

*E.A. Earp*

# National Beekeepers' Association of New Zealand

## EIGHTH ANNUAL CONFERENCE

Held at the Chamber of Commerce, Auckland, June 8th, 9th and 10th.

### FIRST DAY—WEDNESDAY, JUNE 8th.

The Eighth Annual Conference of the National Beekeepers' Association of New Zealand opened in the Chamber of Commerce, Auckland, on Wednesday, June 8th. There were about 100 visitors and delegates present, and the President (Mr. W. Watson) was in the chair. Amongst those present were:—Mr. T. W. Kirk (Director of the Horticulture Division; Messrs. E. A. Earp, F. A. Jacobsen, G. V. Westbrooke, apiary instructors; A. P. Young, H. W. Gilling, and A. Gooding, apiary inspectors; Mr. J. Rentoul (Chairman) and Mr. C. F. Ryland (General Manager) of the N.Z. Co-op. Honey Producers' Association; Messrs. Y. H. Benton, F. E. Stewart, F. S. Everton, E. A. Brown, C. E. England, A. Parsons, H. Bannister, P. J. Darby, H. Martin, R. Smith, M. Matthews, A. Surrey, E. Farrell, H. Vickerstaff, W. J. Jordan, C. Pugh, J. P. Boyle, J. Cooper, H. Thomas, R. S. Hutchinson, J. Schmidt, L. Schmidt, N. J. Bowman, F. A. Johnson, A. L. Pearson, T. H. Pearson, W. Tarbott, A. Davies, A. H. Davies, A. R. Bates, E. W. Sage, I. Hopkins, T. E. Clark, U. A. Forgie, F. H. Forward, R. Cottle, A. L. Barrett, H. D. Hills, W. J. Trownson, A. L. Luke, T. H. Evans, R. W. Paris, H. Housler, H. Fraser, W. B. Bray, W. E. Barker, L. M. Woonton, H. Speary, W. J. Speary, W. Heald, W. A. Forsyth, A. B. Trythall, H. Shepherd, H. R. Penny, H. W. Earp, F. J. Trevelyan, R. Stewart, H. Bartlett-Miller, W. Copsey, H. C. Jones, R. W. Brickell; Mesdames Pugh, Gilling, Tarbott, Sage, Housler, Fraser, Bray, Speary, Trythall, Gooding, Penny, Jones; Misses L. J. Austin, Gilling, M. J. Clynes, Robinson, H. M. Bernard, H. Barnes, Darrow, Trythall, M. Ross, Paltridge, Hanham, and others.

An apology for absence was received from the Minister of Agriculture (Hon. W. Nosworthy), who expressed regret at being unable to attend to open the Conference, and hoped that the meeting would result in much good accruing to the industry.

Mr. Isaac Hopkins, President of the Auckland Bee Club, welcomed the delegates and visitors, as follows:—

“Mr. President, Ladies and Gentlemen,—Representing the Auckland Bee Club, branch of the National, I have great pleasure in welcoming you to the fair city of

Auckland, and trust your deliberations at the Conference will result in good to the industry and pleasure to the beekeepers present.”

The President then called on Mr. T. W. Kirk to open the Conference.

Mr. Kirk, who, on rising, was received with general applause, said he had had a good deal to do with the beekeepers of New Zealand for many years, both before and after the inception of the National Beekeepers Association. He had come to the Conference quite unprepared to open the proceedings, and had always thought the beekeepers straightforward, but now he thought differently. He added in a humorous strain that he had hardly got into the room before he was pounced upon by the Secretary to open the Conference, and he reckoned that was taking a mean advantage of him. However, he was pleased to state it was the last opportunity the Secretary would have of doing a similar thing, and no doubt he had had that in his mind, and had acted accordingly.—(Laughter.) Seeing there was a great deal of business to be got through, he would not detain them long, but would just give a few figures indicating the growth of the industry. In 1904 the value of honey exported was £83; in 1920 this had been increased to £31,134. The latest figures regarding registrations were 6,375 beekeepers, representing 84,326 colonies, which at an average return of 30/- per hive, represented a revenue of £126,500. The census of 1906 showed the honey and beeswax revenue to be only £22,000. These figures indicated that the industry was becoming more important every year, and he trusted this Conference would have a beneficial effect on the industry as a whole, and he had pleasure in declaring the Conference open for the transaction of ordinary business.—(Applause.)

The President moved a hearty vote of thanks to Mr. Kirk, which was accorded by acclamation.

### PRESIDENT'S ADDRESS.

I must congratulate the beekeepers of Auckland upon having the Eighth Annual Conference of the National Association held in this fine city, and it gives me

much pleasure in meeting you all. I am sure the idea that is being carried out by the Executive of holding the Conference in the different centres is fully justified by the gathering here to-day. I am gratified at the success of the honey crops in the North Island. Our southern brethren, I am sorry to say, were not so fortunate, due mainly to the dry conditions prevailing. We are looking for better times in the future.

As you are aware, our Secretary, Mr. Baines, toured the South Island, and from reports I have received has been the means of stimulating the growth of the National.

I do not need to dwell on the financial side of beekeeping, as all heard that yesterday at the annual meeting of the H.P.A., which attends to your financial requirements. The National is here to help you politically and socially.

No doubt Conferences are worth while if only to enable you all to rub shoulders with brother beekeepers; but we are also assembled here to voice the requirements of the whole beekeeping industry.

To-day the whole world is trying to regain its normal stride after the strenuous times it has passed through, and we, as producers, must play a part. We are producing one of the finest foods provided by Nature, and one which is there for the gathering. It is going to waste if we do not gather it. The greatest obstacle to progress is the prevalence of disease, and I hope that this Conference will still further emphasise the seriousness of the situation, especially as returned soldiers have been encouraged to take up beekeeping, and now find a difficulty in selecting clean areas whereon to start operations. We may consider ourselves fortunate that we have only one disease to fight. Mr. Hopkins was the first to point out the danger of importing new diseases, and the campaign started by him and carried on by the National has at last borne fruit in the gazetting of regulations preventing the importation of diseases.

Looking down the Order Paper, you will notice the "hardy annuals" of Chief Apiarist, more inspectors, and higher penalties for breaches of the Act. We must be persistent in striving for these reforms. I am satisfied that we must go in for individual propaganda to enlighten our members of Parliament as to the most pressing needs of our industry. If each one of you could find time to write or interview your local member on the subject, it would be very beneficial. The mere passing of resolutions does not go very far unless we can obtain the interest and attention of our representatives in Parliament.

There is a large number of controversial subjects to come before this Conference, and as all the available time will be required to deal with them, I will not detain you further. It now remains with

you all to make the best of your time here, and I hope you will all go away feeling that the Conference has been the best yet.—(Applause.)

#### MINUTES CONFIRMED.

The minutes of the last Annual Conference were read and confirmed.

#### REPORT AND BALANCE-SHEET.

Owing to the Report and Balance-Sheet not being received from the typists, this matter was deferred till 4 p.m.

#### REPORT OF STANDING COMMITTEE.

Mr. J. Rentoul (Chairman of the Standing Committee) then detailed the matters that had been referred to that Committee and the results obtained, which were as follows:—

1. The resolution that the importation of bees, queens and honey should be immediately stopped.—These regulations had been gazetted.

2. The appointment of a Chief Apiarist and enlarged staff.—This was largely controlled by the affirmation or refusal of the beekeepers to the proposal of a voluntary tax, and until this matter had been definitely settled, he could not see any chance of our wishes being acceded to.

3. That some new system of grading should be instituted to relieve the inspectors, and make it possible for them to concentrate on inspection work. A conference between Messrs. T. W. Kirk, J. A. Campbell (of the Department) with the three honey graders had taken place, and the matter was now being dealt with.

4. That the Conference reaffirm that the maximum penalty for breaches of the Apiaries Act be increased to £20.

Mr. Rentoul referred to the letter received from Dr. C. J. Reakes, Director-General, on this matter that appeared in the Journal for December, 1920, in which the Director stated that the insertion of this item, with the other amendments recently passed, would have endangered the passing of the whole. The matter will be noted for future consideration.

5. That no bees, hives, or appliances shall be removed from one county to another county without the written authority of the inspector of the district.—This matter, said Mr. Rentoul, presented considerable difficulty, as it was easily possible to handicap the operations of the man with a number of out-apiaries, and up to the present nothing had been done.

6. The proposed regulations governing apiary boundaries.—Mr. Rentoul referred to the letter received from Mr. F. S. Pope, Assistant Director-General of the Agricultural Department, which appeared in the June issue of the Journal, in which it would be seen that the Department stated that with the present staff it would be impos-



able to carry out the suggestions of Conference. The proposed annual registration and tax would, if passed, help this matter considerably. Mr. Pope also referred to the large tracts of bee country still unoccupied, and said that it seemed unnecessary to take action on the proposed lines.

7. Foul-brood regulations.—Mr. Rentoul said they had not been able to get any further with this matter. It was useless going to the Government asking for an increase of expenditure on a falling revenue in all departments, and it seemed to him that unless the beekeepers were prepared to assist the Government in carrying out our wishes, he could not see much chance of any improvement.

8. Railway Freights on Honey.—Mr. Rentoul stated that if the Standing Committee had done nothing else, the result of their efforts in connection with this matter fully justified the setting up of the Committee. They had been successful in keeping the freight on honey at the same rate, against an increase on butter, cheese, and other produce.

9. Apiary Tax.—This matter was still under discussion with the Department. Certain proposals had been put forward, but nothing definite had yet been decided upon. He understood that at present there was a lack of unanimity on the question, as the Secretary would show by the result of the canvass of the Branches for their opinion. He (Mr. Rentoul) was still of the opinion that although perhaps the principle of a voluntary tax to enable the Government to carry out its own legislation might be found fault with, it was sometimes a good policy to submit to such a procedure.

The Secretary then gave particulars of the voting of the Branches, which proved that the proposal as at present submitted was not acceptable to them.

Mr. Rentoul suggested that the members of the Standing Committee meet Mr. Kirk during the Conference to thoroughly discuss the matter again and report. He moved a motion:—

“That this Conference reaffirm the principle of the tax.”

The motion was seconded, and carried unanimously.

11. Salaries of Honey Graders and Inspectors.—This matter had been referred to the Government, and he would ask Mr. Ryland to speak.

Mr. Ryland said they were all aware that this was a matter on which he had harped for a long time, it being an extremely important one from the H.P.A. point of view, as the Association had to advance hard cash on the work of the graders. It was an absolute necessity that competent men should do the grading; therefore it was necessary that they should have adequate salaries. The salaries paid to-day

were an absolute scandal. The heads of the Department were of the opinion that higher salaries were warranted; but the Government was hard up. Mr. Ryland read a letter from the Director-General (Dr. C. J. Reakes), who stated that he had the matter in hand, and promised to discuss it with the Public Service Commissioners. The result would probably justify higher ratings for everybody.

Mr. W. B. Bray moved the adoption of the report of the Standing Committee, and that the Conference express its appreciation of the work done during the year. He said that whilst all our wishes were not granted, the most important—the embargo on the importation of queens, &c., railway freights, and amendments to the Apiaries Act—had been carried through.

Mr. E. W. Sage seconded the motion, and remarked that he was sure they would all agree that real substantial work had been done.

The motion was carried by acclamation.

Mr. Rentoul briefly returned thanks.

Apologies for absence were read from Messrs. J. Allan, E. G. Ward, and F. Kitchingham.

#### AMENDMENTS TO THE CONSTITUTION.

Mr. H. Bartlett-Miller, the mover, suggested that a Committee consisting of Messrs. Brickell, Schmidt, Penny, and himself, be set up to consider these amendments, and report to Conference later.

Mr. R. F. Way thought the matter should be discussed by the whole of the Conference.

Mr. Sage proposed as an amendment—“That Messrs. Brickell, H. W. Gilling, and the Secretary form the Committee.”

The amendment lapsed for want of a seconder.

The motion was seconded, and carried unanimously.

The Conference then adjourned.

The afternoon session opened with a paper on

#### VENTILATION.

(By E. W. SAGE.)

On picking up almost any text-book which deals with the subject of bee-keeping, this matter of ventilation is very fully and carefully dealt with. Not only do we read of this subject in foreign publications, where opinions are expressed by very able men, but also we hear at such Conferences as this some of the leading beekeepers of the Dominion advocating “plenty of ventilation.” It is a significant

fact, too, that while many advise plenty, none to my knowledge have ever questioned the propriety of adopting the method as being contrary to the real natural requirements of a colony of bees, or in any way upsetting the trend of their own practical experience. It is just possible also that, having chosen ventilation as my subject, I could, by following on similar lines to my fellow-craftsmen, write up the accepted theory with impunity, and probably would never be challenged to substantiate "cause and effect." That, however, is not my object. In taking this matter up, I wish to bring under the notice of all those who contemplate taking up apiculture, and also those who quite recently have joined our ranks that another old-time pet theory has exploded. While not expecting to convince anyone upon the mere assumption, I will endeavour to show that reasonable grounds exist for my assertion that the advice so often given is a very sad error. It is a matter of common knowledge that every hive of bees under natural conditions can supply its own means of ventilation; but just to what limits this instinct is capable of, I am not prepared to say. In cases where a swarm takes up its abode in a hollow tree, in which only one entrance to the hollow is possible, whether that entrance is at the bottom or the top, makes no material difference to the prosperity of the swarm. Where there are two or more entrances to the hollow, it will invariably be found that it is occupied by a weak to medium swarm, the governing factor being the actual position of the additional openings to the cavity.

One of the worst features of the modern hive is its large entrance, and when we come to such highly improved styles as that of the reversible bottom board, we have dropped on one of the abominations of present day commercial beekeeping. The size of the entrance to this hive is quite out of all proportion to the needs of the strongest colony; but even that is not enough for some beekeepers, who place the hive on four blocks so as to raise it above the bottom board for the purpose of giving plenty of ventilation and necessarily a means of controlling swarming. The result of such treatment is obvious, and an issuing swarm often puzzles the operator. The ideal size of an entrance to even the strongest colony should not exceed six inches by half an inch, and should be firmly placed upon its bottom board in order that no further draught is possible.

Any super which may be added during the honey flow should be tight fitting, and the mat should also be a good one in order to conserve the heat. Wax-building cannot go on efficiently if a draught is allowed to sweep up among the combs, and the progress of the colony impeded as a natural sequence.

Some beekeepers are firm in their condemnation of fibre mats, and prefer wooden mats under the cover; but my experience is quite the reverse. Of course, when I refer to mats, I do not mean the mats supplied by retailers, which one can shove peas through, and even when affixed to the hive leave a space all round as if for extra ventilation. The most beneficial mat is simply an ordinary sack, cut in half crosswise, which makes two good mats of double thickness; these project a little beyond the cover, and prevent it from being glued down to the super, and very soon conforms to the shape of the hive. The mat can be easily removed and replaced; it is a blanket covering, and will not allow the heat to escape. The wooden mats, while serviceable, are far from being efficient; but the trouble experienced through warping and the difficulty in removing from the supers is sufficient to place them on the rack without even considering the effects of allowing the heat to escape. Beekeepers would pay more attention to conserving the heat generated inside the hive instead of following the fallacy of giving increased ventilation as a means of controlling swarming, far better results would be obtained. Swarming never has and never will be controlled by ventilating the inner chambers; and tons of honey have been lost to the beekeepers who practise such methods. I have experimented largely with different styles of hives, and also hives with entrances of various sizes, and in one instance in particular I marvelled at the ease with which this hive ventilated the inner chambers. The hive was nailed tightly to a bottom board the size of an ordinary hive and all in one piece. The supers as added were tight fitting, and were covered by a good mat as previously described, with a good cover over the lot. The entrance was only three inches by half an inch, yet no inconvenience was noticeable, and as much surplus was taken from this one as from any other. The ventilation was all done at the entrance; a current of cool air was going in at one corner during the hottest weather and the warm air was finding its way out at the other. Only twice during the season was outside clustering in evidence, and by applying other means of swarm prevention the colony contributed its just share of surplus. A colony housed in a practically sealed box, as the one just referred to was able to control the ventilation to nicety, since such was only possible from one point—the entrance,—and I maintain that they are capable of controlling the inside temperature of their own home better than we can, and any interference from us (except in very exceptional cases, when certain essentials are lacking) will upset the equilibrium of the hive, and will make it necessary for the colony to alter its course to suit the conditions we have imposed upon it.

If the beekeeper keeps his bees reasonably protected from the direct rays of the sun by providing a good hive with



not too large an entrance, ventilation, if conditions are right, will give him little concern, and should they cluster out during the heat of a summer day, it is better by far to do that than to have them continually exposed to draughts. Bees when properly housed can protect themselves from changes of temperature with ease, but when exposed to the cold direct cannot possibly keep it out. The conditions I mention here possibly would not apply to America, where they are subject to great extremes of temperature, and for which changeable conditions the reversible bottom-board was invented, and is, I believe, an acquisition under such abnormal conditions; but here in New Zealand, where we have a temperate climate, the reversible bottom-board is something to be avoided. It will be necessary, then, to pay more attention to the comfort of the bees if the maximum crop is to be secured, and find some other means of swarm control besides internal cooling.

Mr. H. R. Penny agreed with much that Mr. Sage had said, but he never reduced the entrance to the size advocated by Mr. Sage. He gave the whole width of the bottom board, and had never used blocks. A hive blocked up was liable to be knocked over by cattle, although cattle in a general sense did not matter—they were an advantage in keeping the grass down; but he had found that bulls and bees did not go well together.

Mr. C. F. Horn said he found wooden mats all right, unless made of unseasoned timber. Using these mats and allowing a bee space eliminated the necessity of forcing the bees down and breaking the cluster. He was experimenting with beaver board, and so far was delighted with the result.

On the motion of Messrs. Bray and Horn, Mr. Sage was accorded a hearty vote of thanks.

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Mr. I. Hopkins then read a paper.

#### LACK OF CO-OPERATION AMONG OUR BEEKEEPERS AND ITS CAUSE.

By I. HOPKINS.

Mr. President, Ladies & Gentlemen,—

The object of this paper is to draw attention to the deplorable lack of support from the very great majority of our beekeepers to the two institutions which constitute the very life-blood of our commercial beekeeping—the National Association and the H.P.A.—and to suggest the cause. I shall be brief, because the evil and the cause are so apparent that a long dissertation is not necessary. It is well to point out at once that if either Association came to grief through want of support, the effect would immediately

be felt by every commercial beekeeper throughout the Dominion, and the industry would fall back into the state of chaos prevailing formerly, when beekeepers had no voice in valuing their product, the same being completely controlled by the middleman. Pray, don't think me pessimistic, for the writing on the wall is plain enough to indicate a serious danger in the near future unless we take immediate steps to avert it.

I have coupled the two Associations together, as they are undoubtedly the complement of each other necessary to complete the whole, which should stand for forward progress. It is not possible for one to render the aid we look for, and expect, without the help of the other; and in my opinion the basic principle underlying the whole scheme leading to success is the success of the National Association, when that of the Co-operative H.P.A. is bound to follow as a matter of course; but if, on the other hand, the former fails to carry out its proper functions, it will react detrimentally on the latter. The question then arises, Is the National Association doing its part? I have no hesitation in saying it is not, as the following figures will, I think, demonstrate:—Up to the first half of February last the number of apiaries registered was officially given as 5,565 (the President of the Waipa Bee Club puts the number at 9,000), and no doubt, owing to recent prosecutions for non-registration, many more have been registered, so that we may put down the number at the present time at 5,600. Now, I think it very doubtful if that number represents nearly half the beekeepers in the Dominion, which, judging from former statistics, I think is between 11,000 and 12,000. But for the purpose of our calculation we will put them down at 10,000, from which number we will deduct, say, 2,500 as hobbyists, not likely to join the Association. This leaves us 7,500 beekeepers who raise more or less honey for commercial purposes, and whom we must look to for members of the National Association. If these figures are approximately correct, and I don't think they are far out, we ought to be able to recruit at least two-thirds of that number—that is, 5,000—members; but what do we find is actually the case? Out of the 5,565 registered in February, Mr. Baines (the Secretary) informs me "that I would be perfectly safe in making a statement that not one-tenth of them are members of the National." That is to say, there are not 550 members out of the thousands of beekeepers we have in New Zealand. This is, we must all acknowledge, a most disastrous state of things, and steps should be taken without delay to find a remedy, as the condition of the National, as I have already pointed out, reacts on the H.P.A., as shown by its figures. The number of shareholders in the latter is at present 700, a far better showing than the former, but a long way below what it ought to be. The H.P.A., so far as its management and machinery are

concerned, is an outstanding success, but it is undoubtedly crippled by the failure of the National to carry out its functions.

#### WHAT IS THE REMEDY?

There can, in my opinion, be only one answer to this query—viz., the complete reformation of the policy and conduct of the National Association. It must be conducted on a wholly different plan to that of the past: it must show by deeds that will benefit the industry that it is alive between the annual conferences. It must keep in close touch with its branches, a thing it has never done yet. Looking through the last three and a-half years' journals, I find there were six meetings of the Executive between the conferences during that time—two in 1918, at one of which the Secretary warned the members that the Association was losing support, but so far as I can see nothing was done to remedy the evil; two in 1919, one in 1920, and one this year. Out of these six, I must remind the Conference, four were called in different years to arrange the several programmes for the Conference in each year. Last year, however, the Standing Committee met three times. The results of even the four meetings have been practically nil, in so far that neither the Annual Report, Balance-Sheet, nor Programme have been issued or published in the Journal for members to study before the Conference. They should be in the hands of every member at least thirty clear days before the date of the annual meeting. I would ask the Conference in all sincerity, Can we expect the National to be a success under these conditions? It really seems, to speak honestly, like paying money into the National and getting no benefit from it. Unless the Association is made more useful, and beekeepers are made to feel that it is an advantage to belong to it, we need not look for the increase in the membership we should have, but rather the reverse. There must be some clear-cut scheme of organisation, the different beekeeping centres visited occasionally by some of the Executive or an efficient organiser. It might be done conjointly between the two Associations—that is, to share the expense. At all events, something should be done without delay to alter the present state of things if we are to avoid disaster.

In conclusion, I hope the Conference will appoint a strong Committee to go into the whole matter as soon as possible. I need scarcely remark that the foregoing criticism and suggestions are the result of a strong desire to see both the National and the H.P.A. well supported and a huge success, so that those who venture into commercial beekeeping in New Zealand will have no cause for regret.

Mr. W. E. Barker said the paper covered the same ground as Mr. Bartlett-Miller's proposals, but there were considerable difficulties to face. The matter of moving the place of Conference was a good thing. The

amount of work the Executive had to do was very slight; it could be transacted in two meetings, the remainder being done by correspondence.

Mr. W. B. Bray asked permission to read a portion of a letter from Mr. Bull, Mount Somers, which indicated the necessity of the members knowing what business was to be brought forward at Conference in time to discuss it.

Mr. Baines agreed with Mr. Hopkins on the matter of a travelling organiser, but they must realise this would cost a considerable amount of money. As they were aware, he had undertaken a trip through the South Island, and although away only thirty-one days, this had depleted the funds of the National. Mr. Baines pointed out that if the Government withdrew the support of the pound for pound subsidy, the National could not possibly carry on. He drew attention to the fact that only one-quarter of the fees collected by the Branches was retained by the National, and asked how this scheme of organisation was to be carried out without having the necessary funds. Regarding what had been done, Mr. Baines pointed out that twice in four years he had circularised the whole of the registered beekeepers of the Dominion, setting forth the aims of the National and its Journal, and asking for support. These two efforts cost £50 each, and the results did not cover the expenditure. The Executive met once a year, and that cost about £25. It was very necessary and desirable that as much propaganda work as possible should be carried out, but one must realise that unless we had the money it could not be done efficiently.

The President asked the Conference to accord Mr. Hopkins a very hearty vote of thanks, this being carried by acclamation.

Mr. Hopkins said the object of his paper was to stir up the National to do better than had been done in the past. As regards cost of organisation, he thought the number of new members would provide a great deal of it. If the National went down, the H.P.A. must suffer. There should be many more members of each Association than at present.

Mr. A. B. Trythall, officer in charge State Farm of Instruction, Ruakara, then gave a paper on "Honey House Construction." He had a model of the style advocated, and was thus able to explain the various points of the address.

#### HONEY HOUSE CONSTRUCTION.

By A. B. TRYTHALL.

Every beekeeper likes his own particular form of honey house. During my experience we have had almost every class of building in existence, for extracting purposes, and which could not be called



honey houses at all. On three separate occasions we have used bedrooms for the purpose. In another case a cellar was used; and we have also used stables and other places which were anything but convenient.

Soon after coming to New Zealand, I went into the business of honey production as a means of livelihood, and the model honey house exhibited is practically the result of my experience from time to time.

The first advantage we want from a honey house is convenience. If possible, we like to have a separate work-room for putting our appliances together and doing our work and another compartment for doing our extracting.

The second advantage, which is of great importance: We want, if possible, natural gravitation for our honey into the tank. If it has to be lifted by bucket from extractor to tank, it is a terrible nuisance, and hard work, too. There is also the danger of the honey gate being left on inadvertently and the bucket overflowing. I heard of one instance where the bucket was used of the honey house being ankle deep in honey. If natural gravitation can be resorted to so much the better, as the honey can then flow direct into the tank. Natural gravitation can be achieved in several ways. If you are fortunate enough to be able to erect your honey house on a hillside, you can have two floors; if, however, you are on flat land, you have the alternative of either placing the extracting room up 3 ft. or 4 ft., with your timing department on the ground level; or you can have the extracting department on the ground level and excavate for the timing department—whichever you prefer.

Out-apiary work is now coming to the front much more than it has done in the past. Beekeepers find that if they are to make a living wage out of beekeeping, out-apiaries are necessary, and this has been made possible by the advent of the motor lorry. Before motor lorries were used, I ran out-apiaries, with central extracting plants; but after years of work with horse-waggons I found it a difficult matter, as horses and bees do not agree, and eventually it became such a toil that I went in for small extracting houses at each apiary; but if I were going into the business again, I would go in for a central extracting plant and have a motor lorry.

One of the chief advantages of a central extracting house is to be able to run your motor lorry right into the extracting house. There is an article in this month's Journal, written by Mr. A. L. Luke, on "Out-apiary Management," the writer putting this exact principle into operation.

#### CAPPINGS MELTER.

I have a weakness for a very large cappings melter. I like a melter which will hold all the cappings two men can produce

in the course of a day. The cappings are allowed to drain without heat until the next day. Nine-tenths of the honey is drained away in this manner. Another point is, the honey from the cappings gravitates right through into the honey vat. At Ruakura the honey tank is divided into four compartments, the last compartment being practically free of scum. A steam boiler is attached to the cappings melter, also to a false bottom in the bottom of the honey vat in case of granulation. Another idea we have made use of is to have several drip-frame colonies in the honey house, with entrances through the walls. In early spring we can keep our breeding queens in these hives, and do our grafting inside the house in any kind of weather.

Other Advantages.—After our last extracting, when the honey flow had practically ceased, instead of taking our drip combs on to the hives, we can make use of these inside hives for the purpose cleaning up for the entire apiary. Mr. Ireland's plan—that is, Mr. Ireland who helped me at Cambridge for a season—is to have the hives just outside the honey house, with floor boards going through into the house to receive the supers of drip combs on the inside.

As regards windows, I am a strong believer in ordinary windows, such as those in this building, with a movable screen fixed on the inside having a couple of bee escapes. The idea of the model screen exhibited I received from the Rev. Mr. Clark, of Te Awamutu, some 12 or 13 years ago.

A small engine drives the circular saw and extractor from an underground shaft, this economising space. We have found at Ruakura that a lot of the lifting in an apiary can be done away with by judicious thought.

I am a strong believer in building a honey house as large as your purse will allow, as the size adds to your comfort and efficiency. If you cannot afford a house such as the model, cut out the work-room altogether. Your appliances can be stored in the off-season, and the extracting house used for other purposes for the remainder of the year.

I believe that we are going to revolutionise the laying out of apiaries by the use of motor lorries in the future. Unfortunately, I am not able to give an estimate of the cost at the present time of a honey house on the lines of the model exhibited.

Mr. F. A. Johnson asked how, when bringing in a ton of honey a day, was it possible to get the colonies inside the house to clean up the combs?

Mr. Trythall said it was not necessary to put them all on at once on the same hives, and as a rule this work was not done until the end of the season.



Mr. Shepherd asked how it was possible to make the double doors as shown in the model bee-proof?

Mr. Trythall explained that it was better to have these as sliding doors, with a double screen door outside.

Mr. H. C. Jones asked how rats and mice were kept from the stack of combs?

Mr. Trythall said they kept not only rats and mice but also wax-moth from the stacks by the following method:—A queen-excluder was placed on the floor with a sheet of newspaper over it, placing the first super on this. The combs in the super were reduced to eight and spaced wide, as it had been proved that the wax-moth cannot breed unless there is a certain amount of warmth, and the wide spacing of frames prevented that. Each super of the stack was separated by a sheet of newspaper, so that in the event of the moth gaining an entry into any one super, the newspaper confined it to that, and prevented it going right through the stack. The stacks were eight supers high, with a sheet of newspaper and wire screen or excluder on the top. Thus, all three pests were dealt with in the one operation.

A hearty vote of thanks was accorded to Mr. Trythall.

Mr. W. E. Barker gave a paper on "The Value of a Smile in Commerce," and was accorded a hearty vote of thanks.

#### REPORT AND BALANCE-SHEET.

The Secretary (Mr. F. C. Baines) submitted the following Report and Balance-Sheet:—

Mr. President, Ladies & Gentlemen,—

In presenting the Annual Report and Balance-Sheet, I have pleasure in bringing to your notice the largest amount of subscriptions that has ever been received—£171 12s., being £30 over last year, and £50 over the year ending 1919.

During the year five new Branches have been started, the Auckland, Waipa, Balclutha, Rangiora and Nelson districts having linked up with the National Association. This, I am sure, will be gratifying to you, as it is only by the introduction of fresh blood and ideas into the parent body that a healthy growth can be maintained. All the old Branches are carrying on successfully, with the exception of the Wairarapa, which I am sorry to say has died out, no subscriptions having been received for two years, and only one or two of the late members have sent their subscriptions direct to me.

The Journal subscriptions also show an increase, this being mainly due to the increased subscription agreed to last Conference. The actual number of subscribers is about the same—800.

On the expenditure side, you will see that during the past year the amount of money voted by the Government for the purposes of organisation has been utilised

for that purpose. It had long been felt that it was desirable that a member of the Executive should visit the different Branches, and with this object in view I was approached and requested to make the trip. I travelled as far south as Invercargill, and to Auckland in the north, including the West Coast, Nelson, Blenheim, and Picton. I was away from home thirty-one days, and even then I was unable to visit the Hawke's Bay Branch or attend the Ruakura Field Day. It has been said that my visit was of benefit to the Branches, and certainly wherever I went the beekeepers made me very welcome. I was enabled to start two Branches—one in Rangiora and one in Balclutha—both of which promise to become of great use to the National and the industry generally. The expenses incurred by this trip account for the greater part of the amount debited to travelling expenses.

Another item of expenditure that is heavier this year than usual is the refunds and subsidies to Branches. You will notice we received £117 7s., and have paid back to Branches £129 13s. 3d. The difference is made up by the National bearing half the cost of running Field Days and expenses incurred in furthering the organisation. By the assistance thus given, the Branches are able to offer facilities to visitors to attend, and provide refreshments on a more liberal scale than the Branch funds will allow.

It was found necessary to reprint the Handbook for Beginners, which makes the third thousand in three years, indicating at least that it is filling the purpose for which it was intended.

**N.Z. Beekeepers' Journal.**—Last year I stated that owing to the increased cost of paper and printing, it was possible that I should show a deficit this year, and it was agreed to raise the subscription one shilling a year to try and avoid this. Unfortunately, the postage rates were raised soon after, and more than half the extra revenue was absorbed thereby. The printing cost £28 more than the previous year and the postage £12 10s. On the recommendation of last Conference, the Executive increased my salary, and these three items combined, coupled with a slight decrease of the total revenue from advertisements, have resulted in the Journal not paying its way. I think we shall have to be satisfied with a 16-page issue for the present, also use a cheaper paper until prices come down considerably, and postage reverts to the old rate. As regards my salary, if I am appointed to continue the duties of Editor, I am quite prepared to meet the Executive in the same spirit as they met me when considering an advance of salary.

In conclusion, I wish to thank all those who have generously given me assistance in making the Journal the bright little paper it is, and ask for a continuance of the same and other help. Any suggestions on increasing the value of the contents and circulation will be very welcome.



# National Beekeepers' Association of New Zealand

BALANCE-SHEET FOR THE YEAR ENDING MAY 31st, 1921.

RECEIPTS.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Balance at Bank 31/5/20 ..	146	10 9	By 1920 Conference Expenses	28	19 0
" Cash in hand 31/5/20 ..	19	1 9	" Branch Refunds & Subsidies	129	13 3
" Sales of Handbook ..	35	5 3	" Travelling Expenses ..	106	18 8
" Sales of Badges ..	10	2 3	" Stationery & Printing ..	20	5 10
" Govt. Grant Conference Report	20	0 0	" Printing Journal ..	212	4 6
" Govt. Subsidy on Subs. ..	100	0 0	" Postages ..	60	4 11
" H.P.A. Refund of Travelling Expenses	1	12 9	" Printing Conference Report	26	0 0
" H.P.A. Refund Half-cost Supper ..	5	15 0	" Handbooks ..	42	13 4
" Journal Subscriptions ..	226	18 2	" Salaries ..	150	0 0
" Journal Advts. ..	61	10 3	" Sundry small accounts ..	4	10 6
" Members' Subscriptions ..	54	5 0	" Cheque Books & Charges ..	1	0 2
" Association Subs. ..	117	7 0	" Petties ..	2	0 0
			Balance at Bank	13	10 11
			Cash in hand ..	27	6 1
				£40	17 0
			Less Unpresented Cheques ..	26	19 0
					13 18 0
	£798	8 2		£798	8 2

## JOURNAL ACCOUNT.

RECEIPTS.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Subscriptions ..	226	18 2	By Printing ..	212	4 6
" " outstanding	0	6 0	" Postage ..	52	7 9
" Advts. ..	61	10 3	" Salary ..	100	0 0
" " outstanding	15	10 0			
		304 4 5			
Deficit ..		60 7 10			
	£364	12 3		£364	12 3

ASSETS.			LIABILITIES.		
	£	s. d.	NIL.		
Handbooks on hand ..	29	17 4			
Badges ..	7	0 0			
" Cash in hand ..	13	18 0			
Govt. Subsidy ..	100	0 0			
Typewriter & Duplicator ..	6	0 0			
	£156	15 4			

Audited and found correct. 7/6/21.

(Signed) E. W. SAGE.

The Chairman formally moved the adoption of the Report and Balance-Sheet, and it was duly seconded.

Mr. H. Bartlett-Miller asked if he would be in order in discussing the conduct of the Journal.

The President replied in the affirmative.

Mr. Bartlett-Miller considered he would have failed in his duty had he allowed the opportunity to pass without pointing to what he considered to be absolutely wrong. He submitted an advertisement bearing upon the conduct of the H.P.A. and the Bristol and Dominions Producers' Association, which Mr. Baines refused to publish. Had this been done, along with other matter submitted by Messrs. Nelson and Cotterell, things would not have turned out as they had done. Whilst the Executive made Mr. Baines responsible for the Journal, it was naturally a reflection of his own mind, and if he received an article which he did not agree with he would not publish it. The Executive should take the responsibility of the matter appearing in the Journal. He would like to see an amalgamation of the National and H.P.A.; there was too much responsibility for the Editor.

Mr. Barker asked if something could not be done in the way of getting more advertisements.

Mr. Baines explained that he had seen a firm of advertising experts, who had stated that the Journal was a specialist's paper, and advertisers who dealt in the particular line that the paper catered for would be about the only people to whom it was of value. The circulation was far too small to attract the ordinary rank of business advertising.

Mr. Barker then suggested an increase in the rates.

Mr. Baines explained that he had just recently placed a new rate-card before the advertisers, and one had already reduced the space his advt. was to occupy.

Mr. R. F. Way said, with regard to the Executive being responsible for the Journal, that it was an absurd suggestion. A Journal must of necessity be a reflection of the Editor's personality; it was impossible for it to be otherwise. He had had considerable experience as a journalist, and had occupied an Editor's chair. He sympathised with Mr. Baines, although he did not always agree with him.

Mr. Bray asked for the number of old subscribers who did not renew the subscriptions, and whether the third subsidy of £100 had not been paid.

Mr. Baines said he could not tell the number of old subscribers who had failed to renew their subs., but the actual position was that they were 19 subscribers short of last year's number; but he was sure that had he been able to get to Rua-

kura Field Day, he would have had more, as usually 30 to 40 new subscribers were picked up there. Regarding the subsidy, Mr. Baines said they were on the last year, having been able to collect on the previous years' figures.

Mr. R. W. Brickell said he knew something of running the Journal, and how difficult it was for Mr. Baines. The Journal account might look bad, but he thought they ought to congratulate themselves that it was not considerably worse. They must remember that the year just passed was one when everything was at the peak of prices; but values were now on the down grade, and there was every possibility that the cost of both printing and paper would be considerably reduced during the coming year.

Mr. Baines, replying to Mr. Miller's criticisms, said that it was wrong to state he had refused to publish something from Mr. Nelson bearing on the B. and D. To the best of his belief Mr. Nelson had never submitted a criticism. Mr. Cotterell likewise had no cause for complaint.

Regarding the advertisement submitted by Mr. Miller, it was headed "A Diary of Wilful and Woeful Incompetence," and contained a lot of libellous statements and abusive language. Mr. Baines said he could not accuse any person or firm of wilful incompetence unless he was prepared to substantiate his remarks in a court of law. But, to make sure that he was doing right, the whole advertisement was submitted to the Executive when in Christchurch for confirmation or otherwise of his action, and the resolution passed unanimously was that the Editor's action should be endorsed.

Regarding the general success of the Journal, the circulation was, he believed, the best index, and this had been maintained at about 800. When he took over the Journal, there were something about 250 financial subscribers. Mr. Baines thought these figures were sufficient to prove that the Journal was being found to be useful to those for whom it was written.

The President then put the motion—"That the Report and Balance-Sheet be adopted"—and it was carried unanimously.

Mr. Y. H. Benton then read a paper on "Queen Rearing."

#### QUEEN REARING.

By Y. H. BENTON.

Questioned as to what he considered the most important factor in the production of honey, if he considered one of more importance than another, the late Dr. Miller answered: "Keep a tab on the amount of surplus honey each colony yields, and breed from the queen at the



head of that colony which gives the most," indicating that he considered judicious queen-breeding the most important factor in successful bee culture.

My opinion is that if more attention was paid to queen-breeding and less to queen-rearing, the honey production of the Dominion could be increased by one-third without any increase in the present number of colonies. Over 90 per cent. of our beekeepers rear and mate their queens in a haphazard fashion. One commercial beekeeper informed me that he had not time to do any special queen-breeding, and relied principally on swarm and supersede cells for his supply of queens. This man owns something like 800 colonies, and I venture to say that by select queen-breeding he would get as much or more surplus honey from 500 than he does from his 800 colonies, which sufficiently illustrates my point.

The breeding of select drones is also essential if one wishes to incorporate fully those traits of character so vital to the success of honey production, and since it is impossible to go beyond a certain point in the partial control of mating without an especially adaptable location and a good deal of expense, many extensive beekeepers declare that it is better and cheaper for them to buy their queens from a reliable breeder than to attempt to raise them.

Many and various are the methods in vogue for raising queen cells. I have tried them all at one time or another, and until lately have chiefly employed Doolittle's method, with which I was very successful. However, it also has its disadvantages, and after much experimenting I have adopted Mr. Barbeau's method of transferring cells containing larvæ, cut out of the comb with a punch. My process differs from his only in that I attach the cells to a metal cell-base, held in a special frame which I designed myself, and which I will now briefly demonstrate to you.

Previous to preparing a frame of transferred cells, a quantity of bees is shaken into a hive containing empty combs. These are termed borrowed bees; they are shaken and placed in a cool place with the entrance closed late in the afternoon of the day preceding that on which you intend to prepare your frame of cells. Next day about noon they are given the frame of prepared cells, and the entrance is opened. Twenty-four hours later it will be found that nearly all if not quite all the cells have been accepted and well started. The frame of started cells is now given to a strong, queenless colony containing no mated brood, or, failing that, it may be placed in the top storey of a strong queen-right colony brood, with a queen excluder underneath; nothing less than a three-storey colony will do unless it has the swarming fever or is trying to super-

sede. One cannot lay down set rules, for much depends on the beekeeper's own judgment in determining whether a colony, queenless or otherwise, is in the proper condition to build and care for a batch of queen cells. Seasonal conditions, the strain of bees employed, and the number of young and hatching bees have to be largely taken into consideration in choosing a colony to raise cells. Dr. Miller has been credited with saying in reference to the maximum number of grafted or transferred cells that should be given to a normal colony, that the bees will not accept more than they can properly care for. Personally, I take issue with that, for I have observed, as doubtless others of you have done, that when a colony accepts an unusually large number of cells, the royal-jelly, or food, contained in the cells is of a thin bluish appearance, instead of having a rich creamy look. I therefore take it that it is of inferior quality, the result of insufficient nurse-bees taxed beyond their capability of producing quantity with quality. I seldom give less than 15 and never more than 30 cells to one colony for that reason.

The question as to whether royal-jelly was sought or needed as a food by virgin bees has been recently discussed in the bee press of New Zealand and America. The number of New Zealand beekeepers who rely absolutely and unquestionably on the authority of American beekeepers is, to me, remarkable, and I often wonder how long it will be before it is realised in the Dominion that America does not lead the world in all matters pertaining to bee-culture. In some respects they are greatly behind the times, and can learn more than a little from beekeeping in New Zealand.

Reverting to the controversy relating to virgin queens and royal jelly which I was instrumental in starting, a perusal of the letters appearing on the matter will result in the reader accepting Mr. Robert Stewart's theory as a sound and logical one, proving in the face of American opinion that virgin queens neither seek or need royal jelly. In the article I wrote which started the argument, I challenged any beekeeper to prove that virgin queens hatched and reared under conditions that made it impossible for any communication to take place between them and the bees were inferior to those reared in contact with bees. The challenge was not issued because I believe my own opinion to be infallible, but in an endeavour to get a general opinion on the matter, which is of considerable importance, bearing as it does on the health and vigour of our queens. The advantages gained by the use of a queen-cell nursery are such as to make it well nigh indispensable to the beekeeper who raises large numbers of queens, and beekeepers would be foolish to dispense with their use until proof is forthcoming that queens so reared are inferior to those hatched and reared in the natural manner; as at present there does not appear to be

any reasonable grounds to question the use of approved queen cell nurseries. Apparently there is still room for much research work on the habits of bees. The universal belief that queen bees mate but once during their life-time is being seriously questioned, and Mr. Nelson (of Martinborough) now claims to have concrete proof to the contrary; and after a good deal of thought on the matter, I am inclined to support his contention, for I have often observed a remarkable change in the colour of some colonies which I was at a loss to account for.

It would be an interesting and perhaps valuable experiment to the industry if tests were conducted to establish whether clipped queens failed before unclipped queens, for possibly it would furnish infallible proof that queen bees do re-mate if they are not prevented from taking flight by a clipped wing or other physical deformity. It is not unreasonable to suppose that the re-mating of the queen bee, if such takes place, would increase her fecundity for a longer period than that of a queen which was prevented from taking a flight. Therefore, by working on the lines I have suggested, reliable data should be obtainable on the matter.

Mr. Benton had a frame fitted for carrying out his system, consisting of the upper half filled with foundation and two bars with holes bored for the reception of the cell caps. These are of metal, and are obtained from the spools of photographic films. The cells containing the larva are punched out of the combs with a circular punch, and pushed right through the cell until it is in position on the underside, when it is trimmed and ready for the bees.

Mr. Sage asked if the metal cell bases were better than the wooden ones.

Mr. Benton explained he had been unable to get anything else that answered the purpose so well. They were of convenient size, practically indestructible, easily obtained at any photographer's where developing was done, and as far as he could see the bees accepted them quite readily.

Mr. Benton was accorded a hearty vote of thanks.

The Conference then adjourned.

#### EVENING SESSION.

The evening session was largely attended. Mr. Hopkins had just secured the latest photographs from Dr. J. Rennie, of Aberdeen, Scotland, of the recent researches into the cause of the Isle of Wight disease. These Mr. Hopkins had had copied on to lantern slides, and the visitors were thus able to see the parasite in all stages of growth, and the organs of the bees in various stages of infection.

Mr. Hopkins asked Mr. W. B. Bray to read the paper, and he also explained the various photographs clearly.

The address was as follows:—

#### ISLE OF WIGHT DISEASE AND ITS CAUSES.

LECTURE BY Mr. I. HOPKINS.

Mr. President, Ladies and Gentlemen, On behalf of the "New Zealand Fruit-grower," whose contribution this is for the enlightenment and entertainment of this Conference, I have great pleasure in placing before you, with the aid of the official report from the Royal Society, Edinburgh, and lantern slide pictures, the result of the recent scientific researches into the cause of the so-called Isle of Wight disease.

I will first of all briefly state what had been done previously to discover the cause.

In 1904 attention was first drawn to some unaccountable malady that was causing the death of most of the bees in one corner of the Isle of Wight (hence its popular name). The mysterious complaint quickly spread over the whole island, destroying the bees wherever it appeared. The destruction had become so serious and the prospects so alarming, that in the early part of 1907 the British Board of Agriculture appointed Mr. A. D. Imms, B.A., M.Sc., of Christ's College, Cambridge, to undertake an inquiry into the nature and cause of the disease. His report, which was published in June, 1907, went little further than to describe the symptoms, and to suggest the possible connection between the disease and bee dysentery.

In 1909 W. Malden, M.D., after his inquiries, concluded that the statements as to the deadly character of the disease had not been exaggerated. In the same year the disease was reported from apiaries on the mainland nearest to the Isle of Wight, and from there it spread rapidly in the following years, till it became established practically in nearly all parts of England, Scotland, and Wales. In or about 1911 the then President of the British Board of Agriculture stated publicly that the loss to the country up to that time through the disease amounted to more than £1,000,000. This great loss must surely have more than trebled since then.

As no definite results had been obtained by previous investigators as to the cause, and the disease was still spreading, the Board of Agriculture in 1911 appointed Dr. Graham-Smith to conduct further research. He, with his four colleagues, made an exhaustive investigation, and in May, 1912, issued an interim report, covering some 132 pages (profusely illustrated) showing the life history of the parasite *Nosema apis* in its different stages, which parasite was then considered to be the cause of Isle of Wight disease. The final report issued in July, 1913, practically confirmed this in the "Summary of Investigations," in the following words:—



can therefore be stated with confidence that *Nosema apis* is the agent responsible for most of the outbreaks in which the symptoms of the Isle of Wight disease have been noticed or in which stocks (colonies) have dwindled or died without apparent cause."

Although this decision was generally accepted throughout the beekeeping world, there were some interested in the industry who were not satisfied that the real cause of the disease had been discovered. Among these was Mr. John Anderson, now lecturer in beekeeping under the North of Scotland College of Agriculture, who, in conjunction with Dr. John Rennie, Chief of the Laboratory of Parasitology and Experimental Zoology in the University of Aberdeen, was able to prove conclusively that *Nosema apis* is not the causal agent of the Isle of Wight disease. This important discovery led the way to further research on the part of Dr. Rennie and his assistants, Mr. Philip Bruce White and Miss Elsie J. Harvey, which commenced in 1916, and had such remarkable results, ending in the upsetting of all previous conclusions as to the causal agent of the Isle of Wight disease.

On November 1st, 1920, the result of Dr. Rennie's investigations was made known in an illustrated series of papers read at a meeting of the Royal Society of Edinburgh. The subject being of such world-wide interest, I at once communicated with Dr. Rennie with the view of securing a copy of the papers as early as convenient after publication to place before New Zealand beekeepers. Dr. Rennie very kindly ordered a copy to be sent to me, and as the papers were published on March 25th and my copy reached me on May 25th, no time was lost, and I have to thank Dr. Rennie for his kindness. The lantern slides to be shown were made by the "Fruitgrower" artist from reproductions in the body of transactions.

Before proceeding further, it may be well to briefly review the previous decisions so that the recent conclusion will be better appreciated and accepted as the most reasonable genesis of the disease yet advanced. We must first take into consideration that Isle of Wight disease is a disease of adult bees not connected with the brood. Mr. Imms, the first investigator, whose report appeared in the June issue, 1907, of the journal of the Board of Agriculture, Britain, suggested the "possible connection of the disease with dysentery." Mr. Malden, M.D., who next investigated the disease in 1909, added very little towards the solution of the name of the disease. Neither of these investigations leading to anything of a practical nature upon which effective treatment could be based, a third research was instituted in 1911, under Dr. Graham Smith, which resulted in the causal agent of the disease being declared, as already stated, the parasite *Nosema apis*. Now, there is every indication that *Nosema apis*

is the causal agent of a distinct disease, apart from Isle of Wight disease, and Dr. E. F. White, of America, has named it "*Nosema disease*."

The knowledge we now have as the result of the recent research appears to solve the puzzling problem of the serious outbreak of disease among the bees in Victoria in 1909, and occasionally since. *Nosema apis* was found in abundance in the diseased bees, and the symptoms were similar in many respects to that of Isle of Wight disease. The same might be said of the outbreak in the North-western States of America about three years ago. The soiling of the combs with faeces is common in both *Nosema* and Isle of Wight diseases. I shall now offer extracts from the papers published.

#### CHARACTERISTICS OF THE DISEASE AS HITHERTO OBSERVED.

"The diagnosis of Isle of Wight disease from symptoms has always been of a more or less unsatisfactory procedure. Hitherto the presence of the disease in a colony has not been recognised until infection has been well advanced in a large proportion of the bees. At this stage of disability the usual features recognisable by beekeepers are inability to fly, accompanied sometimes with imperfect folding of the wings. In fine weather a proportion of the affected bees may leave the hive and crawl around, climbing grasses, &c. Later, in the cooler part of the day, they commonly collect in small clusters. Such bees are lost to the colony, since they do not return to the hive, and in any case are useless as workers at this stage. Associated with the incapacity for flight there is usually a congested condition of the colon. In certain circumstances dysentery may be present as a complication. Most of these symptoms may be present in other disorders of a temporary kind, and we have been accustomed to regard as true Isle of Wight disease only those cases where such visible conditions, once commenced, continued in the colony, affecting succeeding broods of bees. There is a continuous mortality from the disease.

#### DISCOVERY OF THE CAUSAL AGENT.

The association of the causative organism now to be considered will henceforth afford an exact means of diagnosing the disease, which we suggest should now be designated Acarine disease. The discovery of a parasitic organism invading the respiratory system of the adult bee, after exhaustive investigation, was brought forward as the causal agent in this disease. The parasite is a hitherto undescribed mite, identified by Dr. Rennie as belonging to the genus *Tarsonemus*, now named *Tarsonemus Woodi*, after Mr. A. H. E. Wood, of Glassel, Scotland, whose liberal donations of £500 a year for five years enabled the research to be carried out.

### REGION OF INFECTION.

The mite *Tarsonemus* occupies a very restricted but very important region in that part of the tracheal system which has its origin in the anterior thoracic spiracle (which will be presently shown on the screen). The parasite is highly specialised in structure, and within a minute space scores of these mites were found in all stages of development, sometimes so densely packed as to cut off the supply of air from the surrounding organs and literally strangling or choking the bees.

### CUMULATIVE EVIDENCE.

In the course of the investigations over 3,000 individual bees, taken from 250 separate colonies scattered throughout Great Britain, were examined. The examinations covered over 110 colonies reported by reliable beekeepers or certified by the investigators as suffering by Isle of Wight disease; the parasite was present in every one of the colonies. A striking result of this part of the inquiry, which involved the examination individually of 700 bees at least, was the discovery in every case showing the familiar symptoms of Isle of Wight disease that the parasite was present. No exception has been found. There is apparently an invariable and clear association of this organism with all bees suffering from Isle of Wight disease. The examinations applied not only to bees obtained during 1920, but included samples representative of all seasons of the year and dating back as far as September, 1913.

### BIOLOGICAL CONSIDERATIONS.

Under the above heading the report contains some very interesting information, tending to show that *Tarsonemus Woodi* is confined to Britain, but possibly further investigation may prove otherwise. The following is an extract from this section:—

"I now propose to briefly consider the biological problem presented by *Tarsonemus Woodi* in relation to Isle of Wight disease.

For the final thesis that *Tarsonemus Woodi* is exclusively responsible for the condition known as Isle of Wight disease, careful consideration must be paid to the biological aspect of the problem.

1. Although the numbers of bees examined from outside Great Britain in relation to those within have been comparatively few, yet considerable numbers have been tested. Through the assistance of the Ministry of Agriculture, bees arriving in this country accompanying queens from Italy have been obtained in a number of cases for examination.

In all, several hundreds of bees were obtained from this source. These, along with others obtained direct from Italy, were searched for the presence of *Tarsonemus*. The result of these examinations was that the bees were found entirely free from the parasite. The evidence is so far

satisfactory that it may be accepted that *Tarsonemus* is not being introduced into this country in Italian bees. Smaller numbers of Dutch bees so imported also yielded a similar result. Bees in limited numbers have also been obtained from Switzerland and from North America, all of which were free from this parasite. The evidence is not complete by any means, but, as far as it goes, it is of one kind. Since this disease has never been clearly demonstrated to exist outside the British Isles, nor certainly any epizootic approaching in any way the dimensions of Isle of Wight disease in the British Isles; and further, since all such evidence as we possess points to a causal relation between *Tarsonemus* and Isle of Wight disease in bees, this coincidence in distribution is noteworthy. If a geographical distribution limited to Britain should be established in the hive bee—and to do this is a mere matter of time and favourable opportunity—in my opinion it would point to a relative recent invasion of the bee, although the opposite finding would not be against such a view.

It may be noted that Zander (1911), who has paid particular attention to the recording of pests found in hives and upon hive bees in Germany, makes no reference to acarids of any kind. In the course of our investigations we have found in hives or upon combs dead or live bees, at least five different species, including *Tarsonemus*. These mites will be dealt with in a subsequent publication."

There is considerable speculation as to the origin of *Tarsonemus Woodi*, and why it should be apparently confined to bees in Britain when it has been demonstrated that bees from other countries, free from the parasite when imported, may be attacked afterwards.

The full record of the research (or transactions as the scientific term is) covers some 50 odd large pages, but I think sufficient has been quoted from the documents to afford the Conference all the information needed to realise the importance of the discovery. The investigation is still proceeding, and no doubt new that the causal agent has been discovered, much will be done to discover a remedy. It will be well in future to adopt Dr. Rennie's suggestion to abandon the popular term "Isle of Wight disease," which we now know is confusing on account of its covering Nosema disease, for Acarine disease, which denotes the causal agent to be one of the Acari or mites—*Tarsonemus Woodi*. It seems an appropriate time to direct attention to the fact that beekeepers all over the world owe a deep debt of gratitude to Mr. A. H. E. Wood, of Glassel (Chairman of the Aberdeenshire and Kincairdineshire Beekeepers' Association), for a magnificent gift, already mentioned, which enabled Dr. Rennie and his assistants to carry out their investigations, and I would suggest the Conference acknowledge with appreciation of the gift by recording a vote of thanks to the gentleman at the close of the lecture.



In conclusion, we New Zealand beekeepers may consider ourselves fortunate in having only one bee disease to deal with, and that the easiest one to control. The moral to be drawn from what we have now learned is to be extremely cautious in importing bees lest we import with them a dreaded disease.

A very hearty vote of thanks was accorded Mr. Hopkins for the excellent entertainment provided, and he was asked to convey to Dr. Rennie the thanks of all those attending the Conference for his kindness in helping us to understand the cause of this dread disease.

Mr. V. H. Benton then demonstrated a novel wire-embedder, which was made by grooving the edge of a penny, boring a hole in the centre for the centre-pin attached to a metal handle. By heating the penny and wheeling it along the wire, it made one of the best jobs of wiring possible, without any damage to either the cells or walls.

Mr. Benton next explained a frame-making appliance whereby six frames could be nailed together in considerably less time than by doing them singly. He also demonstrated a wiring-board that allowed both hands free, and enabled one to work quickly without the wire kinking.

A free and easy discussion then took place on almost all the different styles of manipulation, appliances, &c., &c.

The meeting adjourned at 10 p.m.

## SECOND DAY—THURSDAY, JUNE 9th.

The Conference re-opened at 10 a.m., when the President requested those present to be as brief as possible in their remarks, as there was a lot of work in front of them, and they were already behind with the business.

### AUCKLAND BRANCH REMITS.

1. The establishment of a Fighting Fund.—This was to provide funds to protect beekeepers' interests in the event of one being brought into court, for alleged damage done by bees.

Mr. Hopkins proposed, and Mr. H. Thomas seconded—"That the matter of establishing a Fighting Fund at 1/- per apiary per year be submitted to the Branches for their consideration."

2. "That the penalty for breaches of the Apiaries Act be increased to £20."

Mr. Hopkins said this matter had been explained earlier in the Conference, but he suggested that the Government be urged to bring the matter forward at the earliest opportunity.

Mr. Kirk agreed that the Act should be amended to make the penalty £20. The original Act, drafted by Mr. Hopkins and himself, provided for a £20 penalty, but Parliament had made it £5. There was little doubt that the Magistrates were influenced by the maximum amount when fixing a fine. Nominal fines were an inducement to neglect the bees and pay the fine.

Mr. Horn thought a campaign was necessary to impress the M.P.s. with the seriousness of the offence.

Mr. Brickell said the remit from Southland Branch was practically the same as this.

The motion was agreed to.

3. "The alteration of the reading of the registration cards to include a declaration as to the form of hive in use, whether box or frame hives."

Mr. Bartlett-Miller said it was against the British Constitution to ask a man to give evidence against himself.

Mr. T. W. Kirk said he admired the simple faith of his old friend Mr. Hopkins that a man would register himself as owning box-hives, knowing that by so doing he was liable to prosecution. Mr. Kirk said the Department knew there were still about 10 per cent. of the beekeepers not registered.

The motion was lost.

4. "To insist on the appointment of a Chief Apiarist."

This was seconded by Mr. Luke, and carried.

5. "To urge the necessity of amending the Registration of Apiaries Regulations by altering the period from triennial to annual registration."

Mr. T. W. Kirk said that if the proposed apiaries tax was passed, this might be possible, as there would be money raised to pay for additional staff; but under present conditions it was hopeless.

### TAIERI BRANCH REMITS.

"Objection to the proposed tax."

Mr. C. F. Horn said the principle was wrong, as beekeepers were taxed for fighting the diseases of other industries. It was felt they should not be asked to tax themselves to fight foul-brood.

Mr. Bray suggested a referendum of the whole of the members by means of a postal vote. He stated that he was a member of the Canterbury Branch, and was in favour of the tax; but according to the vote of the Branch, by taking the number of the financial members, and the result of the meeting to consider this matter, the whole of the members were put down as being against it, which was not a true position.

Mr. Brickell said the figures given by the Secretary were startling; they seemed to indicate that the Branches had rejected the proposal.

Mr. Baines said they all knew he was rather against the idea, but it had been pointed out to him by those who were highly experienced to judge that it was sometimes the best policy to agree to that which perhaps is wrong in principle. He thought that if we did get ourselves taxed, then we ought to participate in the result of such taxation, and suggested that if the principle of taxation is reaffirmed the National make application for a percentage to be handed to them for the further organisation of the industry.

Mr. Sage said to his mind the principle was wrong; other industries received the assistance they required. Just because the Government had neglected to carry out the work we were entitled to ask them to, we were endeavouring to get over the difficulty by taxing ourselves.

Mr. Horn said he believed the suggestion of Mr. Baines of a portion of the proceeds of the tax being handed to the National for organisation purposes would make all the difference to the feelings of the beekeepers on the matter. For his part, he was prepared to give the matter his whole-hearted support if that clause was adopted.

Mr. Rentoul said, although the Branches had to a large extent apparently turned down the proposal, he was still of the opinion that a tax would be the only thing to help us. He was surprised that the beekeepers were now turning down their proposal of last year. As the case now stood, they would have to decide whether they wanted a tax or not.

Mr. Baines said the matter had better be referred back to the Standing Committee. He felt it was useless canvassing the Branches for their opinion and then acting in opposition to their expression. He thought we must respect their opinion.

Mr. Ryland said he wished, in connection with the proposed Apiaries tax, to say a few words, as he was somewhat responsible for the discussion that day. It was thought that if the beekeepers would do something to help themselves, it would be an inducement to the Government to help them too.

Mr. Schmidt did not think the Branches had had a fair opportunity of going fully into the question.

After further discussion, Mr. J. Rentoul moved, and Mr. F. E. Stewart seconded—“That this Conference reaffirm the principle of the tax.”

The motion was carried unanimously.

Mr. T. E. Clark proposed, and Mr. W. B. Bray seconded—“That the whole matter of the tax be referred to the Standing Committee to confer with Mr. Kirk, and put it into shape.”—Carried.

Mr. T. E. Clark proposed, Mr. J. Schmidt seconded—“That the Conference calls the attention of the Government to the fact that foul-brood disease is ex-

tremely prevalent throughout the Dominion and constitutes an increasing menace to successful beekeeping, and demands that sufficient inspectors be at once provided, otherwise.”—Carried.

#### WEST COAST BRANCH.

“That the Annual Conference be held in a more central place.”

It was explained that every place was central to those in the particular district where the Conference was held, and that as the meeting was held in the different centres, there was nothing to be gained by the motion.

The motion was lost.

#### RANGIORA BRANCH.

“That the Government be approached to grant the same concessions to travelling beekeepers attending the Annual Conference of the Association as is granted to kindred Societies.”

The motion was carried.

The Conference then adjourned.

On resuming, Mr. Watson expressed his regret that he had been unable to write up his paper on “How the Honey-producing Flora of New Zealand can be increased,” but he would put the article through the Journal later on. He would just like to show them a single plant of white sweet clover which he grew, and he had with him a quantity of seeds that he would be pleased to distribute to those who cared to take them.

The sample plant was easily 8 ft. high and flowering profusely even at the time it was rooted out; it had then been in bloom for four months. Needless to say the seeds were quickly disposed of.

Mr. C. F. Horn then read a paper.

#### CONCRETE AND ITS USES IN THE APIARY.

(By C. F. HORN.)

Mr. Chairman, Ladies & Gentlemen.

Having been invited to write a paper for this Conference, and being desirous of contributing something which would be of practical value, it occurred to me that my experience with concrete in the apiary might be of interest.

About four years ago I decided to put my hives out on concrete platforms and paths. The reasons leading me to this decision were briefly these:—

- (1) To obviate the necessity for so frequent cutting away of grass and weeds.
- (2) To keep the hives upright.



- (3) To prevent dampness, which, as you are aware, is the ally of disease and destroyer of good timber.

In view of the permanent nature of the undertaking, I first of all studied the various methods of laying out an apiary, keeping specially in view the need for an arrangement of the hives and entrances which would prevent as far as possible that confusion amongst the bees which is experienced more or less in all large apiaries. Of all the plans presented by journals and text-books, I preferred the plan as recommended by the late Dr. C. C. Miller, which is simply to place the hives in double rows back to back, but with 4 ft. between the rows to allow of the passage of a wheelbarrow. The entrances, of course, face opposite ways, and a greater space is then allowed between the first and second double rows—at least 10 ft. I am glad I adopted that plan, which, although perhaps not picturesque, yet answers the two purposes for which it was designed—that is, conservation of space and prevention of confusion amongst the bees. By the way, it also prevents confusion to the beekeeper, for the fact that the hives are in groups of four makes the task of memorising one's work very much easier.

Having adopted this plan, and assuming for the time being that you have done the same, let us proceed to the apiary. Taking a long cord and a sharp spade, we mark out the platforms or paths, cutting the turf along the cord line, making them 3 ft. wide, with a space 4 ft. between the two paths. We then carefully skim the turf off, doing the work as level as possible the length way of the path, but with a fall of 1 or 1½ inches from one side of the path to the other, according to the way the hives are to face. This prevents rain water running into the hives. A little care in preparing these paths for the concrete will be amply repaid in the consequent saving of cement and also in the appearance and permanency of the job.

We next lay a 3 x 1 batten on its flat on each side of the path, sufficient grass turf having been trimmed off to allow for these, and the place is now ready for the concrete mixture.

You may be surprised to hear that some of the concrete in my apiary, which is still standing well, is less than one inch thick, and in no case is it any thicker than one inch. I use nothing but pumice sand, as free from dirt as I can get it, which, mixed in the proportions of 6 of sand to 1 of cement, makes good tough concrete, in spite of what may be said to the contrary, for I have proved its efficiency in cow-sheds and stack-yards as well as in the apiary. If beach sand is used, it is necessary to first wash the salt out of it carefully.

When mixing the concrete, the usual procedure is to give it two turns dry, and

then for the purpose under consideration make it very moist, almost sloppy. Be careful also to splash plenty of water on the path before the wet mixture is placed, because the dry earth will absorb the moisture so readily as to make the work difficult to smooth out, and tends to rob the mixture of its strength. I simply smooth the mixture out with a short batten which, when "jigged" on the battens laid lengthwise, answers the purpose quite nicely without a trowel if ordinary care is taken. Keep the paths moist by sprinkling for a few days, and cover with bags or boards at night if "Jack Frost" is about. Four years ago the cost of cement, not including labour, figured out at a little less than one shilling per hive. At the present price of cement, it should not cost more than 1/6 per hive.

In the event of your apiary being situated on what miners would term "puggy" clay, I would not advise laying the concrete so thin as the expansion and contraction of sticky clays would badly crack it. In country of that nature the cement-boards, so largely used by builders, would be preferable. On the soils of the Waikato, and wherever there is a gravelly or sandy sub-soil allowing natural drainage, concrete makes the finest job, as a heavy barrow-load of honey can be wheeled across it without fear of it cracking.

The second use I have made of concrete in the apiary is perhaps more important than the one just dealt with. I have made a drinking pool for the bees right in the centre of the apiary, and I hope thereby to keep the most of my bees away from the cattle troughs.

By the way, if any beekeeper has apiaries without a natural supply of water, and a neighbour-farmer's windmills and troughs near by are the only or perhaps the nearest water supply—well, I wish you could hear the affectionate (?) terms the said farmer uses in referring to him and his bees. A good and wise man once said:—"As far as it lieth in you, live peaceably with all men"; but I fear the beekeeper's thoughtlessness and perhaps indolence in this matter is often sufficient to break the peace. Now, Sir, a bag and a-half of cement and a few feet of ½-inch piping to connect up with your honey-house tank, or even to a pump, would make each apiary independent of the farmers' troughs.

Briefly stated, my method is to scoop out a basin 6 ft. or 7 ft. in diameter and about 6 in. deep, after the turf has been removed. Then place a row of bricks or stones (for preference) in a circle on the edge of this basin, and plaster the concrete 1½ inches over the basin and around the stones. Another row of bricks are then stood on end all around in the water, about 6 in. from the water's edge, and the intervening space filled with sand. This readily and continuously absorbs the water, and

keeps it cool—a fact which the bees appreciate. To prevent drowning of bees, more bricks are stood on end in the remaining parts of the basin, and these also absorb water and provide further drinking-places for the bees. Mr. Trythall assured me that when the moss forms on the bricks, the bees will appreciate it still more. My basin is about 7 ft. wide, and it took just a trifle over one bag of cement to make it.

A third use I have made of concrete is for honey-house floors, making it in the same proportions, but laying it two inches thick. I need not linger on this matter, however, except to say that I would strongly advise the use of a gully in inside the honey-house, with just sufficient fall in the floor—say,  $\frac{1}{2}$  in 12 or 14 feet—to permit of an easy and thorough washing down of the floor occasionally. The gully trap should be connected to a covered pit outside, which has been dug in the gravel or sand, filled up with old fins and bricks, &c., to prevent the sides falling in, and carefully covered over to prevent robber bees getting at the washings. This will be found a boon, and particularly by those fighting foul-brood. For a number of years I have taken the precaution to bury all washings in the garden; there is no need for that task now, thanks to the gully trap.

Another use I have made of concrete, but only in an experimental way, is for hive bottom-boards. I have had one in use for years, and but for its unwieldiness I would have had more, for I have to record that that particular colony has always done well and has never swarmed, a fact which I consider may be largely due to using this style of bottom-board. However, that is a matter which requires further demonstration and proof. Being so cumbersome, the concrete bottom-board is unsuitable for out-yard beekeeping. The only positive claims I can make for it are that it will not warp or rot.

Perhaps the most novel use I have made of concrete is to make the honey-house bee-tight. Honey-houses roofed with corrugated iron unless match-lined are or have been extremely hard to make bee-tight. I have found, however, that by filling in the corrugations over the purlins near the eaves with concrete the trouble is overcome as far as the roofing is concerned. Two buckets full of the usual mixture will do quite a large roof.

These are all the uses I have made of concrete in the apiary up to the present. I have found it useful in many other ways on the farm in the making of posts, water-troughs, walls, well-bricks, yards and paths, and my experience is that not only does it make a more permanent job, but it is also actually a cheaper proposition than is timber at present prices, and, further, never needs painting or tarring.

Possibly there are others who have found uses for concrete in the apiary not mentioned in this paper. If so, I am sure I

am not the only one who would like to hear of them, for we all appreciate permanent plant and equipment, especially if it is going to obviate a lot of unnecessary labour.

If I have not made myself clear on any point and if time permits, I am perfectly willing to answer any questions relative to the subject.

Mr. Penny asked if setting the hives right down on the paths did not make the manipulation of the hives very tiring. His hives were on stands about a foot off the ground.

Mr. Horn admitted that it was a bit heavy on the back when the hives were only the single-brood chamber, but you were compensated when hiving up by not having to lift heavy supers to any awkward height.

A very hearty vote of thanks was accorded Mr. Horn.

Mr. W. B. Bray then read a paper.

#### THE ACQUISITION OF APIARY SITES.

##### TENURE OF THE SITE.

By W. B. BRAY.

In selecting an apiary site, the main consideration should be the tenure of the land. On that depends the whole future of the apiary. The best tenure is the freehold; the next best is renewable lease; then comes ordinary lease; and, finally, the worst is renting from term to term. Unfortunately, to-day most of those who are launching out into the honey-producing business are showing a tendency to go in for rented sites. In my opinion, this does not promise well for the successful establishment of the industry on a sound and permanent basis. The beekeeper who is in the business for a few years only is no good to himself or to the industry. He is not likely to get the most out of beekeeping because he is afraid to lay out sufficient capital to develop the business properly. The renting system lends itself to the encouragement of this class of beekeeper. He is always up against the possibility of his having to shift on. He does not plant suitable shelter or put up convenient buildings for extracting and storage. His outfit suffers more deterioration from exposure to weather and constant handling. His time is too much occupied in carting material backwards and forwards, in looking for fresh sites, and in the extra work of shifting bees. Cut out all these disadvantages by acquiring a secure tenure and study the possibilities of the position then. In the first place, more bees can be cared for with less work; there is less depreciation of plant. In addition to the value of the land itself, there is a good-



will value added to the bees and plant; in other words, the value as a "going concern" is considerably more.

The business also commands the respect of the surrounding community. Though perhaps a minor point, it deserves consideration, as it has its effect on the sales of honey. There is a saying that "nothing succeeds like success." When the public acquire a respect for the beekeeping industry, they at the same time have more respect for the product. They are also more likely to have a greater desire to eat honey when they see it being handled everywhere in a proper manner.

Permanent plant and fittings mean the better handling of honey. Unfortunately, it is true that some people will not buy honey at a shop, but will go without unless they can get it direct from a beekeeper whom they know handles it properly.

It is sometimes an easy matter to rent or lease a site from a farmer who believes in the principle of "Live and let live," or who recognises the indirect value of the work of the bees. In certain districts where white clover seed is harvested, likewise lucerne, the beekeeper is sought after by the farmers, some of whom are even willing to provide transport, and help by other means to make the path of the beekeeper easy. Even where the bees are welcomed, whether the rent be nominal or free, I consider the beekeeper should seek the opportunity to make his position secure by getting a better tenure. The farmer may die, or he may sell out, and the new owner have an unreasoning objection to bees. It does not pay to set up an apiary knowing that at any time it may be necessary to shift on, or that the rent may be raised as often as the landlord likes. Even a lease runs out in time, and even if a renewal can be obtained, it usually means a higher rent.

Perhaps some will say that renting suits them very well, because they may find that the district is not good enough, and they may wish to move to a better district. To such it is usually a case of "distant fields look greener." There is hardly a spot in New Zealand which, being worthy of a beekeeper's attention, would not justify the establishment of an up-to-date apiary if it were run on sound lines. My contention is that the renting system tends to encourage slipshod methods.

#### ROOM YET FOR THOUSANDS OF APIARIES.

It is no exaggeration to say that there is room for the setting up of thousands of apiaries without crowding those existing at present. That means that hundreds of thousands of colonies of bees could be at work gathering nectar which at present goes to waste. If the industry were developed to its fullest extent, it would provide a means of livelihood for thousands of people. Every man making his living

by keeping bees is an asset to the country. The country becomes more closely settled because his is an entirely new occupation, and the product is a valuable food. It is not putting two men to do one man's work, but rather putting another man on to produce food enough for another fifty men.

We constantly hear the cry from editors, politicians and public men that the country needs closer settlement and more production. "Go on the land, young man!" The beekeeper will go there fast enough if the way is open, and it is for us to show the leaders of our country how to open the way.

The amount of land required by a beekeeper varies from a half to one acre for an out-apiary site, to five to ten acres for a homestead site. As a rule, such small areas are difficult to obtain in country districts. They are very scarce, and the few there are seldom come on the market. In any amount of suitable districts the holdings are from 200 acres upwards, and in plenty of cases there are only one or two holdings. It is a very difficult matter for an intending apiarist to canvass the owners to sell a small area. Some owners, unfortunately, are prejudiced against bees, the fact being that they are really frightened, because all they know about bees is that they sting. Some are merely conservative, and do not like to let a newcomer into the district, especially if he is to be a new ratepayer. Others are mortgaged, and do not like the trouble of disturbing their financial arrangements. Those are the chief difficulties confronting the beekeeper looking for sites if he has sufficient cash to pay for them. If his capital is limited, then his obstacles are still greater.

#### PARLIAMENTARY ACTION.

But I believe that Parliament could solve the difficulties and do it without increasing the burden of taxation. By an amendment of the Land Settlement Acts machinery could be provided to enable beekeepers to acquire sites where desired, either under renewable lease, occupation with right of purchase, or freehold. Land Boards should be given power and funds to acquire only such land as is actually applied for by an apiarist, and to dispose of it to the applicant. The tenure could be optional. If the applicant has only sufficient capital to acquire stock and plant, then a 30 years' lease with perpetual right of renewal would be suitable. The rent of renewal would be suitable. The rent being based on the total capital cost. As an alternative, it could be leased on the occupation and right of purchase system or on the deferred payment system. Improvement and residence conditions should apply only to a homestead site. For out-apiary sites, the setting down of, say, twenty colonies of bees should count as occupation.

## SPECIAL OUT-APIARY SITES.

The procedure I would suggest would be somewhat on the following lines. The apiarist in his application would give some proof of his bona fides, such as means and ability, and also specify the actual piece of land he requires, and suggest a price. The Land Board would then inform the owner regarding the application that had been made, and invite him to consent or refuse or make an alternative offer as to site or price. If no business results by mutual consent, then compulsory arbitration should be resorted to: each side would appoint an assessor to act with the Chairman of the Land Board to hear the evidence for both sides and give a decision. The decision of the arbitrators would, after confirmation by the Land Board and the Minister for Lands, be final and effective. There should be a limit of price for the unimproved value to twice the Government valuation. The arbitrators should be allowed to take into consideration the proximity of any apiary of, say, 50 colonies and over, already established within two miles, and the applicant should be entitled to call evidence in rebuttal. I would not like to see an application absolutely blocked on account of the nearness of another apiary, because much would depend on the condition of that apiary. It might be desirable to let a better class of beekeeper into the district, and a muddler with 50 colonies should not be entitled to block him. At the same time, it would not be a good policy to allow the compulsory acquisition of sites to lead to competition which may end badly for one or more. The evidence of the apiary instructors should be made available on such matters.

While the suggested procedure may appear cumbersome, it would be found in practice that it would seldom be necessary to set the whole of the machinery in motion. The mere fact of its being available would mean that owners would be more prepared to discuss prices and location; in most cases the application would be a matter of form, the transaction being accomplished by mutual consent. In a case where the apiarist has sufficient capital, he would probably acquire the freehold.

Some of you may say that my suggestion is so radical that there is no hope of seeing it realised. I do not regard the argument seriously. In the first place, the country's closer settlement policy modified to suit the special requirements of our industry. It is not practical to cut up one block of land into small pieces and set a beekeeper up on each section. Neither section; he would have to cease, or partially cease, beekeeping to become a farmer. Again, it is not necessary for the Government to acquire hundreds of sites up and down the country and wait for the beekeepers to come along. In the second

place, I do not think that our hopes of success are doomed to failure. It is for us to disclose our needs to the Government, and show good cause why they should be remedied. We cannot expect the Government to discover the facts for themselves. Reasonable men are at the head of affairs, and if we can show a reasonable cause we have every chance of getting our wishes granted. For what purpose have we met here to-day, if not to discover ways and means to further the progress of our industry?—a progress which will spell benefit not only to us as beekeepers, but also to the country as a whole.

Mr. Bray said he did not want a lot of time spent on discussing his paper, and would move the following motion:—"That this meeting endorse the principle of the paper, and refer the matter to the Standing Committee to act."

The motion was seconded by Mr. C. Smedley, and carried.

Mr. J. Rentoul then reported the result of the Conference between Mr. T. W. Kirk and the members of the Standing Committee on the matter of the proposed apiaries tax. He said they had gone thoroughly into the matter, and had decided to recommend to the Government the following scale:—

1 to 5 hives, 1/- per hive; minimum, 2/6 per annum.

6 to 15 hives, 10/- per annum.

16 to 50 hives, 15/- per annum.

51 to 100 hives, 20/- per annum;

And 10/- per 100 or part thereof above 100 hives per annum.

That a proportion of one-fifth of the proceeds of the gross tax be handed to the National Association for purposes of organisation.

Mr. Rentoul put this as a motion, which was seconded by Mr. W. E. Barker, and after a brief discussion was carried unanimously.

Mr. W. B. Bray read a paper.

### QUEEN-REARING AND QUEEN-BREEDING.

By. W. B. BRAY.

The advent of the framehive and the honey extractor revolutionised the whole system of beekeeping. Hitherto the swarming of the bees played a vital part in the success of the season. As the honey was obtained by killing the colonies, it was necessary to secure a natural increase by allowing the bees to swarm. The quantity of honey obtained depended on the bees swarming early and often. Thus, it will be seen that the domestic bee developed a stronger tendency to swarm than



of the wild bee. In their wild state swarming is a natural act, and the extent of it is governed by the extent of the available resources to maintain existence.

When we consider the extent to which modern beekeeping intensified the swarming impulse, is it any wonder that swarming is the greatest problem that confronts the modern beekeeper; under present-day conditions the big results are obtained by preventing a division of the working forces and maintaining the full force of the colony in one hive. All sorts of methods and manipulations are employed to secure this result.

The simplest swarm-prevention methods are young queens, large hives, and plenty of super room and ventilation. But it is my firm opinion that we must also tackle the problem on the lines of breeding out the impulse to swarm. Just as the old system intensified it, so can we, if we take the pains, reduce it and overcome it. Now, someone will say that it will be impossible to breed it right out, as swarming represents the reproduction of the species, the failure of which would mean their extinction. But it must be remembered that swarming is only a part of the reproduction system. The supersedure of a queen within the hive represents the other part, which would of necessity be maintained and encouraged by our methods of management. I do not say that we can ever succeed in absolutely eliminating the desire to swarm, but we can go so far that for all practical purposes we can say we have a non-swarming bee. As long as such bees remain in a domestic state they would be non-swarmer, but directly they were neglected and became wild as a result, the tendency would return. We have an example in the domestic fowl. A number of breeds from round the shores of the Mediterranean Sea are non-sitters. When a few of any of these breeds out there they can live in a wild state, or even semi-wild, and they will sit and hatch their eggs.

Every beekeeper should do his own queen-rearing. I do not mean that he should not buy queens. He would start by buying good stock from a breeder, and as occasion required he could buy more queens to improve his strain or for purposes of comparison. But to maintain a constant supply of young queens he must do his own rearing. Now, a young queen of any sort is better than an old one, but a young daughter of a good queen is better still. If a beekeeper is going to do queen-rearing at all, he must also do queen-breeding to get the best results. It is a great mistake to use queen-cells that are found in a colony that has swarmed. It may be called queen-rearing, but it certainly is not queen-breeding. Breeding implies the selection of a specially desirable queen as the mother of the future generation. The use of promiscuous swarm-cells is exactly opposite to the idea of selection. Even if all other desirable qualities are

equal, the queens from swarm-cells are more likely to perpetrate the swarming habit than are queens bred from a queen who has shown no desire to swarm.

The ideal breeder is first of all the best honey gatherer. She must be a non-swarmmer (the two traits generally go together), and she must be true to type—that is, of pure race.

All young queens should be bred from such a mother as I have described. Another most desirable character in a queen is the readiness with which she will allow herself to be quietly superseded. This is a point which requires years of observation to decide whether the tendency is repeated in her progeny.

A queen is at least one year old before being chosen as a breeder, and it is not to the interests of the owner to allow her to be superseded. He must preserve her life as long as he can by continually removing supersedure cells as fast as they are built. Of course, such cells should be used in the nuclei. They are quite distinct from swarming cells. Supersedure is a desirable quality in a queen provided it occurs before the colony goes down hill.

I myself have used swarming cells for rearing young queens, mostly in one particular yard, and this yard was always bad for swarming. The contact with other yards where breeding has been carried out on proper lines has been most noticeable, and from the experience I have gained, I am quite satisfied that it is possible to practically eliminate the swarming impulse by paying strict attention to the selection of breeding stock, and using no queens but queens reared from daughters of that stock.

Mr. Bray was accorded a hearty vote of thanks.

An apology for absence due to unavoidable circumstances was read from Mr. J. Banks.

Mr. R. W. Brickell then read Mr. Banks' paper.

#### WHY I LIKE LARGE HIVES.

By J. BANKS.

In response to a request from the Secretary of the National to contribute a paper at the Annual Conference, I have chosen the subject of "Large hives," trusting that it will prove interesting to the members present. The subject is one which has not been discussed much in this country, although I understand that a number of beekeepers have adopted so-called large hives; and one object of this paper is to place before members my own little efforts in the search for the ideal hive, in the hopes that other beekeepers who have experimented along these lines will pool their knowledge for the benefit of all concerned.

In my early beekeeping days, I was told that the standard hive was a ten-framed Langstroth, so the first few years I kept bees in ten-framed hives. I was also told that I must place a queen-excluder over the ten frames, which I also did. What is more, I believe there are still beekeepers who practise this wasteful method of keeping bees. I say wasteful, because a modern beekeeper should have bees that require more than ten frames for brood, and to confine a good queen to ten frames can only result in swarming, as a result of want of room in which to lay.

I well remember those early beekeeping days, and the swarms, swarms, swarms! I discarded the queen-excluders and lifted up brood in order to keep my bees at home. In this I was moderately successful, but it entailed a great deal of work. The queen would stay in the super and neglect the bottom altogether in some cases. Then I got a number of 12-frame hives built, but these proved even too small, and I had to use a second brood-chamber, which was much too heavy to lift about. Probably in some localities the 12-frame hive would be big enough, but with me I expect every queen to have **15 frames of brood in November**. One season proved the 12-frame hive too small, so I had to fall back on the 10-frame and use two bodies.

I use shallow extracting frames, and although the tendency is for the queen to go upwards when she wants room to lay, in actual practice I find that she does not go up into the shallow frames. I have very few swarms, and this I put down to three things:—

1. The strain of bees.
2. Giving plenty of room about the time of the honey flow.
3. The practice of giving brood-combs extra space as soon as the warm weather begins: with me it is about the end of November.

I think all commercial beekeepers space their extracting combs extra wide for the purpose of ease in uncapping. I do the same in my brood chambers, using nine frames in each 10-frame hive. This must not be done until the weather becomes warm. As soon as the bees get busy in the supers, there is no need to look below—all I need to do then is to see that they have plenty of room for storing.

For years now I have felt the need of larger hives for brood-rearing, and I have often wondered why the shallow frame became the standard, especially as the large frames were advocated a long time ago by Moses Quimby. The only reason I can see is that we are in the hands of the hive-makers, and they can probably turn out a shallow hive much cheaper than a deep one.

In a recent issue of the American Bee Journal there is an account of a demonstration of practical beekeeping which took

place last year (1920) in America. Several apiaries were chosen in different parts of the country, and five colonies in each were manipulated by an expert during the season, the rest being maintained by the owner of the apiary. The apiary showing the greatest difference contained 19 colonies. The five hives which were manipulated by the expert averaged 209 lbs. of honey per colony, and the 14 in charge of the owner produced 84 lbs. per colony.

Briefly, the methods adopted were:—Plenty of room for brood (two ten-frame bodies being used), and plenty of room for honey, all supers being half depth. The expert in charge sums up the results as follows:—"The larger yields obtained by the demonstration colonies were obtained chiefly on account of the queens having plenty of room for egg-laying previous to the honey flow, and by keeping the working force contented during the honey flow by giving an abundance of room and sufficient ventilation during the honey flow."

There has also come into my hands recently the most powerful advocate for large hives that it is possible to imagine in the shape of a book published by C. P. Dadant entitled "The Dadant System of Beekeeping." If I had not seen this book, I doubt very much if I should have chosen this particular subject; but any member who is sufficiently interested in the matter should get the book as soon as possible. Here I found that what I had spent years to find out by experience; the Dadants have been actually practising for 50 years. Here is a firm who makes 10-frame hives, so the 10-frame hives, publishes a Beekeeping Journal, and in their own home apiaries they have used the real large hives containing 11 frames each, 20¼ in. long by 11¼ in. deep, for over 50 years. Here is a little extract from the book:—

"The 10-frame Quimby brood chamber which is now called the 'Dadant hive' contains 1890 sq. in. of comb, or 540 sq. in. more than the 10-frame Langstroth. This brood-chamber is sufficient for the average prolific queen in spring was sustained positively by us when, about 1870, we handled several hundreds of these hives under exactly the same management, side by side with 110 ten-framed Langstroth hives, which we had leased for honey production from an old Missouri beekeeper by the name of Barlow. During the month of May quite a number of Langstroth colonies, having been given supers of brood comb, began to breed in those supers, while none of the queens in the Quimby Dadant hives occupied the supers. That was clear evidence that it took more than one storey of Langstroth ten-frames to supply a good queen with sufficient breeding room at the time when we managed our forces for the harvest.

"Additional evidences of the superiority of a large brood-chamber were plentiful when the results were weighed. As a result from the fact that numerous old-time beekeepers sang the praise of large hives



when only logs or boxes, we found the increased population from ample breeding room given to the queen unhampered by divisions or spaces secured a much increased harvest.

Perhaps the most cogent evidence that we can cite is the opinion of a farmer's wife on whose farm we had located an apiary composed of both Dadant large hives and ordinary Langstroth hives in about equal numbers, managed in the same manner. We were paying these people for the rental of the apiary site in a share of the crop. The lady, who was a very keen manager, asked us one day why we had brought any small hives to their farm—why we did not keep those hives at home? She did not think that we treated them fairly, for she could very plainly see that the large crops came from the large hives, and she gave us to understand that she objected strenuously to our keeping an apiary at their farm in future unless we kept only large hives there.

Although we had seen for ourselves the advantage of large brood-chambers, nothing brought the matter to our notice more forcibly than this avaricious complaint.

"It was necessary for us to keep some bees in standard Langstroth hives, for very few people have, until lately, been willing to buy bees in such large brood-chambers as we use, and yet for success, especially in running for extracted honey, **there is no comparison in results!**"

From the foregoing, it will be seen that the subject of large hives is sufficiently important to warrant the careful consideration of all beekeepers who are dependent on honey production for a living. Personally, I am quite satisfied, from my own experience, that a large brood chamber means less swarms, less work, and more honey.

Owing to Mr. Banks not being present, discussion on this important matter could not take place. Mr. Brickell had had a Dadant hive made for demonstration, which was on view.

A very hearty vote of thanks was accorded both Messrs. Banks and Brickell.

Mr. H. R. Penny read a paper on

#### MANAGEMENT OF OUT-YARDS.

By H. R. PENNY.

The subject that I have taken is one that I do not expect to do justice to, as it practically covers the whole beekeeping business from A to Z. There is, however, one aspect where out-apiary work differs from home apiary work, and that is a policy that may be efficient for a home apiary is often not thorough enough for an out-yard. At home it is an easy matter to pick up a swarm or two, but at an out-yard it is profit lost.

The key-note of out-apiary management is thoroughness. By rushing the work, it may be necessary to return a few days earlier, and in this way running expenses will mount up. In running a number of yards, the motor is a necessary item.

The ordinary two-seater Ford is in general use in Taranaki, and I can thoroughly recommend it to anyone who is prepared for a little extra expense. With a body built on 5 ft. 2 in. wide by 4 ft. 3 in. deep, and an extra leaf in the spring, "Lizzie" will take you across rough paddocks with 36 supers of combs, 12 solid supers of combs, or any load not exceeding half a ton. With a good second-hand car, the average cost will probably be from 4d. to 5d. per mile, covering all running expenses except depreciation, and varying according to the luck one has in breakages, and should be less for a period with a new car.

Before I proceed to give an outline of my method of control of the bees, it will be better for me to state that I am hard and strong for the central depot system, and cart all supers home both to extract and to store for winter. I have tried extracting in sheds at out-yards; in a tent with a small power outfit; in a portable where with power outfit complete—and have discarded them all. A portable of decent size is too heavy to move about, and there is also the difficulty of disposing of the honey, as it has to be carted home and tipped again, which means double handling. The tent is too risky on account of bad weather and robbers, and takes time to rig up. Sheds prove too expensive if built sufficiently large for extracting, and there is also the chance you may have to move your bees, as sometimes your landlord may want to plough the paddock. With the carting home system, you have the honey on the spot, where you can deal with it, and as you have to go out to another yard next trip, there is no waste carting supers about, as, provided you have a clean bill of health and your gear is interchangeable, your load of supers can be taken on from one yard to another and substituted for combs of honey. If anything goes wrong with your plant, you have soldering iron or whatever tool you require on hand to fix it. If it comes up rough weather, you have your tanks of honey ready to run off and your cap-pings (which I drain over-night) to melt up, and can keep going full pace.

I seldom leave nuclei at out-yards, as they need too much attention, and I find that a yard that could have been left for three weeks has to be re-visited in say, two weeks on account of the nuclei. That is what must be avoided, as the only possible way to make a success of running a number of out-yards is to seriously think out a plan, and cut out all unnecessary visits. In other words, to leave the bees in such a condition at the end of your visit that you will be sure they will not need attention for the longest possible period, and also to be able to correctly judge that

period. The apiarist's ability to do this will be the main factor controlling the amount of running expenses, and allow of the largest possible number of yards being run.

Now, we will suppose you are on similar lines, and it is time to start and make the spring overhaul of the bees, which in Taranaki is usually the latter end of August. The first thing to do will be to make a guess at how many queens you will require to replace possible winter losses, and then cage them from your home apiary nuclei. I usually put two or three bees in with a queen for company, as if you carry them round in your pocket all day, they are less apt to "turn up their toes." It is just as well to take a few more than you expect to use, as any surplus may be placed in a colony when you arrive home, and taken out again to the next yard.

Arriving at the out-apiary, the work will be a general inspection for stores and queenlessness, and a keen look-out for foul-brood. I believe in giving the frames a light shake to dislodge most of the bees and so make inspection easier. If any of the "beekeepers' curse" is found, do not tolerate it. If a bad case, make a fire; if mild, move it to your hospital for treatment (McEvoy plan) as soon as possible, taking every precaution to guard against its being robbed.

Queenless colonies, if strong, will be given a queen by the smoke plan, provided there are not many robbers about; otherwise the candy system is always a good and fairly reliable plan. Weak queenless colonies will be given a few frames of brood and bees, and a good dose of smoke to unite them, together with a queen by the candy method. The yard being absolutely clean, stores will be evened up carefully, and it should not be necessary to return for about four weeks.

In accordance with my autumn plan, all bees will be shut down on six frames with a division board.

The next visit will be on similar lines; the inspection, however, will not be so thorough except as regards stores. If the bees were extracted too close in the autumn, it may be necessary to start feeding, as the system of "robbing Peter to pay Paul" should not be carried too far.

My object during early spring (hence the reason of shutting down on six frames) is, however, to keep the bees medium strength, so as to reserve the queen's laying powers, and not to have a big force of bees to feed during our worst spring period, which is usually from the middle of October until late in November, and sometimes into December. So for that reason if there is sufficient honey to equalise, with a guarantee of a three weeks' supply, then I would do so. Otherwise the absolutely indispensable note-book which will have been in use the previous

visit, will have fulfilled its object, and the necessary syrup and feeders will be on hand.

For a district like Taranaki, I think the Miller feeder is one of the best procurable, as you can feed such a large quantity when necessary. During the early spring, however, I only feed the early stores to keep the bees in good heart, and that, together with shutting down on six frames, is sufficient to eliminate the swarming impulse during that period. But should colonies still show an inclination to swarm, they can be broken down by removing their brood or part of it to weaker colonies. I feed at any time during the day, and find that with good bee-tight feeders and hives and moderate entrances that it is quite safe, provided your colonies are all in good nick.

I have noticed that there is less danger of robbing when the whole yard is fed as against part, and that a large quantity keeps the robbers quiet better than a small quantity, as by the time they have shifted their own lot they hang about their own feeder waiting for the next issue. This style of control continues until about October 20th, which I estimate is six weeks before the average date our clover flow is likely to commence. About this time I set the bees at it. It is now whips and spurs on. If the queens are up to the standard and the bees have had the required attention, they will have about four or five frames of brood, and a good number of frames of bees. The division board will be removed and the brood moved in to the centre of the hive, and the additional six combs put in, some of these being placed alternate with the brood in the weaker colonies. I then give them a good feed of syrup, and in yards where they have Miller feeders they will be set at it three weeks. The extra room given will counteract the swarming impulse, and the queens having been shut down will move ahead in great strides.

Next visit the bees will be treated in a similar manner, only that the spray will be used more severely; that is, combs will be placed at intervals between the brood, with the intention of forcing the bees along, care being taken not to overdo it, as a cold snap would chill the outside frames of brood. Now will be the time to cram the feed into them, as on that will depend the number of bees available when the flow commences. If the weather is rough about the time the next visit is due, there will be no need to worry about stores or swarming; but if it should come mild weather, it will be necessary to inspect for cells.

Towards the end of November, the strongest colonies will require supers, and the difficulty will be to keep them well fed up with syrup and to avoid having a quantity of stores in the supers when the flow starts. This, however, is a matter that must be left to the beekeeper's own



and knowledge of the district. There will not be much trouble in keeping down swarming until the flow begins, but once the flow begins is the time to get busy. If you don't get busy the bees will not only with honey but also with cells. This is the most critical time of all, and it pays to put in long days, and get round quickly as possible.

The plan I use of swarm control is a very simple one: it amounts to a plan of deception. The idea is to deceive the bees to their prosperous condition. At the commencement of the clover flow most colonies will already have supers on, and the others should be in a position to take them at once. By using the old plan of putting two or three good worker combs (dark combs for preference) between the brood, the queen will have something to keep her busy.

I usually visit my out-yards at intervals of ten days during December, and as the bees in this district do not usually swarm until a few days before the virgins are due to hatch, to lose a swarm is a rare thing. The main thing is to get the bees under hand from the start and keep them under hand. Once a yard gets the swarming fever, they are much harder to check than before they got the fever. Provided plenty of ventilation is given and the queens are young and good, the plan of spreading brood and giving super room should reduce swarming to a minimum. However, should they start cells, my plan is to give them no chance: that is, I cut out all cells and give them a drastic spread, extra ventilation, and extra super room. By this plan I can cure nine colonies out of ten. If they still persist in building cells, there is only one thing to do, and that is to take away all their brood, or for preference take them on to foundation, and give them a frame of eggs only to prevent risk of absconding. If the queen is a poor one, it is an ideal time to re-queen, but in that case I would not give even a frame of eggs, but a brood-nest comb or two with a little honey. I would introduce the new queen with the smoke can if towards evening, otherwise the handy plan, with just a small plug of candy, and no cardboard, so that she would be on the job.

When putting on a super, I usually aim to lift up some scraps of honey to give them a start above, and if the colony is very strong I will lift up two frames of brood. If I do not lift brood when I put the super on, I do so as soon as the colony has sufficient strength. Excluders are things I cannot see any need for, and my idea is the more brood you can get at the commencement of the season the more honey you will get at the end; therefore, why restrict the queen? The honey flow will act as an excluder and what the queen does fast enough, and by the time the queen is ripe there will be very little trouble with brood. No doubt in other plans they will prove use-

ful—such as the plan used by Mr. Rentoul, which plan, although I think unsuitable for Taranaki, appeals to me as a splendid plan in a district where spring queen-rearing can be carried on successfully. It not only re-queens your colony, but provides a double force of bees when the flow commences.

It is during December, or supering time, that the brick becomes a great help. A brick can be used as a marker to denote the room a colony has, and at the end of your day's work a glance at the yard will tell you that you want so many supers next trip for sure, and possibly another so many. I use my bricks in four positions:—No. 4 means super for sure, No. 3 doubtful, No. 2 medium, and No. 1 backward. On your next visit, if the bees have gone ahead more rapidly than you anticipated, you do not find yourself in the position of having got rid of all your supers on medium colonies before you have got half-way through, and then no supers for the last few bubbling over with bees. You can see at a glance which colonies want them most, then if necessary less urgent cases can be kept quiet until next visit by changing a few combs of honey for empty ones.

I find it a good plan to write a few notes immediately I finish the yard. Everything is fresh in your mind, and if in eight or nine days' time you wonder just exactly how they are, the notes will tell you. My notes will be on these lines:—“Bring, say, 20 supers; cells bad or good, as case may be; one queen for No. 10; two covers; bees go ten days, or twelve at latest.” Then when you are loading for next trip there will be no guess work, and you will have decided by the weather conditions whether you can leave them the twelve days, or if it will be necessary to return at ten days.

As I mentioned earlier, swarm control amounts to deception. It will depend on the apiarist's ability to manipulate the frames and spread the bees to give them the impression there are lots of corners to fill up; and yet it must not be overdone, as they are apt to lose heart, and a cold snap would lead to chilled brood and weakened colony. Once the queen has got a good start in the supers—say, four or five frames of brood—there will be no further need to go below, provided there are no queen cells in the super, and that the particular colony was not on the offending list last time. On first supering a colony, it is a good plan to put eleven frames in, as the bees will come up more readily into them than when they are widely spaced. Once the bees get a good start, then the combs can be reduced to ten in number. The second super should be put on (provided the flow is going well) as soon as the colony gets well established in the first super, with a probability of being short of room before next visit. In putting on the second super, it is a good plan to move up all the honey

possible, but no brood. The plan of brood-spreading can then be carried on in the first super on the same lines as previously carried on in the brood-nest, and although, as previously stated, there will be no need to go below unless cells are found upstairs, it is as well to keep an eye below to see if they have the appearance of deserting, as they usually show a preference for upstairs. In this case, it is necessary to put down a few frames of brood, preferably eggs and young brood. I seldom put more than two supers (12-frame) on a colony, as I prefer to extract, but should a colony get extra strong early in the season, an extra super is given.

Once the season is well going and the bees are getting interested in gathering, will be the time to start extracting. Nature has a plan of giving us all that we can bear; we are just beginning to despair, as day after day we tear supers of half-sealed honey off in our search for cells when the change comes. The bees get interested in gathering, and some will even pull down cells under completion. Now is your chance to keep them at it, and as soon as the honey is ripe get it away from them. No hard-and-fast law can be put down as to when it is ripe, unless you go the whole hog and say when it is all sealed. I have seen honey seven-eighths part sealed that was not fit to extract, as the unsealed part was green and watery, and I have seen honey-combs only a third sealed which could be safely extracted. This must be left to the apiarist himself and his knowledge of the district. The time, however, to be most careful is just after rain, when the nectar is very thin; unless you arrive at the yard in good time and get your load off before the new nectar has got up into the supers.

I have been rather long in detail up to date, and as time will not permit I must make my autumn notes brief.

With the central extracting depot, extracting can be started as soon as you can get half a dozen supers from any yard. Under the system of moving gear, it would not be worth starting for under thirty supers at least. Now, here is where the motto makes a win. Once there is sufficient honey ripe, a load can be taken off during routine work, and continued right through the queen-rearing season. A load of twelve supers is not a serious matter to deal with when you get home if you have up-to-date machinery, especially if you are lucky enough, as in my case, to have electric power and light. With this system, as against tiering up, you need far less supers, and when the main extracting time comes it is half completed and under warm and favourable conditions.

My plan of requeening by killing the old queen and giving a ripe cell is fairly well known, and although I cannot say it is a complete success, yet it is the best I know of. The main point is to wait long enough

to be sure the colony will not swarm, and yet be fairly sure of good mating. This will, however, I am afraid always require a certain number of colonies always kept, the queen and rear one of their own; these few queens, however, can be sorted, and the worst of them requeened for nuclei.

I usually start queen-rearing so that the cells continue to hatch at intervals between January 25th and the end of February, rearing all my cells at the apiary where they are requeened. My chief object in using this plan is to weaken the bees for winter and requeen all stores each year. Now, no doubt I will be against it in making the former statement, but in a district like ours, where there is practically no flow until December, the bees in autumn mean lots of sugar for the spring. The ideal colony to winter to my idea, five or six frames of bees with a young queen, and as much honey as you can get on the six frames, two of which must be solid combs of honey. These colonies will winter without loss, and you can carry on much nearer to December under my spring management, and with far less attention than a colony which was wintered with 60 lbs. of honey, to say nothing of extra 40 lbs. surplus you have extracted. I will say this, however, that unless you intend to be careful and do the work thoroughly, you had far better stick to orthodox methods. For should you try to give them a queen of quality or to put the stores into the small space, it will be "Good-night, nurse!" Once the colonies are shut down on the six frames and the division board added, the covers are nailed on, the colonies (of which I run two on a stand) are pushed together for protection.

This is a brief outline of my system which, although it may not be suitable for all districts with an early spring flow, is in my opinion the best system for a district like ours as Taranaki.

Mr. Penny answered a few questions and on the motion of the President a very hearty vote of thanks was given to Mr. Penny for one of the most interesting and instructive papers that had been given at any Conference.

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Mr. A. R. Bates read a paper on  
**ECONOMY IN PRODUCTION.**

By A. R. BATES.

Some years ago, in an endeavour to secure a higher price from a merchant who bought my honey, I was advised to draw my attention to cutting down costs at the producing end rather than raise the price to the consumer. At the present time, with a prospect of a fall in the market value of our product, to follow this advice would enable us to show a considerable increase in profits, and I will endeavour to outline a few of the means by which it may be accomplished.



**Capital Outlay.**—Of course, it is not possible to lay down any hard-and-fast rules in apiary management, as conditions vary so much in different districts. Nearly all our commercial apiarists work several yards, and a considerable saving in out-wards, and a considerable saving in out-wards, in building costs may be effected by working from a centre where all extracting is done, buildings at out-yards not being necessary.

By extracting the honey regularly as it is ready, as against leaving the end of the honey flow, a super of combs all round is the system also by giving the bees added impetus and reducing swarming shows a very decided increase in the crop.

A power plant I consider essential to economical working, both for extracting and in the manufacture of hives, &c. There are many things one can make on the saw-works in spare time that manufacturers' prices put out of the reach of the man with small capital. By using benzine case solvents, a first-class lot of nucleus boxes, will complete with division boards and covers, and can be cut out at trifling cost. This timber lasts years more service than white pine, and is very satisfactory for making covers, bottom-boards, division-boards, wood-mats, and woodwork for queen excluders, &c. I cut out about 3,000 frames last spring, and, following for timber, wages, power, and overhead charges, found I could save 30 per cent, on list prices. In using power for extracting, I kept tally for a month, the cost of extracting nine tons being 16/-, including lighting, most of the work being done during the evenings, current costing 1/- per unit net. A man handy with tools can make up most of his equipment, such as steam-heated knives, capping melters, wax-bench, wax-press, &c., showing a big saving in cash outlay.

Whether a beekeeper makes hives or buys them, they should be as simple in construction as possible, and absolutely standard. Numbers of apiarists experiment with half-supers, introducing an odd size right away, only to discard them in a few years and count them money wasted.

In making up hives, all ends of parts should be dipped in oil, plenty of nails used, paint well, and immerse bottom-boards in a mixture of tar and creosote; above all, use a waterproof cover. Then, hives are set up on stands clear of the ground and all spares kept under cover, they should outlast the beekeeper.

Costs of running apiaries must vary with local conditions to a great extent. I think many beekeepers pay more than necessary for apiary sites; £1 and a 60 lb. tin of honey is the biggest rent I pay, and a number of sites are free, which is cheaper than buying a site for £60 to £100.

In the care of gear, much waste can be put down by careful management. Keep-

ing knives painted and in good repair, and proper care of combs, one of a beekeeper's most valuable assets, is good economy. A neighbour of mine recently informed me that one season he lost 140 supers of combs eaten out by moth. This autumn I packed mine away as they came out of use, and had been cleaned up on the hives, with a sheet of paper between each super, to prevent moth spreading in the stack, and a queen-excluder or wood-mat on top to make them mouse-tight. The previous autumn they were stored wet from the extractor. This keeps down moth, but the honey is mostly lost, fermenting and running out, besides being sticky to handle and encouraging robbing when setting out the following spring.

In rendering beeswax, one often sees the profits going out with the slumgum. I always count on getting at least 1 lb. of wax to every four combs melted down. I put 82 combs through the press the last wax rendering I did, and recovered 24 lb. wax. The secret of getting out the last ounce lies in working the press thoroughly hot and allowing the press to drain with pressure on several minutes.

Probably the chief economy in production one can make is to produce bigger crops of honey, with little, if any, extra outlay of capital. This means more efficiency and better and up-to-date methods of management. I am quite certain I lost at least five tons last season through not doing enough re-queening, and leaving the bees too little honey the previous autumn. With the prices of honey and sugar about the same figure, it is doubtful if it pays to extract close and feed sugar.

In regard to improved methods of management, I have only one to offer not included in the usual run of text-books. This is re-queening all the colonies in February, or whichever month the honey flow usually closes in, by killing the old queen and giving a ripe cell. Through being without a laying queen for two to three weeks, the bees accumulate several pounds more stores and go into winter quarters with several hundred less mouths to feed. In the following spring, instead of reaching maximum strength at the end of October, this condition is delayed until toward the end of December, when our flow usually opens. This shows a saving in stores, in the vitality of the queens, and simplifies the swarming problem. Spring losses may be eliminated by wintering over a number of nuclei—say, 10 per cent, of the number of colonies—to replace drone layers and missing queens. This is also an excellent method of making increase, where spring queen-rearing is not feasible on account of bad weather conditions.

After a brief discussion, Mr. Bates was accorded a hearty vote of thanks.

Mr. C. F. Ryland then addressed the Conference on

### PRESENT AND FUTURE MARKET PROSPECTS.

By C. F. RYLAND.

Mr. President, Ladies & Gentlemen,—

We generally find when beekeepers visit our offices, they commence by talking about the weather and the exceedingly bad crops they had that season. They are generally anxious to know if their honey has been graded, and if not why not? Then, after a few more hesitating plunges, they come to the real reason for the visit: "How much is the H.P.A. going to pay this year?" As a rule, we are able to deal satisfactorily with most of the problems except, perhaps, the problem of prices; therefore, it is an important thing for this Conference to know something of the present and future market prospects.

There is not a great deal which one can tell of the future; we can prophesy about it, but it takes a very wise man to make prophesies come true. So far as the present position of the honey market in New Zealand is concerned, we may say the prospects are bright by comparison with other foods which we produce, and may be termed fairly satisfactory. It is all a question of what it costs the beekeeper to produce honey, and on this point it is very difficult to get down to bedrock. Major Norton, when visiting New Zealand some time ago, told us he had gone into the question of the cost of production with several beekeepers, and if the New Zealand beekeepers received 6d. f.o.b. they were on a very good wicket. I am inclined to think, with prices for material and supplies ruling as before the war, and the ability for producing honey, 6d. per lb. net f.o.b. represents a payable proposition; but for to-day, and for the last two or three years, with the cost of materials on the increase, with the cost of living so much higher than formerly, and with these costs still so much above normal, I believe, or I have been given to understand by leading beekeepers, that 6d. per lb. to-day is not of much use, and the conclusion has been forced upon me that, in order to make a reasonable return from beekeeping, the beekeeper is looking for something approaching 8d. per lb.

I remember when visiting in the south calling at the large city of Dunedin. It is known as the city of hard-heads, and there I had the pleasure of meeting some of Mr. Brickell's Scotch friends. I was advised we had a splendid idea for marketing honey in New Zealand under one brand in standardised packages, endeavouring, as far as possible, to keep up a standard of colour and quality, and to keep up the supply to the storekeepers and public all the year round; but the prices your beekeepers expect to-day for their honey is ridiculous—it is absolutely fabulous. A few years ago we were able

to buy all the honey we required at 5d. per lb., and we have bought the very best honey that can be produced at less than half what you are asking for your honey to-day. While in Otago some of the beekeepers themselves came to me and said they thought the price of honey was getting high, and that we were overdoing things; they thought it was hardly a fair thing, and gave me a sort of general impression that the beekeepers in those parts were gentlemen who had so much consideration for the public who had to eat their honey that it really hurt them to ask more than which are being asked to-day. In going round amongst beekeepers and farmers generally—the people who have produced your chief products in years past—the wool, the beef, the butter-fat—you find they are riding about in the most up-to-date motor cars that have been imported into New Zealand. Many of them have beautiful houses, and many big banking accounts as well. The beekeeper, I would point out, is just as intelligent, and is equally entitled to have a motor car, a broad acres, and a fine home as any other section of the community. In the past this has not been possible, only a small income having been obtained out of the production of honey.

The main aim of our Association is to organise, and handle crops so as to enable us ultimately to have the satisfaction of being able to return to our producers 8d. per lb. for prime grade. During the past year we got somewhat close to this figure.

The present position of the honey business in New Zealand, if equal to the marketing of last year, may be looked upon as fairly satisfactory. Merchants, grocers, and the public are looking for a fall in prices. It has not come, and should not come, because your honey is worth the money that is being asked for it from the public. So far as the future prospects are concerned in New Zealand, this is entirely in the hands of the beekeepers. It is expected and hoped that ultimately we shall market the greater portion of our honey in New Zealand, and we are quite sure if we do market in New Zealand we are in a position to market intelligently; we shall find the best market in the world for the honey we produce; and, further, if the honey which is produced is marketed along the lines of co-operation, then the return to the beekeeper will be commensurate with that policy. If a district had a good season, then the beekeepers generally speaking, have all done well. The beekeepers have waited many months for their honey. The previous season probably was not a particularly good one; therefore the producer wants his money as quickly as possible because his grocers and other tradesmen are wanting it. He has to live from his honey. Frequently his honey is brought to the nearest market. He finds his beekeeping neighbours there with their honey. In the other countries, within a space of



six weeks, sufficient honey will frequently be marketed to meet the needs of a district for a whole year. Probably sufficient honey is marketed within a few weeks to meet the requirements of the people of some districts for years. By passing the bulk of the New Zealand crop through one channel, it places with the Association both the responsibility of marketing the crop and particularly of marketing that crop on sound and rational lines, and it enables the Association to meet the needs of the consuming capacity of the population with the exact quantity of honey which that population requires from week to week. In that way—and that is the crux of the whole position—there is no possibility of increased production compelling a slump in values. Most people realise that that has been the cause of the slump in prices of many food commodities. It is easily possible we shall have to export a very considerable quantity, but the H.P.A. has the means of handling successfully the honey which it may need to export from time to time. In this connection, beekeepers know that they stand on the best possible footing because the policy adopted in New Zealand has been the policy adopted elsewhere, and beekeepers know when dealing with our concern that its interests are their own and vice versa.

The prospects for New Zealand or any other honey overseas do not appear to be particularly bright at the present time, but I am sure the local demand could be increased in New Zealand from 200 to 300 per cent. if the beekeepers talked "Imperial Bee" honey.

The following quotations, taken from the American Bee Journal, which are the same as appears in other American publications, are:—White Alfalfa, 8½ c., amber Alfalfa, 7 c., in car lots. These figures go to show that the finest honey in America was valued in April as being worth in our currency 3½d. to 4¼d. per lb. If you can compare these with what your Association is advancing on the honey being graded, you will see that New Zealand beekeepers are immeasurably better off than their American friends.

In conclusion, speaking generally, I think that the prospects are equal to the present indication—that there is every prospect of prices overseas improving again; also that the organisations in the U.S.A. will wake up to the fact of the beneficial effect increased local consumption will have on the pockets of the producers. The prospects appear to be largely in the hands of the beekeepers themselves. It would be very easy to spoil the good work already done; on the other hand, it is just as easy for beekeepers to place their interests in the hands of their own organisers, and as during the past few years the beekeepers have done comparatively well, so I believe by doing as suggested the future can be made to tell the same story.

The President called for a hearty vote of thanks to Mr. Ryland for his address on such a vital matter as the marketing side of our industry. He was sure we could develop the industry to the fullest extent, being sure that all our produce would be sold to the very best advantage.

The vote was carried by acclamation.

Mr. F. A. Jacobsen drew Mr. Ryland's attention to an article that appeared in the American Bee Journal, written by Mr. Dundas Todd, on the specific gravity of honey, which stated that this was higher in New Zealand than anywhere else in the world; and as the specific gravity indicated the sugar content of the honey, consequently the food value, this placed New Zealand honey as having the greatest feeding value, and should be easily worth 10 per cent. more than other honeies.

Mr. Ryland thanked Mr. Jacobsen for mentioning this matter; he had seen the article himself, and it would be remembered when offering honey on the overseas markets.

The Conference then adjourned.

On Thursday evening the visitors and delegates were entertained as guests of the National and Honey Producers' Association at the Tiffin Dining Rooms, when 88 sat down to a very enjoyable meal.

The social part of the evening opened with the National Anthem, after which a presentation was made by Mr. I. Hopkins to Mr. T. W. Kirk as an expression of goodwill on the occasion of his retirement from the service of the Department of Agriculture. Mr. Hopkins related a few reminiscences of the early days, when the beekeeping industry was given a place in the affairs of the Department, and on behalf of the beekeepers of the Dominion he asked Mr. Kirk to accept the illuminated address, which read as follows:—

"To T. W. Kirk, Esq.,

"Director of the Horticultural Division,  
Department of Agriculture,  
Wellington, N.Z.

"Dear Sir,—

"On the occasion of your retirement from the service of the Department, the President and Executive of the National Beekeepers' Association of New Zealand feel they cannot let the occasion pass without conveying to you the sincere thanks of all those engaged in the beekeeping industry for the untiring efforts made by you for the development of and improvement in the system of beekeeping in this Dominion. The very great strides made in the industry of late years are, we feel, largely due to the interest and support given by you in your official capacity.

"We sincerely hope that your years of retirement will be many, and that you and Mrs. Kirk may be blessed with good health to enjoy them.

"Assuring you of our own personal goodwill and esteem,

"We are, dear Sir,

"Yours faithfully,

"W. WATSON, President,

"E. W. SAGE, Vice-Pres.,

"A. R. BATES,

"A. H. DAVIES,

"L. IRWIN,

"R. McKNIGHT

(Members of Executive).

"FRED C. BAINES, Sec.

"June 8th, 1921."

Messrs. Rentoul, Sage, Bray, and Baines all expressed their appreciation of the assistance Mr. Kirk had always been ready to give for the benefit of the beekeepers.

Mr. Kirk, on rising to reply, was received with acclamation and the singing of "For He's a Jolly Good Fellow." He feelingly thanked Mr. Hopkins and all the members of the National for the kind expression of their appreciation of his services to the industry. After detailing a few humorous yarns about bees and beekeepers in particular, and again expressing his thanks and his assurance that he would always do his best for the industry and those engaged in it, Mr. Kirk resumed his seat amid cheers.

The remainder of the evening was spent in songs, recitations, and "yarns," those contributing being Miss Matthews, Messrs. Jordan, Thomas, Stewart, Baines, Turbott, and others. Mrs. W. Turbott kindly officiated at the piano. But the "star" turn of the evening was a recitation, "The Jackdaw of Rheims," by Mr. I. Hopkins. Mr. Hopkins needs no introduction to most of our friends, and when one considers his 85 years of age, and a fairly strenuous time both before and during the Conference, to be able to rise and recite as he did, makes some of we "boys" of 50 look foolish. Steady of eye, hand and foot, our old friend is a treat to behold. Say, friend Hopkins, they do big things in America all ways; they have some beekeepers of a fairly great age, Dr. Miller recently passing away at 89. Now, we are going to suggest to you that you show them that little New Zealand wants a bit of "rubbing out" as regards beekeepers; so please take care of yourself and be with us as long as you can. The industry can do with your assistance to the last.

The proceedings terminated at 9.30 with "Auld Lang Syne."

### THIRD DAY—FRIDAY, JUNE 10th.

Mr. H. Bartlett-Miller opened the proceedings with a paper, "The National Association: Some Criticisms and Helpful Suggestions."

At this stage Mr. Miller handed to the Secretary a cheque for £10 towards the funds of the National.

On the question of the amendments to the Constitution as proposed by Mr. H. Bartlett-Miller, on hearing the Committee's report, the following motion, proposed by Mr. A. H. Davies, seconded by Mr. Penny, was carried:—

"That a vote be taken of the individual members of the National on the question of the desirability of electing its Executive by postal ballot, the votes to be returned within one month of receipt."

Mr. Brickell moved and Mr. Sage seconded:—

"Should the vote disclose the necessity for an amendment of our Constitution, the Executive are hereby instructed to have same prepared before next Conference."

The motion was carried.

It was resolved that the officers of the Department have a vote on the election of the Executive.

The election of officers for the ensuing year was then proceeded with, the results being as follows:—

President: Mr. T. W. KIRK.

Vice-President: Mr. T. E. CLARK.

Executive: North Island—Messrs. R. HUTCHINSON, A. R. BATES; South Island—Messrs. L. IRWIN, W. B. BARKER.

Secretary-Editor: FRED C. BAINES.

Immediately prior to the re-election of Mr. Baines, Mr. W. B. Bray moved, and Mr. V. H. Benton seconded:—"That before an appointment is made to fill the position of Editor of the N.Z. Beekeepers' Journal, applications be invited, the appointment to be made by the Executive."

The President declined to accept the motion; the business before the Conference was the nomination of gentlemen for the various offices.

There being no further nominations for the position of Editor-Secretary, Mr. F. C. Baines was re-elected with acclamation.

Mr. Baines briefly returned thanks.

It was resolved that the question of place of holding next Conference be left to the Executive.

Mr. Baines proposed a hearty vote of thanks to the retiring President and members.



bers of the Executive, which was carried by acclamation.

After a vote of thanks to the Press, the President declared the Conference closed.

#### FRIDAY AFTERNOON.

#### VISIT TO THE H.P.A. RECEIVING AND PACKING DEPOT.

Perhaps the most interesting item from a practical and industrial view was the visit on Friday afternoon of about 100 to the Honey Producers' Receiving and Packing Depot. In the absence of Mr. Ryland, Mr. Fraser explained that the Depot was not prepared for the occasion, but knowing it from close contact, it was an ordinary working day, with "business as usual."

Mr. Fraser then formally introduced Mr. W. J. Jordan, the depot manager, who explained the workings of the Depot.

Mr. Jordan then asked those present to follow the honey from the time of arrival to its despatch as a blended article under the brand of "Imperial Bee." In the first place, the honey is liquified, when the specific gravity is tested, which process was explained and demonstrated. Should the hydrometer record lower than 1.42 at 60 deg. Fahr., then the honey was unfit for export or packing, as there was danger of fermentation. This, however, could be somewhat overcome by the new plant recently installed.

The colour tests were explained, and it was made clear to all that the honey is graded scientifically and fairly.

A feature of interest was the sample of each honey which had been received into the Depot during the past twelve months, and suppliers were able to compare their own production with that of neighbours or other apiarists. The wide range of colours and flavours would afford an interesting exhibit at any show. Following the receiving and grading, the party proceeded to the upper floor, where some thousands of cases of honey from all parts of the Dominion were stacked.

The principle of blending was explained, wherein the colour, flavour, grain and condition were considered, and fifty tins were selected for each batch. These were placed in one of the newly-constructed heaters and in contact with the heated pipes. In half an hour the honey commences to flow, and falling on to the floor of the heater runs down the slope and pipe into the tank below. The honey running from fifty tins simultaneously and entering the tank in a stream half an inch in diameter, resulting in a perfect blend. The honey retains its granulation, and its essential flavours are unimpaired. In twenty hours the tins are drained perfectly dry, so that the two heaters have a capacity of 500

tins in five days, or over thirteen tons per week. Passing to the tanks on the ground floor, we saw the honey running therein in a steady stream. The scum separates and accumulates on top, and is thus easily skimmed off and treated. It was explained that we were down to 2½ lbs. of scum to each ton of honey packed.

A demonstration of filling the small vessels was given by the young ladies of the staff, one of the operators filling two cases of 2 lb. tins each case 4 doz. in six minutes. It was explained however, that such is not the average speed, but the cases are filled at the rate of 12 an hour, being 9,000 lbs. of honey per day. Into smaller vessels, jars, and cartons about 5,000 lbs. can be packed in a day. All the paper cartons, after being filled and the lid placed on, have a protruding edge rolled in, and the top is sealed with paraffin wax, thus preventing the absorption of moisture by the honey and making leakage impossible.

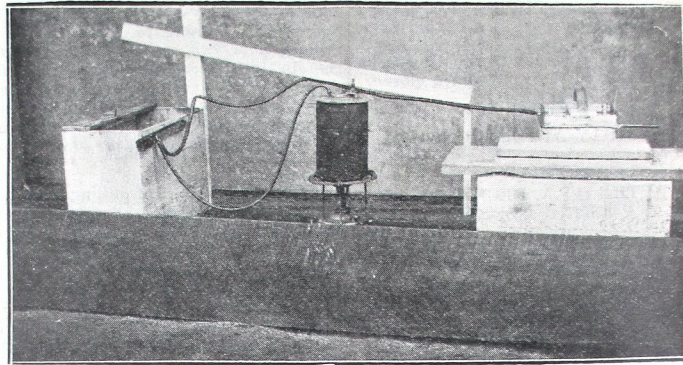
The visitors saw samples of the honey packed under the "Imperial Bee" brand during the last six months, and the consistency of colour and general qualities proved that the previous complaints of dark or liquid honey being put on the market as "Imperial Bee" will not be repeated.

The visitors expressed their surprise and satisfaction with the improvements made, and complimented the H.P.A. upon the progress and efficiency of its staff at the Depot.

A little amusement was caused during the visit by the reference which Mr. Jordan made to the scum. He said that at one time about 50 lbs. of honey and scum were skimmed from each ton of honey packed. The quantity was now down to 2½ lbs. per ton, and even that was subjected to careful test before being declared useless. It was heated and tested for wax, which existed, but not in sufficient quantity to pay for securing. As a poultry food it was useless, as ducks or fowls would not eat it. It was then tried as a fertiliser, but was found to have no qualities in that direction, and at present the 2½ lbs. per ton were being consigned to the drain; but it was hoped to hear of or find a use for it in the near future.

#### DEMONSTRATIONS.

Mr. D. Franke, of Turakina, demonstrated his appliance for extracting thick honey from the combs without breaking. That the test should be complete, Mr. F. E. Stewart, of Rotorua, brought two combs of the thickest variety obtaining in his district, and four supers of combs were supplied by Mr. T. E. Clark, of Hobsonville. The combs were first uncapped and placed in the extractor, being left long enough to satisfy the audience that what



was left could honestly be called unextractable honey in the general sense. They were then taken out by Mr. Franke, who then used what is simply a brush, 9 in. long and  $3\frac{1}{4}$  in. wide, but instead of bristles  $1\frac{1}{2}$  in. fine nails are used. With this he pressed the nails into the combs as far as the mid-rib, working the brush slightly to stir the honey in the cells. The whole comb on both sides was gone over, the two combs placed in the extractor, and the usual time given for extracting, when the combs were taken out and handed round. For all practical purposes, the combs were clean, and the remark of one man who has put tons and tons into the river was, "It'll do me!" Mr. Franke was then asked to try the appliance without uncapping the combs, which he did, and the result was quite good—certainly very much better than what would be obtained had the comb been uncapped and extracted without the use of the appliance. Some thought the process slow, but as Mr. Franke said that when one is demonstrating a new appliance before about 100 critical folk, one cannot work as one would in the ordinary way in your own honey-room.

The photo reproduced here does not very fully explain the appliance. The boiler in the centre is of a gallon capacity, made of galvanised iron, one outlet to the steam knife, which is hanging on the uncapping box on the left. The steam passes through the knife to the tray on the right. This has a false bottom, and tubes are zig-zagged through it to the outlet. In the tray is placed about 1 lb. of honey, which is heated by the steam, and acts as a lubricant to the "nail" brush, which in the photo is resting on the tray, also heats

the nails, preventing the comb from sticking to the brush and breaking off lumps of the cells. The board in front of the tray is where the combs are laid for the embedding of the brush.

Mr. Franke also has an embedder brush that allows a jet of steam through it, but he says the tubes leading to and from it are liable to get in the way, and as far as he can judge very little, if any, better work is done with it.

Mr. Franke was very heartily thanked for the demonstration.

Our own opinion is that Mr. Franke has an appliance that, even in its present form, will mean that thousands of pounds of honey hitherto wasted can be harvested. Now the initial idea is shown to be good, it is easily possible for Mr. Franke and others to improve the appliance, as has been done with others dealing with thick honey.

Mr. Franke brought with him a sample of honey that had been extracted under the process to prove that no harm in any way had resulted. The honey had granulated hard, and was quite a good flavour for its kind.

\* \* \* \* \*

The melter demonstration was spoilt by the lack of sufficient steam, both appliances requiring higher pressure than was obtainable from the oil-drum boiler that was used.

This brought to a conclusion one of the most helpful and interesting meetings of beekeepers that has ever been held in the Dominion.