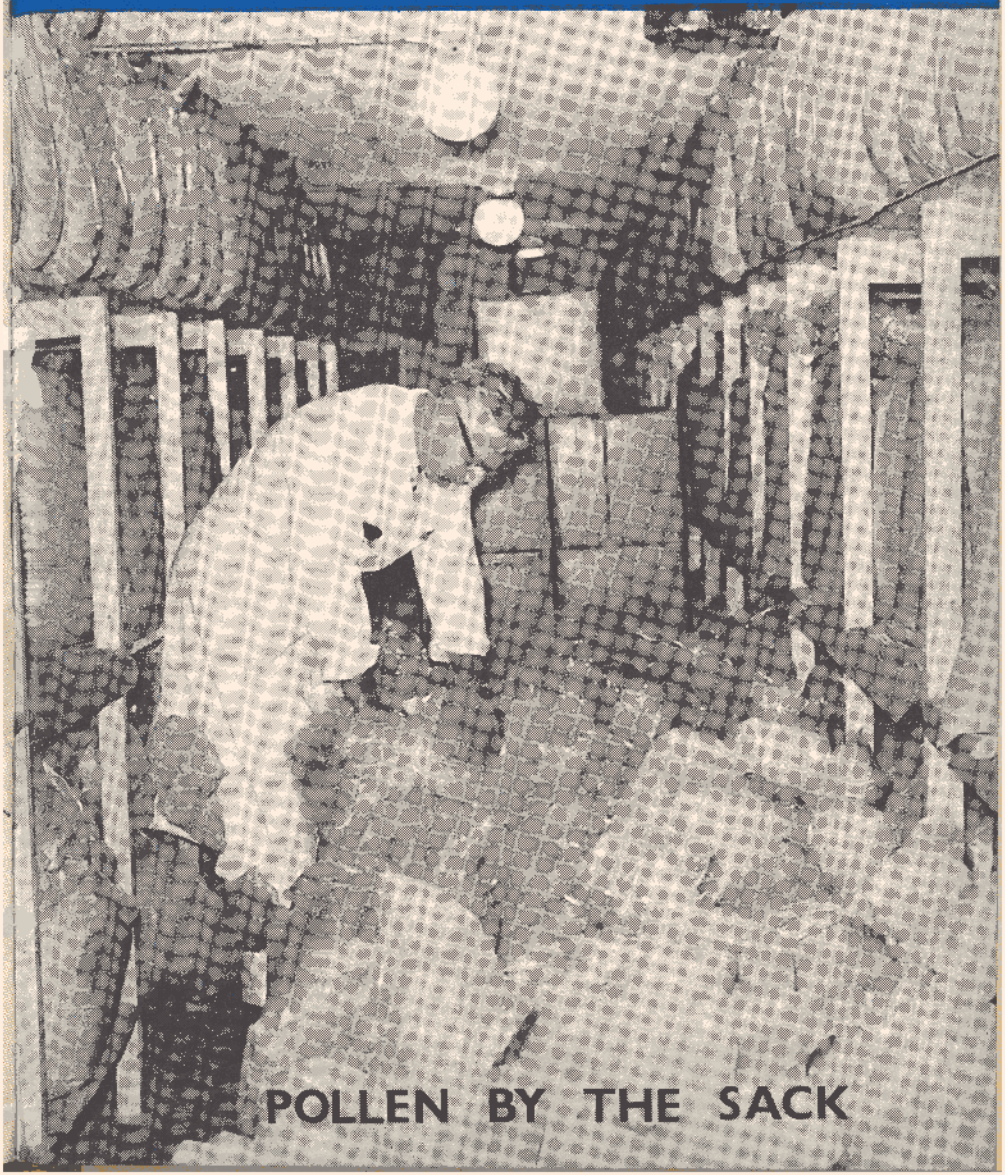
THE NEW ZEALAND BEEKEEPER

NOVEMBER, 1966



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THE NEW ZEALAND BEEKEEPER

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November, 1966

CONTENTS

NOW or NEVER?

IT WILL BE INTERESTING to see how far commercial apiarists are prepared to go in assisting to solve one of their own greatest problems.

Preliminary information is given in this issue for the formation of a controlled queen rearing and breeding establishement which will enable the best possible traits to be developed from carefully selected breeders of both imported and home produced strains. A great deal of work will have to be done to ensure success, and willing co-operation will be absolutely essential from beekeepers in the provision of initial equipment and financial support.

Of this you can be certain. Without adequate financial backing for your co-operative commercial enterprise it will founder. Investment will be by way of debentures and shares, and there is no logical reason why finance invested in the enterprise should not show a good return.

The Executive were called upon by Conference to re-investigate the possibility of improving our strain of bees, and the co-operation of the Apiary Section of the Department of Agriculture in permitting the importation of bees in immature stages has enabled a programme to be formulated. How you react **NOW** will decide whether the plan is to be given a chance for success.

A coupon is printed on another page on which you can indicate the measure of your support without entailing a binding obligation but will enable the organisers to assess just how much practical assistance is to be forthcoming.

It is envisaged that priority for the supply of queens will be given to those who invest in the queen rearing and breeding establishment and they will be entitled to preferential treatment.

There will be advantages in becoming a founder member of this co-operative movement which could mean so much to the future of our industry and its capacity to produce larger quantities of honey.

N.B.A. EXECUTIVE HAS TWO-DAY MEETING

The N.B.A. Executive met at Wellington on October 13 and 14, their deliberations lasting from 9.30 a.m. on the morning of the 13th until 9.15 at night, and from 9 a.m. on the second day until 5 p.m. Little wonder that everyone felt so tired. The agenda was heavy and some worthwhile results were produced. In attendance were: T. S. Wheeler (Chairman), Messrs G. Winslade, D. A. Barrow, T. Gavin, J. Glynn, R. Glasson, K. E. Moody (Secretary) and L. W. Goss (Editor).

BUSINESS ARISING FROM CONFERENCE REMITS:

BETTER RETURN FROM BEESWAX: Efforts by beekeepers to produce good, clean wax appear to make small difference to prices received. Some refined beeswax is, in fact, imported into New Zealand for use by medicinal and pharmaceutical manufacturers. An approach is to be made to the principal wax buyers to ascertain their precise requirements and whether they are prepared to pay a higher price for a quality production.

CORRESPONDENCE COURSE FOR BEEKEEPERS: Mr V. Cook of the Department of Agriculture, Oamaru has detailed suitable publications and contacts to enable instruction to be obtained by correspondence tuition. The General Secretary will provide the list to interested parties.

IMPROVEMENT TO BEE STRAINS — QUEEN BEE TESTING PROGRAMME: Mr George Winslade, of Oamaru, the Vice-President of the Association, reported in detail the work study he has made on this subject. The project he hopes to get under way will provide the answer and the urgent requirement of members to obtain the best possible strains of bees bred in this country and from stock imported in immature stages. A full report is published elsewhere in this issue and demands your close attention and response. The ambitious scheme has the full and unqualified support of your executive.

IMPORT LICENCE ALLOCATION: Resolved that no further action be taken at this stage. Information of a factual nature where a beekeeper has suffered through being unable to obtain essential equipment should be lodged with the Secretary.

EARLY NECTAR AND POLLEN SOURCES: The Secretary is to obtain and will circulate to Branches a list of early nectar secreting and pollen bearing sources with the suggestion that branches contact local societies interested in planting and afforestation and solicit their support. Some thought was given to the possibility of making seed supplies available to such societies for planting programmes.

NEW BRANCH IN TARANAKI: A concerted effort is to be made to re-form a branch of the N.B.A. in this important district by calling an inaugural meeting of beekeepers throughout the area. The assistance of the resident apiary officer, a member of the Honey Marketing Authority and of the N.B.A. executive in co-operation with the General Secretary will be used to show beekeepers that they need the help of the Association as much as the Association needs adequate representation in every part of the country. The voice of the industry must be fully representative if our opinions are to carry weight.

PRICES: The Secretary has undertaken the not inconsiderable task of compiling a survey of costs of production and sales for the industry based on 1965/66, the object of which will be to provide beekeepers with simple information to

show whether their operations are economic. Some apiarists may well be surprised to find that one sphere of their activities is costing too much and that a greater net return can be obtained by re-thinking and alterations in one or more aspects. Members will be asked to co-operate by providing facts and figures to specific questions. **THEIR ANSWERS WILL BE COMPLETELY CONFIDENTIAL** and it will not even be necessary for their name or identity to appear on the questionaire. The only person to see and analyse the answers will be the General Secretary. The greater the response, the more accurate will be the analysis. It will cost you nothing except the postage stamp. It could save you pounds. Play your part when the time arrives by sitting down and giving the answers required. A survey will be conducted every two years to keep tabs on economic operation.

EARTHQUAKE AND WAR DAMAGE CLAIMS: Before consideration can be given to any damage caused by extraordinary circumstances or the mythical "Act of God" excluded from normal insurance covers, it must be established that the beekeeper had been covered commercially for the risk of fire.

BEE RESEARCH ASSOCIATION: Application is to be made for membership of this non-profit making organisation which pools the world's knowledge on bees and beekeeping. "Bee World", the international scientific journal, "Apicultural Abstracts" which summarises the world's scientific bee literature and "Journal of Apicultural Research" detailing original research papers will, in due course, be available to members through the Association's Library service.

EXEMPTION/DEFERMENT OF MILITARY SERVICE: Local Boards have been advised of the necessity to consider seasonal requirements of beekeepers in relation to men called for C.M.T.

LIAISON WITH H.M.A. RE PRICE GUIDES: The H.M.A. met in Auckland during the asme period as the Executive. Reference is made elsewhere in this issue to a new guide to producers and merchants.

MEETING OF HONEY PACKERS: A meeting of honey packers is to be convened for December 7 in Christchurch to co-ordinate the operations of honey packers on the local market with a view to establishing price stability. Chairman will be N.B.A. Vice-President George Winslade. Further details are published elsewhere in this issue.

MARKETING STUDY OF N.Z. HONEY BY MASSEY: A report was tabled from the Professor of Agricultural Economics suggesting the possible coverage of a Marketing Study, the estimated cost of which would be not less than £1070. The Professor intimated that he would be pleased to consider modifications to his detailed proposals, and in the light of the financial situation of the Association, it was decided to ask what these might be since sponsorship of such a scheme under present circumstances would be impossible.

SUPPLIES OF BEZALDEHYDE: Now freely available from supply houses.

LIBRARY COMMITTEE: The Executive Member deputed to the Library Committee was George Winslade.

BURSARY SCHEME: Separately reported in this issue.

CONFERENCE 1967: Confirmed dates—July 12, 13 and 14.

ELECTION OF OFFICERS AT CONFERENCE will be on no specific date but on a two-day Conference will be made on the second afternoon and on a three-day Conference on the morning of the third day.

PREFERENTIAL VOTING for two candidates for each Island may not be wholly fair or satisfactory. The Secretary is to prepare a report on voting procedure.

FINANCE: The Executive is to continue its outlined policy to obtain sufficient finance to conduct the Association's affairs.

NECTAR SOURCES BULLETIN by R. Walsh, Apiary Officer, Auckland. This most useful work is to be published by the end of this year at a cost of 5/- per copy, plus 3d postage. Branch Secretaries should should order their known requirements as soon as possible from the General Secretary, who can also supply individual copies where necessary. First come, first served.

ORDINARY BUSINESS

FIELD DAYS: Provided adequate notice is given, an Executive Member will endeavour to attend Branch Field Days and answer questions on N.B.A. policy. Local secretaries should bear this in mind and contact his nearest Executive member.

AGRICULTURAL RESEARCH PROGRAMME: The Director is to be approached to see whether details can be given of proposed projects of interest to beekeepers.

HONEY STANDARDS: The Hon. D. N. McKay, Minister of Health, has circulated a text of the proposed Food and Drug Regulations of which Section 162 relates to honey. The circular was not, in fact, by accident or design forwarded by the Department for comment to the National Beekeepers' Association, but through the courtesy and co-operation of the H.M.A. the Executive were enabled to study the text which is as follows:—

> 162. Honey (1). Honey shall be the sugary product, obtained from the comb of the honey bee. Honey shall contain not less than 60 per cent reducing sugars calculated as anhydrous dextrose, not more than 18.6 per cent water, and not more than 0.25 per cent ash. Honey shall not contain added sugar or glucose or artificial sweetening substance, or any other added substance except water.
>
> (2). No statement shall appear in the label of any package containing honey, glucose, or other carbohydrate or any preparation containing any of these stating or implying that the food value of honey, glucose, or other carbohydrate is superior to that of sugar.

The Executive were totally opposed to the wording of the proposal as detailed on several grounds, and the Secretary was instructed to prepare alternative submissions. It should be noted that a wide variety of foods and commodities are to be defined in the public interest.

ASSOCIATION RULES: Some provisos of our Rule Book are impractical and redundant and a complete overhaul is timely. Recommendations will be made to the next Conference for approval.

PASSION VINE HOPPER COMMITTEE: Thanks were moved to Mr A. C. Ward for his work and the hope expressed that observation would continue.

DECIMAL CURRENCY: A full list of conversion tables will be published in the February issue of the "N.Z. Beekeeper". Publication now would not serve a useful purpose.

BACILLUS LARVAE: It was recommended to the Department of Agriculture that if B.L. disease be found in a recognised queen breeder's yard that the hive be destroyed and all hives within 10 feet of the former colony strictly isolated and kept under close supervision. The situation is not likely to arise, but must remain a possibility. Support for the Department's policy of prohibiting the use of second-hand queen cages was confirmed, and that feed holes should be provided with a candy from invert sugar and not honey. In this connection, a plastic queen cage was shown which would be capable of mass production and could be burnt after use.

COMPENSATION FOR B.L. An insurance company is to be approached to ascertain the premium for a cover of £2 and £5 value on each hive destroyed.

LIFE MEMBERS: It is recommended to Branches that they consider the bestowal of Branch Life Membership for outstanding local service. This recognition is not to be confused with the honour of Life Membership bestowed by the will of Conference on the recommendation of the Executive.

FACTORIES ACT: The Labour Department have made it clear that where honey is bought in for packing ,the premises may be required to register as a factory within the meaning of the Factories Act. Where a beekeepers' own produce is packed, the necessity does not arise. In the beekeepers' own interests, he is advised to obtain a copy of the Factories Act and copies of the booklets available on health, safety and welfare. Registration as a factory entails a fee of £1 and inspectors have the right of entry to ensure that proper safeguards are being maintained. The beekeeper need have no fear, however, if his establishment is being conducted properly and along sensible lines.

QUEEN BREEDING

Co-operative Society

Remit 15 from the last Conference read "That the Executive re-investigate the possibility of improving our strains of bee by importing disease-free bees".

FOR YEARS beekeepers have decried the fact that they were unable to improve their strains by the introduction of new blood lines from overseas, and there were many who thought the stringent restrictions imposed by the Department of Agriculture prohibiting importation of live bees was unfair and unreasonable.

Recent thinking, however, has changed and commercial beekeepers have come to realise that prohibition on the import of queen bees and attendants has been the correct and only practical policy to keep desirable characteristics of known and well-tried strains, and to prevent admission and spread of disastrous diseases.

The widely reported instance of uncontrolled breeding in South America has been a salutory lesson, where commercial beekeeping has been reduced to such a hazard that most people are not prepared to take the risk through undesirable temperaments making bees unmanageable and a danger to life of man and beast.

Australia, too, now has a mixture of colour and temperament and commercial men are wishing control had been introduced before the situation deteriorated.

Conference remit that the Executive re-investigate the possibility of improving our strains has resulted in the evolution of a workable plan to achieve a queen rearing programme on a national scale which could have far reaching results on the prosperity of the industry. Work will have to be done and money paid to inaugurate the scheme and keep it as a workable and economic enterprise.

Now is the opportunity for beekeepers to show the courage of their convictions that a controlled queen breeding programme is essential to the industry. If adequate support is not forthcoming, the plan will fall through and beekeepers will only have themselves to blame for their own ineptitude and lethargy.

The question is crystal clear for you to answer.

DO YOU WANT A CONTROLLED QUEEN BREEDING PROGRAMME FROM WHICH QUEENS OF THE HIGHEST POSSIBLE QUALITY CAN BE OBTAINED AT A REASONABLE PRICE?

If the general response is **YES**, the controlled queen breeding programme will go ahead and beekeepers will be called upon to contribute their share of finance.

If the general response is negative and enthusiasm is lacking, the situation will remain as at present, and it will be a useless waste of time for beekeepers to bemoan and complain that they cannot obtain queens from new blood lines. The remedy is entirely in their hands.

Here is the basis on which a controlled queen rearing programme could be made to work.

Under the auspices of the National Beekeepers' Association a Queen Breeders' Co-operative Society, or similar organisation, would have to be formed to be responsible for the importation of bees in immature stages and the development of improved strains.

The Apiary Section of the Department of Agriculture have intimated that they will assist a controlled queen rearing programme by permitting importations and ensuring that immature bees are free from mites before being handed over to the breeding establishment.

The Vice-President of the N.B.A., George Winslade, has prepared the basis for the creation of a queen rearing programme, which could be along the following lines.

LOCATION. Site for the breeding establishment could be in Canterbury or North Otago, where the relatively dry climate is conducive to queen raising.

STOCK REQUIREMENTS. Permanent six frame nuclei or single story hives would be required, and an initial establishment of 500 nuclei would be used to produce a minimum of 1500 queens to be raised in the first year.

STAFF: One full time queen rearer would need to be employed who was fully qualified to undertake the work.

LAND AND BUILDINGS. A small farmlet with existing buildings would be ideal, with living accommodation if possible.

VEHICLE. A suitable vehicle would be an essential.

BREEDING STOCK. Obtainable from leading beekeepers in both Islands and from overseas.

FINANCE. Capital will have to be raised from those who will benefit from the success of the scheme, although the establishment should be self-supporting within a few years as greater quantities of queens are produced. The first year would produce a revenue of £1125 on the basis of 1500 queens at 15/- each. It could be that loan capital might be obtained from an outside source if so required. Initially, beekeepers will be aksed to indicate how much they are prepared to invest on a regular annual basis for a period of ten years if necessary, and to estimate the number of queens which would be likely to be needed each year.

This is an ambitious and thoroughly practical scheme which has required considerable thought and planning, and will require much more unpaid work to bring to fruition and solid finance to operate.

REMEMBER! THIS IS YOUR OPPORTUNITY TO CREATE A BREEDING ESTABLISHMENT URGENTLY WANTED BY THE INDUSTRY FOR YEARS. IF YOU FAIL TO GIVE IT YOUR UNQUALIFIED SUPPORT, BLAME NOBODY BUT YOURSELF IF THE SCHEME DOES NOT MATERIALISE.

Complete the entry form below. No obligation is entailed at this stage. All that is essential is for a guide to be given to the organisers as to the strength of the support they may expect.

CONTROLLED QUEEN REARING AND BREEDING ESTABLISHMENT

(Under the auspices of the National Beekeepers' Association)

I,..... of.....
a member of the National Beekeepers' Association, wish to support the formation of a controlled queen rearing and breeding establishment which would enable me to obtain supplies of queens from tested and improved strains.

I understand that this declaration does not form a binding agreement but as a token of my support for the scheme and to assist the organisers I am prepared to indicate that I would pay to the Co-operative organisation when formed an annual sum of £..... for a period not exceeding 10 years if called upon to do so and on the understanding that I would be entitled to a dividend on my investment if a trading profit resulted.

I estimate that I should require ..... queens from the establishment each year, preferably in the month of .....

HONEY MARKETING AUTHORITY

ELECTION RESULTS

In the election for two Producers' Representatives on the New Zealand Honey Marketing Authority, four candidates offered themselves for election. The two sitting members seeking re-election were James Richards Barber and Percy Berry, and the two new comers Robert Davidson and Harry Cloake.

The valid votes cast for each candidate at the election were:

BARBER, James Richards	1,414
BERRY, Percy	1,146
CLOAKE, Harry	1,234
DAVIDSON, Robert	966

It was declared that JAMES RICHARDS BARBER and HARRY CLOAKE were duly elected.

The sitting member Percy Berry exercised his perogative and appointed a scrutineer for the counting of votes.

Neither of the newly elected members of the Authority need introduction to the industry for James Barber's work on the authority and for the industry are widely known, and as President of the National Beekeepers' Association for the past three years, an active member of the Executive for ten years and a producer with 2,000 hives in Canterbury Harry Cloake is undoubtedly one of the most well known personalities in the industry.

Everyone will wish the Authority well in performing their resposibilities to the best of their ability.

OCTOBER MEETING

The Authority held a two-day meeting on October 12 and 13th, 1966. The principal items of interest arising from the meeting were:

Election of Chairman.
Mr J. W. Fraser was re-elected Chairman for the ensuing year.

Election of Deputy Chairman.
Mr J. D. Lorimer was re-elected Deputy Chairman for the ensuing year.

Final Payout to Producers.
Maintained at the same level as last year and refunds of with-holding payments made on the same basis as last year.

Increase in Local Honey Prices.
It was decided that recently announced increases in the prices of waxed cardboard cartons and tin canisters should be recovered. The industry and subsequently the trade have been notified of the Authority's intention to increase the prices of such packs on the local market as from November 1 1966.

Financial Assistance to N.B.A.
The Authority have agreed to continue its present arrangement of granting financial assistance to the N.B.A. for a further 12 months.

Conditions of Supply.
These will at date of publication have been mailed to all suppliers and potential suppliers.

There have been no alterations in the rates of advance payments and the system of with-holding payments have been continued for the same honey types as before, the only change being a reduction of ½d in the amount with-held for Rata.

The system of hiring returnable containers for honey supplied to the Auckland Store will be continued. All containers supplied by the Authority under this scheme will now have been previously cleaned through the drum and can washing plant recently installed. Although the Tauranga depot has been closed and Bay of Plenty producers will lose this benefit they will now be able to participate in the Returnable Container Scheme and effect saving in this direction.

Proposed Food and Drugs Regulations.

The Authority has lodged a strong protest on proposed new Food and Drugs Regulations as it affect honey. It is being fully supported by the N.B.A. in this matter.

Advertising.

The Authority has approved of an appropriation of £5000 to be spent on General Honey Advertising and Promotion for the next 12 months.

In addition to this amount a further £1000 is being made available for financing a scheme whereby Branches of the N.B.A. embarking on a regional Honey Promotion Campaign may be subsidised 2 to 1. Full details of this scheme have been notified to Branches.

No appropriation has been made for advertising Authority Brand Names, and a sum of £1000 held as a reserve for this purpose has been diverted into General Honey Advertising Funds.

A decision has been made not to continue with the display at the National Food and Wine Centre in Wellington.

The Roving Bee Colouring Competition has been terminated with the October judging. This has run for seven months and has generated a considerable amount of interest among children. Support of producers in effecting distribution was disheartening. Of the 60,000 forms distributed 24,300 were distributed by the Authority itself.

INCREASE IN PACKS

In view of price increases for Cardea Waxed Cardboard Cartons and Canisters the Authority increased its price for honey packed in these containers supplied to Merchants as from November 1.

While it cannot be predicted with certainty, the following scale of margins and prices at various levels may well be adopted by the Merchants' Federation.

	Packer to Wholesaler PER DOZEN	Wholesaler to Retailer PER DOZEN	Retailer to Consumer EACH
½-lb Cartons			
White	13/6d	15/5d	1/7½d
Light Amber	13/-	14/10d	1/6½d
1-lb Cartons			
White	23/10d	27/3d	2/10d
Light Amber	22/10d	26/1d	2/8½d
2-lb Cartons			
White	46/6d	53/2d	5/6½d
Light Amber	44/6d	50/10	5/3½d
5-lb Tins			
White	116/6d	133/2d	13/10d
Light Amber	111/6d	127/5d	13/3d

THE "KILLION" DEEP BOTTOM BOARD

THE KILLION BOTTOM BOARD has aroused considerable interest in both American and United Kingdom beekeeping circles, to such an extent in fact, that some manufacturers of equipment in both countries are producing the bottom boards commercially.

Mr Charles J. Koover, of Oltadena, California, mentioned the Killion bottom board in a recent article in "Gleanings" and has been inundated with requests for more detailed information.

The inventor, Mr Killion, described the bottom board he perfected in the June 1960 edition of "Gleanings", and the original text is reproduced herein by permission to enable beekeepers here to be fully informed, and it accompanies comments from Mr Koover who is a convinced and ardent devotee to the deep bottom board. If you wish to copy the idea, here are the making instructions to follow and to adapt to your own requirements. A "kerf" incidentally, is a saw cut which does not cut through the wood to the fullest extent.

"If the readers of this article would try a deep bottom board one season I wonder how many would go back to the ones they have been using. In my inspection work I find thousands of frames in hives where the bees have gnawed their combs away from the bottom bars (or never built down to them). In my conversation with the owners they seemed to think it natural for bees to do this. It may be a natural instinct but there is a way either to fool the bees or give them what they want and it will eliminate all this space next to the bottom bar. In so doing there is considerable brood rearing space added to the brood frame.

"Five years ago we tried using tempered presswood for the bottom of our bottom boards and we like the idea. There has been only a slight tendency for the presswood to buckle a little. This has been so slight it hardly needs to be mentioned except some would ask that question. We made our side and back railings three inches wide. With our power saw we made a saw kerf in these railings two inches from one edge (the top edge). This saw kerf was the width of the one-eighth inch presswood (hardboard) and reached approximately half way through the railings. After nailing the side railings to the back railing we simply slid the presswood into the saw kerf or slots and nailed a piece of material under the bottom of the presswood at the open end of the bottom board. Nails were driven into the ends of this strip through the side railings. The result was a very light-weight bottom. (Fig. 1) This shows the slatted false bottom in position in the bottom board.

"(Fig. 2) shows the construction of the false bottom. The side railings are 18 inches long and approximately one inch wide and ½ to ¾ inches thick. (A — near one railing), B — is the wide board used in the front next to the opening. This is 14 x 4 x 5/16 inches in thickness. The purpose of this wide board is to prevent the bees from rounding off the front lower corners of the combs. It does this very thing, they do not gnaw the combs here. The railings, C, may vary somewhat in width because they are made from scrap timber. Those in the photo are about ½ inch wide. Both B and C cross boards are 5/16 in thickness. The

It pays to brand 'em

Don't sell your honey blind! If you want people to buy **your honey** — not just any honey — you must mark it with your brand or name.

- **Branding pays, especially in CARDEA cartons because you can get bold striking designs which make your name stand out.**
- **With a distinctive design and a boldly displayed name, customers will be able to pick YOUR honey out AGAIN**

Frank M. Winstone (Merchants) Ltd.

71-79 Customs Street East, Auckland

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33 Charlcott Street, Christchurch **Phone 516-062**

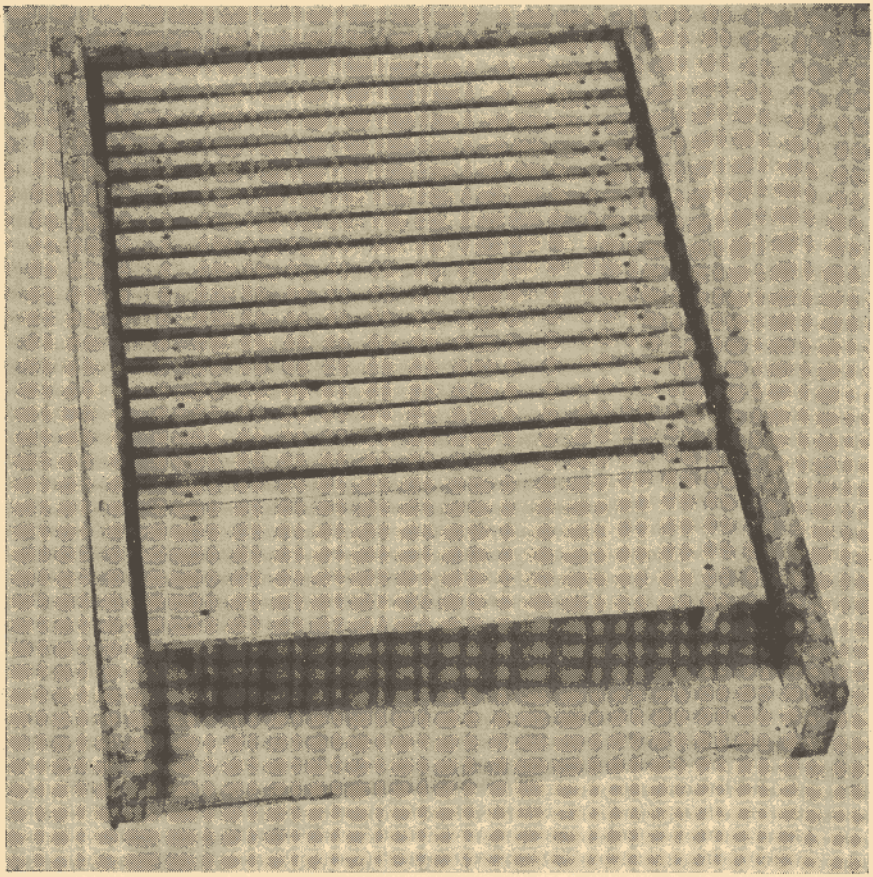


Fig. 1. The light weight bottom board with slatted false bottom in position.

spacing between these cross pieces is about 5/16. There are staples under each bottom railing near the ends and extend down about 5/16, same as the ones shown on the sides. When the false bottom is in the bottom board there should be about 5/16 clearance between the top of the slats and the top edge of the bottom board. Bees will build comb beneath these slats and some fear may exist that one would find queen cells here. After almost 40 years I repeatedly claimed I had never found a queen cell beneath the false bottom. Last year we found one queen cell there (the first one).

Other Advantages of the Bottom Board

"There are several reasons why we like to use this type of bottom board. First it is ventilation, not only on the stands but when hauling bees. Being deep we can crowd more bees into the hive when hauling. The fact that it helps give us more perfect combs is another good reason. In winter if dead bees remain in the hive there is a little less danger of smothering the colony, by dead bees in the entrance. When we move up to the brood chamber and have only nine frames with the follower board on each side we not only have a better ventilated brood chamber but an insulated one as well "

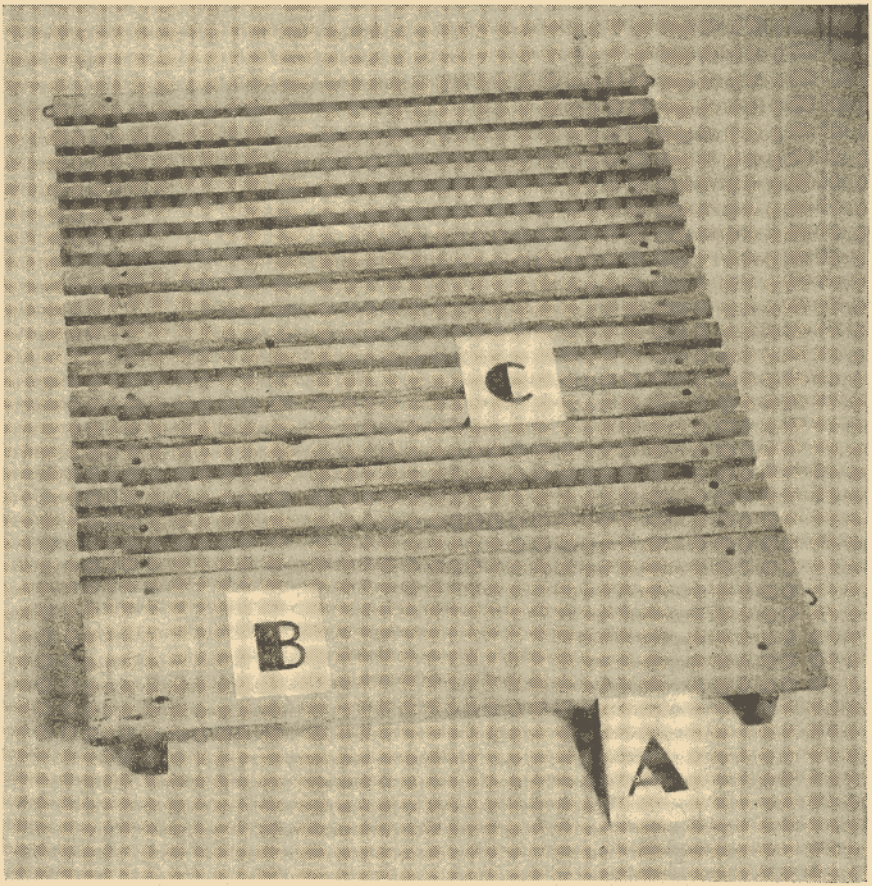


Fig. 2. Construction of the false bottom using scrap timber of varying width for slats.

Mr Killion is a comb honey producer and since he crowds his bees in order to have them start to work in his comb honey supers they apparently object to being crowded and build combs below the rack. In my extracted honey production I have no trouble whatsoever on that score. The racks stay as clean as a whistle just so there is not more than 5/16 inch space between the bottom board and the slats of the rack. In other words, observe the bee space. Nor do they propolise the rack to the floor of the bottom board. In my case it can be pulled out for inspection without difficulty at any time. This must be attributed to either the difference between comb honey production and extracted honey production or the mild climate of Southern California.

Since I do not possess the power saw Mr Killion refers to in the construction of his bottom boards I obtained the same results by adding cleats to the side and back walls of my standard bottom boards to increase their depth from ¾ inch to two inches. As for the entrance closure, Mr Killion uses a board of his own design.

Here is what he says about that in his book, "Honey in the Comb". "For winter, an entrance block must be used to reduce the large entrance. This block is made of regular ¾ inch timber and is 2¾ inches wide. One edge of the block is notched 5/16 x 3½ inches, which is to be used as the winter entrance. The other edge has two nails driven to within 5/16 inch of the heads and are spaced about two inches from each end. The boards are turned over to rest on these nail heads in early spring. This gives an entrance 5/16 of an inch high and the full width of the hive. Nails are used to hold the block in place against the front of the hive. The block may be raised as the colony gains strength and the weather gets warmer. The block later may be removed entirely.

In closing his article in "Gleanings" Mr Killion wrote: "Try the two inch bottom board with the slotted rack underneath the frames and you will see the diqerence. It is said, 'seeing is believing.'" I wholeheartedly second that statement.

and here is Syd Line's

MODIFIED AIR-FLOW

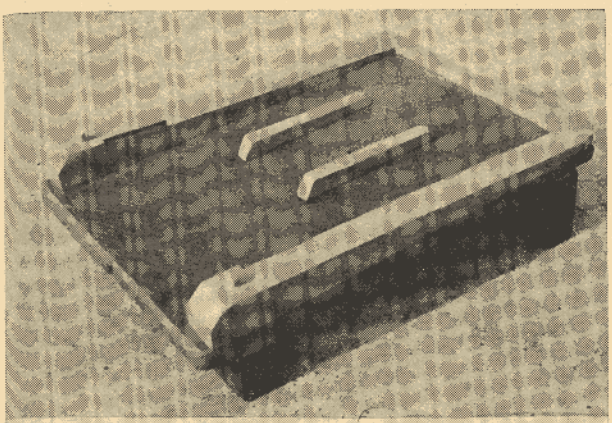
Bottom Board

The description of this bottom-board is intended to present a simpler design than the 'Killion' bottom-board referred to in this issue and in "Gleanings".

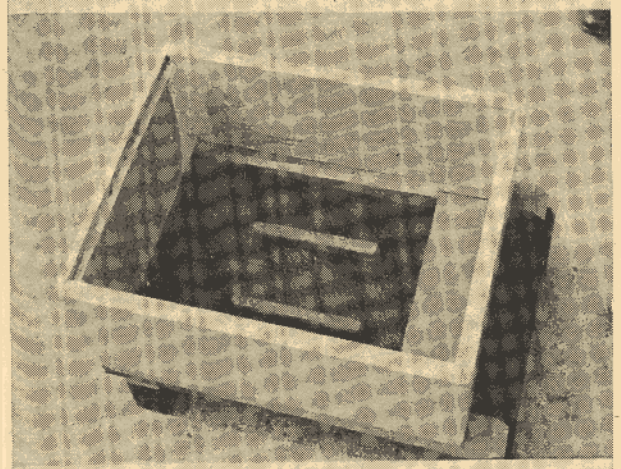
Pictures of the Killion pattern show a rack of slats supported on bearers which rest inside a deep conventional-type of board having a surrounding edge 3" deep. This would involve three times as much work as making one of the regular variety, and when it is finished you might be tempted to ask yourself: "Why not stand the hive directly on the slats alone—with a raised margin on the slats and do without the bottom-board?"

The distributed airflow design still has a bottom floor that is functional, in that it has a fairly steep slope forward, so that crumbs of wax and water cannot combine at the back to become stagnant. To prevent the hive being readily tipped over by sheep, the raised margin at the sides is made broader, out of 1½in. or 1⅝in. wedges fixed on the floor, and the front surface of the wedges is bored to take a short dowel to prevent the hive being pushed forward and off by the rubbing of sheep. Instead of fixing the dowels 20in. from the back edge they are placed 19⅞in., so that rainwater has a clear run-off at the back of supers. Smearing paint on the inside of the dowel-holes before assembly prevents deterioration from the weather.

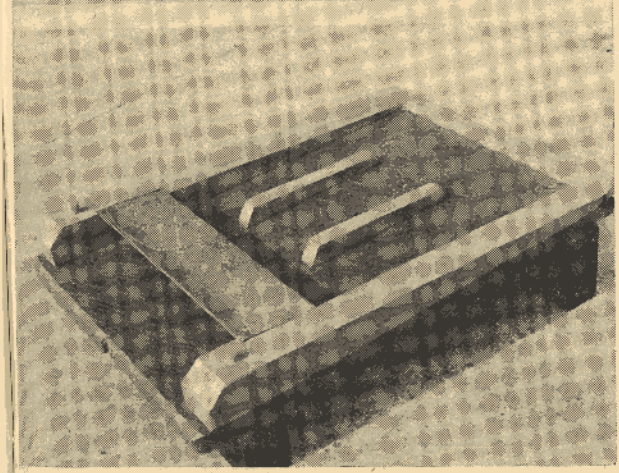
The only resemblance to the Killion design is a wide baffle-board placed flush with the inside entrance (½in. back from the dowels) and the ends of it are checked ¼in. into the side of the wedges. The baffle-board has a slight slope inwards and downwards, so that while frames can swing freely, the baffle fits tight against the underside of the bottom super at the front. Draught or air-current does not pass immediately up inside the entrance and chill the ends of the frames hanging above the front. From the inner opening of the baffle-board (made of press-wood or 'hardboard') we have an unimpeded airflow where the bees don't have to suck or draw air through slats. Where the super butts against the dowels at the front, the entrance in my design is 1⅛in. deep and tapers to ⅝in.



Bottom board with side strips checked or recessed about $\frac{1}{4}$" for the fitting of baffle board flush with top of strips at the front edge, tapering down to the rear. Note the two hopping strips to prevent bees building pyramids.

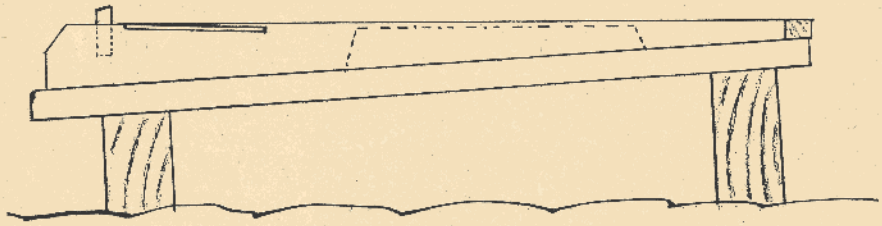


A super in position against the dowels which prevents sheep pushing at the rear and dislodging. Super overhangs at back by $\frac{1}{8}$" to shed off rain.



Baffle board and front edge are smeared with vaseline to prevent sticking. If side strips are very wide, chamfer the inside edge. Paint dowels and holes before fixing to avoid rot.

The pictures on this page were taken by John McFadzien with his presentation camera.



Sloping wedge is 19⅛" overall varying in depth from 1⅞" at front to ⅝" at rear. From dowel to back edge is 19⅞" with a back strip of ⅝" or ¾", enabling super to overhang by ⅛" to keep out rain. Baffle board is ½" in from dowel and is 3½" or 4" wide.

at the back (on the inside) so that the average depth at the middle part (from the bottom-board to the frames) is roughly 1¼in. (tapering). To prevent bees building cones or pyramids of wax on the bottom, to hop up onto the frames above — two hopping-strips are nailed to the floor so that a small gap of ⅜in. is the space between the strips and the underside of the frames.

The baffle-board being of thin material (⅛in. thick) may buckle downward due to humidity in the hive. This is corrected by pressing a small post or wedge in at the front centre, and forcing the warped edge up to the under-edge of the super.

While some exactness is necessary in making the wedges and fitting the dowels (which are ⅜in. to ½in.) — these wedges can be marked from a 'pattern-stick' and there is less wood and finnicky work than in making the Killion-type bottom-board. Bees do not have to fan air through a screen such as slats in this design, and frames above the entrance (preferably in the 2nd super and upwards) are more evenly drawn out to the full thickness.

To draw out combs of 'foundation' fully, they should be always in a higher position than the bottom box; using only fully drawn combs in the bottom.

A strong entrance-block 1¾in. in depth, can be provided for winter. During the hot months, a good volume of fresh air should be readily available, without bees having to cluster outside the hive to make room for the air. At the same time the flow of air can be focussed towards the place of greatest congestion, or where Queen-cells are likely to be produced, and so reduce the danger of losing swarms.

COMMENTARY

from the Editor's Desk and Mail

A BEEKEEPER at Owestry, Shropshire, England, decided to implement his stocks of English honey with supplies of New Zealand produce. Other local producers could not understand why this one apiarist had liberal supplies for sale whereas they had little or none at all. Investigations led to a successful prosecution where the defendant pleaded guilty to charges of selling and having in his possession jars of honey to which he had applied a false trade description and not stating the origin of the honey on the jars. The fine was £32 and costs amounted to £14/14/- The solicitors claim that the New Zealand honey was as good as the English variety and nobody had suffered by the deception did not carry any weight in law. Twenty-three six pound tins of New Zealand honey were found on the premises but there was no sign of a local product.

II II II

TEN QUEENS arriving at Adelaide from Canada were found to be infected with nosema, and the Department of Agriculture ordered them to be destroyed. Valued at $255, the importer thought destruction unreasonable since nosema is to be found in every State in Australia, but appeal to Canberra had no effect. The question is asked as to whether the Act should be amended since it has been in effect for many years and does not appear to have been instrumental in lowering the incidence of the disease. Nosema is endemic and the bees have to live with it until some practical control is found.

II II II

A PARTY OF PRIMARY school children visited Trev. Wheeler's apiary at Otorohanga and by the "thank you" letters received by their host, a thoroughly enjoyable lesson in natural history was absorbed.

One bright young hopeful from the third form opined that the most interesting item was the "sheet of holes which the bees put honey in", another that when she heard honey was grown in a tree. Nice to know that the kids are encouraged to express appreciation for the time devoted to them by outsiders.

II II II

CANTERBURY BRANCH are planning to make Conference the most outstanding yet and to better the efforts of past performances. One particularly good idea is that there should be a New Zealand Honey Queen elected during the currency of Conference—a promotion certain to attract nation-wide attention and a good Press. Another alteration to the traditional format is to be the introduction of a "Symposium". According to my dictionary a symposium is a convivial gathering, drinking together, an interchange of ideas on a common topic or a philosophical

discussion. If we select the context which interests us most, there will be common ground for everyone. No applications have been issued for the appointment of Honey Queen adjudicator; several widely experienced drones will willingly give their services.

II II II

THE U.S.A'S AGRICULTURAL RESEARCH SERVICE has been granted $38,397 to study the role that queen bee secretions play in the activities of bees within and outside their colonies.

Associate Professor of Agriculture at the University of Illinois, Dr Elbert R. Jaycox, will be the entomologist supervising the work.

II II II

AT THE BOOK FAIR IN LONDON this year, a rare book of interest to bee-keepers was exhibited. Published in 1679 and written by Moses Rusden, Bee-Master to the King's Most Excellent Majesty, it is titled "A Further Discoverey of Bees, Generation and Preservation of the Bee, Experiments and Improvements Arising from the Keeping of Them in Transparent Boxes Instead of Straw-Hives". The author warns his readers that "Bees have such strange natures and liable to so many accidents that unless a man be a very wary and circumspect, he shall reap but little profit or advantage from them."

II II II

THE ANCIENT CITY LIVERY Companies of London seek to encourage proficiency in crafts, allied to their crafts, and the Royal Charter of the Wax Chandlers' charged the company to supervise the preparation and trading in bees-wax and to expose any nefarious practice of adulteration by inferior waxes and animal fats when it was proclaimed 700 years ago.

The British Beekeepers' Association's Examinations Scheme having been brought to the attention of the master of the company, the Wax Chandlers' have awarded an annual prize of £50 to be given to the most successful candidate in Part II of the Senior Examination. The first group eligible to compete for the prize will be sitting their examination in the northern spring of 1967.

II II II

A WISCONSIN APIARIST, disatisfied with the vagaries of chemicals used for clearing supers, has developed a "Bee Blower" which is claimed to do the work far more efficiently and at less cost. Comprised of a petrol-driven engine similar to that used on chain saws, and a blower mounted on a light steel frame, the unit clears supers in 10-12 seconds each without contaminating the honey and will work as well in hot weather as in cold. Complete clearance is accomplished without stings or arousing the fury of the bees, since wind is a familiar problem with bees (and beekeepers sometimes). Bees removed by this method return to normal flight quickly, and one-third of labour costs are saved because of high-speed operation. The unit weighs 55 lbs. and is 27" x 22¾" x 30½" in size. Supers full of honey and bees are rested on top of the unit and air applied from the top blows bees down a chute and they are air-borne in front of their hive. Should a queen be present, she is able to walk back into the hive. "Bud" Diehnelt, of Honey Acres, Wisconsin, moved his entire crop of 275,000 lbs. of honey with the aid of his blower unit last year. Sounds like a good idea.

II II II

AN APPEAL is being made to American and Canadian beekeepers to subscribe a minimum of $30,000 to finance the XXI International Apicultural Congress to be held in Maryland in August 1967.

Hospitality to beekeepers from overseas was municifent at Prague, where overheads were a State charge, and the new hosts are anxious to ensure that private enterprise is equally as generous to guests.

INTERNATIONAL COLOUR MARKING for queens does not affect us here in New Zealand since we do not import, but for the record the sequence is as follows:—

Year ending in 1 or 6 — e.g. 1966, white
2 or 7 — yellow
3 or 8 — red
4 or 9 — green
5 or 0 — blue

II II II

CUCUMBER POLLINATION is referred to in GLEANINGS, and it is interesting to note the superiority of cross pollination by bees as compared by hand.

In Michigan, cucumbers pollinated by bees only produced the largest number of straight fruits (73.4%) and only 16.52% deformed. Hand pollination produced 65.5% straight and 25.5% deformed. Non-pollinated plants had 94.4% abortions while those pollinated by honeybees had only 5.4%. Non-pollinated plants produced only three seedless fruits (out of 997 flowers) while bee-pollinated plants yielded 748 fruits out of 834 flowers. In the Soviet Union, 1650 lbs. per acre of cucumbers were produced with no bees. This was increased 14,178 lbs. per acre with bees 300 feet from field — 11.3 times as much. Polilnation of cucumbers by bees in comparison with hand pollination increases yield of cucumbers 28.5% in the Soviet Union. With bee training, this was increased by 173.5% above hand pollination. Bees from hives placed in a greenhouse saved 52 man-days of hand pollination and with training they increased the saving to nearly 150 man days.

II II II

SENATOR HARRY F. BYRD, of Virginia, U.S.A., is one of the world's largest apple growers with 100,000 trees in his orchard near Berryville, Va., and he also rents 20 million bees for the duration of the flowering period at a cost of $25,000.

II II II

VISITORS TO THE ANNUAL SHOW of the Lincolnshire Agricultural Society had a first-hand lesson in the dangers of indiscriminate or thoughtless spraying. A member of the local Beekeepers' Association placed a demonstration colony in the marquee, but by early afternoon it was decimated and a large number of dead and dying bees lay outside the entrance, due to contact with a herbicide spray nearby.

II II II

ALL AUSTRALIAN HONEY exported to the United Kingdom and Eire by the Australian Honey Board will now be handled by two agents in London. Following research by members of the Board into marketing practice it was proven that honey landed at random in England often passed through half a dozen or more agents, each of whom added a percentage to the price before it even reached the packers. Direct handling through firm agents with a minimum price negotiated between the agents and the A.H.B. was considered to be a far preferable system. The agents have been appointed on an agreement for 12 months. A similar arrangement is to be made for Japan.

II II II

BEEKEEPER JOHN HAYWARD, of the Island of St. Helena in the South Atlantic, writes that he minimises discomfort from stings by shaving the affected area with a dry safety razor. Quite a performance could be envisaged with a few bees intruding in the trouser leg.

II II II

ANATOLIAN QUEENS are being bred in Ontario, Canada, from basic stock introduced by Dr. V. M. Smith of Ontario Agricultural College in egg and larvae form from Brother Adam's apiaries at Buckfast Abbey, Devon, England. It is hoped that the Anatolian/Italian cross will winter well on minimum stores and with a fast spring build up. Further field reports will be awaited with interest.

II II II

HENNING CHRISTENSEN, of Gentofte, Denmark, writes regularly of beekeeping interests in his mother country and his snippits are appreciated. Referring to

Government policy as directed to beekeepers, he mentions that in the last 25 years the membership of the Danish Beekeeping Association has declined from 36,900 members to 12,000 members and that if the lack of interest continues, the last beekeeper will die in 1975! At the recent centenary celebrations all bears in Danish zoos were provided with feeds of honey—resulting in widespread publicity for the product.

II II II

THE CONDITION AMONGST BEES labelled "Autumn Collapse" in California and which caused so much concern to beekeepers has been proven not to be a contagious disease as was at first thought.

Intensive study by Federal State University bee specialists indicates that the losses have been brought about by food poisoning, possibly from honeydew gathered from oak trees in autumn. An insect pathologist, Gerrard Thomas of the University of California, at Berkeley, California, has isolated a fungus which might also cause death to bees under some conditions. Another specialist of the U.S. Department of Agriculture, A. S. Michael has proved that pollen stored from affected hives will kill bees, and findings suggest that a toxin produced by a fungus in the bee bread may be the cause of dreaded "Autumn Collapse".

II II II

THE AUSTRALIAN PUBLICATION "Countryman" carries an interesting story of a red-tailed bumble-bee queen found lying in an exhausted condition on a garden path with a dead honey bee drone attached to her abdomen. When the queen revived the drone was still attached and was hanging behind her when she flew away an hour later. The question is asked:—

"Would a male honeybee mate with a queen red-tail?" The letter is followed by a long and exceedingly interesting comment by Dr. Colin Butler. Without suggesting that there is any ground for believing that a honey-bee drone can mate effectively with a queen bumble bee, Dr. Butler describes observations which may throw light on the case recorded in the letter. He says, inter alia: "Drone honey-bees often become excited when they smell the sex attractive oxodecenoic acid produced in the mandibular glands of a virgin queen, and will fly upwind on the look-out for her. They will then approach almost any small, flying object; I have seen them mob bumblebees, worker honeybees and cabbage white butterflies, and they will even chase stones thrown in the air." He suggests that the bumble bee queen might have been thus mobbed; that one of the drones might have ejaculated (dying at the moment of ejaculation) and that it would be more probable that the drone's body became attached to the queen by the white mucous of the ejaculate than that his genitalia everted into the queen's open sting chamber, though the latter eventuality would not have been impossible.

II II II

WORDS OF WISDOM printed in our sister publication "Gleanings": "The world is moving so fast these days that the beekeeper who says 'it can't be done' is apt to be interrupted by another who is already doing it".

II II II

A STUDENT TEACHER'S confusion can be understood when he read in a pupil's essay on nature a reference to "unib" which, despite the present day penchant for abbreviations and composite formations of initials did not make sense. Not so, however, to the young pupil who, called upon to explain his unusual word in common day parlance did so with alacrity replying "'oney bee, sir."

II II II

THE SPREAD OF NOSEMA is causing great concern in Belgium, and Dr Labay writing in "La Belgique Apicole" blames the decimation of hives throughout the country on the importation of colonies and queens, and feeding stocks on imported honey. Once established, the disease spreads like wild fire through swarming and careless beekeepers not taking apart and treating dead colonies effectively. Representations are being made to make nosema a notifiable disease and for action to be taken against beekeepers who do not prevent stores from infected hives being pillaged by passing bees, thus spreading the disease.

NORTHERN COMB HONEY PRODUCERS' ASSOCIATION

The following list of suggested prices is given solely as a guide to merchants and retailers when offering Comb Honey for sale in the coming season:

	Packer to Wholesaler (Per Doz.)	Wholesaler to Retailer (Per Doz.)	Retailer to Consumer (Each)
Section Comb Honey 12-14 oz.	**22/-**	**25/4**	**2/9**
Section Comb Honey 14 oz. and over	**25/-**	**28/9**	**3/-**
Cut Comb Min Net Weight 7 oz.	**12/6**	**14/6**	**1/6**

IMPORTANT MEETING OF HONEY PACKERS

Remit 1 on the Order Paper at Whangarei called upon the Executive to arrange a meeting of packers with a view to establishing price stability in line with Honey Marketing Authority price guides.

THE FIRST SUCH MEETING HAS BEEN CONVENED AND WILL BE HELD AT CHRISTCHURCH ON WEDNESDAY, DECEMBER 7th, UNDER THE CHAIRMANSHIP OF GEORGE WINSLADE, VICE-PRESIDENT OF THE NBA.

ALL PACKERS AND INTERESTED MEMBERS ARE INVITED TO ATTEND.

Place: Christchurch Date: Dec. 7. Time: 1.30 p.m.

Venue: Workers' Educational Centre, 59 Gloucester Street.

Letters to the Editor

Correspondence on any subject of interest to beekeepers is cordially invited. Publication does not necessarily imply agreement with the views expressed.

Pleasant Point, South Canterbury.
July 31, 1966.

LEVY ON PRODUCE

Sir,

I sincerely hope that our new executive have the backbone to throw this whole scheme in the fire. Under the disguise of a Levy on Produce our last Executive have been trying to get a rise in the Seals Levy. Beekeepers at the present time have the highest self-imposed tax of any primary producer in the country paying £10 on every ton of honey produced. With an annual income to the Seals Levy of approximately £20,000 of *BEEKEEPERS' MONEY* this is where N.B.A. finances should come from. Some previous chairmen of the Authority have been reluctant to advocate the use of Seals Funds for N.B.A. finance, but the present chairman of the H.M.A. has given us his assurance that any additional finance required by the N.B.A. will be forthcoming.

F. A. BARTRUM.

Longview, Huntly R.D.2.
10th October, 1966.

Sir,

The enclosed graph* illustrates an aspect of our industry that needs our urgent attention and, in addition, points out a marketing weakness inherent in a packer dominated local market.

I need not go into this any further at the moment but would point out that this trend so vividly outlined by official figures is extremely dangerous to the beekeeping industry and will require an all out effort to correct.

The writer recently spent six weeks in Australia, and in contrast with our own attitude was most impressed by the vigour and imagination of the Australian honey industry in promoting honey.

Their illustrated brochures and booklets are a credit to any organisation and a trifle disturbing to the complacent Kiwi!

In fact, one would not oppose a further levy on all honey when the whole of the proceeds were diverted exclusively to the promotion of honey consumption.

In conclusion sir, may I state that the graphs shows without question the failures of our industry to keep its place with the consumer and that we simply cannot afford to permit this trend to continue. The question becomes: What do we propose to do about it?

D. CAREY.

**NOTE:* The graph forwarded by Mr Carey shows that the estimated honey consumption per head in 1963 was 4.3 lbs and that from 1956-1964 the annual population gain totalled for the period 415,408 people. Despite the population gain over the years, retail honey sales as reflected in the seals levy have been virtually the same each year and that the honey sales gain in 10 years have been NIL.

July 31, 1966.
Pleasant Point, South Canterbury,

BEEKEEPING RESEARCH

Sir,

With Wallaceville situated in the climatic area that it is, and being away from any main centre of commercial beekeeping ,it is of very limited use to the beekeeping industry. What is required is a Research Station dealing with both practical and scientific problems, situated at a place like Lincoln College. The recently opened machinery research unit there could be of immense value to the beekeeping industry. Not only would they have the facilities of both Lincoln College and the D.S.I.R. but also an excellent climate for artificial insemination work. Similar research stations in Australia carry out Queen Breeding programmes, selling breeder queens to beekeepers.

A model extracting plant should be set up where all new beekeeping equipment could be experimented with. A set up such as this could be of immense value to the beekeeping industry.

F. A. BARTRUM.

II II II

62 Hilling Street,
Green Bay,
Auckland.

14-10-66.

Sir,

Enclosed in part of a wrapper from a comb of honey which was purchased recently from a local store. Could you tell me:—

(a) If this comb came from N.Z. why the foreign language?
(b) If it is imported into N.Z. who is allowing it and why?
(c) Are there any more relevant details concerning this particular brand?

M. A. ANDERSON.

NOTE: The Cellophane wrapper forwarded by Mr Anderson is used by a number of comb honey producers to pack their manuka honey for the Continental trade. Each section weighs 13 oz. It is not known, however, how the pack came to be offered for sale in a local store.—Editor.

II II II

Hadlow, No. 4 R.D., Timaru
12th October, 1966

Sir,

I wish to thank my supporters for their vote of confidence, and with them regret that more producers did not take the trouble to vote, or get qualified to vote for a Producer Representative on the Honey Marketing Authority. While the 30 vote maximum is an improvement, it still does not give the one man unit full voting power, in that an efficient one man unit should produce up to 20 tons of honey, therefore each beekeeping unit should be able to qualify for up to 40 votes, and that without any double voting by family members.

I consider that up to the present time, our Industry has been governed by the vote of part-time beekeepers, with the full time outfits only getting the voting power of a part-time beekeeper. The last H.M.A. increased the voting power to 30 votes or 15 ton of honey. Let the new Authority do still better and make the voting maximum 40 votes or 20 ton of honey.

My congratulations to the successful candidates, I trust they will act as elected individuals and remember that we active honey producers have quite a stake in our industry, and are naturally very pleased to be advised of odd scraps of industry activity, which may vitally affect our livelihood.

R. DAVIDSON.

NOTE: The Authority has no jurisdiction on the composition of voting on any matter involving Member's appointments. Any alterations would have to emanate from the industry.—Editor.

Fairview, Timaru,
October 1, 1966.

Sir,

To all those electors who supported me in the reecnt election and thereby elected me as a Producer representative of the New Zealand Honey Marketing Authority I express my sincere thanks.

I shall endeavour to serve the industry in a manner which will be to the best interests of all beekeepers.

HARRY CLOAKE

II II II

Mangaotaki Road, Piopio.
12th October, 1966.

Sir,

To the voters in the recent Honey Marketing Authority Election I give my thanks for their confidence and support. I trust they will not find this misplaced, and we all hope to find avenues for further improvements towards both Authority and Industry progress.

J. R. BARBER.

II II II

P.O. Box 16, Havelock North,
25th October, 1966

Sir,

H.M.A. ELECTION

As my company produces over half a million pounds of honey per annum I have at least that many good reasons for hoping that the Honey Marketing Authority electors have chosen wisely in the recent elections.

There has been a very substantial swing from the electors' last decision, after the Kimpton visit, when they voted 3 or 4 to 1 against my supporters. In this election the switch of two more voters could have re-elected me.

As remarkably little Press publicity has been given to the election results—compared with the last election—I give the voting figures:

Barber 1414, Cloake 1234, Berry 1146, Davidson 966.

I thank those who supported me and assure them that I intend to stand again next year when the chairman, Mr Fraser, and the deputy chairman, Mr Lorimer, are due to end their present three year term.

In the meantime it is important that all beekeepers should try to get the facts straight, to be intolerant to the tactics that have been responsible for depressing our economy and stagnating production for so long, and to remember that all producers have a common interest in obtaining the best possible in-tank value for their product irrespective of how it is to be marketed or how much honey they have to market.

PERCY BERRY.

BEEKEEPERS' LIBRARY

BOOKS ON QUEEN REARING

Queen Rearing, by H. H. Laidlaw and J. E. Eckert.
Practical Queen Rearing, by Frank C. Pellett
Australasian Queen Rearing, by W. S. Pender
Better Queens, by Joy Smith
Scientific Queen Rearing, by G. M. Dolittle
Queen Breeding for Amateurs, by C. P. Abbott

BOOKS FOR BEGINNERS

The Life of the Bee, by M. Maeterlinck
A Thousand Answers to Beekeeping Questions, by C. C. Miller
Starting Right with Bees, by E. R. Root
The Golden Throng, by Edwin W. Teale
The World of the Honeybee, by Colin G. Butler
A B C and X Y Z of Bee Culture. (Several old copies available for long-term loan, 4/-).

RULES

1. Books available to all Members of National Beekeepers' Association.
2. Borrower, when ordering book, to send loan fee and state of which Branch he is a Member.
3. Loan Fee is 2/- for a Book, 6d for Pamphlets (includes postage to Borrower.)
4. Loan Fee entitles Borrower to keep Book for a month.

To obtain Books, write to:
CHRIS DAWSON, Hon. Librarian,
P.O. Box 423, Timaru.

Dept of Agriculture Post Graduate Bursar

MR G. M. WALTON, Apicultural Advisory Officer, Auckland has been awarded a departmental post graduate Apicultural Bursary, tenable at the University of Guelph, Ontario, Canada for a term of approximately eighteen months and leading to the M.Sc. (Apiculture) degree qualification.

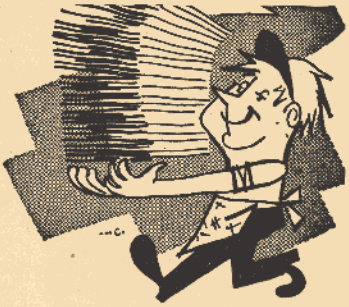
Mr Walton left for Canada to commence the course at the beginning of September this year.

Prior to joining the Apiary Section of the Horticulture Division of the department, Mr Walton was a student at the University of Canterbury, Christchurch, and completed the B.Sc. degree in 1965. After graduation Mr Walton worked for several months for a commercial beekeeper in Canterbury. He commenced duty with the department in February this year and has since been working as an Advisory Officer with commercial beekeepers under the training and supervision of experienced officers in the Apiary Section.

The Apiary Section of the Horticulture Division needs some officers who are graduates in Apiculture to strengthen the section and to provide some specialist technical advice to field Apiary instructors; there is no appropriate course in New Zealand or Australia and that at Guelph is considered very suitable for New Zealand's needs.

The Director of the Horticulture Division, Mr A. M. W. Grieg, called at the University of Guelph, and met Professor of Apiculture, G. F. Townsend, towards the end of August, on his return journey to New Zealand. Mr Grieg had six months overseas, most of which was at his own expense on anticipated retirement leave but he was requested to attend a meeting on honey standards at Vienna on 24-27 May, 1966, as the New Zealand observer and directed to make certain submissions on behalf of this country in regard to world standards for honey. Current discussions are primarily related to European standards.

BRANCH NOTES



CANTERBURY

A cold dry winter has been followed by a late spring and to date conditions are almost perfect. Rain at the right time following an excellent willow flow and with chou mollier in full bloom, the store position is better than it has been for some time. The first clover heads are showing on the lighter land and dandelion is in full bloom.

Mr and Mrs Tom Pearson were hosts for our Field Day on October 8 when about 120 gathered at Darfield Apiaries. Dominion vice-President George Winslade opened the Field Day and spoke on the proposed Queen Breeding programme he is organising.

A demonstration of making up baby nucs and the holding of queens in queen-banks was given by Tom Pearson. Tom has developed a system of holding Queens in banks from February until at late as May.

Jasper Bray demonstrated yet another 2-queen method of requeening in the spring using a 3-super broodnest. A pollen trap of Australian design created considerable interest — it is surprising just how much pollen a colony does gather.

Other items included a weight guessing competition, gadget display (won by Dick Robins), honey grading competiton and an informal inspection of the honey house. Mervyn Cloake, our Bursar, who has recently returned from Canada, spoke on some aspects of beekeeping over there. Package bees and big honey crops seem to be the order of the day, but they can keep the bears!

Reported by Jasper Bray.

GORE

Gore and Southland Branches will be holding their annual Field Day on February 4 at Dolamore Park, Gore. An interesting programme is being arranged and a warm welcome is extended to everyone.

The winter has been kind to beekeepers in South Otago and Southland. The hives have wintered very well and the spring work is well up to date. Prospects for an early honey flow are very good.

Reported by Tony Clissold.

WAIKATO

Colonies in most places came through the winter well with plenty of stores and very little excessive breeding. Most spring sources were two to three weeks later than usual.

Heather, five-finger and pussywilliow have yielded some honey in places and boosted hives strength up very quickly. Barbary is now starting, and three lovely fine days and hives are whiteing up nicely. Bush sources seem to have an average budding with the rewa rewa better than average.

Weather conditions have been on the cool side with easterlies as against the usual strong westerlies. Queen breeding has been delayed due to poor mating weather.

Bates have a nice new honey house to replace the one destroyed by fire.

Reported by C. Bird.

SOUTHLAND

In combination with Gore Branch, we ran a successful exhibition at the Southland A. & P. Winter Show.

Apart from the interest always shown in the observation hive, a feature was the public interest shown in the H.M.A. specialty packs of named floral sources.

Bees generally have come through the winter well, and with only 2¼ inches of rain for August and September, the season is away to a better start than for some years, although pessimists have been heard to predict a drought. (Is it possible in Soupthland?).

The Southland Catchment Board scheme for the Makarewa River — the most ambitious yet tackled in New Zealand — is well under way, at an estimated cost of £650,000. What was an attractive, winding stream, lined with kowhai and willow, is being rapidly transformed, from source to mouth, into great dirty ditch, with the aid of chain saws and excavators of the mammoth variety ,especially imported to sadden a beekeeper's heart.

Such is progress. The other side of the coin, of course, continues to be seen in the large-scale development taking place in the Te Anau area, where increasing scope is offering for the production of top quality honey.

Reported by Jack Fraser.

NORTHLAND

The present season is quite a headache for most beekeepers in this part of the Island. With a wet winter and a bad start in the Spring we are hoping for a better season from now on.

A very successful Field Day was held at Terry Gavin's apiaries at Titoki, despite the wet day. Mr Jack Byers was in attendance with a very strong contingent of members of the Auckland Branch and beekeepers from outlying districts.

Three different methods of queen raising were passed on to the members with ways of making frames, followed by a discussion on ways of putting foundation into the frames.

Winter losses have been heavier than normal this spring owing to the wet winter but with the manuka now coming into flower we hope will save some hives

Members are looking forward to a trip to Auckland branch later in the season. We believe they have some good strains of bees down there.

Reported by Arthur G. Tucker.

SOUTH CANTERBURY

HONEY CROP PROSPECTS

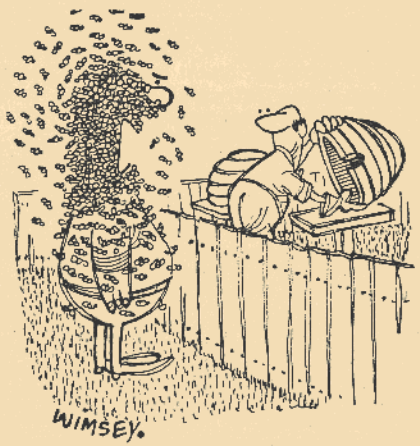
September was sunny with very little rain. Conditions were dry and beekeepers thankful for the soaking rain which fell early in October, over 3" being recorded in one week. The fine weather before the rain gave the bees a chance to work the willow flow but this was cut short by wintry conditions after the rain. However, crop prospects are very good.

At a recent meeting of the Branch held in Timaru the matter of Decimal Currency was discussed. Some members felt that the change could mean a financial loss to beekeepers through the Seals Levy. After discussing the matter at length a suggestion was sent to the H.M.A. for consideration.

It wa sálso decided at this meeting to hold our spring Field day on November 26 at Peel Forest Reserve, an ideal picnic spot.

Reported by J. G. McKenzie.

Today's Laugh



"Lost something?"

Check your Brood Chamber for B.L. Disease

Says L. H. BRAYBROOK (Apiary Inspector, Victoria, Australia)

Repeated warnings and instruction are necessary to ensure maintenance of the disease control we have built up.

It is surprising to find that beekeepers managing some of the State's large apiaries are unaware of the risks they run by ignoring the possibility of Bacillus larvae infection in their colonies.

The low incidence of outbreaks and the knowledge that the disease spreads slowly under natural conditions often leads to a belief that B.L. isn't so bad after all. In fact, the disease isn't so bad under natural conditions, or in an apiary which isn't worked. Then the infection may exist in one or two per cent of the colonies and as they die out natural controls operate to keep new infections low, possibly to only another one or two per cent.

It is surprising to find that in spite of the extensive literature available and notes included in almost all beekeeping manuals, from the Department's low priced "Beekeeping in Victoria" to the most advanced volumes, full time beekeepers are often unaware of what causes the disease and offer some impossible theories about it.

The only way that a healthy apiary or colony can develop this disease is by the introduction from an outside source of one specific organism, Bacillus larvae. If your apiary is kept outside flight range of infected colonies of bees or infected material then your bees cannot become infected.

Most bee diseases flare up and then subside. Not so with B.L. Once it becomes active in a hive it will gradually progress until the colony is dead. The bacteria then become inactive but remain viable as millions of dormant sports are scattered through the combs and hive parts.

Most commercial beekeepers carry out many operations which will transmit the disease throughout their apiaries.

The methods they use unfortunately, are conducive to the spread of B.L. at a rate far in excess of what nature intended.

This is brought about by the universal practice of interchanging combs and equipment during extracting, and hive management.

An outbreak is in two stages:—

1. The initial infection (perhaps only one colony).
2. The spread throughout the apiaries.

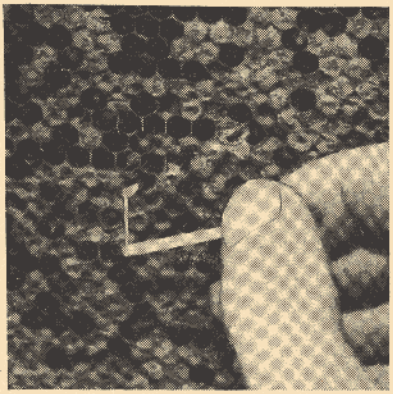
The initial infection of an apiary is very hard to trace. It might come from the bees robbing an infected apiary, robbing a discarded contaminated honey tin, using a contaminated extractor, feeding infected honey, or introducing bees or material from an infected apiary.

A disastrous spread from an initial infection through an apiary can be controlled by returning all combs and equipment to their original hives. This is practical but difficult to achieve in commercial apiaries. The alternative is to be continually aware of the possibility of a small infection showing up in any colony at any time from any source. So be always observant and check the brood even when the pressure of work makes it difficult.

There is only one chance in a thousand that a colony of bees will ever contract B.L. But some one was last and someone will be next. The last fellow found it fairly early, the next may not. It could break him.

OBSERVATIONS on AMERICAN BROOD DISEASE

By C. G. ROPE,
Honey Grader, Auckland



A simple test for American brood disease. Diagnosis is confirmed when a sticky thread from a decomposing larva adheres to matchstick probe.

1. Mr Braybrook's remarks in the preceding article holds true in the districts with which I am familiar in the Auckland Province. They no doubt apply over most of New Zealand with the possible exception of the southern districts where there are differences brought about by the relative inactivity of wax moths, and the abnormal number of wild colonies due to the thousands of old hollow willow trees and hollow concrete power poles which are widespread.

2. It is generally accepted by observant authorities that escalation of the disease is fastest in cold districts. This is so in New Zealand and there is a parallel on the North American continent.

3. Though any colony of bees can become infected with Bacillus Larvae (B.L.) I have never seen the disease personally in a so called "abandoned" apiary, nor in a wild hive, nor in a box hive and I have destroyed hundreds. Other people have found B.L. in these places, of course, but the point I am stressing is that the occurrence must be very rare, at least in the districts where I am competent to express an opinion.

4. Although infection can be caught by colonies robbing infected honey from discarded honey-pots, I have never seen B.L. in any of the many colonies in close proximity to the largest rubbish tips in New Zealand where there is a continuously exposed "face" at which the bees can be seen working.

5. I know of entire counties heavily stocked with bees which have been entirely free of B.L. over the past 10 years.

6. In my experience, therefore, **most** infection is **propagated** within registered apiaries by **beekeepers themselves,** and in his article Mr Braybrook has described how this happens.

7. I have seen numerous instances where B.L. has been **completely eliminated** from apiaries which had previously been extensively diseased. How was this done? By cutting one's losses and burning without compassion ALL the infected bees and combs, and the equipment which could not be sterilised by scorching with a flame and later painting over inside and out, or by immersion in boiling paraffin wax.

8. On the other hand, I have seen beekeepers who have learnt a measure of control but try to salvage queen bees or combs, or fail to carry out thorough sterilisation of ALL their equipment that has come into contact with B.L. or who mismanage their apiaries following initial infections, and who virtually **"live"** with the disease all their lives.

9. I have met **commercial** beekeepers who did not know that honey in new comb in the supers on diseased hives contained B.L. spores proportionate to the degree of infection in the broodnest!

10. The spores of B.L. have been shown to remain viable for up to 25 years or more. I know of one case where an unsterilised storey was salvaged by a beekeeper from a colony destroyed 10 years previously by an inspector. The storey was given to another beekeeper as a "present". Soon after it was restocked with bees, infection showed up in the colony. No disease had been found in that district for a number of years prior to this event.

11. I have seen 200 colonies wiped right out by B.L. in four years on an isolated island! It transpired that the beekeeper may have tried to "cure" the initial infection with sulpha drugs. The following year another beekeeper restocked the island with 300 healthy colonies in disease-free equipment. These have been there for four years now, and not one has developed B.L.

12. I know of another instance where 200 out of 600 hives became infected from a minor initial outbreak which it is believed the beekeeper attempted to control by use of drugs. **Drugs inhibit growth of the Bacillus, but they do NOT destroy the spores.** That beekeeper, too, is out of business! Who will be next?

Some Bees Learn Language Quickly . . .

THIRTY YEARS have elapsed since the German entomologist Karl von Frisch made history in the study of animal behaviour by describing the elements of the belly-wagging dance by which honey bees guide their hive mates to distant sources of food. But despite intensive research into the subject, nobody until recently has been able to explain how the dance ritual evolved and why it seems to be confined to four highly-developed species of the genus *Apis*. (Ref: Science, Vol. 149 p.320.)

Dancing bees also communicate by various buzzing sounds. Sound signals, unlike dancing, have been recorded among quite a number of groups of bees. Among them are the stingless foragers *Melipona* and *Trigona,* found in South America.

Using Von Frisch methods, supplies of sugar cane were placed at distances of up to 700 metres from the hive. Having discovered the food the length of each single sound period in their excited buzz could be "strongly correlated' with the different distances and the feeding places.

Scout bees not only buzzed the news, but repeatedly returned to the food, taking off in a characteristic zig-zag flight as if allowing time for their cell-mates to follow.

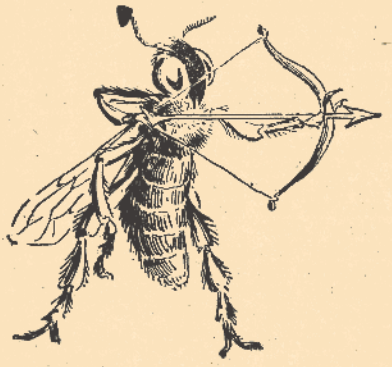
The *Melipona* bees appeared to be slow of study and repeatedly lost contact with their patient guides. They returned to the hive to await the next incoming flight of successful scouts which they appeared to recognise by a combination of both sound and smell. Eventually the keenest followers located the food.

The experimenters were able to test this interesting observation by playing the right sort of tape-recorded buzzes to the expectant bees. The sound promoted a rush for the take-off platform, but the bees refused to leave without additional stimuli unless food was close by. Some species ignored the sound completely, but this was consistent with their behaviour. All the unresponsive bees appeared to search for food on their own and at all distances.

The Esch and Kerr hypothesis is that communication dances evolved, originally, from the sound and sight directions still employed by primitive species of stingless bees. However, the honey bee *Apis* has now ritualised the zig-zag flight into the belly-wagging dance performed at close quarters, and this seems to be about the limit of sophistication in an insect's language.

("New Scientist", June 29, 1965)

(Research by Harald and Ilse Esch of Munich University, and Warwick E. Kerr, of the San Paulo Institute of Science.)



BEE STINGS

By V. A. Cook

Apiary Instructor,

Dept. of Agriculture, Oamaru.

This article is based on an address at the South Canterbury Field Day held on Mr F. A. Bartrum's property, Pleasant Point on 13th November, 1965.

The latest information I have about bee stings, emphasises the importance of reducing the number of stings you get to a minimum, and that you make sure your apiaries are so sited that no member of the public is likely to get stung.

Much of my information if from a paper by Dr. A. W. Frankland, a leading allergy specialist in England, who works at the Wright-Fleming Institute in London where he has treated many people who have developed a sensitivity to bee stings.

Being stung is just an everyday occupational hazard of the commercial beekeeper. When we get stung it hurts. Pain associated with a sting can be bad enough, but it is the reaction following the sting that really matters.

Fortunately, most people only have some local pain and a little swelling. But a few become sensitive or allergic to bee stings. The reaction may be either local or generalised.

Local reaction.—The pain and local swelling are usually more of a nuisance than a disability but a sting near the eye or lip can cause very marked local swelling. Local swelling can cause pronounced pain in a finger because the underlying tissues do not allow local expansion and it may be impossible to bend the finger. Local swelling usually subsides in a couple of days. Sometimes, if a person is developing a generalised sensitivity to bee stings, the swelling may continue to increase for a day or two and then take 4 or 5 days to go down.

Bee venom contains a mixture of enzymes (phospholipase A and hyaluronidase) and a protein called apitoxin. The enzymes release a substance called histamine. The apitoxin causes the pain and the histamine is responsible for the redness and subsequent itching. The histamine causes the generalised reaction that sometimes occurs.

When treating a local reaction the first thing to do is to get the sting out as quickly as possible, taking care not to pinch the poison sac and so increase the dose of venom received.

The modern treatment is to rub into the swollen part an antihistamine ointment. These ointments are the same as those sold for mosquito and midge bites. Most of them have a local anaesthetic as well as an antihistamine effect. Three which have been recommended as Benadryl, Thephorin and Anthisan. I have used Anthisan and found it very effective, particularly for easing those

really painful stings received near the eyes or say, in the ear, and make a practice of carrying a tube in the car, not so much for my own use, but in case anyone not used to bees gets stung. It is particularly useful if a child is stung because it dulls the pain very quickly.

Now a word about the general rereaction — the most serious reaction.

It is thought that 2% of the population are potentially fully allergic to bee stings. After a person has received his (or her) first sting, further stings either cause eventual immunity or increase the severity of the reaction.

A recent article in 'Bee Craft' by Dr C. Allan Birch illustrates the varying reaction to bee stings. Two examples are given to show the two extremes of reaction. The first is taken from the Journal of the American Medical Association and the second from the Central African Journal of Medicine.

The first case records an intense reaction to a single sting. "The patient noticed neck stiffness within a few minutes of being stung. He had difficulty in turning his head and felt faint. Headache and vomiting quickly followed. Soon afterwards mental confusion and retention of urine necessitated admission to hospital. Careful examination showed papilloedema (swelling of the head of the optic nerve as seen through an opthalmoscope), and the electro encephalogram was abnormal. Considerable unsteadiness and inco-ordination of movement developed — all pointing to a severe disturbance of the nervous system. Had it not been for the clear history that symptoms followed closely on a bee sting, the picture would have been mistaken for that of inflammation of the brain (encephalitis) or some other lesion. The patient gradually made a full recovery. The nature of the changes in his brain can only be surmised, but they may have been similar to those of encephalitis, although caused by bee venom rather than a bacterium or virus".

This severe reaction results from one sting. The second case concerns a man who survived more than 2,243 stings!

"This patient, aged 30, a European, had gone to look for an African who had been attacked by bees and while walking along a river bank was himself suddenly attacked by bees.

They covered the upper part of his body in a layer 3 inches thick and began to sting him. He dived into the river and lost consciousness. When he came to, he was vomiting and having diarrhoea. Bees were still stinging him. So he moved into deeper water and put his shorts over his head to protect himself. Then he plastered his shorts with mud but when he brought his arms out of the water to do this his arms were stung. He left a small hole for breathing but the bees soon discovered this.

In the end, he found the best thing to do was keep his mouth close to the hole and bite the bees which came to sting him. He swallowed many. His ordeal in the water lasted 4½ hours and he was then rescued. By then the bees had gone. The result of all this was very great swelling of the face and upper part of the body. He could still speak and begged for water. He was treated by drugs including hydrocortisone, but as it was dark and his condtion poor he was not moved until next day. No stings were removed until then and when he reached hospital, the remainder, 2,243, were taken out. In five days he had made a complete recovery. In spite of this severe ordeal he did not become hypersensitive to bee venom and later was stung again without any general disturbance."

We see, therefore, the variety of reaction can be very wide indeed.

It is interesting that people who are allergic to bee stings are even more sensitive to bee protein, that is, whole extracts of bees. These extracts are used by doctors for testing and treating patients.

Let us return to the general reaction. In its mildest form a general reaction is like a nettle rash which occurs at the site of the sting and elsewhere on the body. This reaction begins about ½ hour after a sting and may last for several

days. With subsequent stings the amount of local swelling and general irritation last longer and finally become more severe. Further stings produce increasingly severe symptons. Within five minutes of a sting there is an intense burning and itching of the skin; the eyelids and lips become very swollen and so may the inside of the throat. Breathing becomes difficult and the pulsie can be heard beating in the ears. A person affected in this way is likely to faint, and a further sting would make him unconscious in five minutes. One more sting could then then prove fatal.

Fortunately, fatalities are very rare. In Britain about twelve people die from stings every year but these are mainly from wasp stings. There have, I understand, been some deaths from bee stings here in New Zealand—but only very few.

The treatment of a general reaction must be undertaken by a doctor. He may prescribe one of a number of antihistamine tablets, if the reaction is not too severe. The antidote for a very severe generalised reaction is an injection of adrenaline which is given subcutaneously. Immediately following the injection, which must be given very soon after the sting is received, the symptoms disappear and the patient returns to normal.

It is necessary for severely allergic people to undergo a course of desensitization injections. Many injections have to be given because the first one is only about 1/000,000th part of a sting. The amount is increased until 1/10th of a sting is given. It may take 50 injections to reach this amount. They can be given daily and later a booster dose is given once a month. These monthly doses are continued for a minimal period of 3 years, and it is now thought they should be given for the duration of a patient's life, because it has been found that if they are stopped, sensitivity returns in one or two years.

Dr Frankland considers that a person who has reached an advanced stage of sensitivity should know how to give himself injections of adrenaline. Several people do in fact have a supply of adrenaline and a syringe — just in case.

There is another type of reaction to beekeeping which I have observed. The symptoms are itching and running of the nose and eyse, violent sneezing and asthma. This is quite common among beekeepers. But what causes these symptons? Is it stings? The smoker? — one beekeeper has thrown his away. Or is it pollen? Or perhaps the smell of combs? All these things have been blamed.

A report of the Bee Research Association concerns a case in Poland, which throws some light on the matter. Bee disease diagnosis is carried out in Poland in one institution for the entire country. About 90,000 samples are examined each year, and this involves dissecting more than a million bees. About ten women do the preparatory work, and while working they are said to breathe in particles of dried haemolymph (or bee blood) and bee muscle.

In some of the women this has lead to illness caused by allergy to bee protein. The symptoms are severe inflammation of the nose and eyes and severe attacks of asthma. In one case there was a wet, oozing ecxema on the skin of the face as well. The illness disappeared after the women had ceased to work with bees. So these women were allergic to bees.

Perhaps those of you who are troubled with "hay fever" symptons are also mildly allergic to bees in the same way.

Every hive, every box of used combs in fact, contains dusty particles of bees.

I do not know what the treatment is for this reaction. Anyone who suffers from it badly should see his doctor who may be able to help.

We can conclude that bee stings are generalyy harmful, so the less stings you get, the better you will feel. And it is possible to keep bees without being

stung very much, if you wear suitable protective clothing; good overalls, boots and gaiters, a sound veil and hat — and good gloves! When your bees are bad-tempered you will find you can work much quicker if you wear gloves.

Occasionally complaints are made about bees causing a nuisance by stinging people but it does not happen very often. With our heavy bee population, it is not always easy to find good apiary sites, and the tendency is to establish apiaries wherever there is a space availavle. This means that many apiaries are sited near roads and sometimes quite close to houses. Do take care that apiaries are so sited that the bees do not become a nuisance. And if you are requested to shift bees because people are being stung, shift them immediately.

Bee stings can cause a good deal of discomfort. They can, in rare cases, cause serious illness. So avoid them as much as possible yourselves and so site your apiaries that no member of the public is likely to get stung.

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ARBITRATOR AWARDS

Compensation and Costs

MR T. R. SUSSEX, a member of the Auckland City Council appointed to arbitrate in the dispute between Springfield Apiaries Ltd of Rotorua and the Government, awarded compensation of £8,563 and costs of £2449/13/2 in respect of the seizure of honey stocks worth £22,000 in 1963 and alleged to be toxic. The Department of Health subsequently admitted that their tests were not reliable and stocks were released.

The managing director of Springfield Apiaries Ltd., Mr. W. L. Holt, said that he was pleased that the arbitrator had decided in his favour but still felt that the Government owed his company a public apology for the damage that has been caused to their brand name, and pointed out that by the time costs and taxation had been paid, there would be little money left.

The arbitrator also allowed percentages of costs which the company does pay to be deducted from taxable profits.

Mr Holt's three year struggle against bureaucracy and his right to obtain redress for the obvious wrong suffered by his company will be applauded by beekeepers throughout the country. It is to be fervently hoped that such an unfortunate set of circumstances will never be allowed to occur again.

Here is the first report from Mervyn Cloake on

CANADIAN BEEKEEPERS and PACKAGE BEES

Tractor Trailer Rigs, Border Permits, Bee Shippers, Sleeper Cabs, Vans, Other Truckers, Cooler Units, Long Distance Calls, Husky Stations and Kenworths.

What does it all mean?

It means that the beginning of Canadian Beekeeping is near and it is all the Canadian beekeeper talks about at that time of the year. His wife and family listen patiently for they know it is only a passing phase and that in about eight weeks time the head of the family will again be as normal as any beekeeper can be.

To a young New Zealand beekeeper arriving in Canada during the bee hauling season there seemed to be nothing but confusion. But after taking part in these operations, out of what seemed to be confusion there appeared a remarkable co-operation between the Canadian beekeeper, the bee hauler and shipper. I still continue to marvel at it.

What does the package bees mean to the Canadian beekeeper and why is he so dependent on them?

Ninety per cent of his income is derived from package bees. This past season some 110,000 packages came from California to Alberta and the number is increasing each season. The Canadian winter is long and cold, with prolonged periods of 30 degrees below zero, and will last as long as five months. Snow lies on the ground most of the time. Under these conditions it is impossible to winter bees using our methods. To successfully winter bees in Alberta it is necessary to place the hives in a cellar or to wrap them in tar paper, which entails considerable labour and is considered uneconomic. Because of seasonal conditions therefore and associated problems the beekeeper has become dependent on package bees.

The package bee season begins about the first of April. Trucks have been prepared for the long journeys ahead, fuel tanks holding up to 200 gallons filled, vans fitted and truckers itineries made out. Vans have doors opening at the back and some of the largest have side doors as well. The length varies from 18 feet on the conventional truck to 40 feet on tractor trailer rigs. Larger trucks carry up to 3,000 two pound packages. As the average round trip hauling packages is about 3000 miles the trucks travel non-stop, and each is fitted with a sleeper compartment and has two drivers. Some truckers will make as many as five trips in five weeks and do not sleep in a bed during that time.

In California shippers begin to prepare their hives as soon as the comparatively mild winer is over. Hives are moved into orchards of prunes, almonds, oranges, peaches, etc. or to any other flow which can be used for a spring buildup.

Queens are confined to the bottom super under an excluder. Breeder hives and cell builders are made ready in the queen raising yard and the nuclei, varying from 4" x 4" baby nucs. to conventional four and six frame units are prepared. Queen rearing begins about the end of February. Methods used are much the same as in New Zealand except of course on a very much larger scale. Some producers raise up to 20,000 queens and up to 15,000 packages. Each shipper has his own particular methods which he uses successfully.

Baby nuclei are started by gathering bees as for packages and anaesthetising the bees by burning amonia nitrate

manure in the smoker and placing a cupful of bees in each nuclei. A small division board feeder is used to feed syrup. Larger nuclei are overwintered and split in the spring to provide increases. The beekeeper visited in Sacremento Valley, California, used small baby nuclei and amonia nitrate to establish them. The queens, when they begin to lay, are caught and placed in queen banks until ready for use. As soon as the queen is removed from the nuclei a cell is put in and another feed of syrup given. If the bee strength in the nuclei was down, more anaethetised bees were added.

A few days before the truckers are are due to arrive, shaking for packages begins. This is where the all important co-ordination is essential. The shipper must know when each truck is due, how many packages are required and who the bees are for. The trucker must be able to obtain his full load in a minimum of time and the shipper must not have packages left over, as the bees deteriorate if caged too long. The shipper may have several truckers arriving each evening and the truckers usually call on several shippers to complete their loads. For the next six weeks there are no days off for anyone. The queens have to be produced in such quantities that there is no shortage for the packers.

A number of Canadians go down to California for the package bee season, so no labour problem exists. When shaking for packages the scales are set up and the bees in the second super over the excluder are shaken into the shaker box. After shaking about five hives, the bees are filled into the package cage by pouring the bees through a funnel into the cage on the scales. When the desired weight is reached the feeder can and a queen cage is placed in position. All shippers use the same sized cages and are crated in the same manner, which enables the trucker to load his truck from more than one shipper. It is essential to work fast when shaking, as in a yard of up to 100 hives robbing can easily start. If robbing starts shaking must cease.

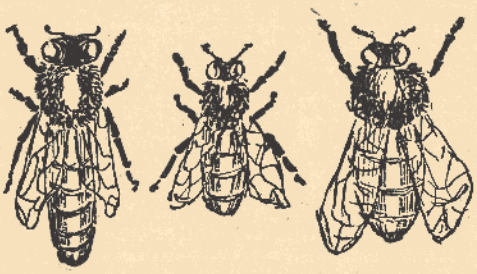
The average quantity of bees taken from each hive in three rounds of shaking is about 10 pounds. The cost of a two-pound package is 4.70 dollars, 3 pound package, 6.20 dollars and the 4 pound package with two queens, 8.70 dollars. A 50 cent credit is given for the return of the empty cages. Freight to Alberta is about one dollar per package and the trucker is responsible for loss in transit. Losses in transit do occur occasionally, usually through overheating. Great care is taken to ensure the temperature in the van is kept between 60-70 degrees. Some vans are air-conditioned, while others have the temperature controlled by vents. All trucks are fitted with thermo-couplers, enabling the truck driver to observe the temperature in any part of the van from his cab.

Truckers usually begin loading in the evening and endeavour to begin the long journey early in the night to avoid travelling in the hotter regions in the daytime.

I was fortunate to make the trip to California on a bee hauler's truck, and on the return journey we left the Sacremento Valley at 11 p.m. on Wednesday, and arrived in Dawson Creek, Northern British Columbia, at 7 a.m. on Saturday. This was a non-stop trip of 2,000 miles. Travelling through Oregon we experienced temperatures up to 95 degrees and had difficulty in maintaining a safe temperature in the van. Frequent watering of the load was necessary to keep the temperature down, but as we travelled north condition improved and no packages were lost. On the week before this trip temperatures of 10 degrees below zero we erencountered in passing through the Rockies in Southern Alberta ,and this presented a difficulty in keeping the temperature high enough.

With a load of 2,000 to 3,000 packages valued at 12,000 dollars and more the truckers have a lot at stake. It has been known for a trucker to lose up to half his load when conditions were extremely bad, but this is very rare, and they usually get through without a loss.

SOMETHING NEW on THE SEX of the Honey Bee



By M. LANG

(Translated from "Abeilles et Fleurs" by A. S. C. Deans in "The Scottish Beekeeper").

M. Meyer Jacques, a beekeeper from Puttelange-les-Sarralbe, has, after 10 years of careful and patient experiment, propounded a new theory on the sex of honeybees.

Before presenting this theory I should like to recapitulate the following facts which are at present universally known.

(1) The eggs laid by fertile queens give rise to female bees which are reared in worker cells and queen bees which are reared in queen cells; also drones or males which are reared in drone cells.

(2) Eggs fertilised by spermattozoa give rise to female types while unfertilised eggs produce males.

(3) Virgin queens, very old queens and laying workers produce only males irrespective of the type of cell in which the eggs are laid.

One controversial point, however, remains. It is: How does it come about that eggs laid by a fertile queen in worker cells produce females while eggs laid in drone cells produce males? An attempt has been made to answer this question by Alin Caillas in his book "The Productive Apiary", p. 50.

Ailin Caillas writes: "The old theory, still current today, suggests that when the egg passes the opening to the spermatheca, it is fertilised before it gives rise to a female: i.e., it is covered with spermatozoa while the egg, destined to produce a male bee, receives no such covering. It has never been explained just how the spermatozoa, which are small threads of about a millionth of a millimeter in diameter and made motile by oscillatory cilia, disappear conveniently when the queen wishes to lay male producing eggs.

On reflection this theory cannot withstand serious examination but that suggested by Pere Francois seems to fit the facts much better. There is still a wide field for research here.

All eggs, says Pere Francois, are not fertilised, but when they pass the spermathecal opening, they are covered by semen. In effect we can suggest that this organ can contain 200 million spermatozoa and that in the course of a life of four years, a queen may lay not more than a million eggs. Consequently, each egg is covered by a number of sperms deployed over its surface, and their penetration of the micropylar area of the egg does not take place until the egg has been laid at the base of the cell. Experiments made by Pere Francois and since repeated, show that it is the worker bees that remove the sperm from the egg which is to become the male, after it has been laid in the drone cell."

Now let's look at the work and theories of M. Meyer Jacques. He agrees with Pere Francois when he says that all the eggs laid by a fertile queen are, when newly laid, covered with spermatozoa but he does not agree

that the workers remove the sperm when the eggs are laid in drone cells. M. Meyer has observed the following facts.

(1) The workers do not concern themselves with the eggs laid in drone cells and do not carry out any manipulation of the egg. The spermatozoa which are found on the egg surface die rapidly and for quite another reason which we shall see later.

(2) When the queen lays in worker cells she lays at the rate of one egg a minute. After she has laid four or five eggs she moves away a little and is fed. During this interval a worker comes along and pushes its head deeply into the cell. Now precisely what is it doing? To find out M. Meyer carried out the following experiments, saying to himself, "I'll try to prevent the workers getting at the newly laid eggs." He arranged a piece of metalic ribbon over five cells containing newly laid eggs. After several hours he took out the frame but found that the bees had gnawed away the wax beneath the cover and had passed underneath. He shorted the time interval and saw a large number of bees busy trying to remove the awkward obstacle.

M. Meyer was not discouraged and contrived an apparatus made of a piece of alluminium foil pierced by pins to form a sort of metalic cage which could be properly fixed to the comb and which the bees wolud not be able to dislodge or gnaw through. It was simple but it required some thought. The apparatus was fixed on the comb and closed off five cells of freshly laid eggs, without touching the cells or damaging them in any way. Thus the bees could not reach these cells. Subsequently he found that the larvae had hatched and were developing into drones.

Logical conclusion: The workers do something to the newly laid eggs in order to effect fertilisation, and when this operation is not carried out, fertilisation does not result.

What then is this manipulation? Before replying let us again refer to Ailin Caillas, "The Productive Apiary" p. 98. "Examined with a magnifying glass or better still a micrscope, the egg appears club shaped. The swollen, free end contains a narrow opening, the micropyle, through which the spermatozoa penetrate when fertilisation occurs."

M. Meyer suggests: "Perhaps the bees cover the micropylar area to ensure fertilisation." He took a fine needle and scooped up a drop of brood food which he placed over the micropylar area in order to seal it off. This was also done in a large number of drone cells. The result was that the larvae died at the end of a week. M. Meyer again did not know why. Perhaps the drone brood food is not suitable for workers.

M. Meyer was not discouraged. He began his experiments again, from the base of the drone cells by transferring the eggs, prepared as before, into worker cells. This time he was successful. The eggs laid in drone cells, suitably treated, gave female. M. Meyer succeeded in working this operation both ways:

(1) Eggs destined to become worker bees produced drones.

(2) Eggs destined to produce drones gave rise to workers.

An example which proves the correctness of this theory may be demonstrated as follows: Take a test frame containing nothing but drone comb and full of newly laid eggs and place it in a queenless colony. Almost invariably queens will be reared since the bees have had time to cover rapidly the micropylar area of the eggs chosen to produce the queens.

The question now arises: Why must the micropyle be closed for fertilisation to take place?

I suggest the following answer to this question. "The spermatozoa of the honey bee are allergic to fresh air and perish after an exposure of one to two minutes even although they are embedded in the micropyle. It is necessary that those sperms that are in the micropyle be made "air tight" very quickly so that they may survive and penetrate fully into the interior of the egg and so complete the chromosome number, i.e., so that a diploid egg may be obtained.

Reference—Lang, M. "Something New on the Sex of the Honey Bee." Abeilles et Fleurs: 137: 7-8 (1965). In French.

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Nom-de-plume letters must be signed by the writer and address given, not necessarily for publication, but as proof of good faith. Letters accepted for publication do not necessarily express the views of the Editor.

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