42 Years of Beekeeping in New Zealand

FORTY-TWO YEARS BEE-KEEPING IN NEW ZEALAND

I. HOPKINS

To my Bee-keeping Friends in New Zealand.

At the suggestion of several old beekeeping friends I promised some time ago to write a brief history of the progress of Modern Commercial Beekeeping in New Zealand, from its introduction into the country down to the present time. This, with the consent of the Editor of the "N.Z. Farmer," was published in a series of articles last year in the bee columns of that journal. Having records by me, and my memory serving me well, enabled me to jot down fairly complete particulars of such events as now seem to me to have had the greatest influence in shaping the course of our beekeeping industry.

Seeing that I have taken a leading part in all movements herein recorded, the frequent use of the personal "I" was unavoidable. To have given the names of all connected with the pioneering of the industry would have made too formidable a list, so I have only mentioned those that could not well be avoided.

While the "Reminiscences" were being published I had ample proof of the interest taken in them, and I think any of the younger generation of our beekeepers who have read them will better appreciate the favourable conditions under which they now work, as compared with the difficulties the pioneers of the industry had to contend against.

Regarding the present condition and the future prospects of Commercial Beekeeping in New Zealand. Having subscribed to most bee journals published in the English language during the past 38 years, I have kept abreast of all movements in the beekeeping world during that time, and am therefore able to form a fairly correct estimate of the status of our beekeeping as compared with that in other countries, and I have no hesitation in saying that we lead the world in beekeeping. I am aware it is a big claim to make, but when we consider that no other country has such an effective Apiaries Act for controlling disease, or such compulsory Regulations for Government Grading of all honey leaving the country, annual registration of Apiaries, and supervision over all imported bees, besides permanent Inspectors of Apiaries, who are constantly travelling from apiary to apiary, I don't believe it will be thought an idle boast; and with regard to Apiary Appliances, we are in the forefront with these.

As to the future there cannot be a doubt. The strides that the industry is now making, with an assured oversea market for our surplus honey, warrant our younger beekeepers launching out in all good faith in the future development of a prosperous industry.

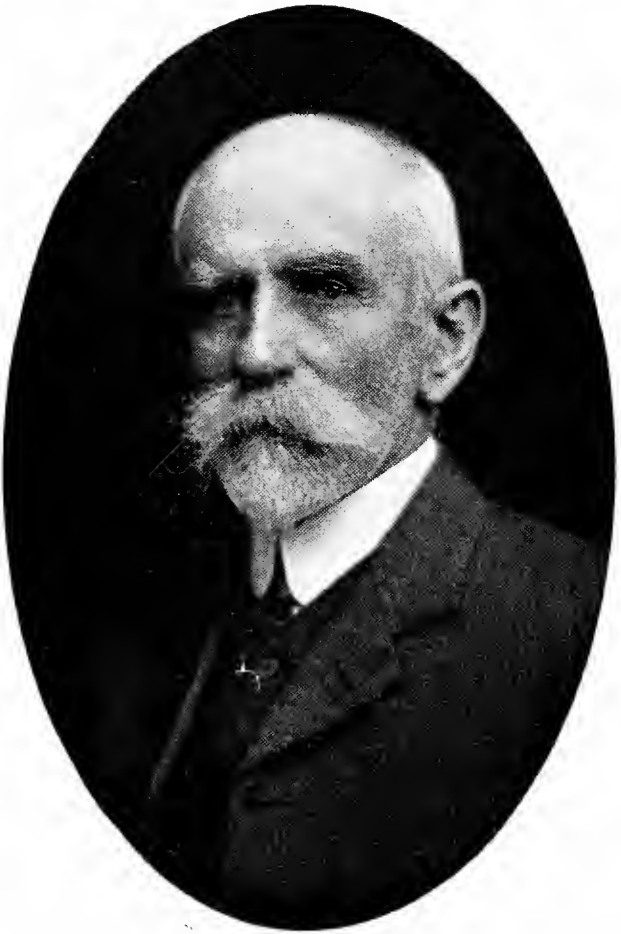
The official figures given by the Hon. Mr. Rhodes at the opening of the Beekeepers' Conference in June, 1915, were encouraging: Number of beekeepers in New Zealand the previous season, 11,200; number of hives of bees, 74,340; value of output of honey, £50,000; and the industry only in its infancy under the new conditions. It is expected that these figures will be doubled in a very short time.

In order that the oldest of my beekeeping friends may have a copy of these jottings in handy form, I have had a limited number reprinted for private circulation only.

With fraternal regards,

I. HOPKINS.

Auckland, N.Z., March, 1916.



I. HOPKINS.

Forty—two Years of Bee—keeping in New Zealand 1874—1916.

SOME REMINISCENCES.

By I. HOPKINS.

THE IMPORTATION OF THE HIVE BEE INTO NEW ZEALAND.

Previous to the year 1838 no variety of the hive bee (Apis mellifica) existed in New Zealand; consequently the earliest settlers could not avail themselves of any portion of the abundance of neetar so freely secreted in the native flora. There are two varieties of the bee family indigenous to the country, neither of which are of any use as honey bees. The smaller of the two (Dasycolletes purpurens) is eommon in the Auckland provinee. On March 13, 1839, the first hive-bees were landed at Mangunga, Hokianga. They were brought from England in the sailing ship James by Miss Bumby, sister of the Rev. J. H. Bumby, one of a party of missionaries. There were two colonies, in straw skeps. It may be of interest here to note that for over fifty years the late Rev. W. Cotton, chaplain to Bishop Selwyn, was credited with introducing, in 1842, the first bees into this country, and in the earlier editions of my "Bee Manual" I recorded this error. I subsequently received proof of Miss Bumby's importation, and also that of Lady Hobson from New South Wales in 1840, which I duly noted in later editions.

Some few years ago I had access to some apiary notes made by a near relation of Miss Bumby, in 1843-5, which, in the light of modern beekeeping, seem rather quaint. The following is a specimen of the notes:—

No. 1.—KING HENRY VIII.

From Miss Bumby's original stock. The queen swarmed December 27, 1843. New swarm October 3, 1844.

Date.	Weight of Honey Taken. lb.	oz.	Swarm.
1844.			2
March 18	3	4	Edward.
			3
July 13	28	0	Marianne.
			Sept. 24, 1844.
October 2	4	8	4
			Samuel.
December 23....	10	8	October 10, 1844.
			5
1845.			Henry.
			October 13, 1844.
March	Died		Died off.

It would seem by the above that honey was taken both in summer and winter, and that the greatest take was in winter, the total returns from King Henry VIII. for 12 months being 46¼lbs. of honey, and four swarms.

It may here be mentioned that the Rev. W. C. Cotton was the author of a very interesting bee manual, "My Bee

Book," of some 368 pages. He also published about the year 1844,

"A FEW SIMPLE RULES FOR NEW ZEALAND BEEKEEPERS.

"(1) Be anxious to increase your stock at first rather than to take a large quantity of honey.

"(2) Get well acquainted with your bees, and make them acquainted with you. Handle them gently, and do not blow on them. Leave them alone when they are cross.

"(3) Always in swarming time have a spare hive at hand.

"(4) If you have boxes to pile one on top of the other, never disturb the lower box, except when, after two or three years, the combs have grown old and want renewing; then, late in the autumn, when the breeding season is over, take the combs away from the lower box instead of the second.

"TO TAKE HONEY.

"(5) Take off the cover, blow some smoke into the upper box between the bars to drive the bees into the lower box. Have a table ready, with a cloth upon it; lift the box on to this, and carefully cut out the outside combs, stopping directly you come to those which have brood in them. Return the box with the brood-combs undisturbed. This may be repeated as often as you see through the window (of the hive) that the honeycombs are sealed over.

"(6) After the breeding season is over all the boxes except the lower one may be entirely emptied in situations where, as at Paihia, the bees work through the winter.

"(7) Keep a stock book regularly, and write down immediately anything curious which is observed.

"(Signed) WILLIAM CHAS. COTTON."

The above rules were no doubt the best that could be adopted by New Zealand beekeepers at that time, and the system advocated was at least a great advance on that of the sulphur pit method, though quite out of date now. Rule 7, however, concerning an apiary register or note book, will always hold good.

THE FIRST NEW ZEALAND BEE MANUAL.

Somewhere in the early part of the second half of the last century a useful little manual, with the title "How to Manage the Honey Bees in New Zealand," compiled by an Old Beekeeper, and revised by H. J. Hawkins, Belvedere Nursery, and David Hay, Montpellier Nursery, was published by Geo. T. Chapman, Auckland.

The practical part of this little work covers some 45 pages, and was fully up to date at the time it was published. The bar hive—not the bar-frame hive—was the most advanced form of hive then in use, from which the honeycombs had to be separated from the sides with a long knife when taking honey; bar-frames as we know them now had not then been invented. Notwithstanding, however, all that the Rev. W. Cotton and a few others had done to awaken an interest in the most humane system of beekeeping in New Zealand, the old, cruel and wasteful sulphur pit method was generally practised down to the year 1880, when things took a turn for the better, although the sulphur pit was still largely in evidence until some eight or nine years ago. @ 38814

PRIMITIVE BEEKEEPING.

As I have already intimated, beekeeping in New Zealand for very many years after the introduction of the hive-bee, speaking generally, followed the primitive methods in vogue among the cottager class in Britain and other parts of Europe at that time. Common boxes with crossed sticks running through them to support the combs were the common form of hives, though a few settlers who had been familiar with and made straw skeps in the "Old Country," adopted that style of hive here. During the first years of my travelling among our beekeepers as Government Apiarist, I came across several lots of well-constructed skeps. They were made of twisted straw laced with split supplejack cane, and were very neat and cosy-looking. It grieved the owners very much when they were compelled to do away with them and adopt the more serviceable frame hive.

A prominent feature of this primitive hive system was the sulphuring of the bees at the end of the season to obtain the honey they had stored. A small pit was dug a foot or so in depth; half-way down two cross-sticks were placed, on which some sulphured rags were hung, a match was applied to the rags, and the

box containing the bees placed over the hole, covered by a sack. In a short time the sulphur fumes killed the bees, and what honey was in the box could be removed with safety to the owner. There were a few individual exceptions to this style of bee-keeping, settlers who had profited by the teaching of the Rev. W. Cotton, and secured the honey without destroying the bees, but the majority used the sulphur pit.

THE HONEY MARKET IN THOSE DAYS.

For some years after I came to New Zealand, 51 years ago, the only honey I saw for sale was what the Maoris hawked about in old kerosene or some other old tins. A conglomeration of honey, wax, and bee grubs (the latter was considered a delicacy by the older Maoris), all mixed together, usually obtained from bee nests in the bush, which were plentiful in those days. Occasionally strained honey, free from wax, etc., would be offered, but as it was generally believed (and with good reason) that the straining cloths used by the Maoris were parts of discarded blankets that had served as body wrappers in the heyday of their usefulness, the vendors found very few customers among the older colonists. The first honey I remember seeing on the market properly put up in tins, was in 1868. I cannot now say whether it was imported or of New Zealand production; at all events, it was horrible stuff, wherever it came from. I was no connoisseur of honey at the time, but the nauseous taste made me remark: "If that is honey, I never want any more of the so-called 'Nectar of the Gods,'" —the rest was thrown away. I, however, later on discovered the true flavour of honey after I became a beekeeper and produced it myself, and have been a consumer ever since.

Some time in the '70's I heard of an extensive box-hive apiary established near Gisborne, and was informed that the method of taking honey was to cut out the honeycombs from the boxes and dump them into a large tank (in which, I presume, a strainer had been fixed) to drain. When the drainings had well-nigh ceased, a man with bared feet tramped about on the combs to press out as much as possible of the remaining honey. It was then put up for market in small tins, and, so far as I am aware, this was the only apiary that we may term a commercial bee-farm then in New Zealand. Possibly some honey was imported in those days, but if so, it must have been in small quantities, as I never saw any served up at meal times; in fact, the majority of families only used a little occasionally as a medium for children's medicine, such as "borax and honey," etc.

BEEKEEPING IN OTHER COUNTRIES

The leading beekeepers in most European countries had endeavoured from time to time to improve upon the old and wasteful methods of beekeeping, and had to some extent succeeded, but it is to Ameriea we owe acknowledgment for the greatest benefits received in this direction. Many of our best apiary appliances were invented by enterprising American beekeepers, and others have been vastly improved in that country. Our popular form of movable-frame hive eame from there, and our comb-foundation was brought to its present state of perfection in that country; in fact, there is scareely one article comprised in an up-to-date apiary outfit but what owes its best features to American ingenuity. It is not necessary to go into particulars of dates, etc., of the different inventions; it will be sufficient to say that the crowning point came with the invention of machinery by A. I. Root and another in 1876-7, that turned out full sheets of comb-foundation with high side-walls, in almost the same condition that we have it now. I have always considered that what is usually termed "Modern beekeeping" eommenced at that date, for without such comb-foundation the full benefit of the movable frame-hive could not have been gained.

THE FIRST STAGE OF PROGRESS IN NEW ZEALAND.

When I first took a practical interest in beekeeping, early in 1874, no one in New Zealand, so far as I could learn, knew anything about the progress of the industry in other countries. I had gathered from scraps I had read that much had been done to get out of the old ruts, but could get no information that would guide me beyond a gin-case hive —the first kind I adopted, at the Thames, where I then lived. I was most anxious to learn the best methods, as I very

early conceived the possibility of bee-farming being made a profitable business in New Zealand; the country seemed so well adapted for it. My enthusiastic talk about taking up beekeeping as a business, and raising tons of honey, gave my intimate friends the impression that I was really going off my head and becoming a fit subject for an asylum. Later on, when I had started with all the latest appliances, they admitted that I must have had method in my madness. In looking back I can quite understand that under the then condition of beekeeping knowledge they had good reason for their supposition.

I had what I may term very good success with my gin-case hives, and by boring several good-sized holes in the roof of them, I was able to get boxes full of clean honey and comb, which I had placed above. From information gained from a publication, "The Cottage Gardener," I constructed bar-hives, that is, boxes with movable bars (not bar-frames) running across the tops, and movable covers—the "Stewarton," "Carr-Stewarton," and others. They were a slight improvement on gin-cases, as there was better communication between the lower and upper boxes, but were not the thing.

THE FIRST MOVABLE-FRAME HIVE IN NEW ZEALAND.

The very first movable-frame hive seen in this country was one sent by a friend in California in 1876, to the late Mr. G. S. Graham, of Auckland, who was interested in beekeeping. Captain Wildman, of the Thames, was an intimate friend of Mr. Graham, and he presented me with two duplicates of this hive he had made for me immediately after the original landed. It was known in California as the "Harbison" hive, after the name of one of the original and most extensive beekeepers of that State, who was using such hives. It was, however, as I afterwards discovered, a German hive, made and used by the Baron of Berlepsch, and known as the "Berlepsch hive." It consisted of a long box standing on end, with a door at the back, exactly like a small cupboard; the movable-frames were in a compartment at the bottom; it was a difficult job to remove them. I gave them a trial later on, but soon discarded them.

FURTHER PROGRESS.

In 1878 I learned through a correspondent to an English journal, who was then residing in Algeria, something of the doings of A. I. Root in America. I at once communicated with the latter, and received in return a copy of "Gleanings" and his price list. In the meantime, I had sent to London for the best bee book obtainable, and to my intense delight received a copy of "Langstroth on the Honey Bee." An order for a comb-foundation machine, honey extractor, smoker, and several other appliances was sent at once to Root. In the interval before their arrival I set about making a number of Langstroth hives, so that when Root's goods arrived I was all ready to set up a fully-equipped modern apiary, the first of its kind in Australasia.

It took some little time even after receipt of the new appliances from America to get thoroughly underway, so that it was at the commencement of the season of 1879 before the whole of my apiary of fifty colonies was fully established on modern lines. My first 100 Langstroth hives were cut and made by hand (mostly at night time), but subsequently I arranged with Messrs. Bagnall Bros., of Turua, sawmillers, to cut them by machinery, which they have continued to do ever since.

The first thing needed after the arrival of the machine for making it was comb-foundation. By the way, this machine cost me £14 landed in Auckland, and was, I believe, the second one to leave the United States, the first going to the late Mr. Raitt, of North Scotland.

I well remember my first attempt—with the kindly aid of Mr. W. Dey, now of Hamilton, Waikato—to make comb-foundation. Although we worked closely to the printed instructions received, and with proper utensils, everything went wrong, so much so that at the end of a strenuous day we had succeeded in covering ourselves and surroundings with wax, and had turned out the large quantity of three pounds of comb-foundation that was usable. Subsequently, with enlarged boilers, I have turned out 200lb in the same time. After a while everything worked along smoothly and successfully, and "The Apiary" at Parawai, Thames, became a

notable visiting place. The then county chairman, Mr. Walter Brodie, used to bring along every noted visitor to the Thames—at that time a flourishing district. The late Sir George Grey visited the apiary more than once, and was greatly interested in the new method of beekeeping. He promised me a number of exotic plants, great nectar yielders, he had introduced, and were growing on his island of Kawau.

The late Mr. C. T. Wren, nurseryman, of Remuera, Auckland, had sent to A. I. Root for bee goods towards the latter part of 1879, not at the time being aware of what I had already done. When a friend informed him he paid me a special visit, and while congratulating me on being first in the field, expressed his disappointment at not being first himself, as he fully expected to be. Mr. Wren was afterwards my Auckland agent.

THE FIRST HONEY RAISED UNDER THE NEW SYSTEM.

Unfortunately for my prospects of raising much extracted honey, my apiary was too near the bush which covered the hills adjacent, and from which the bulk of my honey was gathered. Nearly all honey from mixed bush is too dense to extract from the combs in the ordinary way; it was so in my case, and I could only secure a comparatively small quantity with the extractor. I therefore turned my attention to the raising of comb-honey in one-pound section boxes, which sold well at 10/ per dozen wholesale; in fact, the demand exceeded the supply for a long time. Speaking of section boxes reminds me that at the time mentioned they were in four pieces, which had to be nailed together, a most difficult job, and when many thousands were on order, made up, some idea of our difficulties of pioneering will be realised.

THE FIRST CONTRIBUTIONS ON MODERN BEE CULTURE TO THE PRESS.

In 1879 I was in possession of all the most notable bee books of the time, including Root's "A.B.C. of Bee Culture," in parts, as it had then been published in "Gleanings in Bee Culture," "Langstroth on the Honey Bee," "The Times' Bee Master," "Bevan on the Honey Bee," the Rev. J. G. Wood's little work, and one or two others; but only "Langstroth" and the "A.B.C." were of any service as regards the new methods of bee management. These, together with copies of "Gleanings," the "American Bee Journal," and "British Bee Journal," which were reaching me regularly, I studied very closely, so that by the close of 1879 I was well versed in everything that had been done in advanced bee culture.

Early in 1880 the then editors of the "Thames Advertiser" and "Auckland Weekly News" asked me to write a series of articles on the new system of bee culture for their papers, which I did weekly for six months, explaining the complete system. Evidently the papers had a large circle of readers, or the articles were copied into other papers, as in a very short time letters began to pour in from all quarters of New Zealand and Australia asking if I could supply the hives and appliances mentioned, or tell the writers where they could be obtained. This suggested to me the idea of running a supply business with my apiary in the meantime until the opportunity came to go into bee-farming on a large scale.

A SUPPLY BUSINESS.

Having arranged with Bagnall Bros. for a large supply of hives and frames, as well as section boxes, I soon had a big trade, with half a dozen men at work. We sent hives and all other appliances to Australia and all parts of New Zealand. I was then running an apiary averaging 60 colonies—the maximum often reaching 80—which necessitated me working from 4 a.m. till 10 p.m., and often all night. My working capital, owing to a previous heavy loss, was very small, hence my having to work long hours to recover myself.

My supply business brought me into intimate relations with some very fine gentlemen residing in all parts of Australasia, who were more or less interested in beekeeping. The friendly relationship of several who have not since passed over to the great majority, continues to this day. Quite recently Mr. Chas. Fullwood, formerly of Brisbane,

but now of Melbourne, one of my very earliest customers, called upon me while on a visit to this country. This friendship I prize very highly.

INTRODUCTION OF ITALIAN BEES INTO NEW ZEALAND.

Writing Root in 1879 re his sending me one or two colonies of pure Italian bees, his reply, which I have before me, dated June 3rd, 1879, advised me, as being the most convenient and safest for the bees, to apply to Mr. R. Wilkin, San Buenaventura, California, who could supply me. This necessitated some delay while correspondence passed between us, otherwise I would have had Italian bees early in 1880, or most likely at the latter part of 1879. As it was, however, I did not receive my two colonies till after two colonies had been landed from California to the order of Mr. J. H. Harrison, of Coromandel, and the Canterbury Acclimatisation Society, one for each.

My two colonies, in the first place, cost me 10 dollars (£2 1/8) each at San Buenaventura, to which must be added 5 dollars 75 cents, freight and sundry expenses from San Buenaventura to San Francisco, and 10 dollars' freight from San Francisco to Auckland each colony, making in all £9 10/6, all of which had to be paid in advance, but fortunately the bees arrived safely and in good condition. I, of course, started at once to breed queens, and Italianise my apiary, and by the close of the season 1881-2 I had 45 pure Italian colonies, and a number of hybrids or crosses. At that time it was difficult to get purely-mated queens, as there were so many black bees about, and it was only by breeding plenty of queens and constantly weeding out the mis-mated ones, that one could get his apiary Italianised.

FIRST EDITION OF "THE NEW ZEALAND BEE MANUAL."

After the close of my Press articles, I was requested to bring them out in book form, and in September, 1881, the first edition of my "Bee Manual" was published. It took well, and just 13 months after, a second edition was brought out. The book had a large circulation in Australia, and being as suitable for that country as this, when the third edition was called for I altered its name to that of "The Australasian Bee Manual," under which title it is registered.

STARTING THE FIRST COMMERCIAL BEE FARMS AT MATAMATA.

My business grew very rapidly, the demand for the new beekeeping appliances kept my staff very busy. There was also a large demand for colonies of bees, and that for Italian queens was growing, but notwithstanding I had the prospect of a large business in front of me, my interest was centred in bee-farming on a large scale, not in the supply trade. I had frequently declared that honey could be raised in tons under the new method, and was laughed at for talking nonsense; this made me determined to prove it at the earliest opportunity, and that opportunity came earlier than I had anticipated.

In the first months of 1882, the late Major T. L. Murray, who was then manager of the Thames branch of the Bank of New Zealand, and who took special interest in the new beekeeping, told me about the magnificent crops of white clover blossoms he had recently seen at Matamata, extending for many miles in all directions. The whole country, he said, when viewed from the neighbouring hills looked as if covered with a thin layer of snow, and suggested my getting permission to establish a bee farm on the estate. The late Mr. Will, the then editor of the "Auckland Weekly News," who had also visited Matamata, told me about the clover, and he, unknown to me, suggested to the late Mr. J. C. Firth, the owner of the estate—which comprised in all 87,000 acres—that he should engage me to establish one or more bee farms on his property amidst the white clover.

The description given me of the large area of white clover set me longing to be there with my bees, as I pictured to myself the number of out-apiaries that could be established; in fact, I concluded that there would scarcely be any limit to the number of colonies that might be kept. While this was uppermost in my mind, I received a letter from Mr. Firth, much to my surprise and delight, stating he would come to the Thames to see me about establishing a bee farm at Matamata. When we met, I found him very eager to start bee farming on his estate. It then became a question to him of getting bees and someone to manage them, and as I was the only person who had a goodly number of colonies available in frame hives, and being the only one who understood the new system thoroughly,

he made me a very good offer to go myself and take my bees, and as many more as I could get.

I wanted, of course, some little time to think over it, and to visit Matamata before I could decide one way or the other, as it would mean giving up my business—though I was anxious to go, and hoped everything would be favourable. Eventually everything was arranged for my going, my business was passed over to Messrs. Bagnall Bros. and Co., and I left the Thames with all my bees—45 pure Italian colonies, and about 10 crossbreds—and appliances in Mr. Firth's steamer for Matamata, in August, 1882.

THE MATAMATA APIARY.

The homestead of the estate was situated about seven miles from the landing, on the Waihou River, where my bees were transhipped from the steamer to wagons. The spot chosen for the home apiary was about 400 yards from the homestead, in a naturally sheltered spot. A house and large workshop, with honey house attached, had been erected close to, so that in a few days the apiary was fully established. The apiary being comparatively small, I was anxious to purchase some colonies, and eventually arranged with Mr. Parsons of Te Awamutu, and Major Jackson of Kihikihi, to sell me all the colonies they could spare. Mr. Parsons' bees were in small frame hives of his own construction (not Langstroth hives), and Major Jackson's thirteen colonies were in Berlepsch hives; in all I secured fifty colonies. These were packed on a four-horse wagon. We reached Cambridge the first night, and Matamata the following afternoon, without the least mishap, although parts of the road were so bad that the wheels sank in ruts up to the axles, and we had to use a spade to clear them.

In due course the bees were all transferred to Langstroth hives, so that at the commencement of the season I had about 100 colonies of a mixed assortment of Italians, hybrids, and black bees. All the pure Italians were kept at the home apiary, and with the others I established

THE FIRST OUT-APIARY.

As my first object was to increase the bees and to Italianise all I had bought, I gave little attention to the taking of honey the first season, so that only a ton or so was secured for use on the station, and as presents to friends. The following season of 1883-4 ten tons were taken from 200 colonies in the out-apiary (that is, 150 spring count, increasing to 200 colonies), and this was about the average yield while I remained at Matamata.

Unfortunately, however, for bee-farming, the land at Matamata soon got "clover sick." White clover would grow magnificently for about three years and then die out completely. This was a great disappointment to everybody, especially to me, as I had expected to establish at least six or eight out-apiaries.

IMPORTING HOLY LAND QUEENS.

Little was known of a practical nature concerning several varieties of Eastern bees other than Italians, hence the glowing reports circulated about them at the time. So much, however, was thought of some varieties, that Mr. D. A. Jones, of Canada, accompanied by Mr. Frank Benton, of the United States, went to Cyprus and India in 1879 to investigate them. Mr. Benton eventually established an apiary of 100 colonies in Cyprus for the purpose of rearing Cyprian queens for export to Europe and America. Subsequently he established apiaries in Palestine, Carniola, and other Eastern places, for raising queens of the several varieties.

Naturally I was very anxious to test these Eastern bees of which so much had been said in their favour, and knowing Mr. Wilkin, of California, with whom I had previously dealt, had some in their purity, I sent to him for five nuclei of pure Holy Landers and five of Cyprians. My order went forward in June, 1882, and on August 24, 1882, the ten nuclei, crated together, were shipped by Messrs Stearns and Smith, of San Francisco, reaching me safely the following month He was, however, unable to send me Cyprians at that time, so those that came to hand were five pure Holy Landers, and five crossed Holy Landers—Italians.

OFFICIAL PERMISSION TO SEND QUEEN BEES THROUGH THE POST.

As I anticipated doing an extensive queen trade, it was necessary—as there were some restrictions with regard to

sending live animals by post—to get permission to send queen bees by mail. I therefore prepared a specimen shipping cage, which was sent through Mr. J. C. Firth to the Postmaster-General, Wellington, on October 9th, 1882, together with a request that queen bees, with their accompanying worker bees, be allowed to go by post. To this request the following reply was received—the original of which I have before me:—

Post Office and Telegraph Department,
Wellington, October 20, 1882.

Sir,—The Postmaster-General has very much pleasure in authorising you to send queen bees through the post in the boxes (shipping cages), of which you sent a specimen with your application of the 9th inst. Postmasters will be instructed to take every care of the packages.—I have the honour to be, Sir, your obedient servant,

(Signed), W. GRAY, Secretary.

THE FIRST COMMERCIAL QUEEN-REARING APIARY IN AUSTRALASIA.

Before leaving the Thames I had supplied Italian queens, but chiefly locally. Orders, however, were coming in from distant parts during the winter of 1882. These I took with me to Matamata to execute from there. As soon as the season set in I raised both Holy Land and Italian queens for sale, and issued a price list. During the season of 1882-3, and subsequently, queens were sent to all parts of New Zealand as well as to South Australia, Victoria, New South Wales, Queensland, Tasmania, and later on to several of the South Sea Islands. With the exception of Queensland, those queens I sent were the first of the kind seen in the several colonies.

Considering the difficulty encountered of late years in queens travelling safely when caged for some days, it may be well to mention that I do not remember one loss in the mails, even when sent to Australia, although in those days the queens had to take their chance in the closed sacks with letters, etc. On one occasion a queen sent to South Australia was 22 days on the trip, caused by some unaccountable delay of the package in Sydney. Two letters arrived from the beekeeper—one complaining of the delay and the other stating he had received the queen and two or three bees alive. I wrote him at once that if she did not turn out satisfactory after her long confinement I would send him another. Subsequently he wrote me that she quickly recovered, and was doing well.

My queen trade developed very rapidly, and for a considerable time the home apiary of about 60 colonies, and (in the season) some 75 nuclei, was chiefly devoted to the breeding and testing of Italian queens for home use and for sale.

THE TRADE IN COMB FOUNDATION.

The demand for Langstroth hives and all the new bee appliances increased enormously after passing over my business to Messrs. Bagnall Bros. and Co. Large orders came by every mail from Australia and all parts of New Zealand. There was an extraordinary rush into the new beekeeping during the next few years. As comb-foundation was one of the chief requisites with the hives, and I was then the only person making it in the whole of Australasia, it may be readily understood that I was kept very busy manufacturing it. My difficulty was in getting beeswax fast enough for the purpose. An open order was given to the New Zealand Loan and Mercantile Agency to get every scrap of wax possible from their Australian and New Zealand branches, and to send it along as soon as their parcels reached from a half to one-ton lots. On one occasion I had to send to England for two tons to keep me going. Agents in Melbourne and Sydney were appointed for the sale of comb-foundation, and several hundredweights were sent to them by each steamer during the spring and summer seasons. The first cwt that went to Australia was to the order of my old friend, Mr. Chas. Fullwood, already mentioned.

Some of the New Zealand agents, beside the branches of the Loan and Mercantile Agency, were F. W. Isitt, Christchurch; J. Adamson, Hastings; R. Cock, New Plymouth; W. Tyree, Nelson; J. Barkley, Westport, and others.

COMB-FOUNDATION MACHINES.

Soon after A. I. Root placed his original 10-inch roller machine on the market several others came forward, all differing a little in some respect. There were the "Dunham," "Vandervort," "Givenpress," "Van Deusen Flat-bottom Machine," "Pelham"—all American—and a very expensive English machine made

of brass. I imported and had in use at Matamata, in addition to the Root machine, all the other Americans, with the exception of the "Pelham," which my friend, Mr. G. A. Green, now a leading nurseryman of Auckland, had imported and lent me for a while, so that I had six machines in use. They were really under trial to see which was the best. My choice eventually fell upon the Root, though for very thin section foundations I preferred the "Van Deusen" machine, and kept to that till I gave up business.

The improvement made in the Root machine from time to time kept it ahead of the others, till eventually it superseded all of them. My friend, Mr. George Stevenson, of Gisborne, was early in the field with a "Given-press," which he always believed in. I must confess it was a failure with me. I could make three times the quantity of better foundation with a roller machine than with the press, in a given time.

A NOVEL FOUNDATION MACHINE.

While on the subject of comb-foundation machines I am reminded of a very novel one. Not long after I received my first one, Mr. John Blair, of the Great Barrier Island, paid me a visit at the Thames. I remarked after he had gone that he seemed more interested in the comb-foundation machine and the making of comb-foundation than in anything else. Some time after I learned that he had made a machine which answered the purpose; it was ingeniously constructed of two wooden rollers studded with hob nails.

ADULTERATED BEESWAX.

Two or three Auckland firms who had country connections used to buy up all the wax they could get. It came forward in small parcels, from 5 or 10lb up to 30 or 40lb, and was generally bought by barter—exchanged for other goods. The price given was from 6d to 7d per lb for clean wax. When the parcels had accumulated to several cwts it was shipped to England, where double the first cost or more was obtained for it.

After I got properly under weigh, and was buying up all the wax I could get, the price went up to 9d and 10d in a very short time. Some cute individuals then thought it worth their while to resort to adulteration. At first it was carried out in a very crude manner, easily detected. Mutton fat (tallow) was the adulterant. This, however, gave the wax an unnatural pale colour, and a greasy feel when handled, so that it could be detected at once. On one occasion I was victimised and put to considerable loss over adulterated wax.

Three or four sacks of wax reached me at the Thames sent by an Auckland firm with whom I had had many previous transactions. I was on the point of leaving with a large exhibit of bees and bee material for the Auckland Spring Show, and as I had many orders on hand for comb-foundation my wife, who had assisted me many times to make it, undertook, with the aid of a stout lad, to have plenty ready to fill orders on my return. I was away a week, and on my return found Mrs. Hopkins in great trouble. She had about a couple of cwt of sheets ready, but could not get them through the rollers of the machine; the sheets seemed "rotten." She had been trying off and on for two days, and did not get one sheet through. As it was dark, and I was tired, I said I would investigate matters in the morning, cheering her up by saying it was simply a matter of adjusting the rollers.

The next morning at daylight I tackled the job, but with no better success, the wax sheets, as my wife had said, were simply "rotten," and would not hang together to go through the machine. Luckily there was some wax still left in the sacks, and on investigation I found a lot of it adulterated with tallow, hence the cause of the trouble was revealed. A week's work gone, and a big loss beside. If I had examined the wax before I left the trouble would not have occurred; it taught me a lesson I profited by afterwards.

COMMERCIAL ADULTERATION OF BEESWAX.

As the demand for beeswax increased, so the price advanced, and when it had reached over 1/ per pound, wholesale, the temptation for fraud brought some very clever imitations of the genuine article into the field. The old clumsy system of tallow adulteration was a thing of the past; the later fraudulent substance was infinitely more difficult to detect.

There were immense quantities sold throughout the Dominion. Nearly every grocer, oil and colour man, merchant, and chemist in Auckland was taken in.

The first to come round with the stuff was a German traveller. He found out I was a big buyer of wax, and introduced himself and the composition to me. I will give him credit for not trying to take me in, but he wanted me to take others in. The stuff he offered deceived several who considered themselves experts in wax. It was offered to me in lots of one ton or more, landed in Auckland from Germany, at £46 13/4 per ton (fivepence per lb), beeswax at the time being worth over £100 per ton. Needless to say he made no deal with me, and I never heard any more of him.

Some time after, however, a tall, smart-looking man, with all the appearance of an experienced commercial traveller, came to me and said: "You are a large buyer of beeswax, I understand." "Yes," I answered. "Have you any for sale?" "Yes," he replied; "I can sell you several cwt at a price." "Have you a sample?"—upon which he opened his gladstone bag and handed me a sample. I was so used to handling wax at the time that at the first touch of the sample I handed it back to him without examining it, and said, "That is not beeswax." "No?" he queried, as innocently as possible. He then told me he was travelling for a firm who was selling it as genuine wax. I could not contradict him, but told him not to offer it as beeswax or he would get into trouble. Notwithstanding this warning, however, he must have sold some tons of it in Auckland. He was getting 10d per pound for it, and I have reason to believe it was the same stuff that was offered me at 5d.

It was such an excellent imitation of the genuine article that it deceived old buyers. On one occasion a leading Auckland merchant, with whom I had had many transactions in wax, came to me and said he had arranged to buy five cwt of wax. Would I come and look at it? He was a bit suspicious about it owing to the quantity sent to him. He had submitted a sample to the expert buyer of a leading firm, who declared it genuine, and would take it himself if the merchant did not want it. "Oh, but I do want it, if it is genuine," replied the merchant. But this did not satisfy the inquirer, and he came to me. As soon as I saw it I told him who he had bought it from, which he said was correct, and I condemned it. When the party came for his cheque he was told to take the stuff away, and was threatened with prosecution—he quickly cleared out.

About two years after this an Auckland man commenced to manufacture a fraudulent imitation of beeswax, and must have made a very good thing out of it before he was eventually trapped Although I knew my man, and what was going on very well, the law at that time was such that it was a very risky thing to accuse a man of fraud without you could bring overwhelming evidence to prove your case. It is different now, when one can invoke the health and food laws in all such cases. Eventually, the culprit was punished by receiving six months in gaol. This, I think, put a stop to the fraud, for I have not since heard of any adulterated beeswax being sold.

THE FIRST BEE JOURNAL IN THE SOUTHERN HEMISPHERE.

Previous to leaving the Thames I had it in mind that a monthly bee journal would soon be needed to push the industry ahead. When I broached the subject to Mr Firth, shortly after getting everything into working order at Matamata, he fell in with the idea, with the result that the first number of "The New Zealand and Australian Bee Journal" was published in July, 1883, under my editorship, the annual subscription being 6/, post free. I was most fortunate in securing some very able contributors; in fact, I do not think any bee journal in the world, before or since, has had better. They came forward voluntarily in the interest of the industry, and without fee or reward.

Although the journal had a fairly large circulation for a magazine devoted entirely to bees, it barely paid its way, and gave nothing for the work entailed in editing and publishing it. As regards myself, it was a labour of love, and I looked for no remuneration. It had, however, done a vast amount of good during its two years' life, and would not have then been given up had not another journal taken it over to continue the bee matter. Mr Henry Brett

(the present head of the Brett Printing and Publishing Co., Ltd.), who had just started the "New Zealand Farmer, Bee and Poultry Journal," now "The Zealand Farmer, Stock and Station Journal," made arrangements with Mr J. C. Firth to take over the "Bee Journal," provided I would edit the bee section. This I agreed to do, and have been in that position ever since—just 32 years. The "Bee Journal" ceased publication after June, 1885—greatly regretted by both New Zealand and Australian beekeepers.

In this connection it may be of interest to state that I have before me the reply of the Chief Postmaster, Auckland, to the request of the publisher that the "Bee Journal" be registered as a magazine for postal rates. It runs as follows:—

"Auckland, 5th July, 1883.—I beg to inform you I have received provisional authority to pass the 'Bee Journal' through the post offices as a magazine. Copies may now be posted at magazine rates.—(Signed) S. Biss, C.P.M."

IMPORTING QUEENS DIRECT FROM ITALY.

Taking matters as they happened as near as may be in their chronological order, the next item of importance was the successful importation of Italian queens direct from Italy, which was then considered a great feat. In July, 1883, I communicated with the late well-known queen breeder, Chas. Bianconcini, of Bologna, and subsequently sent him an order for eight of his best queens at £1 each. In due time I received advice that they would leave Naples on the 10th November, 1883. They reached me at Matamata on January 9, 1884—a long trip. Four of the eight queens came safely, the rest dead. These were, of course, the first queens to come to New Zealand direct from Italy. Mr Fullwood had previously sent me one from Brisbane—one of some he had imported direct. I had several transactions with Chas. Bianconcini afterwards, and always found him a very decent fellow. He died some years ago. My orders after the first were always for twelve queens (£12), and I usually got six through alive. On one occasion, however, I lost the whole twelve, so that the queen trade was not all profit in those days.

IMPORTING SYRIAN, CYPRIAN, HOLY LAND, CARNIOLAN, AND SWISS ALPINE QUEENS DIRECT.

I was determined on my own account, and in the interests of New Zealand beekeeping, to test all the Eastern bees, which were in vogue at the time. The craze for them had got hold of me, and I felt I must have them; consequently, in May, 1884, I sent an order to Mr T. B. Blow, of Welwyn, Herts, England, who was doing a considerable business with Mr Frank Benton, to arrange with the latter to send me queens of each of the above races or varieties. The "British Bee Journal" of June 15, 1884, had the following paragraph in its columns in connection with my order:—

"We are informed that Mr T. B. Blow has a commission to forward Syrian, Cyprian, Holy Land, Carniolan, and Italian bees to New Zealand. We understand from Mr Blow that he has commissioned Mr Frank Benton—of whose connection with Eastern bees our readers will be well aware—to execute the order."

Mr Benton at that time had queen-rearing apiaries in Cyprus, Palestine, in the Carniolan Alps, and other places. The Italians mentioned above came from the Swiss Alps, on the bordering line of Italy, where it was understood the best Italian bees came from.

The queens reached me after some little unavoidable delay. The Carniolan queens were dead, but the others arrived in fair condition. In the meantime another shipment of twelve queens arrived from Chas Bianconcini on September 26th, 1884, six being alive.

Taking into account the great expense attached to importing queens, and the losses, my charge of 15/ for a tested queen of either variety was not all profit. I was calculating as near as I could some little time ago my total outlay for imported queens, and I made it about £200. It is recorded in the "New Zealand and Australian Bee Journal" for December, 1883, when mentioning the fact that a shipment of queens from Italy was expected shortly, that: "We had imported previously 22 colonies from America."—"We," that is, myself.

THE CHARACTERISTICS OF EASTERN BEES COMPARED.

It may be well here, as I had all these bees in their purity, including Carniolans

at a subsequent date, to give my experience and opinion of them. I kept very careful records at that time of the comparative value of the different varieties and their crosses, as I realised that ultimately we should have to cultivate one variety—the best.

The Holy Landers and Syrian bees were so near alike in their characteristics that I may bracket them together. I found them fair workers, but not so good as Italians, and of about the same temperament as to handling. They were lighter in colour and a trifle smaller than Italians. The Cyprians, well—I have seen many contradictory statements concerning them—so far as their working qualities are concerned, there cannot be two opinions about them—they are beauties; but their temper for handling, ugh! they are demons. I know that some have spoken very highly of them with regard to their temper; well, mine came direct from the Island of Cyprus, sent by the person who bred them there, and I can assure my friends I was no novice at handling bees at that time. If any person had told me before I got the Cyprians that I could be conquered by bees I would have laughed at him, but I confess the Cyprians beat me.

Until the colonies got strong they seemed to be as easily handled as Italians, but when up to full strength they were simply unmanageable. I always worked with my shirt sleeves turned up, and I can truly say that on one or two occasions a pin point could scarcely have been put between the stings on both arms and hands. I was determined to master them, but in the end they were the victors. Smoke made them more vicious, and the more smoke I gave them the worse they were; they would even try to sting the tin smoker. I tried crossing them with Italians, but, if anything, the hybrids were worse. I and my assistant had on two or three occasions to make an ignominious retreat; we then considered it time to get rid of them, which we did. Two or three customers who bought Cyprian queens from me before I had fully realised their viciousness had to get rid of theirs. I subsequently sent them Italian queens to replace the Cyprians.

Carniolans were sent me nine years ago from the American Government Apiary—two queens in nucleus colonies. They proved very prolific indeed, so much so that they consumed a very large part of the honey they gathered in providing for their brood, and naturally this induced swarming.

Of all the bees yet tried under domestication none have been found to come up to the Italians; that is the opinion of practically the whole commercial beekeeping world. The majority of British beekeepers, however, seem to prefer the common bees, but that predilection arises chiefly, I think, from the want of experience of Italian bees.

FIRST EXHIBITION OF BEES, HONEY, AND APPLIANCES.

The first exhibition of bees, honey, beeswax, and all the new appliances, such as movable-frame hives, honey extractor, comb-foundation, etc., took place in November, 1879, at the Auckland Agricultural and Pastoral Association's Spring Show, held at the racecourse, Ellerslie, I being the only exhibitor. For business reasons I staged an extensive exhibit, and had my bees in an observatory hive at work, flying abroad through a hole pierced in the wall of the building, while the work going on in the interior of the hive could be seen by visitors through glass on each side of each frame without being interfered with by the bees. I had similar exhibits each year at the association's shows until I left the Thames. It is needless to say that great interest was created in the new bee culture, and very much good resulted in bringing honey to the fore as an article of food.

FIRST GENERAL BEE AND HONEY SHOW IN NEW ZEALAND.

Several communications had passed between our leading beekeepers during 1883 on the subject of holding a bee and honey show at an early date. It was realised that a large and attractive exhibition of honey, and the appliances used to secure it, would promote the use of honey in the household, and thereby create a greater demand for it. It was considered advisable to arrange, if possible, to include our exhibits in that of the next "Auckland Gardeners' Horticultural Society's" Exhibition, to be held in March, 1884.

After making application, and waiting some time, the committee of the society decided to agree to our proposal, but the time then left to prepare exhibits was so short that we almost concluded to abandon the business for that year. As, however, it had been intended to call a meeting of all interested in the formation of a beekeepers' association, we decided in favour of getting as many exhibits together as possible for the show, and holding the meeting on the first day, viz., March 21st, 1884.

The exhibition was held in the Drill Hall, Auckland, and a very fine one it was. The hall was about 150ft long by 60ft wide, and the bee exhibits were allotted 50ft in length of the end staging. Notwithstanding that the time to prepare exhibits was so limited, the show of bees, honey, and appliances was a most creditable one. Distant beekeepers, however, who would have attended and brought exhibits, were prevented on account of so short notice. The principal exhibitors were Bagnall Bros., I. Hopkins, Capt. Daly (Waikato), G. Stevenson (Gisborne), T. J. Mulvany and Son (Katikati), and H. B. Morton, Auckland, and the value of the awards £10 14/.

FORMATION OF THE FIRST NATIONAL NEW ZEALAND BEEKEEPERS' ASSOCIATION.

As previously intimated, a meeting of all interested in this movement had been called by advertisement for the first day of the show, to meet at the Park Hotel, next the Drill Hall, Auckland, at 4 p.m. The following report of the meeting is clipped from the " New Zealand and Australian Bee Journal" for April, 1884:—

"Meeting of Beekeepers.—A numerously attended meeting of beekeepers was held at the Commercial Hotel, Auckland, on the evening of the 21st ult. The meeting was called for the purpose of forming a Beekeepers' Association. Mr. I. Hopkins was voted to the chair, and Mr. H. H. Hayr was asked to act as secretary. The chairman read the advertisement calling the meeting, and asked Mr. J. L. Bagnall, the convener, to explain the object to be attained." Mr. Bagnall, after going fully into the matter, and explaining the advantages to be gained by beekeepers throughout the land working in unison, moved:—"That in the opinion of this meeting it is desirable to form an association of beekeepers." The motion was seconded by Mr. T. J. Mulvany, of Katikati, who said, in support of it—"He hoped an association would be formed embracing the whole of New Zealand, and that provision would be made for forming branch associations in any locality where there were sufficient beekeepers to do so." The motion was carried, and it was then resolved:—"That the name of the association should be the New Zealand Beekeepers' Association, and that a committee be formed, consisting of the chairman, secretary, Dr. Dalziel, Messrs. Mulvany, Newland, Graham, Robinson, Shadwell, and Bagnall, to communicate with beekeepers in all parts of New Zealand, and frame rules to be submitted to a general meeting called by the committee." The committee met on the 3rd June, Mr. I. Hopkins in the chair. A code of rules was carefully considered, and made ready for presentation to a general meeting, and the secretary was empowered to communicate with his Excellency the Governor requesting him to become patron of the New Zealand Beekeepers' Association; also with Sir George Grey, that he become president; and with the Mayor of Auckland and Resident Magistrate, that they accept the vice-presidentship of the association.

The general meeting to consider the rules drawn up was held at the Commercial Hotel, Auckland, on August 7, 1884. On the motion of Dr. Dalziel, the rules were adopted, and it was resolved that they be printed in book form. The election of officers for the first year (the presidentship being postponed) resulted as follows:—Vice-presidents, his Worship the Mayor of Auckland and his Honor Judge Smith; committee of management, Colonel Bailey, Major Noake, Captain Daly, Dr. Dalziel, and Messrs. Bagnall, Hopkins, Mulvany, Newland, Robinson, Shadwell, and Stevenson; secretary and treasurer, Mr. H. H. Hayr. It was suggested that a reference library of all the standard works on bee culture be formed, and also all bee journals, American and English, be obtained, which was subsequently acted upon, and a library was formed.

THE FIRST BRANCH ASSOCIATION.

A meeting of beekeepers, called by circular, was held in Buchanan's Hall, Pukekohe, Auckland, on February 23rd, 1884, for the purpose of forming a beekeepers' association, Mr. W. Morgan acting as chairman. Dr. Dalziel, as convener of the meeting, explained the advantages of an association, and it was decided to form one, and that the name be the "Auckland Provincial Beekeepers' Association." The following officers were then elected:—Messrs. J. C. Firth and I. Hopkins had to decline the presidentship of the association owing to want of time to carry out the duties, and the distance they lived from Pukekohe; vice-presidents, Captain Hamlin, M.H.R., Captain Jackson, R.M., Messrs. Pounds, Bagnall, and I. Hopkins; treasurer, J. Collins; secretary, Dr. Dalziel; general committee, Messrs. Allen, Beloe, Brown, Elliott, Jamieson, Morgan, Savage, and Sproule. At a subsequent meeting rules and regulations for the conduct of the association were received and ratified.

Both the national and branch associations were now in full working order, and subsequently held regular periodical meetings, from which much good resulted. It may be mentioned that the N.Z.B.K. Association appointed a corresponding committee, consisting of members residing in the different beekeeping centres throughout both Islands, whose duty it was to send quarterly reports of the progress of beekeeping in their respective districts to the parent association, to canvass for members, and to promote the formation of branch associations. We found the scheme to answer very well, as it kept us constantly in touch with all beekeeping centres.

ESTABLISHMENT OF A HONEY DEPOT.

Much dissatisfaction had been expressed from time to time by leading beekeepers as to the great differences in the buying and selling prices of honey in connection with the middlemen. While the producer was receiving a low price, the consumer was charged a very high one, and the bulk of the profit was retained by the middleman. At a committee meeting held on November 21st, 1884, it was decided, on the suggestion of Mr. Hopkins, to establish a honey depot in connection with the N.Z.B.K.A., for the sale of members' honey. Mr. H. H. Hayr was appointed agent in charge, at a remuneration of 10 per cent. on all honey sold, he to find storage room. The following scale of prices was fixed by the committee:—Comb honey (in sections), 10d per lb; extracted honey, 6d per lb, in bulk; 8½d per lb in 1lb tins; and 15/ per dozen 2lb. tins or vessels. It was also resolved that honey sold at the depot be for cash or promissory note, the cost of such note to be charged to the vendor. The depot business was not allowed to progress very long on smooth lines, but we were determined to keep it going if possible, and even to put our hands in our pockets to support the scheme rather than the middleman should rule us.

OUR FIRST TROUBLE.

The committee realised from the outset that unless all, or nearly all, the honey coming to Auckland was sent to the depot to be sold there would soon be trouble, as the grocers and other wholesale purchasers could see that the establishment of the depots and the fixing of prices every quarter would curtail the big profits they had been getting on honey. They at once determined to boycott the depot. In order to induce every beekeeper to send his honey to the depot it was decided that on payment of an annual fee of 5/ to the association any beekeeper could secure all the privileges of the depot without becoming a member of the association, if he so desired.

This, however, had little effect in gathering in many of the small beekeepers owning from half a dozen to ten colonies, of which there were large numbers within a radius of twenty miles from Auckland's centre. The large grocers induced the most of these, by offering an advance on their previous prices paid for their honey, to deal direct with them. The consequence was that the sales from the depot fell to a vanishing point. The beekeepers' action in dealing direct with the middleman instead of through the depot was really not understandable, as the depot returns to the producer were very much larger, and in cash, whereas the dealings with the middlemen were in most cases by barter, and at a much lower

exchange value. Such was the case, however, and the committee, with a determination not to be beaten, authorised the secretary to engage hawkers to hawk the honey from house to house. This succeeded for a time, and relieved the depot of most of the honey that had accumulated, but this scheme eventually broke down, and we realised we were beaten through the foolish action of the small beekeepers. There had been such a rush into the beekeeping ranks during the previous three years that in the season of 1884-5 honey was to be seen in large quantities in all the auction rooms. Fairly good honey, put up roughly in kerosene tins, could be bought for 2/6 per tin (60lbs), and eventually a lot was carted away for nothing, the auctioneers being glad to get rid of it.

THE FIRST CONFERENCE OF NEW ZEALAND BEEKEEPERS.

Arrangements had been made to hold the first annual conference of New Zealand beekeepers under the auspices of the New Zealand Beekeepers' Association at its annual meeting, to be holden in Auckland on March 20th, 1885. Every effort had been made by the committee to bring together a large number of beekeepers from different parts of the country. In conjunction with the conference a number of papers on different beekeeping subjects were prepared for reading, and the first annual report and balance-sheet was printed for distribution. At 4 p.m. on the above date the conference was called to order, the attendance being very satisfactory indeed, Beekeepers were in attendance from such distant places as Gisborne, Taranaki, Tauranga, Southern Waikato, and from districts north of Auckland. Everything passed off very satisfactorily, and the result was that a vast step had been made in the promotion of advanced bee culture.

THE FIRST BEE AND HONEY SHOW HELD UNDER THE AUSPICES OF THE NEW ZEALAND BEEKEEPERS' ASSOCIATION.

Realising the great benefit to the industry (in an increased demand for honey) that had arisen as the result of the previous show, the executive committee of the Association were determined to make this, their first exhibition of beekeepers' products, a credit alike to the Association and to the industry. How far they succeeded in their efforts may be judged by the extracts from the "New Zealand and Australian Bee Journal" for April, 1885, given further on.

Although this show was held in the very earliest days of our modern system of beekeeping—only seven years after it was introduced into the country—there has never been a bee and honey show approaching it held since in New Zealand, although over thirty years have passed by since then, more's the pity.

EXTRACTS FROM "NEW ZEALAND AND AUSTRALIAN BEE JOURNAL." APRIL, 1885.

"As our readers are aware, it had been arranged by the New Zealand Beekeepers' Association to hold their annual Show in connection with the Horticultural Exhibition on the 20th and 21st of March. The Gardeners' Horticultural Association had obtained permission to hold their exhibitions in the Government Drill Shed, a large iron building about 150ft long by about 60ft wide. . . . The table allotted to the bee department stretched across the end of the shed farthest from the entrance, about 60ft in length."

The whole of this table, which was six feet wide, was fully occupied with our exhibits.

"The central part of the stage was taken up by an exhibit of Matamata clover honey, both comb and extracted (my exhibit.—I.H.). The extracted honey was shown in tins and glass—liquid and granulated. Of this a ton was staged in 2lb, 10lb, 20lb, and 60lb tins, and a small lot in glass. The get-up of the tins was admired by everyone; the tins had been japanned, and on each was a beautifully lithographed label in colours. A kind of pyramid was formed of the tins, which did much to enhance the appearance of the exhibit. On either side of the tins (as part of the Matamata exhibit) the crates of comb honey in 1lb sections (of which there were 16 each containing 48 sections, 768lb in all) were placed, and on top of these the glass jars of extracted honey: the whole forming a conspicuous feature in this department."

In addition to the above, as part of this exhibit, there was a large quantity of comb-foundation, both stout and thin, made on four different machines.

Messrs. Collins (of Tuakau) and Beloe

(of Pukekohe) had very fine and large exhibits of comb honey in sections, and the former had as well a very ingenious shipping crate for comb honey calculated to prevent damage to its contents.

Messrs. Hanlon (of Whangarei) and Blackwell (of the Great Barrier) staged very neatly got-up packages of extracted and comb honey.

Mr. G. Stevenson (of Gisborne) was very unfortunate in losing his very fine exhibit while on its way to Auckland on board the s.s. Thomas Russell, which was wrecked. Not to be beaten altogether, Mr. Stevenson made up another very fine exhibit of extracted honey in tins and glass, comb honey, and comb foundation, although, as he said, as an exhibit it was much inferior to the one that was lost.

Messrs. Bagnall Bros. staged a complete outfit of all apiary appliances, and also Italian bees and queens, and a stocked observatory hive, which created great interest among visitors.

Mr. G. Epping, of Normanby, also sent a fine exhibit of comb-foundation of two grades, but unfortunately it was delayed on the road, and did not arrive till after the close of the show.

THE PRIZE LIST AND AWARDS.

Although the cash value of the prizes offered was not very extravagant, the list indicates a worthy effort on the part of the Association to provide something to aim for. The following is the list of prizes and awards, which has not been equalled at any similar show held since:—

(Judges, Messrs. J. Newland and E. Parsons.)

	s.	d.	s.	d.
Best Italian queen, accompanied by some of her progeny; 1 entry. Messrs. Bagnall Bros., 1.	20	0	10	0
Best queen of any other race, accompanied by some of her progeny; no entry	10	0	5	0
Best and largest display of bees of any race; no entry	20	0	10	0
Finest extracted honey, not less than 20lb; 3 entries. I. Hopkins, 1; G. Stevenson, 2.	10	0	5	0
Largest display of extracted honey; 1 entry. I. Hopkins, 1.	20	0	10	0
Finest comb honey in sections, not less than 20lb; 5 entries. I. Hopkins, 1; W. Beloe, 2	10	0	5	0
Largest display of comb honey in sections; 2 entries. W. Beloe, 1; I. Hopkins, 2.	20	0	10	0
Best and neatest got up packages of extracted honey for marketing; 4 entries. I. Hopkins, 1; G. Blackwell, 2.	15	0	5	0
Best and neatest got up packages of comb honey for marketing; 3 entries, J. Collins, 1; W. Beloe, 2.	15	0	5	0
Best hive for comb honey with surplus arrangements; 1 entry. Bagnall Bros. and Co., 1.	10	0		
Best hive for extracted honey, with surplus arrangements; 1 entry. Bagnall Bros. and Co., 1.	10	0		
Best hive for observatory purposes, stocked with bees and queen; 2 entries. Bagnall Bros. and Co., 1.	15	0		
Best collection of apiarian appliances; 1 entry. No award				
Best comb foundation for brood and extracting frames, manufactured in Australasian colonies; 3 entries. I. Hopkins, 1; no 2nd award.	10	0		
Best comb foundation for sections manufactured in the Australasian Colonies; 3 entries. I. Hopkins, 1; G. Stevenson, 2;	10	0	5	0
Best shipping crate for comb honey; 2 entries. J. Collins, 1, no 2nd award.	5	0		

As I have always strongly advocated the taking advantage by our Associations of our principal Agricultural and Pastoral Association's winter shows to make large and attractive exhibits of honey, etc., as an advertisement of our industry, I thought it advisable to give pretty full particulars of our pioneer efforts in this direction of over thirty years ago, as an incentive to our present Beekeepers' Association to do likewise.

OTHER DISTRICT ASSOCIATIONS.

The establishment of the New Zealand Beekeepers' Association acted as a stimulus in the formation of others, not only in New Zealand, but also in Australia. Mr. A. E. Bonney, a prominent beekeeper in South Australia, with whom I was in frequent correspondence, was instrumental in calling a meeting of persons interested in beekeeping, which was held at the Chamber of Manufactures Hall, Adelaide, on July 11, 1884. A strong association was formed, with the Hon. R. D. Ross, M.P., as president, and Mr. A. E. Bonney secretary.

This was followed soon after by the formation of the "Coromandel Beekeepers' Association." in October, 1884. Mr. J. H. Harrison president, and Mr. J. D. Colebrook secretary and treasurer.

At this time there was some talk of forming an Otago Beekeepers' Association. It was eventually formed, but not till some time later.

Although there was no association at Timaru, Col. C. S. Bailey, who was an enthusiastic beekeeper, and one of the executive committee of the N.Z. Beekeepers' Association, was, so far as the work of promoting advanced bee culture is concerned, an association in himself. The gallant colonel, who had kept bees in the Old Country, did an immense amount of good for the industry in South Canterbury. He promoted the first bee and honey show held in that part in December, 1884. The local press spoke very highly of the exhibits and of the energy the gallant colonel displayed in getting up such a fine exhibition both at Waimate and Timaru shows.

Instead of referring to them again, it may be well to give here the dates of the formation of associations which took place later on: The New South Wales Beekeepers' Association was established in July, 1887, Mr. Angus Mackay, Instructor in Agriculture, N.S.W. Technical College, being chosen as president; The Otago Beekeepers' Association, with its headquarters in Dunedin, was formed in October, 1887, the late Mr. I. G. Brickell being president, and Mr. W. C. Brown hon. secretary. Mr. Brickell, assisted by other members, gave demonstrations periodically in the Botanical Gardens, Dunedin, in the way of handling and transferring bees.

The formation of the Queensland Beekeepers' Association took place in 1885, and the first annual meeting was held on August 20, 1886. President, J. B. L. Isambert, M.L.C., and E. C. Cusack secretary. The Maitland (New South Wales) Beekeepers' Association was formed in the latter part of 1887, and on August 27th of the same year the Hunter River Beekeepers' Association was established, with Mr. R. Scobie president, and R. F. Munday secretary. Other associations formed at much later dates will be enumerated later on.

It will be seen from the foregoing that the new bee culture made very big strides both in the Australian Colonies and New Zealand during the first seven or eight years after its introduction into Australasia. These notes are all taken from my "Bee Journal," so are correct.

THE FIRST SIX-COMB REVERSIBLE HONEY EXTRACTORS USED IN NEW ZEALAND.

For the first few years after the new beekeeping had become well established, the type of honey extractor in general use in America and elsewhere was the fixed basket, two-comb "Novice" (A. I. Root's).

One of the first to realise the need of larger extractors was my friend R. Wilkin, of California, and in the latter part of 1882 he constructed an eight-frame reversible one. On May 7th, 1883, he wrote me (I have this letter before me) explaining details, and also sent diagrams of the parts of his big extractor—by the way his letter was published in the "N.Z. and A. Bee Journal" for August, 1883.

Shortly after this date I drew out the plans for a six-comb reversible-basket extractor, which was constructed by Messrs Masefield and Co., Auckland. Owing to my being unable to superintend the making of it, it was constructed in a more expensive manner than I expected. The whole of the internal gearing was made of brass tinned over, and the body of stout kauri lined with steel tin—its cost was £28 10/. This price, when the bill came in, gave me a shock, and was the tragical part of the business; the comical part came when the firm advertised the same extractors at £15, immediately after mine had been delivered. The explanation from the firm was that I had to pay for the making of all the moulds in the first place, which the firm claimed they could use in making others.

The extractor was a very fine one. There was, however, one drawback, the handle was on top of the vertical shaft, there being no side gearing to govern the speed of the revolutions. The consequence was that when set going with six heavy combs in the basket, one had to let go the handle and wait till the extractor slowed down. Eventually side gearing was fitted—quite a number came into use in the next few years.

ADOPTION OF A STANDARD HIVE FOR NEW ZEALAND.

We, in New Zealand, in fact, I may include Australia, were very fortunate in adopting a standard hive right from the start of our career in modern commercial beekeeping. It has saved us no end of confusion and expense. Practically the ten-frame Langstroth hive became the standard in New Zealand and Australia as soon as I introduced it, made it known through the Press, and manufactured it for sale. Two years after its introduction, that is, in 1880, there were a goodly number of Langstroth hives in use in New Zealand, and early in 1881, quite a number were sent to Australia.

As several newcomers from England wanted to introduce the British hive they had been used to in the Old Country, and realising that if we did not formally adopt a standard hive at once, and fight against the introduction of others, there would soon be trouble, I broached the subject in the "New Zealand and Australian Bee Journal" for August, 1883. I pointed out the difficulties the English and American beekeepers were in through having many sizes of hives in use, and that we ought formally declare and adopt some hive as the standard one for New Zealand. Of course, it was a foregone conclusion that the 10-frame Langstroth would be chosen, and it has been the standard hive ever since.

STANDARD HIVES IN AUSTRALIA.

Very shortly after our formal adoption of a standard hive, the question of following our example cropped up in Australia. I, of course, urged the adoption of the Langstroth hive, and wrote strongly in favour of it. Mr. W. Abram, the well-known beekeeper of Parramatta, who had not then been long out from Germany, opposed my suggestion, and advocated the Berlepseh hive, which he had used in Germany. A controversy between us on the comparative merits of each hive took place in the "Sydney Town and Country Journal," lasting six months. The result was the Victorian Beekeepers' Association (the only one then in Australia) declared at one of its meetings in favour of the ten-frame Langstroth as the standard hive for Victoria, which practically meant for Australia.

PATENT HIVE MEN IN AUSTRALIA.

One of the most impudent attempts to claim a monopoly in the manufacture of movable-frame hives and some other apiary appliances by securing letters patent on them, although they had been invented and in use many years before the patents were issued, occurred in Victoria, Australia.

In November, 1884, I received a letter from a gentleman residing in Melbourne, directing my attention to certain patents which had been granted on November 29, 1882, to one C. J. Lee and S. L. Chapman, also to a prior patent granted to C. J. Lee and James Baker in July of the same year. My correspondent also forwarded a copy of a letter of his which appeared in "The Leader" (Melbourne) of July 26, 1884, pointing out that the articles patented had been in use long before the dates such patents were granted.

Taking the patents according to priority, the one granted to C. J. Lee and J. Baker in July, 1882, was for perforated zinc plates to prevent the queens rising into the supers (queen excluders). There were four claims in the patents granted to C. J. Lee and S. L. Chapman in November, 1882, viz., surplus honey frames in movable compartments (movable frames, containing 1lb sections), metallic ends to frames (metal ends), metallic plates for the frames to rest on (tin rabbets), and removable bottom boards.

As the correspondent to "The Leader" pointed out, the movable-comb hive, with frames, sections and other appliances, had been explained, and most of them illustrated in the first edition of Hopkins' "Bee Manual," published and circulating in Australia in 1881. I think there can be little doubt about the description of the patented appliances having been taken from my manual.

I published the whole of the correspondence, and also the dates and particulars of the invention of each article re-patented, to Messrs. Lee, Chapman and Baker in the "New Zealand and Australian Bee Journal" for December, 1884.

A few months later Mr. Herman Naveau, of Hamilton, Victoria, who had purchased his hives from Bagnall Bros. and Co., received the following notice:—"The Australian Apiary and Bee Ranchers Company, Limited.—Caution to the Public,—As I have been informed

that my letters patent are being infringed by parties making and selling similar hives, I hereby inform them that I am the sole proprietor of letters patent for the manufacture of movable-frame hives, etc., and shall take proceedings against anyone infringing the same.—(Signed) S. L. Chapman, proprietor." With this was enclosed the following letter:—"Toorak Road, South Jarra, 30th March, 1885. H. Naveau, Beekeeper, Hamilton.—Sir,—As I am informed that you are making and selling hives similar to mine I have to request that you will inform me how many hives you have made and sold, and to whom.—I am, sir, yours truly (signed) S. L. Chapman, manager."

Needless to say, I advised him and others to take no notice of threats, and subsequently I offered to fight the case, if need be, personally. However, after the exposure in my journal, the whole business was quashed and nothing more was heard of patent hives, etc., in Australia.

STIRRING HONEY—AN ACCIDENTAL DISCOVERY.

While at Matamata I accidentally stumbled on a scheme of improving the texture (grain) and also to a certain extent the colour of granulated honey—a simple process to which no one can take objection. On one occasion I had overlooked removing some honey from the lower part of an uncapping can that had drained from cappings until it had so far granulated (though still soft) that it would not run through the honey tap. There was quite 100lbs in the can, and knowing that by stirring the honey it would be made soft enough to run, I worked it well with a wooden paddle until it ran slowly through the tap.

Not having been properly strained I set this honey apart from that I was marketing. Some time after when it had become firmly granulated I was surprised to find the grain, or texture, of this particular honey much finer, and the colour somewhat lighter than that extracted from the same combs. After giving the matter much thought I wondered whether the stirring of the honey had made the difference, and as the last of the honey had been extracted I had to wait until the next season before conducting conclusive tests. The result of several tests proved to my own satisfaction that stirring honey when commencing to granulate does improve it. I have carried out the process ever since, and at the Government apiaries, and also made it known through the columns of the "New Zealand Farmer" on different occasions. I understand it is now generally practised by our leading beekeepers.

I had never read or heard of the process before I stumbled upon it, so that probably it can be claimed as a New Zealand discovery.

THE BREAKING-UP OF MATAMATA APIARY.

During the season of 1886-7 I was threatened on more than one occasion with a severe breakdown of my health, the strenuous work of the previous eight years was beginning to tell, and on the advice of two medical men I decided on making a change. In May, 1887, I removed to Auckland, the change and a couple of months' comparative rest did me much good. The young man who took charge of the apiary had been a cadet with me and was quite capable of carrying it on successfully, but unfortunately for him the estate, owing to some financial difficulties, was wound up a few months after I left, when the whole of the bees and plant were sold, and also the land.

It gave the owner of the estate great satisfaction when my final balance-sheet was made up to learn that the net profits from the bees for the whole of my term was nearly £400 per annum. The expenses were very heavy, the freight from Auckland for most of the time until the train ran through to Lichfield was £7 per ton. Mr. Firth frequently told his visitors in my presence that the bees were the only things paying on his estate. It was a good augury for the future of bee-farming in New Zealand that the first commercial bee farms established should have been so profitable, and it was very satisfactory to me. I was very sorry indeed when the bees with everything else on the estate had to be sold.

BEEKEEPING AROUND AUCKLAND IN 1887.

When leaving Matamata I took with me to Auckland a number of colonies containing my best breeding queens to keep the queen trade going, as it was then very extensive. During the season

of 1887-8, I increased my colonies to 40, and was fairly successful in raising purely mated queens. When the following season set in, I was horrified to find symptoms of foul brood in several colonies. Being anxious to find out where the disease had come from, as this was my first experience of it, I went all round the district extending to a radius of two miles or more, hunting for beekeepers, spending two or three days on the job. The result was I found quite a number of box-hive beekeepers with from five to a dozen boxes each, which had been occupied by bees at some time but in most cases were now more than half unoccupied—the bees had died. On examination I found all the combs diseased, and the owners ignorant of the cause of their bees dying. The diseased boxes and combs were left on their old stands and free for other bees to enter and carry the germs away.

Under such circumstances I concluded it was impossible to carry on queen rearing, and gave it up, much to my loss. Three years after I arranged with Mr. Thomas Blackwell, of the Great Barrier Island, to raise all my queens, there being no disease there. I found Mr. Blackwell a very conscientious queen breeder and he supplied me with all my queens while I was in business. I did not go out of beekeeping, but just kept a few colonies to experiment with.

In the meantime I had joined Mr. H. H. Hayr, who had been acting as agent for Bagnall Bros. and Co., and myself, and our firm was registered as, "Hopkins, Hayr and Co." In November, 1888, by mutual arrangement, the business came into my hands, and the firm was henceforward known as "I. Hopkins and Co."

THE AUCKLAND HONEY MARKET IN 1887.

I was well aware before leaving Matamata of the terrible condition of the Auckland honey market, that after the failure of the New Zealand Beekeepers' Association to establish it on something like a sound commercial basis the market had gone from bad to worse, but I was hardly prepared to find it so bad as it was. After one or two preliminary inquiries, I realised that it was necessary to spend two or three days in visiting places of business in and around Auckland where honey was sold, and also the beekeepers producing it, before I could formulate a scheme for improving the market.

I found at the start that every auction mart where produce was sold had more or less pressed honey in all kinds of second-hand tins, most of them rusty and covered with paper (torn), and bits of sacking, in place of lids. Much of the honey had been in the marts for months, unsaleable, and no small amount of it was fermenting. None that I saw was fit for consumption. On my suggestion several of the auctioneers had the stuff carted away as rubbish. I learned that a good deal of comb honey, when in season, came into Auckland, and that most of it was sold by auction. Pressed honey averaged 1½d. per pound in biscuit and kerosene tins; comb honey in sections (few more than three parts full) from 2/ to 2/6 per dozen, and good extracted honey in 2lb. tins ranged from 6/6 to 8/ per dozen.

These prices were ruinous, and the most careful beekeepers who sent the best honey into Auckland, were ready to support any scheme for the betterment of the business. Although the returns did not pay, having more or less capital expended in hives and plant, they had to make what they could out of their bees, always hoping things would improve.

IMPROVING THE MARKET.

Amidst this unsatisfactory condition of things there was one reassuring feature. Quite a large number of those who a few years before had rushed into beekeeping, thinking that a small fortune could be made easily at honey-raising, finding their expectations unrealised, and that they were likely to lose instead of gain by their venture, had dropped out of the business during the last two years. The chief drawback still remaining was the box-hive men, of which I shall have more to say later.

After my investigations I saw there was only one way of improving matters, and that was to get control of the honey market if possible, supply a good article for a fair price, and so gain the confidence of the retail suppliers and consumers. It would cost money to carry out the scheme, and would take some time to accomplish, but it had to be done.

When the season of 1887-8 set in I employed a man to go through the auction marts every morning, report to me what honey had come in, and its condition, then either he or I bought it all. In that way we kept the market clear, and although we had to buy good, bad, and indifferent honey, and sometimes made a loss, as we only put the best on the market, we gradually worked the prices up to 10/ and 10/6 per dozen 2lb tins, and 4/6 per dozen for section honey, with return of crates or payment for them. This meant an increase in the price of nearly 50 per cent in the one case, and about 100 per cent in the other, most of the increase going into the pockets of the producers. Before the commencement of the second season I had practically secured the whole of the honey trade. Although I had strong opposition at first from the middlemen, the increased demand for honey brought about by placing a good article on the market pleased them so much that I had their trade up to the close of my business.

STARTING THE "AUSTRALASIAN BEE JOURNAL."

Scores of letters expressing regret reached me from all parts of Australia and New Zealand after the first bee journal ceased publication. The writers hoped I would soon start another, and these letters increased in number after I left Matamata. As my inclination was in sympathy with the writers I started the first number of the "Australasian Bee Journal" in July, 1887. This journal was entirely my own, and as in the former one, I had many able contributors, who came forward as friends to assist me with their articles without fee or reward. I look back with very great pleasure to the many bee-keeping friends I made in those days, both in Australia and New Zealand. Among my Australian contributors of articles were: Messrs. C. Fullwood and C. C. Cusack (Queensland); T. E. Willis and (Miss) S. A. B. (New South Wales); Herman Naveau and Z. Sumner (Victoria); A. E. Bonney (South Australia); and Thomas Lloyd Hood (Tasmania), besides a number of others. My New Zealand contributors were very numerous, residing in all parts of the country, from Southland to North Auckland. Among the principal were Messrs. T. J. Mulvany (Katikati); Obed Poole (Auckland); Rev. Father Madan (Matata); G. A. Green (Auckland); W. C. Brown and C. B. Morris (Dunedin); and many others, their only object being to push the industry ahead.

Unfortunately, the long-threatened breakdown in my health came before the close of the third annual volume, and, much to my regret, I was compelled to cease publication of the journal, which was incorporated with the "New Zealand Farmer."

REVIVAL OF THE NEW ZEALAND BEEKEEPERS' ASSOCIATION.

It was no fault of the Executive Committee that the Association had practically ceased its operations some twelve months or so before I left Matamata. The loss of the bee journal had contributed more to its decline than any want of sympathetic action on the part of the committee. The journal was the medium of communication between the widely-scattered members, and when that went it was impossible to keep up that friendly and business intercourse between them so necessary to the success of such an institution.

One of the first suggestions made after the starting of the "Australasian Bee Journal" was the revival of the N.Z.B.K. It was first mooted in the third number (September, 1887) of the new bee journal, and was followed by a number of letters in support. Eventually a meeting of all interested in re-establishing the "National Beekeepers' Association of New Zealand" was called by advertisement by myself for the 7th March, 1888. There was an enthusiastic meeting, the Association was re-established, and the following officers were elected: President, Mr. Frank Lawry, M.H.R.; vice-presidents, Mr. Obed Poole and G. L. Peacocke (editor "New Zealand Farmer"); secretary and treasurer, Mr. I. Hopkins; executive committee, Messrs. G. A. Green, H. Hayes, T. Herbert, S. Hooker, J. Oldham, W. Esam, W. Dignan, F. Stephens, R. J. Kendall; corresponding committee (with power to add to their number). Messrs. L. J. Bagnall (Turua), T. J. Mulvany (Katikati), W. A. Neale (Hawke's Bay), N. Shoemaker (Taranaki), C. Jans (Inglewood), C. Morris (Otago), Rev. Father Madan (Bay of Plenty), and H. Hyatt (Waikato). Other members of the committee were subsequently appointed.

The duties of the committee, as outlined, were to furnish periodical reports to the executive committee and to the "Australasian Bee Journal," of the progress of beekeeping in their several districts.

The sub-committee appointed to rearrange the rules for submission to a general meeting met on the 9th March, and they were adopted at the general meeting held on the 16th of the same month. The meeting also adopted the suggestion of the sub-committee that a Foul Brood Bill be drafted by the Association for presentation at the next session of Parliament, and that the president (Mr. F. Lawry, M.H.R.) be requested to take charge of it, the executive in the meantime to secure the signatures to a petition for the passing of a Bill, of all beekeepers in favour of such a course. A sub-committee, consisting of the president, secretary, and the Rev. Father Madan, was appointed to draft an Act to be submitted to the executive committee at its next meeting.

The meeting of the sub-committee appointed to draft the bill met at the secretary's house on March 20, 1888, and after a long and careful consideration of the several clauses a bill was framed ready to submit to the executive committee, and after some slight amendment it was adopted, a vote of thanks being accorded to the framers of the bill.

FOUL-BROOD.

Before continuing the matter of the Foul-Brood Bill, it will be as well to give a little of the known history of foulbrood in New Zealand prior to 1887.

When I threw aside my former occupation to take up bee-culture for a livelihood the thought of failure never for a moment entered my head. I could see nothing but success in front of me. Later on, however, when I read of the devastation among the bees in England and America caused by foul-brood, and the uncertainty of the suggested remedies effecting a cure, the dread of such a disease attacking my bees and upsetting all my plans became a kind of nightmare to me. The one thought that dominated all others was to be constantly on the watch for symptoms of disease, and to destroy all combs showing one or more abnormal-looking cells. While at the Thames I destroyed quite a number, and the same at Matamata, which, with later experience of undoubted diseased combs, I was certain I had in my extreme caution destroyed perfectly healthy combs.

Quite early in the '80's I learned from private correspondence that there was something wrong with the bees in the Hawke's Bay and Taranaki districts, which subsequently proved to be foulbrood. The late Mr. R. Harding, of Mount Vernon, Hawke's Bay, who was a great bee enthusiast, wrote me for publication on August 13, 1883: "That scourge of the apiary (foul-brood) is rampant in all parts of this provincial district, several apiaries having been depopulated through it," etc. Mr. Harding twice lost all his bees through the disease, notwithstanding that he had tried all the then recommended remedies.

In 1883 Mr. L. J. Bagnall wrote me from Thames that foul-brood had appeared in his apiary, and he attributed the outbreak to a neighbouring apiary, which was comprised of bees bought from Maoris in box hives, and as he thought it was likely to be a considerable distance up the Thames Valley, among other Maori box-hives, warned me to be on the look-out at Matamata. During the following four years the disease had spread to almost all parts of New Zealand, and it was making such havoc among the bees that many of our beekeepers were becoming disheartened.

As there were known to be two distinct forms of the disease, which the United States Department of Agriculture was investigating at the time, I sent six samples of diseased combs (three from Southland and three from Auckland) in October, 1907, to Dr. E. F. Phillips, in charge of Apiculture, Washington, for examination. As the result of his investigation he declared each sample to be affected by the form of disease known as *Bacillus larvae.*

THE DRUG CURE (?).

In England, Canada, the United States of America, Australia, and European Continental countries foul-brood was playing havoc among the bees in the eighties, and threatened to be as disastrous in this respect as the disease known as "pebrine" had previously been among the silkworms. In New Zealand

it was killing off the bees wholesale, and many of those who had intended to take up beekeeping as a business gave it up in despair.

The late Frank R. Cheshire, F.L.S., F.R.M.S., and others in England and on the European Continent, were endeavouring to find some means of cure in one or other of the known germicides. At one time salicylic acid solution, of a certain strength, for spraying over affected combs, painting over hives, and mixing with syrup for feeding the bees, was given out as a cure if properly applied. This, however, practically proved a failure. Then came the Sproule and Cheshire cure, which consisted of a solution of Calvert's No. 1 phenol (pure carbolic acid in crystals), used much in the same way as the salicylic acid. After Cheshire had experimented with this drug, and declared he had cured bad cases of disease with it, it was generally believed that a genuine cure had been found. The remedy was tried throughout the beekeeping world, and though some cases of cure were reported, it generally failed, and was given up everywhere except in England and perhaps some other parts of Europe.

Other drugs, both in solution and vapour, have been tried without success, yet many British beekeepers stick to drug treatment to this day, notwithstanding that such treatment has long since been abandoned in other countries. The most the drugs ever did was to check disease in some cases.

THE BOX-HIVE MAN.

In addition to the trouble we previously had with box-hive and other careless beekeepers, in spoiling the honey market, they were now the cause of a more serious difficulty to battle against. As they had no interest in their bees in so far as depending upon them for the whole or a part of their livelihood, it mattered not a jot whether their bees died from disease or not. The boxes containing the diseased combs were left just as they were before the inmates had died, for other bees to enter and so spread disease. When warned of the mischief caused in this way, I do not suppose one box-hive man in fifty took the trouble to destroy the diseased boxes and contents. In fact, many stray swarms that were caught were dumped into these same boxes to spread disease and die off as their predecessors had done. We did everything possible to alter this state of things without avail, and it was then only a matter of giving up beekeeping altogether or struggling along as best we could, always hoping for better things to turn up. I made a solemn vow at that time that if ever the opportunity came I would do my utmost to do away with box-hives and their owners from beekeeping in New Zealand altogether. That time did come, but it took twenty years to bring it about—"better later than never."

THE FIRST APIARIES BILL.

As already stated, the draft of the bill drawn up by the sub-committee of the New Zealand Beekeepers' Association appointed for the purpose in March, 1888, was submitted to and adopted by the executive committee on the 28th of the following month. It was also decided, in order to strengthen the hands of the president (Mr Frank Lawry, M.H.R.), who consented to take charge of the bill, to obtain as many signatures as possible of beekeepers throughout the colony, praying the Legislature to pass the bill. Petitions were sent to members of the corresponding committee residing in different parts of the country from Otago to Auckland, which were subsequently returned signed by 470 leading beekeepers, and were forwarded to Mr Lawry at Wellington, in June, 1888.

The following is a complete copy of the bill as presented to the Parliament of New Zealand during the session of 1888. I am pleased to be able to give it, as, when compared with our present Act, it seems somewhat of a curiosity. It must be understood, however, that we had to provide for the administration of the Act without any expense to the Government, as the Treasury was nearly bankrupt at the time. It must be further understood that the drug treatment of foul brood was then fully believed in, hence the schedule attached.

FOUL-BROOD AND DISEASE IN BEES PREVENTION ACT.

1. The Short Title of this Act is "The Foul Brood and Disease in Bees Prevention Act, 1888."

2. In the construction of this Act, if not inconsistent with the context:—

"Bee-keeper" means any person who keeps or allows to be kept on his property one or more colonies of honey-bees.

"Bee-expert" means any person skilled in apiculture appointed by law to carry out the provisions of this Act with regard to the examination of bees, beehives, or combs alleged to be diseased, and the ordering of measures to be taken with respect to diseased bees, hives, and combs, by the owner or other duly-authorised person.

"Hive" shall mean any box, basket, skep, barrel, or any other receptacle in which bees are domiciled.

"Colony of bees" means the number of bees confined in any hive.

3. For the purposes of this Act there shall be appointed by the Governor one or more bee-experts to carry out the duties hereinafter set forth.

4. After the passing of this Act it shall not be lawful for any beekeeper knowingly to keep or allow to be kept upon his premises any colonies of bees infected with "foul-brood" or other contagious bee disease, without taking the proper means described in the first Schedule to cure such disease; and if, for more than seven days after becoming aware that any bees on his premises are affected with contagious disease, he shall neglect to destroy by fire or to take the proper measures to cure such disease, he shall be liable to a fine not exceeding forty shillings.

5. If, in any locality where colonies of bees are kept within six miles of other domesticated bees there is reason to suspect that any such bees in such colonies are diseased, it shall be lawful for any two beekeepers to send in writing a notice to the owner of such colonies, and require him to satisfy them by any reasonable means that his bees are free from disease, or otherwise that he has taken measures to eradicate the disease by destroying the infected hives, bees, and comb, or otherwise by treating them by one of the modes described in the First Schedule. A copy of such notice shall be forwarded at the same time by the complainants, accompanied by their names and addresses to the nearest Magistrate.

6. On receipt of such notice the owner of such bees of which complaint has been made, shall forthwith take steps to satisfy the complainants by whom the notice was sent, either by allowing them to inspect the suspected bees, combs, and hives, or by other reasonable means, that the said bees, combs, and hives are free from disease, or that he has taken the proper measures to eradicate the disease if the same exists.

7. If after the expiration of three days from receipt of the notice the keeper of the suspected colonies neglects to reply to the notice, or if, having replied, he fail to satisfy the senders of the notice as set forth in the preceding clause, it shall be lawful for them to complain in writing to the nearest Magistrate, reporting such neglect, a copy of such complaint being at the same time sent to the offending beekeeper; and on receipt of such complaint the said Magistrate shall, without delay, instruct a constable to accompany the complainants, and with them to enter upon the premises of the offending beekeeper, and then and there to require him to open such hives and expose such combs as the said complainants may direct; and, in case of his refusal, to authorise the said complainants themselves to open and examine such hives and combs as they may deem necessary.

8. If after such inspection the said complainants shall be satisfied or or suspect the existence of disease in all or any of the hives so inspected, the constable shall require the said beekeeper, or, in case of his refusal, the said complainants, to cut out from each suspected hive a portion of comb not exceeding six inches square, and to place each portion or portions of comb in separate tin cases or boxes, marking the same with a legible mark corresponding to a mark placed upon the respective hives from which the portions of comb were taken, and then and there to seal such case or box, and to deliver the same thus packed and sealed to the constable for transmission to the nearest expert, together with a document signed and in the form set forth in the Second Schedule; also, the cost of carriage, and the payment of the expert's fee as hereinafter provided for. Provided always that if the keeper of the infected bees shall, in the opinion of the complainants, take sufficient steps to destroy by fire the suspected hives, combs, and bees, then it shall be unnecessary to send the suspected combs to the bee-expert, as above described.

9. On receipt of a parcel of comb for examination, the bee-expert shall examine the same without delay, and if, in his opinion, the comb is infected with contagious disease, or if it be free from disease, he shall notify the fact in writing forthwith to the complaining beekeepers, as also to the constable; and shall transmit with such notification directions as to the steps to be taken with respect to the colony or colonies of bees from which the combs were taken; and upon the receipt of such notification from the bee-expert, the constable shall notify the keeper of the infected or suspected bees of the result of the examination, and require him, within three days, to carry out the instructions of the bee-expert to the satisfaction of the complaining beekeepers; and, in case he shall fail to carry out such instructions within the time specified to the satisfaction of the complainants, they shall report such default to the nearest Magistrate, who shall direct a constable to accompany the said complainants to the premises of the keeper of the infected colonies of bees, and shall authorise such constable to carry out the instructions of the bee-expert, and in such latter case the offending beekeeper shall defray all the costs of the examination by the bee-expert, and for the loss of time and other reasonable expenses incurred by the complaining beekeepers or such constable.

10. If the offending beekeeper shall wilfully obstruct the carrying out of the instructions of the bee-expert, he shall be liable to a fine not exceeding twenty shillings for each infected hive.

11. The fee payable to the bee-expert for examination of one sample of comb shall be five shillings, and for other samples sent from the same apiary, at the same time, one shilling for each additional sample.

12. In the case of any examination of suspected comb by the bee-expert, his fee, and all costs attending such examination and incidental to the complaint, shall be payable by the complaining beekeepers if the comb or combs be reported upon as free from contagious disease; but if found to be infected by disease, then such fee and costs shall be payable by the keeper of the diseased bees.

13. After samples of comb have been taken from any suspected hive or hives for the purpose of examination by the bee-expert, if such hive or hives shall be removed or interfered with in any manner whatsoever by any person, or if any person shall obliterate or otherwise render illegible any official mark placed upon such hive or hives, save and except upon the authority of the bee-expert, the keeper of such hive or hives shall be liable to a fine not exceeding sixty shillings for each hive or mark so interfered with.

14. All fines and penalties made payable under this Act shall be recoverable summarily under "The Justices of the Peace Act, 1882."

SCHEDULES.

FIRST SCHEDULE.

In bad cases, total destruction of bees, hives, and combs by fire.

In mild cases, or as a preventive, any of the following remedies:—

No. 1. Salicylic-acid, solution for mixing with syrup for feeding bees, painting the interior of hives, and spraying combs and frames—Salicylic acid, 1oz.; soda borax, 1oz; water, 4 pints.

Medicated syrup for feeding bees affected with contagious disease:—(a) For use from August to May: Ordinary table sugar or honey, 10lb.; water, 7 pints; vinegar, 1oz.; salicylic-acid solution No. 1, 1oz.; salt, 1oz. Mix and boil for a few minutes. (b) For use from May to August: Ordinary table sugar or honey, 10lb.; water 5 pints; vinegar, 1oz.; salicylic-acid solution No. 1, 1oz.; salt, ½oz. Mix and boil for a few minutes.

No. 2. Absolute Phenol: Pure phenol in crystals, 12oz.; water, 3oz. Shake well until dissolved.

No. 3 Phenol Solution: Pure phenol solution, No. 2, 1oz.; water, 1 pint. Shake well until the oily appearance has entirely disappeared.

Phenolated Syrup:—For use from August to May: Sugar syrup as given in recipe for medicated syrup (a) (omitting salicylic-acid solution No. 1), 1 pint; phenol solution No. 3, 1oz. For use from May to August: Sugar syrup as given in recipe (b) (omitting the salicylic-acid solution No. 1), 1 pint; phenol solution No. 3, 1oz.

No. 4. Phenol solution for spraying bees and combs: Absolute phenol solution No. 2, ½oz.; water, 5 quarts.

General Treatment of Diseased Bees:—Remove the diseased bees with their hive from its position and put another hive, that has previously been disinfected by painting the interior with No. 1 solution of salicylic-acid or No. 3 solution of phenol, in its place. Transfer the frames, combs, and bees from the old hive, spray them with No. 1 solution or with No. 4 solution, and put them in the new hive. Remove most or all of their honey, and feed the bees on medicated or phenolated syrup until cured of disease. The old hive must be thoroughly disinfected in the manner described, as also the hands, and everything that has been in contact with the diseased bees or their hive.

SECOND SCHEDULE.

To the Bee-expert [Here insert name and address].

I, Constable [Here insert name and address], have this day sent you [Here insert number] portion or portions of combs marked [Here insert marks on combs], cut from hives believed to contain or have contained diseased bees, and I desire you to examine such combs and report to me and to [Here insert names and addresses of complaining beekeepers] in writing your decision and the steps to be taken with such bees, combs, and hives from which such portions of comb were taken. Fee for examination and report enclosed.

I have &c.,

A.B., Constable.

The bill was very favourably received, and Mr Lawry was promised the support of the Government. It was read the first time, but was shelved at the end of the session. The next session being the last of that Parliament, Mr Lawry thought it would be useless to bring it on, and as we were beginning to find the drug treatment a failure, the bill was dropped altogether.

In the light of later experience I have often thought that it was just as well it did not become law, but it was a creditable effort to get control of bee disease in those early days.

ADULTERATED HONEY FROM AMERICA.

Few of the younger generation of beekeepers are aware that early in the "eighties" some of the canning houses in America were flooding the markets of the world with a spurious honey composed, according to the "San Francisco News Letter," of August 30, 1884, of 56 5 per cent of glucose, 25 per cent of water, and only 15 per cent of honey. In 1886 it began to be sold in New Zealand, and two years later our markets were full of it, to the detriment of the sale of pure honey. The above analysis of the spurious honey was confirmed by Mr R. J. Kendall. When on his way to New Zealand from America he visited the largest canning factory in San Francisco, and was shown over the works by one of

the head men. Mr Kendall had kept bees, and was aware of the adulteration going on, consequently he tasted the so-called honey being bottled, and when he challenged his host as to its purity, was told in confidence that it only contained 15 per cent of honey, the rest being glucose and water with flavouring.

Mr Kendall brought a bottle of the stuff to Auckland, and without telling me what it was, invited me to taste it and say how I liked that honey. After sampling it, I said, "If that is honey, it is a very poor sample," and that "I had never tasted such honey before." He then told me what it was, and how he came by it. The quantity of honey in it being so small, and the glucose the chief constituent, the most appropriate name for the stuff would have been adulterated glucose.

No one knew better than myself the injury this imported fraud was doing to our legitimate honey trade; consequently I realised that something must be done to prevent this spurious stuff being imported and sold as honey, otherwise commercial beekeeping in New Zealand would be ruined. At a meeting of the New Zealand Beekeepers' Association held on May 4, 1888, I brought the matter forward, and suggested that the association should take immediate steps to induce the Government to place an import duty of 2d per lb on all honey coming into the country. The meeting, being in accord with the suggestion, passed the following resolution:—

"That in the interests of the honey industry in New Zealand, and to protect the legitimate honey producer and the public against the importation of spurious honey, a duty of twopence per lb. should be imposed upon all honey imported into the colony."

This resolution I forwarded to our president at Wellington. As it happened, our action was taken at a very opportune time, as the Customs tariff was then being revised and was before Parliament. A copy of the proposed new tariff was received by me, and as there was no mention of honey in it I at once wired to our president, Mr F. Lawry, drawing his attention to the omission, and also sent an explanatory letter. In reply I received the following:—

"Wellington, May 30, 1888.

"Dear Sir,—I have just received your telegram re the omission to place an import duty on imported honey. I have seen the Premier (Major Atkinson), who has expressed deep regret at the inadvertence, and promised to use his utmost endeavour to rectify the error. I have reason to believe that he will succeed in doing what we require."

The following also formed part of the same letter:—

"Re the Foul Brood Bill, I think it will pass, as I have been offered a very large measure of support. The Bill is now in the hands of the printer; the second reading comes on on June 14, when, of course, I shall make a speech explanatory of the disease, and the serious drawback it is to the beekeeping industry in this colony.—Yours truly,

"(Signed) F. LAWRY."

The Customs tariff was subsequently amended and the desired duty placed on all imported honey, which has never been taken off. It blocked out at once the American and other fraudulent honey from our markets. I, however, who first suggested the duty, suffered by our action. I had at this time opened up a fairly good trade with New South Wales for our best honey, but, following our lead, the Government of that colony placed a similar duty on imported honey, which closed my trade with New South Wales.

HONEY PAMPHLETS.

The New Zealand Beekeepers' Association, realising the need of encouraging the general use of honey as a food, arranged to get out a 12-page pamphlet describing the uses to which honey can be put as food and for medicinal purposes. The pamphlet was compiled by Mr T. J. Mulvany and myself, the printing and publishing being left in my hands. Many thousands were issued, and each beekeeper received them at actual cost price, purchasing as few or as many as he wished. A space was left blank on the front cover for the purchaser's name and address to be printed in after his order was received. The pamphlet did an immense amount of good in increasing the demand for honey; it was kept in type for a long time, so that a fresh issue could be made from time to time.

I was very much surprised when one of our Beekeepers' Associations some three years or so ago induced the Department of Agriculture to publish in its entirety a honey pamphlet compiled by

an American beekeeper, thus indicating as much that we had not talent enough among the whole of our beekeepers to produce an original one. I sincerely hope, for the credit of our New Zealand beekeepers, that such a thing will never occur again. The title of the original pamphlet was: "Honey, the Natural Sweet for Human Food; Its General Use Conducive to Health and Economy." It was published in March, 1888.

BEEKEEPERS' PROTECTION FUND.

In the early days of our commercial beekeeping on modern lines there was a good deal of passive opposition on the part of farmers against the establishment of apiaries in their neighbourhood, and in two or three instances, to my knowledge, in the Auckland province, it threatened to become active. The farmers' complaint was that the bees, in gathering nectar from their clover pastures, were depriving their cattle of a considerable amount of fattening matter, and giving nothing in return. On the face of it this seemed feasible to the ordinary farmer, and as the same complaint had been made in America we were in danger of having to contest a lawsuit, which, if it turned out unsuccessful to the beekeeping interests, might have ruined the industry at the time, and its effects would probably have been felt at the present day.

The threatened action against a beekeeper in the Te Awamutu district on account of his "trespassing bees" by a neighbouring farmer brought the matter to a climax. The complaint of the beekeeper was first made known to me as editor of our bee journal, and I brought it at once before the executive of the New Zealand Beekeepers' Association, when it was decided that if an action took place the ablest lawyer we could get should be engaged by the Association to fight the case; it was decided also to form a defence fund by a levy of one shilling annually from all members of the parent and affiliated associations, to be solely devoted to defend beekeepers against such actions.

Realising the gravity of the situation from what had already occurred in America, I saw it was necessary to bring some kind of proof forward that the so-called trespassing bees did incalculable good instead of harm to pastures. After consulting my friend, Mr. T. J. Mulvany, who owned an extensive library on agriculture, and agricultural chemistry, I published in the "New Zealand and Australian Bee Journal" for August, 1884, and following numbers, an article on "Apiculture in Relation to Agriculture," which had more than a local influence in convincing farmers that it was to their interests to encourage beekeeping rather than oppose it. The question is now better understood among the farming community, so that it is hardly likely that any one of our settlers would be so foolish as to oppose the keeping of bees now or in the future. Still, there are other questions which make it desirable to have a general defence fund in hand. I was sorry our National Beekeepers' Association at the last conference (1914) postponed consideration of the question when the motion to form a defence fund was brought forward, the matter is of so much importance and the expense per member so trifling.

RAILWAY FREIGHT ON HONEY AND HIVES.

The executive committee of the New Zealand Beekeepers' Association was fully alive to the fact that in comparison with other agricultural implements and produce, the freight over the railway lines of the country for hives and other beekeeping implements, and also for honey and beeswax, was exceedingly high. Consequently, in June, 1888, a sub-committee was appointed to go into the matter and report to the executive at the next meeting. On July 6, 1888, at the usual monthly meeting the following report was read:—

"Mr. Chairman and Gentlemen,—Your sub-committee, on going through the supplement to the 'Government Gazette,' dated January 30th, 1888, containing the scale of rates and charges on the New Zealand railways, we found: 1st.—That extracted honey of local production, packed, is rated under class C, and the charge per ton for 100 miles is £1 13/7.

"2nd.—The same as above for export in not less than 10cwt. lots, is rated under class D, and the charge per ton for 100 miles is £1 6/6.

"3rd.—The same in kegs or casks is rated under class B, and the charge per ton for 100 miles is £2 1/6.

"4th.—Beeswax is rated under class A, and the charge per ton for 100 miles is £2 9/4.

"5th.—Of apiarian implements only bee-hives are mentioned, and these are rated under the highest class (A), the same as beeswax, and the charges are the same.

"6th.—We are given to understand that goods not specified in the 'Gazette' are rated under class A, so that all apiarian implements are charged the highest rates.

"With regard to the carriage of honey you will notice there is a difference in the charges between the highest and lowest rates of 15/ per ton for 100 miles. Your sub-committee cannot see any reason why there should be this or any difference in the charges. Honey, if properly packed, is as easy of carriage, whether in cases or casks, as any other class of goods, and it cannot possibly affect the cost of carriage to the Railway Department whether the honey is intended for export or for local consumption. We notice that beer in casks is carried at a lower rate than honey in casks. We are of opinion that honey securely packed, either in cases or casks, in large or small quantities, should be rated under class D, the same as fresh fruit, to which (so far as they may both be considered as country produce) honey can be compared.

"Beeswax, though a raw material produced in the country, chiefly used here for apiarian purposes, and exported, is at present charged an exorbitant rate compared with other country produce, and we can see no reason why it should not be rated the same as recommended for honey, in class D.

"Beehives and all other apiarian appliances which can fairly be compared with agricultural implements, we are of opinion, should be carried at the same rates as the latter, under class C.

"Taking into consideration the fact that a great deal of the material connected with apiculture has to pass twice over one or other of the railway lines of the colony, and the complaints constantly being made of the high rates for carriage, we are of opinion that if our recommendations are carried out, it will be the means of giving an impetus to the industry of beekeeping throughout the colony, and cause an increase to the revenue of the Railway Department from this source.

"We would suggest that if our recommendations meet with your approval, and the report be adopted, copies be sent to the Hon. the Minister of Public Works, Mr. Lawry, M.H.R., and Mr. C. Hudson, Traffic Manager, Auckland Railways, with a request from your committee that the recommendations be favourably entertained.—G. L. Peacocke, chairman sub-committee."

The report was unanimously adopted, and it was decided to act as suggested.

Subsequently a reply was received from the Minister of Public Works, in which he regretted he could not see his way to alter the railway tariff in the direction suggested.

THE FIRST ONE-PIECE SECTIONS MADE IN NEW ZEALAND.

At the commencement of the season of 1888-9 I was agreeably surprised by receiving from the late Mr T. G. Brickell some samples of one-piece sections manufactured by himself on machinery imported from A. I. Root, United States, America, and soliciting orders, which I gladly gave him. The samples he sent were plain, and my first order for 5,000 was contingent upon his grooving one end to fasten foundation in without the use of melted wax. This he did, and I subsequently had many thousands from him. They were a great boon to our beekeepers raising comb honey, and were the same as those now in use. The basswood sections from America, however, proved the best, as none of our native timbers are so suitable for the purpose, and we now import them from the A. I. Root Company.

DENSE HONEY.

"Thick" honey, as it is usually called, that is, honey that cannot be thrown from the combs by the ordinary process—the extractor—has been more or less of a nuisance to New Zealand beekeepers, ever since I can remember. It does not seem to be confined to any particular district, but it evidently gives more trouble in the North Island than in the South, especially in the Waikato, and districts north of Auckland. Much of our native bush yields dense honey, and my first experience of it in 1879 came from the bush. It still remains more or less of a query as to what it is gathered from, and I think our apiary inspectors would benefit

many if they would take the matter in hand and discover the source of this thick honey. I believe much of it is gathered from ti-tree (Leptospermum scoparium).

POISONOUS HONEY.

That there are two plants in New Zealand which yield poisonous honey does not admit of doubt to those who have carefully studied the matter. New Zealand, however, is not singular in this respect, for such plants are found in most countries, chiefly among the heathworts (wild azaleas and rhododendrons), and laurels. My first knowledge that there were native plants yielding such honey came from Maoris at the Thames, in 1878. They not only gave me the native names of the two plants they knew of, but described very accurately the symptoms and effect on human beings of honey poisoning; and also gave me to understand that such honey if allowed to remain exposed for six weeks after it is gathered, can be eaten in safety, to all of which I have since had proof of correctness.

During my 42 years of beekeeping in New Zealand I have only known of four clear cases of honey poisoning; that is, where the poisoning could be distinctly traced to honey eaten by the sufferers, so that the risk is not very great. The danger lies in eating honey obtained from wild bee nests in the bush in the month of October, when the Wharangi (Brachyglottis repanda) is just going out of blossom, and again in March and April, when the Waoriki (Ranunculus rivularis) is in blossom—the latter flourishes in swampy districts.

As the honey season proper, on which commercial beekeepers rely, does not commence until about the beginning of December, and no honey is taken till the latter part of that month (more than three months after the Wharangi yields nectar) it follows that no honey from that source can reach the market. And again, the honey season of the commercial beekeeper has ended before the Waoriki begins to blossom, so that there is absolutely no risk in purchasing honey of a known brand put on the market.

I have always endeavoured to get at absolute facts in cases of alleged honey poisoning, in order to correct unreliable reports that get about. In two cases my inquiries led to an acknowledgment that the trouble was not caused by honey; in one of them I ate some of the so-called poisonous honey without ill effects.

One of the most severe cases I have known occurred in the Bay of Plenty, ten miles from Matata, in the autumn of 1889, when two young Maoris lost their lives. As I could not go personally to investigate the matter, my friend, the Rev. J. R. Madan, who was then stationed at Matata, undertook the work and furnished me with a full report, which I published in the "Australasian Bee Journal" for December, 1889. They were out pig-hunting (three young Maoris), when they came across a bee nest in an old tawhero tree, overhanging a deep ravine, and obtained some of the honey from it. According to the survivor, neither of them ate more than about half a pound of clean honey in the comb. About two hours afterward symptoms of poisoning set in, giddiness and vomiting, then delirium and cramps; they all made for a stream to drink water. (An old custom with Maoris when suddenly taken ill.) One was overcome on the way and fell unconscious, while the other two were found dead in the stream; they had apparently, from their bruised condition, fallen over the precipice leading to the stream. The one who fell on the way recovered consciousness early next morning, and made his way to a settlement near at hand, when searchers went forth and discovered the other two.

The immediate cause of death was not honey poisoning, but exposure and drowning. Had they been overcome before reaching the precipice like their mate, they would likely have recovered.

In another case I investigated personally, six Maoris were poisoned but all recovered. This latter occurred in October (spring) and the former in autumn.

During the past 42 years I have eaten large quantities of honey gathered in many districts without ill effects, so that the risk of injury from eating commercial honey is practically nil.

FROM 1892 TO 1905.

The various notable events in the progress of commercial beekeeping in New Zealand from its inception up to the year 1892, have all, I think, been set forth, it now only remains to deal with the last but most important stage in its history.

The time that elapsed between the years 1892 and 1905 was, without doubt, the most dreary and disheartening period experienced by advaneed beekeepers in New Zealand. Box-hive men and bee disease (foul brood) held sway, ultimately reducing the industry of commercial beekeeping to near the vanishing point, while, in the absence of legislative power, nothing could be done to mitigate the evil. Hundreds lost heart and dropped out of beekeeping, while only the pluckiest, and those who had sunk all their little eapital in the business struggled on in the faint hope that things would be better some day. Only those who laboured through that weary time with their bees, constantly engaged in an uphill fight against foul-brood, which the box-hive and other careless beekeepers were propagating, can realise to the full the blessings of our present conditions under legislation.

THE ADVENT OF THE DEPARTMENT OF AGRICULTURE.

It was to be expected, under the foregoing condition of things, that numerous complaints reached the Department of Agriculture. These met with a sympathetic response from Mr. T. W. Kirk, chief of the Hortieultural Section of the Department of Agriculture, to whom they were submitted. He strongly advised in his annual reports the appointment of someone experienced in modern bee culture to undertake the duties of placing commercial beekeeping on a sound footing. As the result of Mr. Kirk's advocacy, a sum of money was voted by Parliament in the session of 1904 for the promotion of bee culture. In November of that year I received a letter from the late Secretary of Agriculture—Mr. J. D. Ritchie—asking me if I would undertake the position of Government Apiarist. Although I had then settled upon going to England, having retired from business more than two years before, the opportunity of getting at the box-hive man was too great an allurement for me to miss the opportunity. Consequently I accepted the position, and gave up my trip.

RAPID PROGRESS.

On January 23rd, 1905, my duties commenced, and as I had all along urged legislation to control our difficulties, it was now fully expected that such measures would soon receive attention. Our advanced beekeepers looked forward with confidence for better times, the Department's action had put new life into the industry, and everything prayed for in the past seemed about to be accomplished.

During the interval between my appointment and submitting my first official report — about ten weeks—I had seen sufficient in my inspection of 119 apiaries containing 2,450 colonies of bees (nearly 25 per cent of which were in common boxes), to further confirm the necessity of at once taking steps to bring about legislation to control the industry, and oust the careless box-hive men. Subsequently I found in some districts as many as 60 per cent of box-hives, hundreds of them empty of bees, but still on their old stands, the inmates having succumbed through disease and starvation. These diseased boxes were free for other bees to enter and carry away infectious germs, yet in the absence of legislation there was no legal power under which I could destroy them or their combs. Some few box-hive men were amenable to reason, and made away with their diseased bees and boxes, while the majority did not care a rap, and would neither destroy nor allow them to be destroyed. I, therefore, strongly urged legislation in my first report—March 31st, 1905—which was supported by my chief, Mr. T. W. Kirk.

FORMATION OF BEEKEEPERS' ASSOCIATIONS.

Knowing that any reform in the way of legislation would receive the support of all our advanced beekeepers, but realising at the same time that to have the desired effect this support would need to come from united bodies of beekeepers, instead of from individuals, I set about the formation of beekeepers' associations in the chief centres of beekeeping, as we could not then foresee what, if any, opposition we might encounter.

Early in 1906 I had the pleasure of assisting in the formation of the first one—"The Southland Beekeepers' Association"—(all previous associations being defunct), with my friend, Mr. James Allen, as president, an office he recently relinquished. This association has done excellent work all through its career, and it is worthy of mention that it was the first association to give unanimous support to the amendments to the Apiaries Act, which have since been adopted by Parliament. The Waikato, Hawke's Bay, Canterbury, and Poverty Bay Beekeepers' Associations were formed not long after. These associations, by giving their unanimous support in favour of legislation, strengthened the hands of the Department, and made it comparatively easy to bring about the desired result.

The formation of the South Taranaki, North Otago, Pahiatua, South Canterbury, and Marlborough Associations followed in point of time, and these in their turn have added fresh strength to all movements in the interests of commercial beekeeping in New Zealand.

STARTING THE FIRST STATE APIARY.

Some attempt had been made to start an apiary at the Ruakura Government Farm before I joined the Department, but as there was no one on the farm who understood the management of bees, nothing beyond purchasing some colonies and hives and placing them on the farm had been done. In September, 1905, I was requested to start a permanent model apiary with the fifteen colonies of bees already on the farm. A site was chosen, an extracting-house built on cheap but efficient lines, as a model for beekeepers with little capital, and everything was done that could in any way assist beginners by example.

It was decided to increase our operations up to about 100 colonies, so as to provide sufficient work during the busy season to keep two or three cadets going. As my duties required my travelling all over the Dominion, someone had to be appointed to take charge, and in January, 1906, Miss Lena Livesay was appointed to the position as manageress of the apiary, a position she filled in a most efficient manner until she retired in May, 1909, to go to her people in England. She has now a large apiary in Canada, where, according to recent advice, she is doing well.

If we may judge of the usefulness of the Ruakura State apiary by the many hundreds, I may say thousands, of prospective beekeepers who have visited it to glean information how to start to the best advantage, and the successful train-

A CORNER OF THE RUAKURA STATE APIARY.

ing of cadets every year since it started, then there can be no question as to its having fulfilled an important function in the progress of advanced bee culture in New Zealand. Nearly forty young women and several young men have been trained, one having come specially from England, and another young lady from the same country is about to leave to take up a cadetship at the apiary for next season. Three young women came from Australia, two of whom are now working in partnership as commercial beekeepers near Drury, in the Auckland province. All the former cadets I have heard from have been successful as apiarists.

It may here be mentioned that all cadets are required to go through a full season from September to end of following April, and are at the end of their term put through a thorough examination before being entitled to a Government certificate; if unsuccessful in their examination, no certificate is issued. It may be worthy of note that only one cadet has failed, chiefly through sickness.

LEGISLATION.

Early in 1906 I was requested by my chief to draft an Apiaries Act in time for it to be prepared for the ensuing session of Parliament. This was done, and I had the satisfaction of learning (as my chief has since declared) that the draft, after passing through the law officer's hands, came back practically unaltered. It was duly submitted to Parliament as a Government measure, and passed into law, but unfortunately three words had been added to one of the sections while in committee, that completely frustrated the chief feature of the whole Act—the absolute exclusion of all else but movable comb hives as domiciles for bees.

It was a great disappointment, but as the Minister for Agriculture subsequently explained, there was only a few minutes left to get the bill through, and he (Hon. Mr. McNab) had either to accept the amendment or lose the opportunity of getting it through that session. He, however, promised to bring the Act before Parliament next session to have the three objectionable words struck out. In the amended draft, the word "honey" had been inserted in section 8, sub-section b, which would have made it illegal for honey to be sold or given away from any apiary affected with foul brood.

Fortunately, my chief and myself were called before the Parliamentary Committee when the new bill was being considered, and we got the word "honey" expunged; otherwise, as nearly all our apiaries had more or less foul brood in them, they would have had to close down. The amended bill went through, and was made law exactly in the form we wanted it in the session of 1907, thanks to the assistance given by our Beekeepers' Associations.

NEW REGULATIONS UNDER THE APIARIES ACT.

In my annual report for 1909, I suggested the compulsory registration of all apiaries in order to assist and save the time of the inspectors, and also that strict supervision should be exercised over all imported bees to prevent disease being introduced from other countries. Both these suggestions, with regulations connected with the export of honey added by the chief of the division (Mr. T. W. Kirk), have since received the sanction of Parliament, been Gazetted and become law.

The Apiaries Act, as it now stands, is without doubt the best of its kind now in force in any part of the world for protecting the interests of commercial beekeeping.

STATE APIARY AT THE CHRISTCHURCH EXHIBITION.

As one of the Department's working exhibits at the Christchurch International Exhibition, 1906-7, the Government decided to have a model apiary. It was thoroughly equipped with honey house and every modern appliance, and was run as a model bee farm, the honey secured being exhibited in the Department's quarters. The apiary occupied about half-an-acre, surrounded by a six-foot fence of wire-netting, over which sweet peas were grown; it was a most attractive and popular exhibit, and did an immense amount of good in making the modern system of beekeeping known, as well as being instrumental in creating a greater demand for honey. In this connection a vote of thanks was forwarded to me passed at the first meeting of the Canterbury Beekeepers' Association (which was formed shortly after,

with Dr. Cockayne as its first president) for the good that had been done to Canterbury beekeeping by the example of the Exhibition apiary. The Exhibition opened on November 1, 1906, and closed in May, 1907. During its currency the Ruakura Apiary was practically neglected, as the manageress (Miss Livesay) assisted me at Christchurch the whole six months.

APPOINTMENT OF THE FIRST INSPECTORS.

At the beginning of 1908 two apiary inspectors were appointed, one for each Island (Mr. R. Gibb for the North, and Mr. W. B. Bray for the South Island), their duty being to do everything possible to assist legitimate beekeepers, to cope with disease (foul brood), and to abolish box-hives. A permanent improvement soon set in, which has been going on ever since. Subsequently the two first inspectors resigned to take up bee farming themselves, and four were afterwards appointed, Messrs. G. V. Westbrook and F. A. Jacobsen for the North, and L. Bowman and E. A. Earp for the South Island. These have been supplied with motor cycles, which enable them to do much more work than formerly; they also act as graders of all honey for export. Under the fostering care of the Department of Agriculture our industry of commercial beefarming is advancing rapidly, and I venture to say stands at the head of the bee-keeping world.

FOUL BROOD AT THE RUAKURA STATE APIARY.

The districts around that in which the Ruakura State Apiary is situated were among the worst in the Dominion for foul brood. I saw some of the very worst cases there that I have seen in any part of the country, not alone in single hives, but in whole apiaries, and over the whole country there about. The colonies I started the State Apiary with that were already on the farm were affected. By constant attention and treatment we were able to keep the disease from spreading, and when we left for the Christchurch Exhibition there were six colonies out of over 70 slightly affected with foul brood. When we returned in the following June, 1907, we found disease had spread through robbing to nearly every colony. Being winter we could not then undertake treatment, but early in the following season we treated a number of the worst cases, and replaced bad with clean combs in others. As this did not turn out so satisfactory as we hoped, I decided to treat the whole of the colonies together the next spring, and did so between the 4th and 9th November, 1908. There were in all 72 colonies, which, in the treatment, were reduced to 64. The result was very satisfactory indeed, for although we still get a touch of disease in one or two colonies every season, by strict vigilance it gives us no trouble. Disease still lurks in the district, but is now in a fair way to be suppressed altogether.

AN ANXIOUS PERIOD DURING THE TREATMENT.

The process of treatment was that popularly known as the "McEvoy," and during the course of the operation we had a most anxious time through a sudden change in the weather. We had waited till the first week in November (as stated), when the weather is usually settled and warm, before undertaking treatment, and it was so on this occasion, with a fair flow of nectar on, but no sooner had we put the bees on to full sheets of comb-foundation on the fourth day than a sudden change took place, and a severe cold snap came on which cut off the flow of nectar, and put comb-building out of the question. The bees were now in a starving condition, and on the next (fifth) day began to drop from the sheets of foundation. The situation was most critical, as we were threatened with the loss of the whole of the 64 colonies. While in an almost hopeless state of mind it suddenly occurred to me to feed with warm syrup. This we did, and placed the feeders on the bottom boards after making room for them, and sprinkled a little syrup over the bees. Although many of the colonies were much weakened, the scheme saved the situation. Fortunately, favourable weather soon set in again, and comb building started. This circumstance acted as a warning against starting treatment too early in the season. The middle of November, I think, is quite early enough.

STATE QUEEN REARING APIARY.

During the first three years of my tour among our beekeepers in nearly all the principal beekeeping centres of the Dominion, examining thousands of colonies of bees in many hundreds of apiaries, and giving attention to the method of management among the majority, I could come to no other conclusion than that our bees were deteriorating. Excepting in very few cases no system of select queen rearing was carried out; the bees were allowed to breed their own indiscriminately, good, bad and indifferent, on the swarming system. Even where some attempt had been made to improve the bees by importing and introducing queens from America and elsewhere as breeding stock, it seemed to me the good results that might have followed this system, if thoughtfully carried out, were nullified in most instances by the absence of a little reflection. The majority of importers were obsessed with the idea that by introducing "fresh blood," that is, imported queens from different breeders, every second season or so (some went so far as to import them every season for a while), their bees would rapidly improve. When the suggestion was made that they would do better by introducing two or three queens from a reliable breeder, as breeding stock, then after requeening their apiaries from this stock, to select the best colonies to breed from each season, instead of introducing fresh and unknown blood into their apiaries so often, it was in most cases scouted. But the matter is now better understood, and I am quite satisfied that in consequence our bees, taken generally, have much improved during the last few years.

My suggestion to the Department in 1908 to establish a queen-rearing apiary at the Waerenga Experimental Farm, for the purpose of working up a superior strain of queens for distribution, was approved, and in September, 1908, it was started with 32 colonies. I chose Waerenga because it was in a manner isolated, few bees were kept in the district, and the situation was a long distance from the bush and wild bees. After the first season we had entirely cleared the district of disease (foul brood), and no sign of it had been seen up to the time the apiary was dismantled—five years after.

DISMANTLING THE WAERENGA APIARY.

It was not long after the apiary had been established before ample proof was forthcoming of the value of select queen breeding in the production of an improved strain of bees. Letters testifying to the good qualities of the queens obtained from the apiary were voluntarily sent to the Department; unfortunately, however, some misunderstanding got about concerning the working of the apiary (which I need not now go into) that militated against its usefulness, and at the end of the fifth year the Department decided to close it down.

What followed, however, was gratifying to both the Department and myself, for just as the above decision had been arrived at, it was discovered by the beekeepers themselves that there had never been the slightest foundation for the misunderstanding, and the Department was asked to retain the apiary. The Department would have done so, but unfortunately the request came too late, as the bees and plant were sold. Two deputations have since waited on the Minister of Agriculture asking for a State queen-rearing apiary to be re-established, and I am practically certain that the request would have been complied with had it not been that every penny the Government could spare was required for war purposes. I urgently suggest that as soon as an opportunity occurs our National Beekeepers' Association should press upon the Department the importance of re-establishing the queen-rearing apiary.

THE NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND.

The establishment of the above institution in September, 1910, was a great step forward in the onward progress of commercial beekeeping in this country, and laid the foundation for the big strides that have been made since. The credit for its initiation, under a slightly different name, is due to the Canterbury Beekeepers' Association, which brought about a conference of beekeepers at Wellington in the above month. Co-operation between all our beekeepers in matters that concerned the general welfare of our industry was the dominant note struck at the first conference, and much headway has been made in this direction during the intervening years.

It was intended to make the conference an annual function, but much to the regret of many nothing eventuated in 1911; in fact, the association had all but become defunct, and it was chiefly owing to the exertions of Messrs C. A. Jacobsen and E. G. Ward, of Canterbury, that the association was resuscitated, and the second conference held in August, 1912. Mr Jacobsen was then appointed president, and Mr Ward secretary.

The third conference was held in June, 1913, at Wellington, at which the attendance of beekeepers from all parts of the Dominion was much larger than heretofore, indicating that the idea of co-operation was making good headway. This was the most important meeting that had then taken place, a new and improved constitution was adopted, and the general business transacted induced a more hopeful outlook for co-operation in the future. At that conference Mr Jacobsen resigned the presidency of the association, and Mr James Allen, of Southland, was elected in his place, with Mr R. W. Brickell, of Dunedin, as secretary and treasurer.

Similar conferences were held in June, 1914, and in June, 1915, at both of which the interests of our industry in all parts of the Dominion were well represented. At the close of the last conference, Mr James Allen resigned (for health reasons) the presidentship, much to the regret of every beekeeper. Mr Brickell also resigned (for business reasons) the secretaryship. Mr J. S. Cotterell, of Te Aroha, was elected president, and Mr. Stewart Wright, of Dunedin, as secretary, Mr. Brickell still retaining his position as editor of the Association's journal.

"THE N.Z. BEEKEEPERS' JOURNAL."

The above, as the official organ of the National Association, was started in July, 1914, with the then secretary, Mr. R. W. Brickell, as editor. During its career it has served a very useful purpose. It has come out at the end of its first year with only the small deficit of £8 9/10, which may be considered very satisfactory.

N.Z. CO-OPERATIVE HONEY PRODUCERS' ASSOCIATION.

This Association was initiated some three years ago (1913) by a few of our most progressive beekeepers in the Taranaki province. It is a trading concern in the form of a company with a capital of £3,000, the shareholders being confined to New Zealand beekeepers, its object being to deal with New Zealand honey, both for export and local consumption. It has already entered into a contract to supply the Bristol and Dominions Producers' Association, annually for three years, not less than 100 tons nor more than 500 tons of high-grade honey for export to Britain—the terms are very satisfactory to producers. It is now establishing branch depots in all the principal beekeeping centres.

That such an institution is absolutely needed in the onward progress of commercial beekeeping in New Zealand there can be no doubt, and it depends upon the whole-hearted support of all engaged in that business to make the Association the complete success it deserves.

THE INITIATION AND PROGRESS OF OUR HONEY EXPORT TRADE.

These reminiscences would not be complete without some reference to the progress of our honey export trade and the trouble our pioneers in the business had to contend against.

Early in my career as a modern commercial beekeeper in New Zealand, I became convinced that owing to the adaptability of the country (its flora and climate) to this industry, large quantities of honey over and above our own requirements would be raised, and sooner or later we should have to look for a market outside of New Zealand for our surplus. This idea was confirmed when I raised the first big lot of honey in the season of 1883-4—ten tons—which was really a big lot in those days. It was such fine honey that a case or two of 2lb. tins were sent to England in March, 1884, as presents, and to test its value on the English market. The sequel was amusing; one case will suffice. It was a City of London firm, which dealt largely in first class honey, chiefly English and Narbonne. The sample was submitted to the firm's expert buyer, whose report upon it was, that "it is a very good sample of honey, but there is too much wax in it." The fact of it was, the expert (?) had never seen before honey so hard and dry, and he

was puzzled—I am certain there was not half an ounce of wax in a ton of it; there may not have been any.

The climax came when the merchant stated in his letter that with regard to the foreign article, "We only deal in Narbonne honey, but we will offer 2½d. per lb. landed in London for similar honey to sample." The whole of it was sold in Auckland at the rate of 7d. per lb. This, I felt absolutely certain, was the first New Zealand honey raised under the modern system to reach England.

The first commercial transactions of any note in the export trade that really constituted the opening of the English market for our New Zealand honey, were made by myself in 1888. For several years afterwards I shipped a good deal each season to England and New South Wales, until "foul brood" had played such havoc among the bees that there was little or no first grade honey to be obtained. From that time (1892) until the last few years there was no systematic export trade, a small consignment was sent now and again by individual beekeepers, the market was unreliable, and there was frequently a loss on the transactions due to the heavy expenses. In the past, the best of our honey has been retailed in England as "English" honey at 10d. and 1/- per lb., while the New Zealand producer has been lucky if he netted 3d. These are facts.

USE OF THE HYDROMETER.

Many years ago I realised the necessity of working out some scheme by which a given sample of liquid honey could be tested accurately for its ripeness by the average beekeeper; that is, to make certain the water content of the sample is within the point which might set up fermentation. It at once occurred to me that if we found out the minimum specific gravity by the hydrometer at which we could depend upon honey keeping any length of time without deteriorating, our purpose would be served. I therefore set about the investigation, and, after making some 250 tests, I came to the conclusion that any honey showing a specific gravity of 1.420 or over can be marketed without risk. These figures are now accepted by the N.Z. Honey Producers' Association, and the hydrometer is coming into general use among our beekeepers.

BRISTOL AND DOMINIONS PRODUCERS' ASSOCIATION.

This Association, which has been recently formed with its headquarters at Bristol, England, deals, as its name indicates, with New Zealand produce. It has already got practical control of the whole of our honey export trade to the mutual benefit of the Association and the producers. It deals direct with the New Zealand Honey Producers' Association, as previously stated, and the honey passing through its hands is put up and sold in England as New Zealand honey, under the latter's brand. The price guaranteed for all honey of first grade is 4d. per lb. in bulk, f.o.b. in New Zealand, without recourse, and any surplus after sales, less cost of bottling and 5 per cent. commission, is returned to New Zealand.

GRADING HONEY FOR EXPORT.

The event which I consider will have the greatest influence for good in the advancement of our export honey trade is the compulsory grading regulations, which came into force on December 1st, 1915. The Government brand on the cases denoting the quality or grade of the contents, will give confidence to the purchaser, and ensure the bona-fides of the transaction.

CONCLUSION.

I hope those of the bee-keeping fraternity who have taken the trouble to read through these reminiscences will have found something to interest them in the brief account of some of the pioneering work of the old beekeepers of New Zealand.

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