round the edges—a second paper over the first to make it as air-tight as possible; it was then packed away in a dark place until next spring. Early in the spring two good stocks were united—fed well—then the partially filled super was brought out, the paper torn off, the pasted parts cleaned, and the super then placed over the united stock, to be well filled for prize taking." In a climate like New Zealand possesses such roguish tricks need not be resorted to. Mr Woodbury went many miles round Exeter to cottagers who were in the habit of using brimstone to get the honey; he would drive the bees, and then take them home for his trouble. The cottager got cleaner honey, and Mr Woodbury destroyed the old queen, and gave them a Ligurian queen;

and that stock was sold at a higher price, because in a short time it would be a Ligurian stock. Another hint to new beginners may be useful here—the necessity of cleanliness in the hives. At Exmouth I had two straw Woodbury hives, one empty. A few months before I left home in 1880, a neighbour asked me to hive a swarm of bees for him. I did so. I had often done so before for him, and always had to tell him that his hives of common straw were kept too dirty to put bees into—as I constantly reminded him that bees liked cleanliness. The bees were hived about 11.30 a.m.; at noon I went by rail to Exeter, and on my return at 5 p.m., as soon as I entered my house I was told that Mr S.'s bees had left his hive, and had gone into my straw Woodbury hive—there I found them. I passed the hive to him, and no doubt it is in his garden at this moment. Another instance of want of cleanliness: The Sunday after I came on to this farm, myself and son were walking round the fields when we found a lot of bees issuing from a rabbit hole; the next day I dug them out. I had nothing handy to put them in except a box that had brought up two tins of kerosene. This was brushed out, and the bees were put into it, but before three days had passed they left the box and joined the bees in another box. I hope, Mr Editor, these mems. may save time, expense, and disappointment to some young bee-keepers, by preventing useless experiments with the many fancy hives so often offered for sale, with "useless" wonderful improvements. Let them be guided by old practical and experienced bee-keepers, and the Editor of the N. Z. BEE JOURNAL.—Yours, etc.,

J. NEWLAND.

Ngaroto.



(For the N. Z. and A. Bee Journal.)

All correspondence must bear the name and address of the writer, not necessarily for publication, but as a guarantee of good faith.

BEE-KEEPING IN SOUTH AUSTRALIA.

SIR,—I continue to read the BEE JOURNAL with pleasure and profit, and wish you success in your efforts to promote rational, merciful, and profitable bee culture.

Bee-keeping with me is merely a hobby, a recreation the pleasant utilization of the few spare hours of a busy life. Nevertheless, by patient perseverance I have attained some measure of success quite sufficient to encourage me to proceed, and perhaps if my experiences were known enough to induce others to cultivate an acquaintance with these very interesting and useful insects. I begun with a single swarm, presented to me by a friend; I read no end of bee literature; made hives of various kinds; encountered and overcome many difficulties. Experience has taught me more than all the books, and I have at length adopted a definite line of action and arrangements as to hives and manipulation, which I find quite satisfactory; and now I have my little apiary compact, easily managed, and giving me a

very encouraging return. I have extracted to the present time 168lbs. of splendid honey; have four hives with twelve 2lb. super boxes on each; have removed some full and completely capped fine specimens of comb honey. If you think that my system of management (which is somewhat peculiar) is likely to be of any use to amateur bee-keepers who are making a start, I shall be happy to furnish you with a few articles upon the subject. Nothing that I may have to say will be of any use to the scientific bee master; if I write it is not for him, but rather for those bewildered amidst the multiplicity of counsel contained in the bee books, who may, perhaps, be glad to read the plain, unvarnished tale of one who has tried many things, and at length settled down to a practice which seems something near the right.

W. J. THOMAS.

Geelong, 14th Dec., 1883.

P.S.—I note in your last number a marvellous smoker mentioned, one that continues smoking from dawn to dark. Would your correspondent kindly describe the creature fully. I should like, above all things to construct one. In the handling of bees there is nothing like smoke, and plenty of it.—W.J.T.

[We congratulate you on your success, and shall be very glad to receive a full description of your system of management, more especially as the result is so satisfactory. Mr Stevenson will, no doubt, oblige us by describing fully the make-up of the smoker he speaks of.—ED.]

APICULTURE IN VICTORIA.

SIR,—The December number of the JOURNAL has come, and as it contains an article which was not intended for publication, I feel duty bound to make a few remarks on it. I did not say, in my letter to you, Mr Editor, that I sold honey at 3d. per lb., but simply stated that there was plenty disposed of at that price in Victoria. I sold my comb-honey at 8d., and strained honey, first quality, for 6d.; second do., 4d per lb., and although I know that the new appliances you mention are very good, and probably increase the quantity, they can in no way improve the quality of honey. My honey is well known throughout this district, and people from Geelong and other towns send orders for honey from 'Old Naveau.' I may also state that, before other bee-keepers in Victoria knew that there would be a good honey season, a great deal of mine was already sold. And again, I find you are mistaken in regard to the resources of honey in Victoria. The most of the honey obtained here comes from the gum trees; now these do not flower every year, only some years, and at times they flower in the winter months, and then the rain washes away all the honey they may secrete. The season of 1868 was the best one for honey I ever experienced, but it did not last so long as the season of 1882-83. In '68 it commenced in October, and lasted until the middle of March, and the gum leaves looked just as if they were varnished. When I pulled some and applied them to my tongue, I found they were actually covered with fine honey dew. In '82, however, I did not notice this, but the gum trees begun to flower as early as September, and a great number were still in flower at the middle of the month of May, '83. So you see we had a honey season which lasted more than nine months, for long before the gum trees begin to break forth, in

July, the almond trees flower, then come peaches and many other fruit trees, but this season there are no gums in flower; hence it will not pay to get comb-foundation, honey extractors, and Italian bees, etc.

When I read in the JOURNAL that comb-foundation could be got in Melbourne, I got some at once, made Langstroth hives, and all the swarms that issued since, I hived in Langstroth hives, with whole sheets of comb-foundation. So much for the present. In my next I shall be able to tell you more about my success with the Italians I have procured.

H. NAVEAU.

Hamilton, Victoria, December, 1883.

[Your former letter being addressed to the "Editor," we, of course, looked upon it as being sent for publication, more especially as it contained questions; when writing to us in future, please mark "Private" anything not for publication. With regard to your statement that modern appliances "can in no way improve the quality of honey," we admit as being correct, but taking honey without them destroys its good qualities, so that, as far as the consumer is concerned, it amounts to the same thing. We are very glad to know that you are giving improved hives, comb-foundation, Italian bees, etc., a trial, although you don't "believe" it will pay to get these things. We expect to hear shortly that you have a different opinion on the matter.—ED.]

SHOWS AND EXHIBITS OF BEE-KEEPING APPLIANCES.

SIR,—Both Mr Robinson and myself entirely agree with Mr Bagnall's suggestion that "bee-keepers and apiarians should join and make such a display of their wares as has never yet been made in this province or Colony" at the coming Gardeners' Horticultural Exhibition in March next, and we will do all in our power to encourage the bee-keepers of Northcote and the surrounding district to show their honey, etc.

We shall be unable to show any honey this time, having only just started bee-keeping in this neighbourhood, but we have several appliances which would, no doubt, help to make the show interesting. There are so many advancing bee-keepers in the Province of Auckland that an association might be easily started, and it would be undoubtedly much to the interest of apiculture in New Zealand. With a small yearly subscription, lectures might be given and prizes offered for honey and bee appliances at the horticultural shows throughout the province. We can speak from experience in England that the profits made by manipulating in the beehive are alone sufficient to keep an association going.

J. L. SHADWELL & W. ROBINSON.

Northcote Apiary,
January 14th, 1884.

HONEY—TO PREVENT CRYSTALLISING, OR GRANULATION.—Boil the honey very slow, about five minutes, and it will keep liquid for twelve months. We have simply made it hot, then skim and strain while hot, and it has kept liquid and clear over a year.

Ngarota. AN OLD BEE-KEEPER.

[Honey should never be boiled, as it entirely destroys the flavor. If it is slowly heated in a water bath to about 170deg. Fah., and sealed up while hot, it will keep its liquid state for any length of time.—ED.]



FROM TARAHERU APIARY.

It is to be hoped we have now seen the end of the bad weather; such a season was never known before here. We are now (December 4) having strong nor'-west winds and bright sunny days. I had my first swarm on 26th November, and have taken ten to date. Last year swarming began on 16th October, and by the middle of November all my hives had swarmed, while the extractor was at work early in December on hives full of honey. Still, late as the season is, I am not without hope of a fair yield from the thistle, should we have fine weather through January and February. My bees have done next to nothing on the clover. It never ceased raining while it was in bloom, and it is now past its best. A few strong hives have the upper stories about half full, but swarming throws them back for a time, and I am often inclined to return the swarms, and would do so were it not that my stocks are so reduced in numbers that I must allow a certain amount of increase.

At Roseland, Mr Knight has increased from 130 (the remains of a large apiary of 400) to 200. Mr Bolton, of Ormond, is also getting a large number of swarms, and he tells me his bees have done remarkably well on the clover there. The soil being light and dry, a wet season is not so injurious as here, where the soil is richer. Last year the clover about Ormond was dried up when it was luxuriant in this district. There are besides some 200 acres closed for grass seed round his farm, while the paddocks here are crowded with sheep, and no doubt this makes a difference. Whatever the cause may be, I have less honey in the boxes than he has, so far; but, with dry weather, I have every confidence of running away from him.

I notice in *Gleanings* that A. I. Root, who visited the Convention in Toronto, gives a glowing account of the Canada thistle honey. He says:—"For whiteness, transparency and beauty of flavour, I have never met anything anywhere like it, and I must doubt if the world has ever before seen any such magnificent display of honey as the Convention gave. Friend Jones thinks that a great part of the wonderful yields that they have had in Canada have been from this same Canada thistle." This is encouraging. I can endorse all he says of the flavour of thistle honey from what I saw of it last year, and as the whole country round here is covered with it, I hope it will help to pull up the leeway.

December 17: We have had a week of very fine weather, and seeing that honey was coming in fast, I fixed up the extractor this morning and commenced with No. 1, which had six frames of capped honey. To my intense disgust, not an ounce of honey would the extractor move. Here is a pretty fix. Thinking to escape from the thick honey, which bothered me last year, I moved here, a district rich in clover, but not an ounce of clover honey have I got; and now I have 70 hives rapidly filling up with honey that I cannot get without breaking up my combs. I am quite at a loss to know what to do. The only remedy I can think of is to remove all combs not filled, or only partly full; let the bees finish the rest, and then store them. till

autumn, when they will come in for wintering purposes, in the meantime substituting section boxes till the thistle honey begins to flow. The only difficulty in carrying this out is that it may require more frames and foundation than I have at my disposal. I have about three weeks to tide over before the extractable honey begins.

Do you not have the same experience with manuka and other bush honey in your district?

GEORGE STEVENSON.

December, 1883.

[We have no bush within four miles of our apiary, consequently we get no bush honey. The severe weather experienced during the spring, which retarded the growth of clover, no doubt has driven your bees to the bush in search of honey, but in ordinary seasons, as soon as clover begins to blossom, you will find that the bees will not "go" for anything else while the clover lasts.—ED.]

FROM OUR CONTEMPORARIES.

BEES AS HYBRIDIZERS.

ON Monday, the 9th ult., a special lecture was delivered at the Riding School Knightsbridge, by Mr Frank R. Cheshire, the subject thereof being "Bees as Hybridizers and Fruit-producers; or, the Dependence of Orchard Crops upon Bees." The lecture was given in the south-east corner of the building, on the walls of which hung several diagrams representing sections of different fruits and plants, to which the lecturer frequently referred during the course of his remarks. He commenced by explaining that the tongue of the bee is of extreme length in proportion to the size of the insect. In passing over the bloom the body of the bee becomes dusted by the anthers which contain the pollen. This pollen is conveyed from one bloom to another, in each of which it is taken up by the stigmata, and thus cross fertilisation is established. Very many blooms depend for their production on the visits of bees. The hive-bee is only one amongst the 177 distinct species of bees that gather honey from flowers. It is the most industrious of any. It faces bad weather when the wild bees will not. Anyone who will trouble himself to go out seeking for specimens of wild bees will soon find this to be the case. He will discover that in bad weather the wild bees keep safely in their nests at home. He (the lecturer) remarked that the value of bees in fertilising fruit-trees was strikingly illustrated to him some time ago. He had heard of a lady in Derbyshire, who made large profits from her orchards. She was the possessor of several hives of bees, but evidently did not know how these insects were co-operating with her in the production of the cherries. For some reason or other she decided to give up her bees. The result was most disastrous to the yield of the orchard.

He then pointed to some diagrams showing sections of two kinds of primroses, the throb-eyed primrose and the pin-eyed primrose, and described the means by which one kind is fertilised by the other through the medium of the bee. It was not generally known the reason of apples falling from trees, and in many cases the popular notions on this subject were quite erroneous. The apple is divided into five different sections, which were gathered together into one envelope. The bloom of the apple has five stigmata to each of these divisions. Each of these stigmata

must be independently fertilised, or the result is that the fruit becomes defective in formation, and withers prematurely, and drops from the tree. He then produced several imperfectly shaped apples, in each of which some sections were fully developed, whilst others were not properly grown. Upon cutting open the specimens it was discovered that fertilisation had not been effected in the undeveloped sections.

The same remarks applied to a large extent in the case of the strawberry, which required from two to three hundred distinct fertilisations in order to secure a perfectly juicy and ripe fruit. No doubt many had seen a strawberry in which one portion was quite ripe, while another part of it remained green and undeveloped. Here fertilisation has not been complete. The lecturer then exhibited the hive of a wild bee, which he had discovered, and said it had been built on the Stewarton principle, that is, story above story. A small tunnel had been constructed, at the end of which some eggs were deposited; these were covered over with a piece of leaf, and this process had been repeated until there were three or four layers of eggs. It might appear to his hearers difficult to understand how the young bees when hatched could extricate themselves from the layers of the nest which were closed up one above another, especially as the eggs first laid were at the bottom. This was to be explained by the fact that the eggs last laid were always hatched first. Mr Cheshire concluded his observations with some eloquent remarks on the phenomena of nature, and the instruction and pleasure to be derived from the cultivation of bees.

Mr Stewart moved a vote of thanks to the lecturer, which was carried by acclamation.—*British Bee Journal*.

THE CAUSE OF FERTILE WORKERS.

J. B. MASON writes as follows in the *American Bee Journal*:—What apiarist of any note is there who has not been troubled with fertile workers? and which of them can give an absolutely correct solution of their cause? Many theories have been advanced, from time to time, in regard to them, none of which, I apprehend, satisfied their author any more than those who read them. Why, again, is the term "fertile" applied to these egg-laying pests? A "drone-laying queen" is called unfertile, then, why call a "laying worker" fertile when we know it is impossible for it to become fertilized? I trust the term "fertile" will be dropped entirely, and the correct term, viz: "laying worker," will hereafter be used in its stead. Had the bee-keepers in the past, and more especially those who assume to be teachers, been more careful in their choice of terms and statements of results, the science of apiculture would be far in advance of what it now is! It behoves us, then, to use great care in making statements, and avoid the use of ambiguous or double-meaning terms.

The old explanation of the cause of laying workers, or, at least the way in which they derived the power to become such, was that they were reared in the immediate vicinity of queen-cells, and partook of a portion of the royal jelly, in those cells; this idea or explanation is now fully exploded, and bee-keepers to-day are striving to find a correct solution of the problem. It has been stated that they are only found in a colony that had long been queenless; that only one

exists in the hive at a time; that one is revered as is a queen when present; that colonies containing these "laying workers" cannot be induced to accept a queen; and many other curious, not to say ridiculous statements have been made in regard to them, none of which are susceptible of proof, and many of which show themselves on the face to be errors.

I have given some attention to this matter during the last three or four years, and while I have not discovered the real cause of the presence of laying workers in a colony, I have ascertained that they are present, and actually sometimes deposited eggs in the cells when a fertile prolific queen is in the hive. This I have seen several times. I have also seen several "workers" laying in the same hive, at the same time, with no attention being paid to them by the bees.

If the organs of the laying worker from some cause are partially developed, we should expect to see some change in their form by which they could easily be discovered, but such is not the case; the only way in which they can be found, is by seeing them in the very act of depositing eggs. This I have seen many times, and have found no difference in the appearance of those laying, from any other worker. I have found laying workers in a hive that had not been queenless over twelve days; this laying worker being many days, and doubtless weeks old. This last fact does away entirely with the royal-jelly-eating theory, and is *prima facie* evidence that any worker has the power, under certain circumstances, to lay drone-producing eggs.

Queens have been reared at a time when no drones occupied the hives, but ere long drones have been found, and the queen has been fertilized by them; at least no other solution could be given for their fertilization, except that they were fertilized by these drones, and no solution could be given of the existence of these drones, except that they came from the eggs of a laying worker.

In the matter of introducing a fertile laying queen to colonies that contain "laying workers," I regard it just as safe as in introducing to a colony that has just had its queen removed; aye, and even safer, as a rule. It is true, that exceptional cases may occur, where a colony having laying workers may refuse to accept of a queen, or even a cell; but does not the same occur at times with colonies that have just had their queens removed?

We must go slow with matters connected with bee-culture; a vast field is open before us from which to glean facts and gain information, and he will prove the most apt scholar who throws prejudice and preconceived notions aside and accepts facts as he sees them. It is very pleasant to start a theory, and then endeavour to bend facts to it, but the better way, and the only one by which truth will be discovered and error rooted out, is to form a theory from well-established facts.

If it is true that some of the new races of bees are particularly prolific with "laying workers," a grand chance now offers itself to make some valuable discoveries in regard to them. Let us all take hold of the work and do "our level best" to find out the truth.

It is a remarkable fact, that the indentations like those with which royal cells containing female larvæ are decked, as if for ornament, are never found on royal cells which contain drone larvæ.

THE USE OF HONEY AS FOOD.

DR. W. G. Phelps, in the *Practical Farmer*, gives the following on the use of honey, both as food and medicine:—

In the minds of many persons there exists a prejudice against the ordinary use of honey as a food. We hear it sometimes asserted that honey is an unwholesome sweet inducing colic, dyspepsia and various other disorders of the system. Such assertions are groundless. Honey in its purity is a God-given sweet, and, in its proper use, is conducive to health and strength. Indulged in immoderately, and only then at rare intervals, it may, like many other excellent articles of food, provoke an attack of colic or indigestion. Used, however, frequently, and in connection with other food, it has a tendency to produce pure blood and give tone to the human system. Like all other sweets, it has also a tendency to fatten, and its use is said by medical writers to improve the beauty of the complexion. Sir John More, as early as 1707, was aware of the medicinal and beneficial effects of honey as a food, for he speaks as follows of it:—

“The bee helpeth to cure all of your diseases, and is the best little friend a man has in the world. Honey is of subtle parts, and therefore doth pierce as oil, and easily passeth the parts of the body. It openeth obstructions and cleaneth the heart and lights of those humours that fall from the head; it purgeth the foulness of the body, cureth phlegmatic matter and sharpeneth the stomach; it purgeth also those things that hurt the clearness of the eye, breedeth good blood, stirreth up the natural heat, and prolongeth life. It keepeth all things uncorrupt that are put into it, and is a sovereign medicate—both for outward and inward maladies, etc.”

Experience with the use of honey in my own family, I believe, fully verifies Sir John's excellent opinion of this delicious substance. The question has been asked me by several of your readers: “Is not the comb taken into the stomach injurious?” I think I can safely answer, no! In other articles of food we often take into the stomach similar indigestible substances without injury, and often with benefit. Who, for instance, takes the trouble to seed every grape pulp eaten, or stone every cherry? These indigestible articles pass through the body without in the least injuring it. So with wax, as eaten in moderation, in comb honey. The uses to which honey can be put in cooking and in medicine, indicate it as of prime importance in the economy of life. Used instead of sugar for preserving raspberries and other fruits, I know of nothing its equal, as to many such compounds it imparts a peculiarly delicious flavour. For sore throats, ulcers of the mouth, and many other diseases, honey forms a valuable remedy. To the rare individual for whom the temperate use of honey may produce functional disorders, I would say try heating honey before using it, and see if all such trouble is not remedied. Honey can really no longer be considered one of the mere luxuries of life. For the poor, it has become a cheap and wholesome substitute for the too frequently impure butter. Millions of pounds are to-day consumed by rich and poor alike, when 10 or 15 years since, but a few thousands were used. The severe stab which the manufacturer of the miserable glucose has received is due to a great extent to the production of extracted honey. This being the pure article, and produced even at a profit, for 10 cents per pounds, has virtually gained the mastery in competition with the above falsely

so named “cheap sweet.” Eat pure honey therefore, so that you may grow strong and handsome, fat and jolly, and—best of all—healthy and wise.

HONEY BEES AND HORTICULTURE.

If some of our fruit-growers were to write upon this subject, they would place as the title—Bees *versus* Horticulture. Some of our ablest entomologists are persuaded that bees do not always play the rôle of friends to the pomologist.

What I am to say of bees would apply equally well, in some cases, to many other sweet-loving insects—as the wild bees, the wasps, and many of the dipterous, or two-winged flies; only as early in the season other insects are rare, while the honey bees, though less numerous than they are later in the season, are comparatively abundant, even early in the spring months.

My first proposition is, that plants only secrete nectar that they may attract insects. And why this need of insect visits? It is that they may serve as “marriage priests” in the work of fertilizing the plants. As is well known, many plants, like the willows and the chestnuts, are dioecious. The male element, the pollen, and the female element, the ovules, are on different plants, and so the plants are absolutely dependent upon insects for fertilization. The pollen attracts the insects to the staminate flowers, while the nectar entitles them to visit the pistillate bloom. Some varieties of the strawberries are so nearly dioecious that this luscious fruit, of which good old Isaac Walton wrote: “Doubtless God might have made a better fruit than the strawberry, but doubtless God never did,” would in case of some varieties be barren except for the kindly ministrations of insects. Other plants are monoecious—that is, stamens and pistils are on the same flower, but the structural peculiarities are such that unless insects were wooed by the coveted nectar, fertilization would be impossible. Many of the plants with irregular flowers, like the Orchids, as Darwin has so admirably shown, are thus entirely dependant upon insects to effect fructification. In many of these plants the structural modifications, which insure fertilization consequent upon the visits of insects, are wonderfully interesting. These have been dwelt upon at length by Darwin, Grey, Beal and others, and I will forbear to discuss them further.

But many of our flowers, which are so arranged that the pollen falls easily upon the stigma, like the clovers, squashes, and fruit blossoms, fail of full fruitage unless, forsooth, some insect bear the pollen of one flower to the pistil of another. As has been repeatedly demonstrated, if our fruit bloom or that of any of our cucurbitaceous plants be screened from insects the yield of seed and fruit will be but very partial. Prof. Beal and our students have tried some very interesting experiments of this kind with the red clover. And all the plants under observation were covered with gauze that the conditions might be uniform. Bumble bees were placed under the screens of half of these plants. The insects commenced at once to visit and sip nectar from the clover blossoms. In the fall the seeds of all the plants where counted, and those from the plants visited by the bumble bees where to those gathered from the plants which were shielded from all insect visits, as 236:5. Thus we see why the first crop of red clover is barren of seed, while the second crop, which comes of bloom visited freely by bumble bees, whose long tongues can reach down to the

nectar at the bottom of the long flower tubes, is prolific of seed. This fact led to the importation of bumble bees from England to New Zealand and Australia two years since. There were no bumble bees in Australia and adjacent islands, and the red clover was found impotent to produce seed. When we have introduced *apis-dorsata* into our American apiaries, or when we have developed *Apis-Americana*, with a tongue like that of *Bumbus*, seven-sixteenths of an inch long, then we shall be able to raise seed from the first crop of red clover, as the honey bees, unlike the bumble bees, will be numerous enough early in the season to perform the necessary fertilization. Alsike clover, a hybrid between the white and the red, has shorter flower tubes, which makes it a favourite with our honey bees, and so it gives a full crop of seeds from the early blossoms.

In all these cases we have proof that Nature objects to close interbreeding; and thus, through her laws, the nectar-secreting organs have been evolved, that insects might do the work of cross-fertilization. As in the case of animals, the bi-sexual or dioecious plants have been evolved from the hermaphroditic as a higher type; each sex being independent, more vital force can be expended on the sexual elements, and so the individual is the gainer.

It is sometimes contended by farmers that the visits of bees are detrimental to their crops. I have heard farmers say that they had known bees to destroy entirely their crop of buckwheat by injuring the blossoms. There is no basis of fact for this statement or opinion. Usually bees visit buckwheat bloom freely. If for any reason the seed fail, as from climate, condition, and influence, it occasionally will, the bees are charged with the damage, though their whole work, as shown above, has been beneficial, and that only.

It is true, as I have personally observed, that species of our carpenter bees (*Xylocopa*) do pierce the flower tubes of the wild bergamot, and some of our cultivated flowers, with similar long corolla tubes, that they may gain access to the otherwise inaccessible nectar; the tubes once pierced and our honey bees avail themselves of the opportunity to secure some of the nectar. I have watched long and carefully, but never saw the honey bee making the incisions. As I have never heard of any one else who has seen them, I feel free to say that it is entirely unlikely that they are ever thus engaged.

My last proposition is, that though bees, in the dearth of nectar secretion, will sip the juices from crushed grapes and other similar fruits, they rarely ever, I think never, do so unless Nature, some other insect, or some higher animal, has first broken the skin. I have given to bees crushed grapes from which they would eagerly sip the juices, while other sound grapes on the same stem—even those like the Delaware, with tenderest skin, which were made to replace the bruised ones—were left entirely undisturbed. I have even shut bees up in an empty hive with grapes, which latter were safe, even though surrounded by so many hungry mouths. I have tried even a more crucial test, and have stopped the entrance of the hive with grapes, and yet the grapes were uninjured.

In most cases where bees disturb grapes, some bird or wasp has opened the door to such mischief by previously piercing the skin. Occasionally there is a year when an entire vineyard seems to be sucked dry by bees in a few hours. In such cases the fruit is always very ripe, the wea-

ther very hot, and the atmosphere very damp; when it is altogether probable that the juice oozes from fine natural pores, and so lures the bees on to this Bacchanalian feast. I have never had an opportunity to prove this to be true, but from numerous reports I think it the solution of those dreaded onslaughts which have so often brought down severe denunciations upon the bees, and as bitter curses upon their owners.—Professor A. J. Cook, in *American Apiculturist*.

BEE FARMING.

WE are glad to know that there are gentlemen in different parts of the Australasian Colonies who not only take a deep interest in advanced bee-culture themselves, but who are ever ready to impart the knowledge they possess of this subject to those willing to learn.

The following address on "Bee Farming," as carried out in America, was delivered a short time since by Mr Austral Verge—a subscriber of ours—in New South Wales, under the auspices of the Macleay Agricultural and Horticultural Association, which, no doubt, proved highly interesting to his audience. The address sent us is clipped from the *Macleay Chronicle*:—

"Mr Verge stated that his object in delivering the address was to bring under the notice of the farmers a long neglected though paying industry. And in the course of his address he quoted startling statistics in reference to the profit derived from bee farming. In several instances the profit for one year was £5000 per annum. The hive shown by Mr Verge was invented about 20 years ago, and is called after the inventor, "The Langstroth Hive." Up to the present time it has proved superior to anything invented of late years. The hives are constructed of deal, and made in sections, and so arranged that when the lower hive is filled a second one can be added to the top. Economy seems to be the great factor in the hives shewn. Every hive is fitted with frames about eighteen inches long by seven or eight wide, and to these the bees build their comb. One of these combs when filled holds about eight pounds weight of honey. After the honey has been taken from the comb it is replaced in the hive and can be used over and over again, as it will last for years. When the time taken up in construction of comb is taken into consideration it will be seen what a saving is effected by using hives of the design shown. After explaining the hives, Mr Verge proceeded to show the working of the centrifugal machine used for extracting the honey from the comb; when the comb is filled with honey it is taken from the hive and the capping is cut off, the comb is then placed in the centrifugal machine, and two or three turns are sufficient to extract the honey. The comb is then replaced in the hive, and in the course of seven or eight days will be again full of honey. The machine for extracting the honey is made of tin, and is made to take the honey from three frames at once, in the bottom is a strainer and tap for the purpose of straining the honey after it has been taken from the comb. To save time in the construction of the comb a foundation made of wax, and the exact imitation of natural comb, can be purchased. The foundation is fitted to the hives by securing it with a little melted wax or gum. The process adopted for taking the honey from the bees does away with the liability which exists under the old box-hive system of being stung. In this the apiarist or bee-farmer is provided with an instrument made

of tin, funnel-shaped, with a small bellows attached. When honey is to be taken a piece of rag is lighted and placed in the bellows, this is then inserted in the entrance to the hive and a volume of smoke blown in, the bees immediately commence to fill themselves with honey and gorge to such an extent as to render themselves harmless. Mr Verge, when illustrating the process of taking honey after blowing smoke into the hives, took some frames containing comb out and brushed the bees off into the hive with his fingers. After explaining the various appliances used, Mr Verge gave a short sketch of the natural history of bees, and mentioned that the queen bee is the only breeding bee in the hive. She is produced from an egg in the worker combs, the cell in which the egg is deposited being enlarged. The queen bee is very shy, and although possessing a very formidable sting, will not attempt to use it on human flesh. One of the most interesting appliances is that used for transporting the queen bee from various parts of the world. It consists of a box about five inches long by three wide and one inch thick, and this is covered on one side with wire netting. Into it is placed sufficient food to last from 60 to 80 days.

After the conclusion of the address Mr A. Humphrey moved a vote of thanks to Mr Verge for his very interesting address, which was seconded by Mr F. J. Buchanan, and carried by acclamation.

"MUSIC HATH CHARMS," &C.—An Alabama paper chronicles the latest story regarding bees. It happened in the country, not far from a pretty village of that State on a bright, sunshiny day, while all the feathered warblers were merrily chirping in the fragrant tree tops in the front garden, and in the parlour the sweet young lady of the house was at the piano, playing a selection from "Satanella," the "Power of Love" most likely. The soul inspiring music was wafted out of the windows and not only to the ears of her lover who was coming up the lane, but also to the ears of the bees, a swarm of which were coming across the sweet scented pasture. Such an attraction had the music on the bees that they entered the window and settled on the piano. Verily music hath charms to sooth the heart of the "savage" bee. We wonder if that young lady left the piano in double quick time when she saw those bees putting in an appearance. We know some young ladies who would if they did, and they would too if they saw a harmless, little mouse.

METEOROLOGICAL OBSERVATIONS FOR THE MONTH ENDING 31st DECEMBER, 1883.

(SUPPLIED BY T. F. CHEESEMAN, ESQ., AUCKLAND.)

The upper set of figures under the different headings, as will be seen, are the means for the month, the lower set the average of the same month for the previous sixteen years :—

AUCKLAND.

Month.	Barom. (corrected in inches.)	Max. Temp. in Shade.	Min. Temp. in Shade.	Mean Temperature.	Solar Radiation.	Minimum Temp. Exposed.	Rainfall in Inches
DEC.	29.92	67.3	56.4	61.8	181.7	50.2	4.33
	29.97			65.1			2.91

Remarks.—From 1st to 11th, showery and unpleasant, with variable winds, mostly from N.W. to S.W.; 12th, fine, with westerly breeze; 13th, 14th, and 16th, overcast and rather drizzly; 16th, N.E. breeze, shifting to S.W. on the morning of the 17th, with heavy rain; 18th and 19th, fine; 20th, heavy showers from S.W.; 21st to 27th, fine, with variable winds; 28th, heavy rain from N.W.; 29th to end of month, fine, but rather cloudy, strong S.W. winds. Weather singularly cold and variable for the month. Barometric pressure slightly below the average of the previous sixteen years; mean temperature considerably below; rainfall largely in excess. Total rainfall for 1883, 62.755 inches, against 45.680 inches for 1882, and being the heaviest rainfall recorded since 1869. The average for the last sixteen years is 44.04 inches.

HONEY MARKETS.

AUCKLAND, February 1st, 1884.

The demand for good honey remains about the same as last month, very little as yet having come into the market. The prices are as follows :— Wholesale, 11b tins, 8s to 8s 3d per doz.; retail, 11b tins, 11s to 12s per dozen. Bulk honey, wholesale, 4d per lb; retail, 5d per lb. Extra fine, 6d per lb; in 11b sections, from 7d to 9d per lb.

AUCKLAND AGRICULTURAL AND MERCANTILE Co., Limited.

ENGLAND.

Prices appear to maintain their former quotations, i.e., 1s per pound for comb honey, and extracted in bulk (imported), 7½d.

From the *British Bee Journal*, for December 1st, 1883, we learn that the value of honey imported into the United Kingdom during the month of October, 1883, amounted to £725.

AMERICA.

NEW YORK, November 22, 1883.

HONEY.—Taking this unusually warm weather into consideration, which undoubtedly conflicts with the sale of honey to a large extent, we have had a good demand for all grades and styles of comb honey. We received some very large shipments during the last two weeks, consequently have a handsome stock, the finest we have ever had on the honey floor, as one of our most practical bee keepers said, who visited us a few days ago. Extracted clover and basswood is also in good demand, and we dispose of large quantities at fair prices. We quote :—

Fancy white clover, 11b sections, paper boxes	21@22c
" "	glassed ... @19c
" "	2 and 1½lb " ... 17@19c
Fair "	1 and 2lb no glass ... 17@18c
" "	2 and 1½lb glassed ... 15@16c
Ext'd basswood or clover, in kegs and bbls ...	9½@10c
" dark and mixed, "	8@9c
Fancy buckwheat, 1 and 2lb sec's, no glass...	16@17c

H. K. & F. B. THURBER & Co.

—Gleanings, Dec. 1, 1883.

SAN FRANCISCO, December 10.

HONEY.—There has been some attempts at negotiation in comb honey on Eastern account this week. The market for extracted is dull, it is doubtful if more than 7½c could be realized for choice water-white in a wholesale way. White to extra white comb, 16 to 18c; dark to good, 12 to 14c; extracted, choice to extra white, 7½ to 8c; dark and candied, 6½ to 7c.

BEE SWAX.—Saleable at 28c for prime.

STEARNS & SMITH, 423, Front-street.

—American Bee Journal.

SPECIAL NOTICES.

QUERY AND REPLY DEPARTMENT.—Correspondence for this department should reach the editor not later than the 15th of each month, when replies are required in the next issue.

ADVERTISING DEPARTMENT.—Advertisements for the next issue should reach the publisher by the 24th of each month.

Correspondence for publication may be sent at book post rates i.e., one penny for every two ounces, providing the book post regulations are complied with, and the words "Press Manuscript" are written on outside of cover.

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