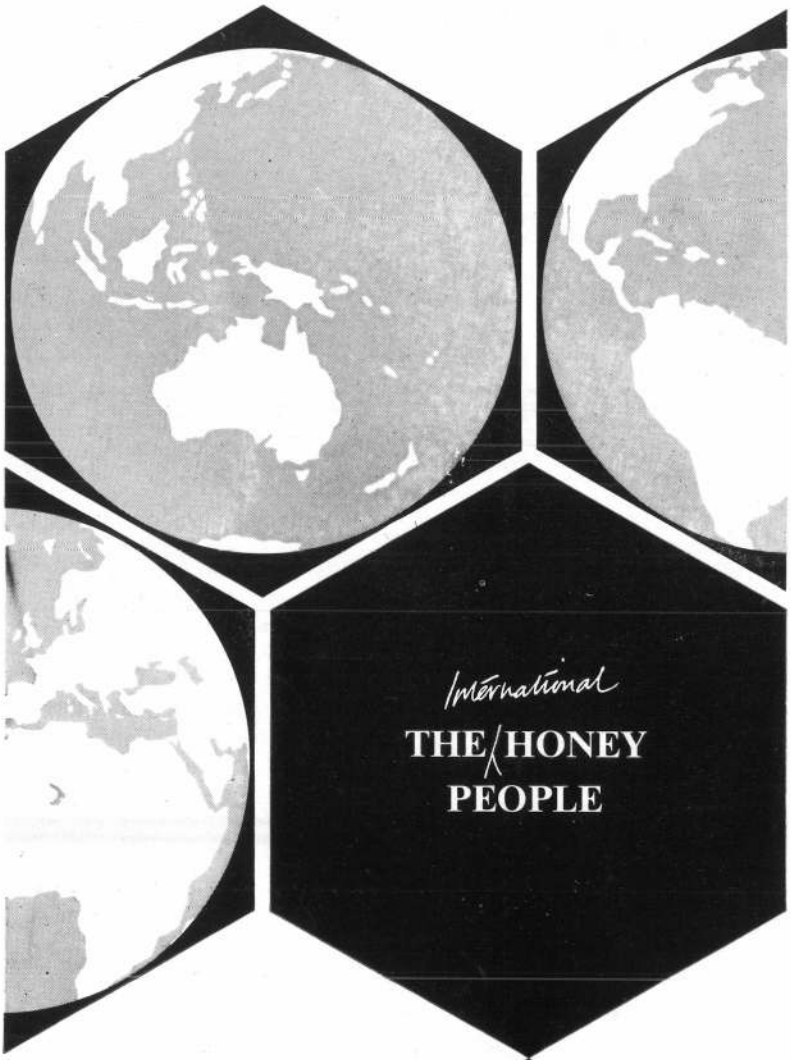

# the NEW ZEALAND BEEKEEPER

August 1975

BAY OF PLENTY COMMUNITY COLLE



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# The National Beekeepers' Association

(For the advancement of the beekeeping Industry in New Zealand)

*'Better Beekeeping—Better Marketing'*

## HIVE LEVY

Under the terms of "The Honey Marketing Authority Regulations, 1975" every honey producer in this country is liable to pay a levy of 15 cents per hive by 20th February each year, after declaring the number of hives owned as at 1st January in that year.

Because these Regulations were not gazetted in time, the due date for payment has been amended to 20th April for 1975 only.

## ASSOCIATION SUBSCRIPTIONS

Part of the amount of the above Levy is to be used to pay the expenses of the National Beekeepers' Association. Any beekeeper who has paid his Levy automatically becomes a member of the N.B.A .and no further subscription will be payable.

Beekeepers owning less than 50 hives and other who may wish to join the N.B.A. will pay an Annual Subscription of $7.50, which includes the cost of subscription to "N.Z. Beekeeper".

## THE N.Z. BEEKEEPER MAGAZINE

On payment of the Hive Levy no additional subscriptions to "N.Z. Beekeeper" will be payable. These will be covered under this Hive Levy which is collected with authority of the "Honey Marketing Regulations 1975" and no further payment will be necessary.

Non-members will pay an annual subscription of $7.50 within New Zealand and $N.Z. $7.50 Overseas.

## ADVERTISEMENT RATES

| | | | |
|---|---|---|---|
| Full Page ..... | $25.00 | Per Inch ..... | $2.50 |
| Half Page ..... | $15.00 | Min. Charge ..... | $2.50 |
| Quarter Page | $9.00 | for each insertion. | |

## Cover Picture Story

### 1975 TIMARU CONFERENCE

The South Canterbury Branch are to be congratulated for the smooth running of the arrangements for this Conference and Annual General Meeting of the Association.

The venue at Seven Oaks was ideal and the catering arrangements made by the Ladies associated with the Branch left nothing to be desired.

Even the weather was kind. The crisp, clear nights and sunny days so typical of much of the Eastern half of the South Island at this time of year were ideal.

The accommodation and hospitality were first rate.

Before he left for home, Mr I. J. Dickinson, N.B.A. President, was approached by the Manager of Seven Oaks who wished to convey his sincere appreciation of the manner in which all who used the Conference facilities conducted themselves. The respect shown for the property and the clean state in which it was left has earned his gratitude.

The assistance given to his staff and himself not only by South Canterbury Branch but all who attended Conference had helped to make his job that much easier throughout the time we were there.

Because of the goodwill thus generated we have been placed in the "delighted to have you back" category and our good reputation will undoubtedly be spread further

THE NEW ZEALAND BEEKEEPER

VOL. 37, No. 3

*Registered for transmission by post as a magazine.*

Published in February, May, August and November by the National Beekeepers Association of N.Z. (Inc.)

Subscriptions: Beekeepers paying Hive Levy receive this magazine without further charge. Others: $N.Z.7.50 per year for 1975, $N.Z.9 per year for 1976 (both local and overseas).

**Editor: Norman S. Stanton** **August 1975**

# *Quo Vadis?*

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To the surprise of many, the change from the Seals Levy has been accomplished smoothly and with the minimum of complaint. Some have even asked, "Why didn't we do it a long time ago?"

That this Hive Levy has already been a factor in unifying the industry goes unquestioned. Even those who have in the past used resignation from the N.Z.A. as their particular form of protest seem happy with the new system.

As I see it, the danger inherent in the ample financial resources now available, is, as Parkinson might have said, "The rate of Government (or N.B.A.) spending rises to meet the amount of revenue that is available."

Those in control, therefore, need to guard against the pressure which would induce them to make change for its own sake, for the convenience of others outside the industry, whether or not the change will benefit the industry. To see clearly even

when personal dominance clouds the real issues is a rare gift.

Likewise, this could well be the time to take an unclouded look at the functions of the Honey Marketing Authority. (This has nothing to do with the personalities involved who do their job of administering the H.M.A. Regulations admirably).

There is a strong body of opinion in the industry which favours the logical move of separation of the various functions of the Authority; some to be intensified, some to be passed to others.

Perhaps the time will come when the role of the Authority is more administrative and promotional in the marketing of honey both at home and overseas. Its marketing and packing functions could probably be better performed by private enterprise under its watchful eye. That it is the ideal vehicle to administer the substantial reserves of the industry is not disputed.

As I see it, the alternative to this kind of change is total acquisition of the complete honey crop so that it could be marketed in a

*Continued on page 72*

**THE UNDER-SECRETARY FOR LANDS AND AGRICULTURE ADDRESSES CONFERENCE**

**From Left: Steve Lyttle (Chairman Conference Committee), Bruce Barclay (Under-Secretary for Lands and Agriculture), Ivan Dickinson (President), Graham Beard (General Secretary).**

# The National Beekeepers' Association of N.Z. Inc.

# ANNUAL CONFERENCE 1975

**TIMARU, MAY 25-27, 1975.**

Conference Delegates were welcomed by the President, Mr I. J. Dickson and Mr Hervey, Mayor of Timaru.

The President of the Association presented an Acacia tree to the Timaru Beautifying Society and this was received on their behalf by the Mayor's wife Mrs Hervey.

Addresses presented to Conference by the Under Secretary for Lands and Agriculture, Mr Bruce Barclay and other Reports are published on page 16 and later of this issue.

# Remits and Selected Debate

**IMPORTANT NOTE: REMITS AS PUBLISHED INCLUDE AMENDMENTS ADOPTED (IF ANY)**

**Remit No. 1, Waikato (Carried):** That this Conference request the N.B.A. to investigate the feasibility of becoming a member of Apimondia.

**Remit No. 2, Hawkes Bay (Withdrawn):** That Conference requests the incoming Executive to investigate the apiary insurance scheme to ensure that under the new Hive Levy system of finance, adequate cover is provided.

On behalf of **Executive** it was pointed out that the cost was not worth the cover but urged members to take out a Public Liability Policy on their own behalf.

**Remit No. 3, Nelson (Withdrawn):** This Conference recommends that the under 50 hives group be directed into three groups in 1976; the division to be 1-5 hives, $5.00; 6-20 hives, $6.50; 21-50 hives, $7.50; and the Hive Levy subscription be amended accordingly so that the amateur groups may continue.

**NOTE:** It is considered that the beekeeper with 2 or 3 hives will not join the Association if the minimum levy of $7.50 is maintained for future years.

**Remit No. 4, Southland (Remit covered by Penrose report, therefore withdrawn):** That the N.B.A. investigate the possibility of obtaining from sugarbeet, a form of sugar or syrup suitable for feeding to bees.

**D. Penrose** read a report from the Sugar Beet Co. which is based on Ashburton. The ultimate retail price would be based on what is charged at Chelsea for imported sugar. The company's greatest need is for capital. Any acreage planted would not affect the area set aside for planting other crops.

**Remit No. 5, Nelson (Carried):** This Conference recommends that the M.A.F. design and publish a pamphlet on how to locate wasp nests by tracking wasps, and suggests that local bee-

keepers or others interested be informed, so that the nests may be destroyed. This pamphlet be circulated to schools throughout. N.Z.

**Remit No. 6, Hawkes Bay (Carried):** That this Association requests the Government to amend the weights and measures metric packages notice 1974 to provide that the permissible net weights of honey (except in the comb) be 250g, 500g, 900g, or multiples of 500g.

**Remit No. 7, Auckland (Carried):** That this Conference along with farmers in the Coromandel area are extremely concerned that pollination of pastures is being seriously affected and that considerable honey is being lost to the economy. And that this Conference requests Federated Farmers support in ensuring a speedy and satisfactory conclusion to these problems.

**Broadley:** There is no point in bees being put into this area only to be taken out by December 14 and their honey destroyed.

**Remit No. 8, Waikato (Carried):** That all members of the Restricted Zone Committee be beekeepers in the North Island.

**R. Robinson:** The people affected should be the ones on this committee.

**Remit No. 9, Auckland (Carried):** That this Conference request H.M.A. re-introduce the Gift Parcel Scheme, if economically viable.

**Terry Gavin:** This is good advertising and the H.M.A. should have another look at it.

**Remit No. 10, (a) Waikato (Lost):** That the H.M.A. start advertising immediately in colour on T.V. in a good time slot. With a large crop in N.Z. and very little overseas markets more advertising should be done.

**NOTE:** A small increase per head throughout N.Z. would take the surplus off the market. TV advertising costs must not be great for the returns when you see so many everyday products such as sausages, jams and biscuits advertised. With less honey in storage and less interest rates for this honey the saving will go a long way towards the cost of the TV advertisement.

**B. Ashcroft:** I am against this Remit. We can easily get carried away. The Honey Producers Association spent £10,000 to sell £2,000 worth of honey in the 1930s.

**Remit No. 10, (b) Auckland (Lost):** That this Conference recommends the H.M.A. advertise all its packs on the local market so as to extend the sale of honey in New Zealand.

**NOTE:** By selling more honey locally the H.M.A. could improve its payout. In the past packers have opposed the Authority advertising its own product as they maintained they were advertising it through the Seals Levy but these circumstances no longer apply. It would only take an average increase of about 10% to make N.Z. balanced as to consumption versus production.

**M. Stuckey:** If we could become self-suporting in New Zealand we would be in a more stable position. I believe this could be achieved by pushing honey as a health food.

**M. Cloake:** This Remit that the H.M.A. should increase sales at the expense of others. Any advertising has got to be on a national basis to sell honey.

**P. Berry:** The economic balance of our industry only works while the local market price is better than the price on overseas markets. The present economic situation requires us to export rather than encourage local consumption. We are already the highest per capita consumers of honey in the world.

**Remit No. 10, (c) South Western (Carried):** That the Conference strongly urges the H.M.A. to ask for greater promotion at Goverment level of honey sales for export.

**NOTE:** This Remit is prompted by the fact that Ministers of Agriculture and Fisheries and Overseas Trade etc., when overseas to seek trade diversification and to promote the sale of our major products such as meat and wool etc. appear not to have given sufficient thought to our honey. We consider this a sad lack in view of the undoubted value of personal contact in trade negotiations.

**Remit No. 10, (d) North Otago (Withdrawn):** That the N.B.A. press H.M.A. for more public awareness on the virtues of honey.

**Remit No. 11, Southland (Lost):** That the H.M.A. discontinue the use of used containers for export.

**Remit No. 12, Waikato (Lost):** That this Conference urge H.M.A. to become a fully active member of the N.Z. Packers Association and endeavour to work in harmony with producers and packers alike.

**Several well-known Delegates can be clearly seen in this view of 1975 Conference in session.**

**NOTE:** This Remit was withdrawn by Waikato but subsequently re-entered by Chair.

**M. Haines:** If the H.M.A. belonged to the Packers' Association we could move prices together and get a bettr understanding of each other .

**R. Davidson:** I have missed a lot of opportunities by not realising I could speak at Conference. The H.M.A. has ben invited to join the Packers' Association.

**R. Poole:** No one else seems to be bound by the Packers' Association so why should the H.M.A. be bound?

**Remit No. 13, Hawkes Bay (Carried):** That the H.M.A. be requested to publish in each November journal the current prices for honey and any subsequent changes in following journals.

**Remit No. 14, South Canterbury (Lost):** That voting for the H.M.A. member be on the following basis:

(a) 1 vote per 50 hives, maximum 50 votes.

(b) 1 vote for each tonne of honey supplied to the H.M.A., maximum 50 votes.

(c) Maximum of 100 votes for any one producer.

**M. Cloake:** Voting procedure is now no longer on the supply of honey to H.M.A. It is now on Hive Levy payments. It is a serious anomaly that voting rights are equal for suppliers and non-suppliers alike. Important that those who have a direct interest by supplying honey to H.M.A. should have voting rights accordingly.

**Roberts:** I oppose this because we are changing our minds too often. Let's try the new system fairly before we change again.

**D. Penrose:** I should be on the maximum vote under this system. I was in favour of the Remit but now favour on person one vote to give this a fair trial.

**H. Cloake:** I feel so futile when this is so vital. I think the minister has left the door wide open and I'm going to drive an 8-ton truck full of votes right in through it.

**R. Jansen:** I'm virtually a non-supplier to the H.M.A., therefore I oppose the remit.

**R. Blair:** I asked at last Conference what was the voting procedure to be under the new Hive Levy and this is the only time the matter has been discussd. If you call this a 'loaded' vote then I'm in favour.

**R. Jansen:** The H.M.A. now have authority for the total acquisition of all honey.

**D. Hayman:** We would have to amend the H.M.A. Regulations to get this.

**M. Cloake:** The arguments against this are inconsistent. We are an industry and some of us can look into the future. I can see that unless the supplier has some control it could happen that someone could get a seat on the H.M.A. and use this for his own ends.

**Remit No. 15, (a) Southland (Lost):** That the H.M.A. revert to the former method of payment on delivery and grading.

**Remit No. 15, (b) Auckland (Lost):** A supplier vote. That for every ton of honey supplied to the Authority there should be an extra two votes with a maximum of fifty.

**R. Blair:** In seconding this I would like to point out that those who talk about democratic rights are completely wrong when they say the H.M.A. has control.

**Remit No. 16, Waikato (Withdrawn):** That Conference request the H.M.A. to post to suppliers their grade certificates within a period of one week of grading.

**Remit No. 17, South Canterbury (Carried):** That this Conference discuss the future supply and storage of honey drums intended for the suppliers to the H.M.A. and any recommendations brought down be noted by the H.M.A. members for reference when considering future container policy.

**NOTE:** The past history of, and recent damage to the Railway from Picton to Christchurch gives cause for alarm to Southern producers and together with the continued mix-up in deliveries call for the present system to be closely looked at. Branches should discuss their problems regarding H.M.A. containers so that all aspects can be aired at Conference.

**Remit No. 18, South Canterbury (Lost):** That honey which has a colour reading of 15mm or less but delicate for flavour qualifies for 100 points for payout purposes.

**R. Poole:** The more money given to one producer the less available for another.

**Remit No. 19, South Western (Carried with Amendment):** That in view of the efforts being experienced overseas by the H.M.A. with regard to selling honey, the time is now ripe for the N.B.A. to make a recommendation to the Minister concerned, to licence Packers to export honey in retail containers subject to quality and source control and subject to minimum price.
**Amendment:** Provided that if it is deemed necessary by the H.M.A. they are to send agents to inspect any packages or documents concerned at the exporters' expense.

**Remit No. 20, West Coast (Carried):** That the Forest Service, in formulating a policy for indigenous cutover, take into consideration the apiarists that are dependent on the retention of natural forest cover for their industry.

**NOTE:** If the present policy of clear felling, burning and exotic conversion is maintained honey production will be reduced to such an extent that the beekeeping industry in Westland will be serverely jeopardised.

**Remit No. 21, South Canterbury (Carried):** That the definition of a "hive of bees" for the purpose of the Hive Levy be more precisely defined.

**NOTE:** As at present defined would include any hive containing a queen and bees whether in a nucleus or other small hives as these hives can produce a surplus some years if the season is suitable.

**M. Cloake:** The way it reads at present it could be anything from a baby nuc. to the tallest hive.

**R. Jansen:** I now know that I have paid on 50 baby nuc. when I have been told that I was foolish to do so.

**R. Penrose:** Although the definition is not precise a reasonable man would make a reasonable assessment of the position.

**Remit No. 22, Otago (Carried):** That Executive be asked to approach the Department of Health to enquire if any research has been done on the disease and bacterial load carried by wasps. If no investigation or research has been done, then representations be made to implement this research immediately, as we

consider wasps to be not only a danger to the honey industry but also a health hazard as well.

**B. Jenkins** We have no progress in dealing with wasps. If they were proved to be a health hazard we might get some action.

**C. Foote:** We are being pressed to bring honey house hygiene up to a high standard but a probable source of contamination, wasps, go scot free. The Government should declare wasps a pest.

**Remit No. 23, South Canterbury (Carried):** That the Executive take the necessary action to endeavour to have sugar available to beekeepers at a cost less any tax it may bear or at a subsidised price.

**Remit No. 24, North Otago (Carried):** That the N.B.A. ask for the railways restriction of 40 miles on 44 gal. drums of liquid honey to be lifted.

**NOTE:** The railways recently have been reluctant to issue permits.

**G. Winslade:** Sounds as if the present tightening up in the economic situation has also led to tightening up of service by Railways Department. Strong representation should be made to Government on this matter.

**H. Cloake:** The average beekeeper is not able to handle drums transferred from truck to railway wagon which railways refuse to help with.

**Remit No. 25, South Canterbury (Carried as Amended by Waikato Delegate):** That the N.B.A. investigate the retail and wholesale price margins on honey with a view to reducing them thereby increasing the price paid to the producer. Also that mark-ups be on a unit basis instead of percentage as at present.

**NOTE:** It appears there is a big margin made obvious by the amount of price cutting in this area of trade.

**Remit No. 26, Executive Committee (Carried):** That the balance date of the Association be December 31.

**Remit No. 27, Executive Committee** (a) **(Carried):** That as the basis of membership qualification has now been changed this Annual Meeting authorise the Executive Committee to draft a new set of rules governing the membership functions and operations of the Association.

(b) **(Carried):** That prior to the new Rules being registered the Executive Committee circulate the same to all Branches for their information and comment, and that when the final draft has been settled a Special General Meeting be convened for the purpose on a Delegate basis.

**Remit No. 28, Executive Committee (Carried):** That a Capitation Allowance be paid to each constituent Branch on a basis to be determined by the Executive Committee. For 1975 the capitation payement be assessed at $2.50 for each member of the Branch, and in the 1976 year it shall be $2.50 based on a membership as at December 31, 1975. And subject to adjustment by the Executive Committee in March 1976 following an examination of the accounts for the year ended December 31.

**Remit No. 29, Waikato (Lost):** The N.Z. Beekeepers Association requests the Ministry of Agriculture and Fisheries to establish experimental apiaries to scientifically test and prove the honey gathering ability of the various strains of bees as bred by the commercial Queen raisers in N.Z. When the various strains have been tested and have proved their ability as producers, Queens raised from them to be sold to Queen raisers as breeder Queens to the benefit of beekeepers throughout N.Z.

**NOTE:** Beekeepers' honey crops are affected by either their own choice of Queen to breed from, or the Queen chosen by a commercial raiser to supply beekeepers. Little is done by either group to prove their strains honey gathering ability and no attention to drones and their breeding. The only test used by many beekeepers in choosing a Queen to breed from is that she is big, yellow and the bees quiet.

**Remit No. 30, South Western (Carried):** That Conference expresses strong disapproval to Government for the delay in the publication of the booklet "Beekeeping in New Zealand" and urges that steps be taken immediately to have this printed and made available for purchase.

**NOTE:** This is a "hardy annual" but understandably so, in view of the inexcusable delays in printing of this valuable booklet. The latest excuse is the change over to metric measurements which is no longer valid as the necessary conversion figures have been available now for at least twelve months.

**Remit No. 31, South Canterbury (Carried):** That research officers of the Ministry of Agriculture and Fisheries be requested to carry out experiments to ascertain the practicability of using infra-red and microwave for the melting of beeswax and the results of these tests be published in "The N.Z. Beekeeper" as soon as possible.

**Remit No. 32, Southland (Carried):** That the Ministery of Agriculture and Fisheries employ an extra man to be trained as an Apiary Instructor, so that a trained man is available to fill a position which becomes vacant.

**Remit No. 33, Waikato (Carried):** That Conference expresses its concern that the outstanding contribution made by Mr Ivan Forster to the honey producing industry may be placed in jeopardy as a result of his retirement. We therefore ask the Assistant Director of Horticulture to make a statement on the Ministry's plans to carry on the good work achieved by Mr Forster.

**Remit No. 34, Northland (Lost):** That this Conference consider changing the date of Conference to some time in May.

**NOTE:** The present date clashes with the Whangarei Winter Show, and members at the meeting felt they were obliged to devote their time to the Show first. The major Branch promotional work is done at the Show.

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**EXECUTIVE COMMITTEE ELECTED FOR 1975-76**
**From Left: Norman S. Stanton (Editor N.Z. Beekeeper, Ex-officio), Gavin McKenzie, Percy Berry (Vice-President), Tony Clissold, Ivan Dickinson (President), Michael Stuckey, Ray Robinson, Graham Beard (General Secretary, Ex-officio)**

### TONY CLISSOLD

My beekeeping career started in the mid 50's when I worked for the late Mr. George Gumbrell of Geraldine for a drought ridden season, getting no extracting experience.

The next four years I worked for Mr. Fred Bartrum of Pleasant Point.

In 1961 I moved South and spent a year with the Herrons at Greenvale Apiaries. For the last 13 years I have worked and been in partnership with Norman Glass of Glass Bros. Ltd., we now run 1,500 hives and pack our honey for the local markets.

I have been Secretary of the Gore branch of the N.B.A. prior to the amalgamation with the Southland Branch of which I have just finished a two year term as President.

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### RAY ROBINSON

First became interested in beekeeping with the gift of a single super hive and built up to 30 hives as a hobby.

Bought the beekeeping estate of the late T. Mannix by tender 12 years ago. Some of the outfit had not been worked for over 10 years and when tracing apiaries on farms, the only indication of hives was bees flying into blackberries. The truck was used to crush blackberries until a hive appeared and the rest cleared with slashhook. In many cases the hive floorboard and half the super and frames were rotted away. The apiaries were also riddled with BL — hundreds of hives were destroyed, over 60 in home yard alone.

With tremendous backing of wife and the help of Apiary Instructor and a commercial beekeper, eventually got things cleared up and has not had a case of disease for many years.

Would strongly recommend hobbyists thinking of going commercial to work for a commercial beekeeper for at least 2 seasons.

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## SWARM SUBJUGATION

Ancedotes from personal experiences of M. G. Stuckey, Auckland.

It was before the advent of D.D.T. guns and the swarm was 6ft down inside a hollow, sawn off branch of

*(Continued on page 72)*

# The National Beekeepers' Association of N.Z. Inc.

**OFFICE BEARERS 1974/75**

**President:** I. J. Dickinson, Milton.

**Vice-President:** P. Berry, Hastings.

**Executive Committee (representing the North Island):** Messrs M. D. Haines, Kaitaia, M. G. Stuckey, Auckland. **(Representing the South Island):** Messrs D. Penrose, Leeston; G. McKenzie, Waimate.

**General Secretary:** G. A. Beard

**Association's Address & Office:** Level 'Op' Williams Parking Centre, Boulcott Street/Plimmers Lane, Wellington. Phone 41-836, P.O. Box 4048.

## Secretary's Report

The Association continued to represent the interests of beekeepers in a wide sphere of activity. The thirteen constituent Branches remained active and provided a useful channel of communication between the National body and the rank and file beekeepers.

The beekeeping industry enjoyed a record harvest in early 1975 and with market demand remaining firm a better than average out-turn should be achieved.

The revenue available to the Association as a consequence of the passing of regulations establishing a Hive Levy should enable the Association to operate on a more satisfactory basis in future.

**Membership**

The Association's paid membership in the year totalled 551. The distribution of membership by Branches was as under:

Far North, 6; Northland, 26; Auckland, 53; Waikato, 54; Bay of Plenty, 27; Hawkes Bay, 34; Central/Southern Hawkes Bay, 2; South Western, 72; Nelson, 41; West Coast, 27; Canterbury, 78; South Canterbury, 28; North Otago, 22; Otago, 39; Southland, 42.

Now that a Hive Levy is collected there will from May 1, 1975 be two systems of achieving membership of the Association; that is by

(a) Being a payer of the Hive Levy;

(b) Being a direct member with fewer than 50 hives (such beekeepers are not within the scope of the Hive Levy).

These changes in the system of membership qualification will require amendments to be made to the Rules.

The Executive Committee has recommended to the 1975 Annual Meeting that the subscription for members owning fewer than 50 hives be $7.50 per annum — such subscription to include the Associations magazine "Beekeeper". All members achieving membership via the Hives Levy will also receive free of further cost, each issue of "Beekeeper".

Overseas members will be treated on the Under 50 hive basis and pay a $7.50 subscription which will again carry a "Beekeeper" entitlement.

## HONEY PRODUCTION 1972/73 - 74/75

1972/73 5341 tonnes
1973/74 5262 tonnes
1974/75 7322 tonnes (Estimate as at March 31 1975)
(Source: Ministry of Agriculture)

### 1974 Beekeepers' Seminar

The 1974 Seminar was held in Taupo on 13/14/15 August 1974 and the Association is pleased to record its appreciation and thanks to the Superintendent Beekeeping and the Ministry of Agriculture for organising and presenting such an interesting programme.

In all, the Seminar was supported by the attendance of approximately 150 beekeepers from all parts of the country.

### Short Courses in Apiculture

Massey University has shown interest in developing a course for learner and hobby beekeepers and this development could in due time lead to other courses being offered.

### Association Finances

The 1974 financial out-turn showed an excess of expenditure over income of $2903 and it was apparent then that some remedial measures to increase revenue would be essential if the Association was to continue as a national organisation.

The Hives Levy proposal was accordingly supported by the 1974 Conference and Annual Meeting and in due course appropriate Regulations were passed and became operative from 1 April 1975.

The Hive Levy rate of 15 cents per hive has regard to the part year involved — to 31 December 1975 — and it will be for the Association and the Honey Marketing Authority to recommend a Hive Levy rate for 1976. The two bodies will be able to calculate the Levy rate on the basis of the revenue achieved in 1975.

Part of the proceeds of the Levy are payable to the Association so that its financial position should be more secure in future. The Executive Committee has recommended a consolidated membership/"Beekeeper" subscription for non-Hive Levy members of $7.50 per annum.

It is evident that the Executive Committee will need to be given greater authority in deciding the under 50 Hive Levy group subscription now that a Hive Levy applies to the above 50 hive group.

The Secretarial services provided per medium of the arrangement with the Pork Industry Council has worked very well and has allowed a greater proportion of Association business to be handled administratively.

### Honey Price

The negotiations with Government were satisfactorily concluded following joint representation by the Honey Marketing Authority and the Association. It would seem desirable for these negotiations to be initiated and concluded before early December each year so that beekeepers will know in advance of the honey crop just what maximum prices will apply in the next marketing season.

**Association Representation on Outside Organisations**

The General Executive resolved early in the current year that where practicable it would be a preferred policy for current members of the Executive to act on such bodies. In reaching this policy decision it was accepted that there were in some cases good reasons for a non-Executive member to act as the representative of the Association and this will be continued. However it is important that the Executive Committee be in close touch with all policy matters likely to be of concern to the Association's membership.

The Executive is pleased that Mr. J. W. Fraser was available and willing to serve on the Agricultural Chemicals Board and Mr. Fraser keeps in touch with the Executive and the General Secretary.

The thanks of the Association were duly conveyed to Mr. Tom Pearson for his long service.

**Restricted Beekeeping Areas**

The Executive Committee was obliged to give considerable time to the many problems and aspects surrounding the declaration of the Coromandel region as a Restricted Area.

The position was certainly not assisted by the manner in which the question was handled by the Advisory Committee and the Ministry, and it was clearly evident that some changes in procedures were urgently needed.

The Executive has suggested to the Minister of Agriculture that two of its members must be included in the Beekeeper representations on the Advisory Committee, and further, all those who represent the Association or beekeepers at large should be nominated by the Executive Committee.

The nomination of beekeeper members on such an Advisory Committee is not a function of departmental officers nor is it in the view of the Executive Committee desirable that such nominations emanate directly from the annual conference.

The Executive Committee has at all times offered its full co-operation but it feels that the administration of the Advisory Committee as exampled over the past year leaves a great deal to be desired, and a review of its composition is essential to a better working relationship in future.

**Honey Marketing Authority**

It is pleasing to record the excellent co-operation and assistance that has been made available by both Authority members and the General Manager and his staff. The administration of the Hive Levy collection is a matter for the Authority and the Executive has every reason to believe that it will be well administered in the interests of the industry as a whole.

**The Library**

The Association and beekeepers generally are indebted to Mr. C. Dawson for his continued interest and management of the Industry Library Service. The other members of the Library Committee are Messrs Cloake and McKenzie.

**Farm Cadet Scheme**

The Executive had discussions with the Chairman of the Educational and Rural Services Committee of Federated Farmers early in December 1974 and a most useful exchange of views on the scheme as it could apply to the Beekeeping Industry resulted.

The major factors involved were obtaining sufficient commercial beekeepers to maintain a reasonable flow of cadets through the scheme.

There is no doubt that the objectives of the scheme are sound and it is in the interests of beekeepers to offer to take cadets on a continuing basis.

**Honey Grading Regulations**

Following representation to the Ministry on the question it was gratifying to be later advised that no action was to be taken in the matter.

**Executive Meetings**

The Executive met four times in the year — June (prior to Conference), September, December and March. The spacing of the meetings ensured the business of the Association was considered and dealt with within reasonable time.

However it has been decided that a full day meeting should follow on the conclusion of Conference in order that decisions may be acted upon more expeditiously. All Executive meetings have extended over two days.

**Conclusion**

The thanks of the Association are especially due to the Horticulture and Apiculture Division of the Ministry for their co-operation and assistance. The assistance and support of the Branch Secretaries has also enabled the Association's office to handle enquiries and requests with a minimum of delay and this co-operation has been greatly valued.

The work of the General Secretary has been greatly aided by two other staff members, Mr. John Read the Accountant, and Mrs. Norton the clerical/typist: they have both contributed to the smooth working of the office.

The operations of the Association now cover a wide field and reflect the ever growing complexity of modern farming: the aim of the Administration has and will continue to be that of providing the best possible service to all members.

**BALANCE SHEET AS AT 30th APRIL 1975**

| 1974 | | $ | $ |
|---|---|---|---|
| | **ACCUMULATED FUND** | | |
| 2,397 | General Fund at 1/5/74 | | —505 |
| 250 | **Plus** Travel Bursary Funds | 250 | |
| 433 | Library Fund | 433 | |
| 337 | Seminar Fund | 337 | 1,020 |
| 3,417 | Accumulated Fund at 1/5/74 | | 515 |
| | **Plus** Additions to Seminar Fund | 114 | |
| — | Recovery of Expenditure in previous year | 420 | |
| —2,902 | Surplus of Income over Expenditure 1975 | 472 | 1,006 |
| 515 | Total Accumulated Funds | | 1,521 |
| | These are represented by: | | |
| 1,653 | Bank of New South Wales | 2,608 | |
| 297 | P.O.S.B. Timaru | 306 | |
| 743 | Sundry Debtors | 1,235 | |
| 657 | Subscriptions in arrears | 200 | |
| — 735 | Deposit with N.A.C. | 275 | |
| 2,615 | | | 4,624 |

| | | | |
|---|---|---|---|
| 410 | **Less** Sundry Creditors | 232 | |
| — | Hive Levy in Advance | 3,000 | |
| 1,333 | Other Income in Advance | — | |
| 160 | Subscriptions in Advance | 31 | |
| 379 | Provision for Bad Debts | 50 | |
| | | | 3,313 |
| 333 | **Net Current Assets** | | 1,311 |
| | Other Assets are: | | |
| 100 | Library and Blocks | 100 | |
| 82 | Filing Cabinets and Plates | 110 | 210 |
| 515 | | | 1,521 |

## INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30th APRIL, 1975

| 1974 | | $ | $ |
|---|---|---|---|
| | **INCOME** | | |
| 3,304 | Subscriptions | 4,079 | |
| — | Hive Levy (a) | 2,000 | |
| 4,000 | Grant from H.M.A. (b) | 5,333 | |
| 46 | Commission | — | |
| 118 | Interest | 81 | |
| 199 | Journal Income — Advertising | 545 | |
| 1,135 | Subscriptions | 1,066 | |
| 53 | Donations | 191 | |
| | Decrease in Bad Debts Provision | 328 | |
| 8,856 | | | 13,623 |
| | **LESS EXPENSES** | | |
| 4,438 | Administration Fee | 5,394 | |
| 379 | Bad Debts | — | |
| 135 | Audit Fee | 200 | |
| 482 | Conference Expenses — Accommodation | 288 | |
| 114 | Travel | 376 | |
| 136 | Sundry | 373 | |
| 589 | Executive Meetings — Accommodation | 372 | |
| 1,374 | Travel | 1,213 | |
| 114 | Sundry | 2 | |
| 79 | Insurances — Public Liability | 170 | |
| 954 | Journal — Printing | 1,673 | |
| 273 | Editor's Honorarium | 687 | |
| 560 | Sundry | 436 | |
| 494 | Postage and Tolls | 444 | |
| 120 | President's Hororarium | 500 | |
| 980 | Printing and Stationery | 755 | |
| 542 | Travel Expenses — other meetings | 148 | |
| 13 | Sundry | 108 | |
| 9 | Depreciation | 12 | |
| 11,759 | | | 13,151 |
| –2,903 | Net Surplus | | $472 |

(a) This amount represents portion of an advance of $5,000 from the Honey Marketing Authority and is yet to be authorised by the Minister of Agriculture as part of 1975 appropriation from Hive Levy.

(b) Increase from $4000 results from cessation of grant, on introduction of Hive Levy regulations.

# Address to Conference by Mr. Bruce Barclay, Under-Secretary for Lands and Agriculture

Since I spoke to the Association's Annual Conference in Palmerston North last year there has been considerable progress on a number of matters vitally affecting the honey industry. I hope I am right in saying that at the present time the different sectors of the industry are perhaps able to speak with a more united voice than has been the case for many years.

**Levy**

The most important development, of course, has been the replacement of the seals levy by the new hive levy, and the updating of the Honey Marketing Authority Regulations.

The question of the levy has been a topic of discussion and debate at your Conference for many years, with proposals and counter-proposals being put forward by different groups and agreement on a satisfactory levy basis always seeming to be just out of reach.

However the proposal to replace the seals levy by a hive levy was approved by a substantial majority at last year's Conference. I was happy to be able to submit to Government a scheme with widespread industry support which should go a long way towards overcoming the difficulties and divisions caused by the somewhat unequal incidence of the former seals levy.

The new scheme seems to be working well and there has been a good response from beekeepers so far with over $21,000 having been paid in up till the middle of June.

**Payout**

Another matter of vital importance to beekeepers is the payout, and I was pleased to announce this year a payout in accordance with the formula established at the beginning of last year. This involved a guaranteed price two cents per kilogram higher than last year's minimum guaranteed price.

Although market conditions this year are nowhere near as favourable as they were for most of the 1973/4 season the guaranteed payout should ensure that last year's actual payout will be maintained in spite of the present lower prices in our overseas markets.

Coupled with the fact that in most areas this year has produced one of the largest crops on record, beekeepers' returns should have increased significantly over previous years.

I am sure you are all pleased not to be facing the drastically reduced incomes that so many other primary producers are currently suffering as a consequence of the severe downturn in overseas markets over the last year. The fact that you are not suffering a cut in incomes is a direct result of the stabilisation policies instituted by the Authority at the Government's direction. These policies have resulted in the Authority being in a sound financial position and able to weather the present downturn in overseas markets for honey.

I am aware of concern expressed in certain quarters as to the lateness of announcing the payout this year. I would stress again, as I have already pointed out to those concerned, the need for an early decision on the payout, and accordingly the need for representations on the level of the payout to be made as early as possible in the season.

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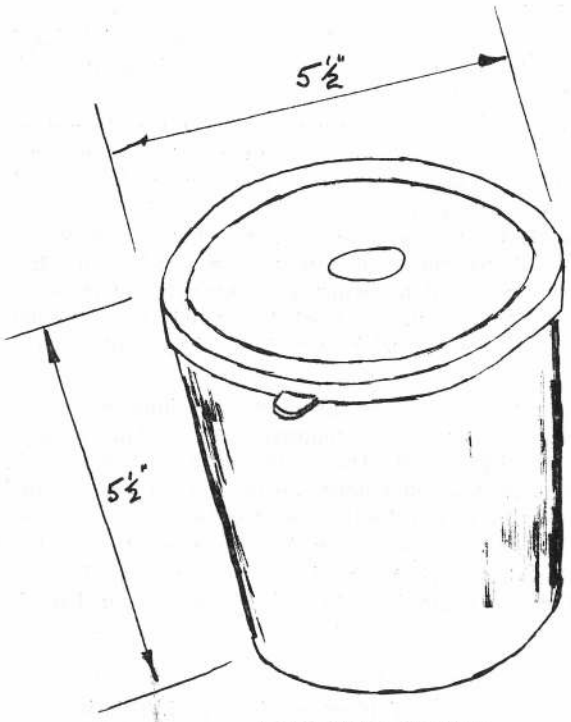


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**Market Conditions**

As I mentioned earlier, the season just ending has produced a record honey crop. Climatic conditions during the season favoured large yields and the total assessed honey crop for the period is a record 7,380 tonnes. This is a 30 per cent increase on the average production of the last six years, and an increase of some 600 tonnes on the previous record crop of 1968/69. The authority has estimated that its total intake will be in the vicinity of 3,000 tons, which is more than twice last season's intake and 30 per cent higher than the previous highest intake in 1970/71. This has imposed a considerable strain on the Authority's resources and in spite of the Authority's high level of reserves at the end of last season, these have all been used up in acquiring this honey, and a substantial overdraft incurred.

It is at times like these that the value of an Authority, set up to act in the interests of all honey producers, is most clearly demonstrated. I am sure no one wants to imagine what the state the domestic honey market would be in with production so high, overseas prices so low, and no Authority to act as a stabilising influence. Domestic sales and demand for honey are good and many retailers are using 'specials' on honey to generate store traffic. However, caution should be exercised to ensure that 'specials' by retailers do not lead to price cutting. The international market is quiet, and still unpredictable. Honey prices are still easing slightly and no significant pattern is emerging yet.

The continuing rise in transport, storage, insurance, and financing costs and balance of payments problems in many countries are making importers cautious and are keeping orders small. The Authority has, however, been able to negotiate significant sales of bulk honey to the U.K., E.E.C. countries, and Japan at good prices and is constantly endeavouring to sell overseas as much honey as possible at the best prices. It is perhaps thanks to the high quality of New Zealand honey that sales have been negotiated at better prices than the average types of honey have been receiving on world markets.

**Beekeeping**

In general, confidence in the honey industry is being maintained. Over the last two years the number of commercial hives has increased. This increase in hive numbers has also been accompanied by an increased labour requirement and use of mechanised equipment. Ten years ago the average beekeeping enterprise was a one-man unit. Today in an average enterprise of 1100 hives, the average labour requirement is nearing two men. The most common arrangement being one full-time labour unit assisted by a seasonal worker or workers.

**Pollination**

The pollination industry is gradually expanding as more orchardists and seed growers realise the benefits of honey bees as pollinators. In the Tauranga Kiwi fruit areas 400 hives were placed in orchards for pollination purposes last season, and it is estimated that 1,000 hives will be required by 1980.

**Restricted Area**

During the past year the Coromandel-Thames area was declared a Restricted Area for production of honey. The factors causing toxic honey produc-

tion in the Coromandel Peninsula and the bordering district are well known. The conditions which favour toxic honey production in any year may commence in that area about mid-December and continue until the March or April following. Thirteen cases of honey poisoning from honey produced in the area were reported in 1973 and 1974. In these circumstances and considering its past history, the Coromandel-Thames area was declared a Restricted Area in terms of the Apiaries Act.

Although beekeeping for production of honey is now prohibited from mid-December to April, bees may be kept in the area under a permit issued by the Ministry of Agriculture and Fisheries for the period May 1 to December 14 each year on the same terms as apply with the Restricted Area in the Bay of Plenty.

**Research**

The apiculture section of the Wallaceville Animal Research Centre has continued to investigate the effects of pesticides on honey bees. The aim is to ensure that bee mortality is prevented without affecting agricultural and horticultural production.

The development of laboratory and small-scale field tests has increased the speed of testing new pesticides, so that now their toxicity to honey bees can be estimated at a very early stage of their evaluation in New Zealand.

The apiculture section continues to investigate the pollination of crops to determine their need for honey bees during the flowering period.

A study of the pollination requirements of blackcurrants commenced last season and similar studies of other crops are planned.

Field experiments to develop more efficient methods of apiary management have continued.

Experiments have been carried out to determine the effect on colonies of feeding sugar dry instead of as a syrup.

A comparative study of the characteristics of three lines of queen bees and their progeny has been undertaken.

# President's Address

The 1974 year in the local beekeeping world will be remembered for four special reasons.

**First,** the introduction of a Hive Levy on all beekeepers owning fifty or more hives.

**Second,** the finances of the Association were secured by this Levy.

**Third,** 1975 honey turnover was substantially above average in some of the the major honey producing areas in the country.

**Fourth,** the industry should be able to maintain the previous year's price level paid to producers.

These factors therefore make it easier for me to report to you this year. This Conference will however need to give support to Executive Committee recommendations in some areas of overall Association operation.

**Broad Industry Policy**

I believe that now that the Association's financial position has been resolved and placed on a satisfactory basis we should not only congratulate those who promoted the principle of a Hive Levy but also the Minister of Agriculture and his Under-Secretary for their interest and support in promulgating the necessary supporting regulations.

Throughout the entire meetings and negotiations the Executive have endeavoured to make these regulations as simple and straightforward so that they can be readily understood by the industry at large. The avenues into which Hive Levy revenue may be directed are clearly set out and provide for those aspects which members of this Association saw as being in the broad interest of the whole industry.

I would like to make it clear to all, that should evidence show that producers are not honouring their obligations under the Regulations I will be the first to make moves to have them revised and strengthened. It is in the interests of all to see that this is not required. Evasion of the levy in any one year can only mean an increase in the levy in the following year.

I believe that this restructuring process should carry with it a strong underlying purpose to unite the different sectional units that have developed within the industry over a long period of time. All have a job to do and that job will be better accomplished if there is mutual understanding and goodwill and co-operation between these different industry bodies can only be of benefit. In the present unstable economic climate prevailing not only in New benefit to all. In the present unstable economic climate prevailing not only in New Zealand but throughout the world, a united industry is a pre-requisite to enable the industry to survive.

Let me say here that we should in our interests look ahead to a much greater degree of co-ordination and consolidation of our industry bodies in the interests of all beekepers. After all we are, whatever our involvement, independent.

The beekeeping industry is too small to continue on a fragmented and divided path so let us at all levels do all we can to come together in our own, our industry's and the national interest: only when we achieve such a singleness of purpose will we all prosper and progress.

**The Association**

Let me now make comments on the changes required in the Association's Rules or structure that must be made to conform to the different financial basis of the organisation. You will see from remits emenating from your Executive that some quite far reaching revision of Rules is essential. Related to this is the relationship of the Association to its branches and the financing of these bodies.

It is clear that the Association will need to settle upon the criteria for funding branches and also that this funding will not allow undue accumulation of what are now industry's monies. What would be the point in increasing

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the levy when branches are accumulating funds or they are not using funds correctly? Branch funds now have a very direct bearing on the level of funds required by the Association from the Hive Levy. There is also the problem of striking a balance between the Hive Levy member and the below 50 hive group members.

The decision to revert back to pre-1973 situation where the "N.Z. Beekeeper" was received by all members without further charge, when the Hive Levy was introduced was to keep the administration costs of the Association as low as possible and simple to operate.

**Cadetship Scheme**

As I have advocated on several occasions before there is a need to build up the numbers of young people entering the industry. To enable any Cadetship Scheme to get under way there is a need to establish a panel of at last six beekeepers who are wiling to accept cadets for training. Should we not receive sufficient names within three months from Conference the Cadetship Scheme will be set aside until such time as there is sufficient interest shown by beekeepers. I look forward to the support of the membership in this important sector of our activities.

**Base Price for Honey**

My report would not be complete if I did not touch upon the question of the Base Price for our honey. In this matter the Authority and the Association work in close collaboration and in February a recommendation was submitted to Government. The upward adjustments suggested were accepted by Government and a new Base Price was declared late in February.

However it would seem to me and my Executive to be advantageous if consultations between the Authority and the Association could take place in say November so that a fully documented case could be presented to the Minister before the holiday season breaks. This would have the advantage of beekeepers knowing the Base Price for the crop immediately prior to the honey flow. Approaches have been made to the Authority for their support in this direction.

In view of the relatively stable overseas prices for honey at a level somewhat lower than last year, this season's Base price will require a degree of support from the Industry Stabilisation Fund. This could well be a year in which the industry could be very grateful that these reserves are available to support the payout of the H.M.A.

I could at this point record my appreciation to Mr Poole for his helpful co-operation in regard to the Base Price consideration.

**Production Costs**

In respect of our costs of production I would recommend to all our members to be prudent in their forward planning in respect of both capital and operational expenditure. The increases recorded over the past year in a number of big beekeepers' inputs such as sugar, petrol, wages, transport, etc., support such an approach. The coming season does not have the bright picture

that was shown this time last year. The increase in the Base Price approved in February has been more than overtaken by the cost increases announced in the Budget recently. I would even suggest that those that had a better crop than average may find that they have not made the gains they thought they would.

**Cost of Production Survey**

Over the past twelve months the executive have been pursuing this matter and a report placed befor it by a Ministry of Agriculture & Fisheries Officer clearly indicates the value of such a survey to the industry for any purpose is extremely limited. The estimated cost for such a survey is estimated at $4,000 which would have to be born by the Association. It appears that there may be more value in a price index which can be compiled by any producer from his own records.

**Association Communication**

Another matter that gave concern to the Executive during the year was the lack of communication between the Restricted Area Committee and the Association. As a consequence the Executive resolved that wherever practical at least one member of Committees on which the Association has representatives shall be a serving member of the Executive. For the Executive Committee of your Association to be quite uninformed on matters of considerable significance to members and their livelihood is no longer acceptable, and it is hoped that no similar situation will arise in future. This is not a matter that is confined to the North Island, there is evidence that indicates that the Marlborough area has the requirements to accommodate the problem.

**Marketing**

Now for a few observations on the future market prospects for our honey. Let me say how gratified I have been to note the excellent manner in which some honeys are being presented to our consumers. Much of the packaging is first class and it should be the aim of all to achieve that level. There are some however that fall very short of the desired honey pack. I have noted that there are a number of remits relating to the promotion of honey. With a good production year and some evidence of a slackening in overseas demand the time could be appropriate for the industry, and I emphasise the word industry, to give greater support to honey promotion on the local market. I cannot see any reason why this should be the sole responsibility of the Authority. Surely it is in the interest of all to promote the sale of honey, and no matter how small the promotion it can have the same effect on the whole as the honey bee has with her one load from the flower to the ton of honey produced.

**Licencing of Packers**

In this sphere the time could be at hand when we should look seriously at a system of licencing those honey packing plants that supply honey to normal trade outlets. I put this suggestion to you having in mind the effect that a small packer can have on the local market by opting in or out as he sees fit

or his honey crop lets him. This moving in or out of the market has a serious effect on the well established packers in all three aspects, Quality, Quantity and most important of all, Price. Such a system I should insist on, should leave the individual beekeeper to sell to the public direct from the Apiary door, but more importantly to bring a more co-ordinated and orderly approach to honey marketing in general.

**Conclusion**

Throughout the year I have been greatly assisted by my Executive and the Executive Officer Mr Graham Beard and his staff. My sincere thanks for their support and co-operation in a busy year.

I would like to conclude my remarks by saying that the industry has in the last year taken the big step towards maturity. There is scope and opportunity for development for those with the enterprise to capitalise on these opportunities. The industry has a wonderful range of high quality honeys to offer a receptive market. The organisations that work in your interest must accept the collective responsibility on your behalf to make the most of those opportunities and above all let us be proud to belong to an industry that makes such a worthwhile contribution to our nation.

Individually, or as a separate section of the industry, we can turn away from a problem facing us, saying, that it is not our concern, but a matter for another section or individual to solve. This industry just cannot afford to do this. As an industry, we have got to get it all together and work together. Let's all look to the positive and above all be positive, keeping in mind that it is one thing to make ourselves aware of what the problems are, it is more important that once we understand them we all face them fairly and squarely and begin the attack on the solutions; and I am sure we will find the solutions are there.

---

*Report presented to 1975 Timaru Conference*

# Ministry of Agriculture and Fisheries Apiculture Section

**Inspection of Apiaries**

Check inspection of apiaries for bee disease by Apiary Instructors was continued with assistance from competent beekeepers acting as Temporary Apiary Inspectors.

The overall incidence of diseased apiaries and hives found by Inspectors and notified by beekeepers in the 1974-75 season was 2.68 per cent and 0.42 per cent respectively. The total number of diseased hives burnt was 868.

This incidence indicates satisfactory control is being maintained by most beekeepers. The annual percentage of apiaries and hives with disease over the last five years has averaged 2.8 per cent and 0.42 per cent respectively

**Honey Production**

Honey production for the 1974-75 season was an estimated 7400 tonnes which is approximately 550 tonnes more than the previous record crop in the

1968-69 season, and about 1700 tonnes more than the average production of the past six years.

Above average crops were produced in all districts, except in Northland and Auckland where the crops were about average to below average.

**Honey Grading**

The total of bulk extracted honey submitted for export grading as at August 1974 totalled 1456 tonnes. Of this 1372 tonnes were graded as suitable for export.

The total of comb honey graded for export was 169 tonnes, and 11 tonnes of extracted honey in retail, containers shipped by producer-packers were graded. The decline in comb honey exports is attributed to unfavourable climatic factors in northern districts during the summer of 1973/74.

An improvement in overall quality was evident. The dry summer of 1973/74 was a contributing factor in reducing the amount of low specific gravity honeys produced.

Honey which failed to comply with the standards for export were rejected for the following reasons:—

| | |
|---|---|
| Fermentation and low specific gravity | 36 tonnes |
| Containers damaged, rusty or having previously contained substances other than honey | 28 tonnes |
| Condition faults — unstrained, burnt, foreign taints | 14 tonnes |
| Colour — too dark | 1 tonne |
| Flavour — too strong (Objectionable) | 2 tonnes |
| Tainted with honey dew | 3 tonnes |
| Total rejected for export | 84 tonnes |

**Restricted Areas for Honey Production**

Eighteen (18) permits were issued to 18 beekeepers to establish 3375 hives in the Restricted Areas for early brood rearing and for production of honey. All hives were removed from the restricted areas by due date in accordance with the conditions of the permit.

Eleven test apiaries are maintained within the restricted areas. Seven of these are located in Coromandel Peninsula areas and four in the Eastern Bay of Plenty. Honey samples were taken from these apiaries each month during

mid-summer and forwarded to the Wallaceville Animal Research Centre for toxicity testing.

**Exports of Queen Bees**

The development of the export market to Canada for queen bees has experienced some difficulties and loss of interest is being shown by some beekeepers in supplying this market. On present indications there could be a growing demand in Canada and other overseas countries for New Zealand queens.

During the year export shipments of queen bees were sent to Canada, United Kingdom, Australia, Indonesia, New Hebrides and Papua New Guinea.

## ADVISORY WORK

**Publications**

Apiary Section staff have continued to submit articles for publication in "The New Zealand Beekeeper". These have included articles on metrication, the North Island 1974 Beekeeper Seminar, the Gore Seminar, sugar feeding and pollen substitutes. Articles on other aspects of apiculture have been published in "The N.Z. Journal of Agriculture" newspapers and other publications.

**1974 Beekeepers Seminar — Taupo**

This three-day seminar and field day was held at Taupo, 13-15 August 1974. The theme of the seminar was "Honey: its production, processing, packaging and promotion". Over 160 persons attended, listened to the 27 prepared papers, and visited two leading honey-houses in the Taupo district. A 138 page "Proceedings of the 1974 Beekeepers' Seminar" was prepared and distributed to participants, N.B.A. Branches and major libraries.

**Course on "Queen Bee Production"**

This course was limited to 16 beekeepers and was held at the Ministry's Flock House, Manawatu training farm during January 20-24, 1975. Most aspects of queen rearing, breeding, programming economics and marketing were discussed in detail.

**N.B.A. Meetings and Field Days**

Apiary Section staff aave attended and participated at a number of meetings and field-days during the past year.

## INVESTIGATIONAL AND TRIAL WORK

**Metrication of Beekeeping Equipment**

In 1974 the Ministry presented to the industry at two sector meetings its proposals for standard metric hive measurements. Following discussions certain measurements were adopted as the New Zealand standard. These have since been published (November 1974 N.Z. Beekeeper). The metric dimensions improve the bee spacing within the hive and will result in equipment that is fully interchangeable with imperial equipment. The timber industry has converted to metric timber sizes this year and beekeepers are urged to follow suit.

**Nosema Disease Survey**

A random survey, involving the taking of 283 samples from commercial apiaries throughout New Zealand was conducted during the months of October and November 1973. The samples were analysed for *Nosema Apis* spores and preliminary results were presented at the 1974 Beekeepers' Seminar. In the season of testing New Zealand had a light medium level of infection, with 89

percent of the samples exhibiting *Nosema* spores. A final report is in preparation.

**Queen Bee Production Survey**

This survey was conducted in the North Island amongst commercial category beekeepers during 1974. One aspect of the survey showed that the majority of beekeepers re-queened at an average rate of once in four years, although most beekeepers preferred to re-queen at least once every two years. This low rate of queen replacement is of concern to the Ministry and highlights an industry problem. A report on this survey is in preparation.

**New Nectar Sources**

Small scale trials with new nectar sources were carried out in the South Island. A small sample of buckwheat seed sown at Seddon did very well and produced seed for an increased area of planting. The small pinkish/white flowers were very attractive to bees although they only seemed to work the crop early in the morning. The buckwheat stood up to the severe dry conditions very well.

A small area of sweet clover also grown at Seddon did well and produced a good set. However, little was harvested as the dry conditions made the plant stems very brittle. Consequently the seed was shaken off by the wind and the action of the header.

One hundred *Robinia pseudacacia* trees were planted at Weedons and observations on their growth rates and eventual nectar secretion abilities will be made. A further 600 are to be planted. Hare damage and droughts during the past summer retarded growth somewhat. *Robinia* is being advocated as a multi-purpose shelter tree.

**Requeening Without Dequeening Using Protected Queen Cells**

Protected queen cells were introduced into 96 hives in the spring of 1973. Sixty percent were successfully requeened. This compares with 41% success for the previous season although different apiaries were used. It was much easier to replace two year old queens than one year old. The success rate for the two year old queens was 74%. A further 85 cells were put out in the spring of 1974 and the results will be evaluated and published.

**Viscous Honey**

Extracting viscous honey (13-16.5% moisture) in Southland presents many handling problems. Steam was injected into the extractors in several honey houses with beneficial results. The relative humidity was also increased in hot rooms. A lack of honey refractometers is apparent. A humidifier with a humidistat has been built and appears to be working satisfactorily. Discussion groups were held to help beekeepers overcome the problems of low viscosity honey.

**Agricultural Chemicals**

Applications to spray flowering oil seed rape crops for aphid control prompted a field trial. Dichlorvos was applied by air to 22 acres of flowering rape in the evening when no bees were flying. White clover crops treated in this way are safe for bees to work the next morning.

This trial showed, however, that when dichlorvos is similarly applied to flowering oil-seed rape, bees working the crop are killed for the whole of the following day.

# Wallaceville Animal Research Section

Mr. T. Palmer-Jones retired in April. The staff of the Section now consists of Messrs. P. G. Clinch, Scientist (Section Leader), I. W. Forester, Senior Technical Officer, and J. Faulke, Technician.

**Export of Queen Bees**

The Apiculture Section examined for **Nosema** 26 sample of bees from hives selected by queen breeders to supply escorts for queen bees for export. Escorts may be taken only from hives unaffected with the disease. Although this year the incidence of **Nosema** was similar to previous ones, in adverse seasons, particularly in the spring, it may be difficult to find unaffected hives. The preventive feeding of fumagillin to colonies chosen to supply escorts is therefore strongly recommended.

In future **Nosema** examination of sample from colonies to supply escorts for export queens will be undertaken by the Levin Plant Health and Diagnostic Station of the Advisory Services Division, Ministry of Agriculture & Fisheries. Earlier this year staff from that laboratory were trained to use the techniques developed by the Apiculture Section at Wallaceville. Levin will only examine export samples. All other examinations, including **Nosema,** paralysis and pesticide tests to determine the cause of abnormal bee mortality, will continue to be carried out at Wallaceville.

**Project WA/1 Agricultural Chemicals**

No large-scale field trial to determine the effect of agricultural chemicals on honey bees was carried out this year. Laboratory tests with new compounds have continued.

For a number of years it has been possible to carry out small-scale field tests using cages at Wallaceville. Until now these have been confined to white clover. However, apple trees and raspberry canes planted two years ago have now grown sufficiently to be used in these tests.

**Project WA/2 Pollination**
**Chinese gooseberries (Actinidia chinensis Planch) Variety Hayward.**

Following an initial study of Chinese gooseberry pollination at Te Puna, near Tauranga, in the 1973-74 season, further observations were made both there and at Te Puke during the 1974-75 season.

Observations were made during the flowering period of vines in six plantations. Honey bees visited male and female flowers only for pollen. Nectar secretion was not observed in male or female flowers of the Hayward variety. Results confirm that honey bees provide virtually all pollination.

When honey bees were prevented from visiting flowers, the weight of fruit formed was significantly less than that from flowers exposed to bee visitation.

The effect of increasing the density of honey bees was observed by using two large cages. Each cage enclosed a male and a female vine, with a colony of bees during the flowering period. The weight of fruit formed in the cages

*Continued on page 41*

# STOP PRESS

## South Island Storm

The last day of July was the day of the 'big blow' for much of the Eastern side of the South Island. Winds up to 100 miles per hour did cause some damage both direct and indirect to Beekeepers' equipment and property.

In some places access was blocked by fallen trees, in others lids and other hive parts either disappeared completely or were blown to pieces.

Many beekeepers have been reassessing their insurance cover to make sure that they are protected under the Government Earthquake, War Damage and Disaster Scheme.

While there has been a considerable number of man-hours required to inspect all apiaries and clean up the mess, that this disaster came at a relatively quiet time in the Beekeepers' calendar has given cause for sighs of relief.

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## Bangladesh Beekeeping Project

An item on Radio New Zealand has just announced that our Vice-President, Mr Percy Berry, is to visit Bangladesh shortly to investigate the possibilty of establishing a Beekeeping industry in Bangladesh.

It is felt that even a modest effort of this kind on a village basis could give supplementary nutrition for the sadly unbalanced food crops of that country.

We will await with interest further details of this project.

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## Devaluation

The devaluation of the N.Z. dollar on August 10 will help N.Z. honey producers as well as other primary producers to be more competitive on world markets.

It is an unfortunate by-product of this currency manipulation that prices of imported goods will rise and some internal inflationary pressure is thereby inevitable.

Fortunately, the Government has already announced a reduction in petrol taxes to avoid the price increases which would have resulted.

# Notes for Beginners

## AND OTHERS

### By CHRIS DAWSON

### AUCKLAND BEEKEEPERS' CLUB
INCORPORATED

President: W. B. Metcalf, Phone 698-184.

Secretary: R. C. J. Sanderson, P.O. Box 3672 Auckland, Phone 559-615.

CLUB NEWSLETTER AND CALENDAR 1975-76

Your club has a new look and much for you to improve your beekeeping in the coming season.

There was a 100% acceptance of queens at the apiary and the hives are in good shape. Are yours!

The Cook Island project is on the move with the colonies all set on two sites out of town. Many thanks to donors and helpers.

Your subscriptions are now due and still only $1.00.

Your President welcomes any enquiries from any member.

Tom Dixon is the club's Hive Master—Phone 767-654. Tom has also volunteered to be the club's adviser. Please check with him for advice before buying any hives or gear. Beginners this is a must for your own benefit.

Chris. Powell is to be the club's own equipment master and will show you how to make up your equipment properly. Remember too, Chris has new hive equipment for sale — Phone 27-67-624.

Ladies here's your chance to prove women's lib. —

### SELECTING SITE FOR APIARY

As the task of your bees is to collect nectar, the proximity of nectar sources is important. If it is possible to site the hives so that there is more than one source of nectar you have a better chance of obtaining a crop. The ideal situation has a nectar flow during much of the year plus one or two peak periods when the harvest is gathered.

Protection from wind is needed, specially in some parts of our country. This protection needs to provide shelter all the way to the ground. At the same time, the protection should shade the hives as little as possible. In spring, a belt of trees with long dry shrubs at ground level can hardly be bettered. Branches of trees that can swing low and knock hives over during gusts of wind can do much damage.

Work space around the hives is essential. There must be room to place the lid on the ground and then place supers on top. You might say that it is so obvious that it should not be mentioned. When on inspection duties I used to become angry with one beekeeper whose hives were in a row between a hedge and a barbed wire fence. I found the only way to work safely was to take several sacks and hang them over the fence. Another beekeeper had his hives among apple trees and my veil was always becoming entangled in low growing branches.

One point the commercial beekeepers always look at before placing an apiary is its accessibility during all weathers. It is not always possible to avoid the

occasional heavy flood or gale but due allowance should be made for these.

Protection from animals and interfering humans must be provided for. Young cattle can wreck a bee yard in an afternoon and there are some humans who prefer to collect their honey at the cost of only a sting or two. Protection for humans is also a must especially if the apiary is in a closely inhabited area. Bees and housewives have a common desire straight after a period of rain. The housewives rush through their washing that has accumulated during the wet days and the bees rush out to rid themselves of their excreta that has accumulated during the same period. Spots of excreta on the neighbours' white washing can hardly be paid for by gifts of pots of honey.

If an eight foot fence stretches along at the back of the hive, and there are shrubs or a fence along the other sides, outgoing and homecoming bees must fly high enough to be above these obstacles and they are also high enough to pass over the heads of passers by.

In placing the hives, it is advisable not to place them in a row. If you have two or three, it does not matter as the hives themselves are their own landmarks but if you have a row of hives, there is always drifting. The heavily laden bee, tired and not as keen on getting home to its family as it is to get rid of its load calls in at the first hive and receives a warm welcome. A bee loaded with nectar is never turned away by guard bees.

The problem of the long row is overcome by the use of landmarks and colour. If you have read the books by Von Frisch you will know that the outgoing bee watches for landmarks and charts its course by them. The home-

two volunteers are wanted to care for and demonstrate starting from nucleus strength. You will get all the help you need. This will be in September.

Tom Dixon will be showing how to produce sections on one hive this season. To those of you who plan producing sections this is a great chance to learn.

Reg. Sanderson will show you how to handle a two queen hive. This is for those of you who want to advance your skills on your honey production.

It is planned to give you a talk on how to handle your honey crop also.

There are ideas afoot to improve the club's honey show. Please plan to put in entries, and don't forget to use the standard jars. Save the jars you were given this year.

Instead of our usual "make and mend" day, a field day in August will be held and called "Workshop" and under the control of Chris Powell as mentioned earlier. Theme is assembling all hive equipment, and discussions. Roll up.

Here are the dates of field days at the Club's Apiary; Motions Road, Pasadena; across the road from the Western entrance of the Zoo. 1975: August 23rd, September 20th, October 11th, November 1st, November 22nd, December 6th.

1976: February 14th, Extraction Day, March 13th, Requeening, April 10th, Honey show and annual meeting.

Please remember any cancellations will be broadcast on the 1ZB service and the meeting held the folling Saturday.

## WELLINGTON BEEKEEPERS' ASSOCIATION

**President:** Mr J. Gyton, Cluny Road Plimmerton. Phone 338-123.
**Secretary:** Mr J. Pearce, 39 Motueka Street, Ngaio 4. Ph. 797-706.

Some extractions from a recent Club Newsletter:

Our old mate Mr Penfold is unfortunately going out of beekeeping and has bees and gear for sale. He can be contacted at 872-089, ext. 80 or at home on 887-378. All prices to be negotiated. I will be sorry to see him go as he started up about the same time as I did. I hope he will endow us with his cheery outlook at the occasional meeting.

The Secretary has written to several other Clubs to try and enlist their aid in making the Govt. Dept. bring out the long awaited for 'N.Z. BEEKEEPER'. As most of you also want this very concise and informative publication I suggest you put pen to paper and write to the various Government Departments.

It is assumed that by now you would have finished your extraction and be preparing your hives for wintering down. Go through your gear and if you have any broken or cracked frames and damaged supers, ditch them. They make excellent firing and if you retain them they are more trouble than they are worth. The President would like to see a general upgrading of some of our hives. He claimse the ventilation holes in some of my supers are rotten wood, and definitely not designed for the general comfort of the wintering colony.

coming bee also uses these until it is within a short distance of its hive when it uses the sense of smell. You will also know that bees are sensitive to and can differentiate between most colours but not red. Hives that are painted all shades of blue, yellow, white, grey and splashes of black will maintain their own population if the hives must be placed in a row. Posts, shrubs, trees and buildings are also used for landmarks.

### OBTAINING YOUR BEES

It is always possible to secure bees by purchase of existing colonies. If you have not yet located any for sale, there are several courses open to you. Write to the secretary of the nearest Branch of the National Beekeepers' Association. He can advise the address of bee breeders.

### A SLOW START

You could purchase 500 gr of bees, introduce a queen and slowly progress to a honey producing colony in two years. This is the cheapest and longest way. You could also buy a healthy hive of bees and by lack of skill, have it die out when there is no nectar flow, but success will be yours if you study the learners' books and carefully observe your bees.

There are five alternatives open to you:—

**1. Buy a nucleus colony ("nuc" for short).**

A nuc consists of 4 to 6 frames of bees, brood, stores and a queen. A young queen is preferable and it is wise to put her in a cage while you shift the nuc to its new site. She can be released as soon as the bees have settled down. Nucleus colonies are available from bee breeders in various parts of the country.

They can be sent long distances by rail, boat or air because a nuc will not

deteriorate in colony morale if it is correctly packed with adequate ventilation and allowed to travel in reasonably fresh air conditions.

**2. Package Bees with Queen.**

These are available from bee breeders in various strengths. Provided you keep them fed until the nectar flow starts, you could have honey producing colonies the first season. Feed on syrup of three parts sugar to two parts of water. After you receive your package bees, shake them into your newly assembled single storey hive or the site where the hive is going to stay.

There will be quite a number of bees flying around and some that do not go into the super but if you leave the package bee cage and anything else with bees adhering beside the hive with the tops of the frames uncovered, the bees that have found the new home will start fanning their scent and all the loose bees will follow the scent to their new home. This takes about half an hour. When the colony has settled down and not until then, the colony should be fed sugar sprup from a tin with a few holes in the press-in lid. This tin is placed over the bees in an empty super and snugged in so that no robber bees can sneak in through cracks between the supers or under the lid.

**3. Collect a swarm.**

Although it might appear to be the least expensive way of starting into beekeeping, it could eventually be the most expensive. If the swarm brings disease into your apiary, your loss could be total. There is only one way to cope with the bee disease of Bacillus Larvae (known as B.L.) and that is total destruction of hive and bees by fire.

If you collect a swarm that has this disease, it could quite soon be transmitted to every hive you own and also

The general recommendation for wintering your hives down is two supers high, this however is an oft argued point as some very successful keepers maintain that three high, the top super being completely full of capped honey, is the caper. All good spare supers should be stacked clear of the ground, and a rain-proof cover fitted to keep them dry.

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## CANTERBURY

Secretary: Les Claridge, 375 Centaurur Rd., Christchurch

The Canterbury Domestic (or Hobbyist) Group have their meetings this season at season at the Club Apiary, on Mr Van Asch's property, Hoon Hay Valley.

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**Honey Nutty Munches**

Four ounces butter, 6 tablespoon honey, 1 egg yolk, 8 oz. flour, 1 tablespoon mixed spice, 2 teaspoons baking powder, 4 oz. chopped nuts.

Cream together butter and honey, add well beaten egg yolk. Fold in nuts. Add sifted dry ingredient and stir in lightly. Roll into a long sausage shape about 3 inches in diameter. Cut with well floured knife in half-inch slices. Place on a greased tray and bake in a slow oven 25 to 30 minutes. Allow to cool on tray.

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**NEW ZEALAND HONEY**

**$1.80 per pound**

Chris Dawson bought a one pound jar of New Zealand honey in Port Moresby for $1.80. It had been packed in England. By comparison Australian honey sells at up to $1.00 per pound and local honey somewhat lower.

### SUGAR PRICES

A report in the May 1975 issue of the American Bee Journal states that . . . "sugar prices have come down considerably from their high of 65 cents and 1976 futures put the price at 18 cents or below". (18c U.S. = 12c N.Z. at today's exchange rate.)

* *

According to a report circulating some French beekeepers have condemned the use of the centrifugal honey extractor because they maintain that during the extracting operation it introduces undesirable micro-organisms and other things into honey. On the other hand nobody has yet shown that centrifuged honey has killed anybody, or even made them ill.

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### KEEPING BEES FOR A LIVING

Quoted from "The Joys of Beekeeping" by Richard Taylor.

Can one make a living keeping bees? The question has always intrigued me. More than once I have been tempted to forsake everything else to prove it in the affirmative. Perhaps I shall yet. What I have done is to compromise, by neglecting my other gainful pursuits while not entirely repudiating them, for actually I love those pursuits too. It is not a perfect solution, but few things are. The bees have seldom been far from the centre of my interests and, as I get older, they become more central.

But **can** one actually make a living keeping bees? Many have done it, many do it now, but the answer is not really as simple as those facts suggest. It depends on what one means by a living, what kind to your neighbour's hives within a mile or more radius.

Human nature being what it is, you probably find it difficult to bypass a bargain. A swarm of bees is as a gift from the gods and you will banish my advice to the back of your mind when you receive the news that a swarm is available for the trouble of collecting.

After you have paid the price of your folly, and have discovered the disease, contact the Apiary Instructor of your district. He always appreciates the honest beekeeper who comes to him with his problems — and this is a big one. He will not be angry with you but you will find him most helpful.

The law requires that you notify the Apiary Instructor of the disease immediately. You are not only doing yourself a good turn but also all the beekeepers around you. If you hear of a swarm, advise an experienced beekeeper. He will deal with it possibly to your advantage.

**4. Buy an established Colony.**

This is the safest way to get started and worth waiting for. Your friend, the beekeeper, will give you much useful advice and be available to consult in the future. He will save you money. When you are arranging the deal, be sure it is clearly understood what you are buying. For each hive you need a bottom board, one storey of about nine frames and as much bees, brood, pollen and honey as is agreed on. On top you need a hive mat and a lid.

If, at the right time of the year, you secure a hive that is two storeys high, bubbling over with bees, has a good queen and several frames of stores, you could make some mistakes in colony management and still secure a honey harvest in the first year.

**5. Remove established colonies from buildings trees, etc.**

This is a safe way to obtain bees because you can check for the presence of disease. When you have some experience of bees this method will be easy. The subject will be discussed in a later edition of these Notes.

## AND NOW!

You have carefully selected the apiary site. You have correctly assembled the hive equipment. You have installed your bees.

Now there has just dawned over the horizon of your life a new era. As your friendship grows for your fascinating servants, this new era will be full of many pleasures. You will find yourself rushing home from school or from work, dashing out from the housework just to check on how your friends are getting on. You have joined the world fraternity of potential beemistresses and beemasters. There is no need to be shy about your enthusiasm — it is infectious.

You will be anxious to look into your hives as often as you can. A week after your hives have been placed in their new locality, you can look through as often as you like provided you handle the frames with smooth non-jerking movements. Your bees will become used to you and in quite a short time you will be discarding some protective clothing.

## COLONY MANAGEMENT

You will be aiming to secure a crop of honey the first year. To do this you must start the nectar flow with colonies strong in bees.

At a later date, this subject will be dealt with in detail. In the meantime, make sure your hive always has plenty of food and if the nectar flow is on make sure there is comb that the bees can work on.

of person one is and, above all, how good a beekeeper one is. In my own thinking on this question I have decided that the ancient rule of the good life — "neither too much nor too little" — applies rather well here. Many of the rewards of beekeeping are intangible, and they are easily lost if one is dedicated single-mindedly to gain.

* *

Not everyone can be a beekeeper. The tiny but pesky sting will always keep the membership in this strange class to a proper number. But for one who can see beyond this, it is, indeed, an enviable life, opening one's eyes not only to nature, to philosophy, to that life of the spirit that is basic to religion, but also to the warmth and idealism that dwells in so many of the human beings who are brought within ones association.

* *

Sometimes serious questions are no easier to answer. I do not know what to say, for example, in response to the question of whether my honey is "organic." Any answer that does not include a disquisition on the foraging behaviour of bees is almost certain to mislead. The same is true with respect to the question of whether my honey has been "cooked." If I restore granulated honey to liquid by warming it, do I thereby cook it? The question arises from the practice of some honey-packing companies of adding the word "uncooked" to their labels — which makes as much sense as describing bananas as "boneless"

A beekeeper friend of mine was once asked how often a bee dies. This was evidently a way of asking how long a

bee lives, which is a perfectly good question. But upon hearing this question, my friend was so seized by giggles that he had to withdraw and pull himself together before emerging to reply: "Just once!" It is seldom that I collect a swarm without having some bystander ask how many bees are in it. I generally produce an arbitrary answer to this — something like "seventeen thousand three hundred and sixty-two." Strangely enough, I have never been asked how I know. One of the more memorable questions I've been asked came from a lady who had for years been putting up with a nest of honeybees in the siding of her house. Her question was whether she might be able to rid herself of them by putting a dish of honey out in the yard and then, when all the bees were out drinking honey, plugging their entrance behind them. Perhaps one needs to be a beekeeper to appreciate this naivete.

It remained, however, for my sister-in-law to ask the greatest bee question of all time. She asked me (I swear), "How much do you make on your honey business, **per bee?"** Now I suppose I could take an estimated average population of a hive, multiply this figure by the number of colonies I have, divide this into my net profit for a year (or would it be the other way around?) and get some sort of figure having maybe fifteen or twenty zeros following the decimal point. But I do not think I ever will. I somehow feel that my life was made richer by my having received such a question, reminding me that the ways of men are sometimes, like those of God, wondrous indeed.

## ANSWERS TO CORRESPONDENTS

Questions sent in for May issue are answered on page 40 of this issue.

## MORE MY MISTAKES

The owner of several hives had allowed them to become delapidated and wild. He asked if I would rehouse and requeen the hives. This normally is not a difficult task. I parked my car about 20 yards away with my wife enjoying the sunny day, the country scene and the balmy breeze. I dressed in my usual overalls, veil, etc., and approached the task.

As soon as I touched the first hive the bees streamed forth and then My Mistakes showed. My wife quickly closed out the balmy breezes but I could not close up the gaps in my supposedly beeproof clothing. Soon I was in trouble. The car doors could not be opened to let me in and it was a long way to the nearest shelter. My wife covered her lower anatomy with one rug and her upper storey with another. I crept into the car with many bees doing their worst and then drove over the brow of the hill where we de-beed. My arms had countless stings and that night I went to bed with a headache and a firm resolve not to repeat that mistake.

## TITLES TO PICTURES

Part of the titles to the illustrations in the May issue were incorrect. Would you please alter them to read as follows:

**To left: Migratory Hive.** 21½" bottom board with entrance. Lid overhangs back and front but flush at sides.

**Middle left: Storey being assembled.** Held in position by cramp. Seven nails on angle at each corner.

**Bottom left: Stationary Hives.** Left: rails 4" x 2", floor 22" with ⅜" entrance, telescopic lid with 2½" rim; right: rails 4" x 2", floor 24" with ¾" entrance, telescopic lid with 4" rim.

**Bottom right:** Upper — **Four Sides of a Storey.** Middle, Bottom Board with 3 x 2 rails, 22" floorboard and ⅝" rim. Lower, Telescopic lid with 2" rim.

# QUESTIONS AND ANSWERS

COMPILED BY CHRIS DAWSON, TIMARU.

**Q.—How much stores should be left on a hive for the winter?**

A.—The amount varies according to locality. Until experience has shown what is needed, it is wise to leave plenty. A full storey of honey with a little pollen is a safe minimum. Some beekeepers say a full frame of honey is needed for every frame of bees at wintering down. If too much is left, it will be there to be collected at next honey harvest, but if too little is left it is possible that there will be a hive of dead bees to collect the next season's crop.

**Q.—"I would like to learn Queen Rearing with the aim of eventually becoming a Commercial Queen Breeder".**

A.—Your ambition is highly commendable. Any person with this aim will receive enthusiastic support of beekeepers. It will take a few years to learn the techniques and acquire equipment. These are factors that are important:

1. Locality. — The Queen Rearing Station needs to be in a locality where it is surrounded by good Italian bees.

2. Nectar flows. — Where the nectar flow starts early in the spring and is long and steady, the raising of Queens is likely to be more profitable.

3. Strong winds and changeable weather are a deterrent to Queen Mating.

4. The Breeder needs to be a typical farmer — able to take and overcome discouragements. An attempt was made in 1966 to form a Queen Breeding Co-operative. Perhaps you are the man for this.

**Q.—"Wellingtonian" has a strong colony which he wishes to divide and make into two colonies and introduce two young queens.**

A.—You have two young queens and an old queen. When you find the old queen place her with a frame of brood and two frames of stores in a nuc. Make sure she has sufficient bees to head a reasonably strong nuc which should be placed about 20 feet away from the old hive site.

Now divide equally the brood, stores and bees into two colonies and be sure they have ample stores. Reduce entrances to two inches or less. These two colonies should be placed at an equal distance on each side of the site of the old hive about three foot (36") apart. If there is no nectar flow or only a light flow, feed sugar syrup until the next day when you can introduce the young queens in cages.

After a week, check if the young queens have been accepted and the state of the colonies. If they are prospering and the queens laying, you can take the nuc with the old queen, kill the queen and use the nuc to build up the weaker of the two



*(Continued on page 72)*

was not significantly greater than that in the surrounding plantation.

Adequate pollination is difficult to obtain, and to ensure that it is satisfactory we recommend that hives be placed in orchards at the rate of 8 per hectare.

**Black Currants (Ribes nigrum L.) Variety Magnus**

Until recently the size of black currant plantations was kept small because much hand labour was necessary to harvest the crop. However, now that mechanical harvesters are available it is economic to plant larger areas.

The pollination requirements of black currant crops had not previously been investigated in New Zealand. Because it has not been shown that honey bees are essential for pollination, some growers do not bring hives into their plantations during the flowering period. An increase in the size of plantations might therefore lead to a lack of sufficient bees and a possible reduction in crop.

Observations are being carried out on the variety Magnus which is particularly suitable for machine harvesting. Several crops are being studied in the Levin district. In the spring of 1974 branches of bushes in one plantation were covered with sleeves to prevent pollination of the flowers by honey bees. Flowers in the sleeves set significantly less fruit than those that were were not sleeved.

**Project WA/3 Toxic Honey**

This permanent project continues. Further testing of samples from experimental hives has been carried out.

**Project WA/57 Comparison of three lines of honey bees.**

The characteristics shown by three lines of honey bees were studied over two seasons.

Honey production varied little between three lines of honey bees. Sacbrood was significantly lower in one line in one season. There was a marked line difference in the propensity to sting, and a significant association between colour and tendency to swarm.

In selecting breeding stock it appears that beekeepers should choose queens whose progeny are evenly marked and light coloured. This should favour a reduction in both swarming and propensity to sting.

**Project WA/80 Effect on Bees of External Acarine Mites**

This project is proceeding. The section of it concerned with the seasonal incidence of external acarine mites has been completed and is being prepared for publication.

**Project WA/81 Diagnosis of Paralysis and its Effect on Honey Bees**

The method developed to detect paralysis is being used to help diagnose cases of abnormal bee mortality. The installation of an electron microscope at Wallaceville has allowed further study of the virus associated with the disease.

**Project WA/99 Design of an Efficient Hive Entrance**

**Project WA/115 Comparison Between the Performance of Bee Hives Fed Sugar as a Syrup and Dry**

Both these projects are almost completed. Data are being analysed prior to publication.

# N.Z. Honey Marketing Authority

By R. F. Poole Chairman H.M.A.

I am pleased to again be given the opportunity to address your Annual Conference to give an account of the Honey Marketing Authority's operations over the last twelve months. You will have already read the Authority's Twenty-first Annual Report and Statement of Accounts published in the May issue of the "N.Z. Beekeeper". These Accounts cover the year ended 31/8/74 and show that the intake of honey by the Authority was 1456 tonnes which is a marked drop from the 2122 tonnes of the previous year and well down on the 2047 tonnes averaged over the previous five years.

The payout had been set by the Minister of Agriculture and Fisheries at 52c per kg. minimum and 55c per kg. maximum both figures being the average over all grades of honey. Due to satisfactory trading results the maximum allowed payout was made which resulted in honey grading 100 points receiving 56.62c per kg. At the same time, many producers received early delivery and premium colour bonuses and freight allowance. After making this record payout, repaying mortgage principal and writing off depreciation, the remaining surplus from trading amounting to $77,103 was added to reserves.

In the closing stages of last financial year there was evidence of an approaching world wide economic recession, with a consequent reduced inquiry for our honey from overseas buyers, coupled with a steady fall in world prices. Unfortunately this trend has continued up to the present time, and sales have been slow with some having been made at less than break even prices.

The intake this year to May 31 is 2691 tonnes and indications are that the final figure for the year could reach 3000 tonnes. This high intake coupled with low export sales has resulted in the Authority having to seek further overdraft accommodation from the Reserve Bank. I am pleased to report that the Minister of Finance authorised the overdraft requested. The Authority's sales in New Zealand had shown a steady decline over the five years to

## BOOK REVIEW

"THE JOYS OF BEEKEEPING", by Richard Taylor, $US8.95, obtainable post free at this price from the author, Vinecliff, R.D.1 Naples, N.Y., 14512, U.S.A.

Of all the books written about bees, none does more than this one to convey the quintessence of beekeeping, the beauty of the pursuit, and the fulfillment that comes from contemplating the well-ordered life of a beehive.

In *"The Joys of Beekeeping,"* Richard Taylor writes of an ageless occupation for an age in which agriculture, as it expands to agribusiness, threatens to become yet another means of separating man from nature. In the tradition of philosopher-beekeepers including Aristotle, Virgil, and Maeterlinck, Taylor celebrates with grace and humour the serenity and independence of beekeeping.

Here is a book for all who love nature; for those who have tended bees or want to learn something of the craft of beekeeping; for anyone who has tasted honey or watched a bee on a flower.

This is not a how-to-do-it book of beekeeping, but rather, as the title so aptly summarises, "The Joys of Beekeeping".

We have taken the liberty of quoting a few short extracts from this

August 1973, but last year showed an improvement of 232 tonnes due to the implementation by the General Manager of an aggressive marketing policy. Figures to date show that this year's sales will result in an even higher tonnage being sold locally this year, and I would like to record the Authority's appreciation of the General Manager's efforts.

On April 1, 1975, the Honey Marketing Authority Regulations 1975 came into force and the previous regulations were revoked. The new regulations provided for a hive levy at the rate of 15c per hive to replace the seals levy on honey sold. These regulations were designed to implement the wishes of the beekeeping industry as expressed at the 1974 Conference, and were drawn up by the National Beekeepers Association in conjunction with the Ministry of Agriculture and Fisheries.

The Authority has been subjected to some criticism for sending out hive levy forms early in April requiring that they be completed and returned together with payment of the levy by April 20. This was the date laid down in the regulations and the forms could not have been sent out before the regulations came into force. In fact although the regulations control the activities of the Authority and prescribe what it shall do and when, the Authority received no special notification of the regulations. The General Manager had to go to the Government Bookshop and buy a copy before he could set about implementing the regulations.

Levy forms were sent to all beekeepers on the Ministry of Agriculture and Fisheries lists shown as owning 51 hives or more, and up to 16th June 213 apiarists owning 144,435 hives have paid levies amounting to $21,665.25. A further 102 apiarists have not returned their levy forms and according to the Ministry lists these include

70 apiarists owning 51 - 250 hives
12 apiarists owning 251 - 500 hives
10 apiarists owning 501 - 1000 hives
10 apiarists owning over 1000 hives

At the same time as the hive levy forms were sent out, beekeepers and packers were asked to declare their stocks of unsold containers on which seals levy had been charged so that refunds could be made. For the seven months of the Authority's financial year to 31/3/75 the debits to seals account totalled $21,501.04. We have so far received claims for refunds amounting to $22,603.18 leaving a deficit of $1,102 with the possibility of further claims to come.

During the year applications were received from beekeepers for loans from

the Authority under terms announced earlier. Doubts were expressed by the Government Auditor on some legal and financial aspects of the loan scheme. The result of consultations with our solicitors and correspondence with the Minister of Finance has been that no loans have been made. I regret this outcome of what was hoped would be a benefit to the Industry.

On a number of occasions in the past I have mentioned the matter of 44 gallon drums being weighed to a constant weight. Eighteen months ago when we had a sellers market, none of the buyers were concerned with this aspect, but lately they have become more insistent that all drums be of constant weight. We hope to put forward proposals which will enable producers to weigh drums with a minimum of capital outlay.

During the year Mr. Eric Lee ceased to be the Government nominee on the Authority, and Mr. Don Hayman was appointed to fill the vacancy. Mr. Clarrie Carr was forced to resign from the position of Secretary Accountant due to ill health, and his position was taken by Mr. Bill Gregory. The staff has worked very well to cope with a record intake and I would like to put on record the Authority's appreciation of their efforts.

Discussions were held between Mr. B. G. Barclay Parliamentary Undersecretary for Agriculture, Mr. Dickinson representing the N.B.A., and myself representing the H.M.A. with regard to a minimum payout for the current intake. This figure was set at 54c per kg. average over all grades and the Authority has so far paid 40c per kg. by way of advance payment. From my earlier remarks about low overseas prices, you will appreciate that it will probably be necessary to use some of the Authority's reserves to make this 54c payout. While this is a legitimate use for the reserves it is hoped that the present state of overseas markets will improve both in regard to prices obtained and quantities of honey sold in the near future.

In September this year, an election will be held to fill two vacancies on the Authority. The members retiring by rotation are Mr. Forsyth and myself. Nominations for the vacancies close with the Returning Officer at noon on Wednesday August 13. The roll will be compiled from the names of all producers owning 50 or more hives who have declared their hive numbers and paid their levy by June 30, so any who have not completed these requirements still have a few days in which to do so and qualify for votes. I strongly urge all of you qualified to vote to do so.

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# BEEKEEPERS TECHNICAL LIBRARY

The library acknowledges the following gifts which have been received with appreciation:—

"The How-To-Do-It Book of Beekeeping" by Richard Taylor 1975, 150 pages. Donated by Richard Taylor.

"Beeswax — Molding and Candle Making" by Richard Taylor. 36 pages, many illustrations. Donated by Richard Taylor.

These and a host of other books are available to members on loan from the Librarian, P.O. Box 423, Timaru.

# 1974 QUEEN BEE UTILISATION SURVEY

**By Grahame M. Walton, Apiculture Advisory Officer, Palm. North**

*This survey, prepared by the Ministry of Agriculture and Fisheries, examined the queen introduction, rearing and breeding procedures adopted by North Island commercial beekeepers. Replies were received from 60 of the 80 beekeepers owning more than 250 hives*

*Approximately 21,600 queen bees were introduced in 1972 and in 1974, however the increase in hive holdings over the last three years effectively reduced the annual queen introduction rate from 32.4 percent of all hives in 1972 to 28.2 percent in 1974. Beekeepers indicated a current need for 51,515 queen bees, representing an annual introduction rate of 66.6 prcent. Most beekeepers (56.7 percent) raised their own queens, preferred to use the Doolittle method of cell raising, and introduced queen cells to 4-5 frame mating nuclei. Little attention was paid to drone selection and to the isolation of mating yards.*

*The decline in the frequency of requeening, its possible effects, and the importance of a breeding programme are discussed.*

## Introduction

A survey designed to examine the queen introduction, queen rearing and queen breeding methods of North Island beekeepers was prepared by the Ministry of Agriculture and Fisheries to assist it in recognising the situation, the problems and the needs of the beekeeping industry. In general, the 5-page questionnaire was completed by the local Apiary Instructor in the presence of the beekeeper. This method helped standardise the approach to answering the 26 questions and aided in clarifying particular points.

Completed questionnaires were received during the September-December 1974 period from 60 of the 80 North Island commercial-category beekeepers — beekeepers who own more than 250 hives. The identity of individual participating beekeepers was kept confidential.

## Queen Introduction

In 1972 21,545 queens and queen cells were introduced, indicating an annual requeening rate of 32.4 percent. About the same number of queens (21,775) were introduced in 1974, however the requeening rate had dropped to 28.2 percent. During the corresponding period the average commercial enterprise size increased from 1129 hives to 1311 hives.

Aithough beekeepers in 1974 were requeening their hives at a rate only slightly better than once every 4 years most beekeepers indicated that they would prefer to requeen their hives either once every year, or every second year (Table 1). The months of September and October were the preferred times to requeen enterprises (Table 2). Beekeepers indicated that they would require 51,515 queen bees a year to meet their present needs — an annual requeening rate of 66.6 percent. Queen bees were mainly required for the replacement of old stock and for making increases (Table 3).

Of the 34 beekeepers (56.7 percent) who requeened more than 25 percent of their total hive holdings each year, most (52.9 percent) were satisfied with queen performance — the remainder were either not satisfied or did not express a comment. For the 26 beekeepers who requeened less than 25 percent of their colonies a year, only 7 (26.9 percent) indicated that they were satisfied with queen performance. Few beekeepers commented on the good quality aspects of queen bees, although 4 beekeepers who purchased their stocks praised the quality of one queen breeder in contrast to that of a second named queen breeder.

**Queen Rearing and Breeding**

Thirty-four beekeepers (56.6 percent) raised their own queens, and preferred to do so. Nine of these beekeepers sold surplus queens. Thirty-one stated that they made a special effort to select and use a suitable queen breeder as parent stock. In any one season most beekeepers (19 out of 34) used no more than 2 breeder queens as a source of eggs and young larvae. Factors considered important in the selection of a queen breeder, in order of popularity, included: honey producing ability (31), colony build-up and queen prolificness (29), temperament and handling qualities (25), colour of the queen and/or her progeny (22), wintering and stores conservation ability (8), and reluctance to swarm (5).

The Doolittle grafting system, or a modification of it, was the most popular method of raising queen bees, with 26 out of 34 beekeepers regularly using it. The remaining beekeepers (8) adopted the Alley or Jay Smith cut comb methods. For those that used the Doolittle grafting method a cell-raising success rate of 70-79 percent was accepted as normal.

Queen cells were usually introduced into 4 or 5 frame mating nuclei (17 out of 34 beekeepers). Thirteen beekeepers introduced queen cells into standard colonies, and 3 beekeepers used baby nuclei colonies for queen mating. Whereas most beekeepers (26) fed their mating units with honey, some beekeepers (9) indicated that they (also) fed liquid sugar whilst others (4) fed dry sugar.

The survey showed that beekeepers did not pay particular attention to the quality of the drone stock. Only 5 beekeepers took precautions to isolate mating apiaries, while 9 beekeepers indicated that they selected or bred drones. More beekeepers (14 out of 34) made an effort to provide surplus drones.

**Discussion**

The value of young queens of good quality should be recognised as a most important aspect of colony management. Young queens are generally more prolific and produce more compact brood patterns than do older queens. New Zealand and overseas experimental evidence shows that colonies headed by younger quens are less likely to swarm than colonies headed by older queens. As a queen ages her control on her colony, exercised through her pheromonal secretions, may decrease. As a result workers may attempt to supersede her and she may fail at a critical time — often during the spring build-up period.

Although the majority of North Island beekeepers appeared to appre-

ciate the value of a regular requeening programme, indicated by their desire to requeen 66.6 percent of their colonies a year, the situation in practice has deteriorated in recent years. The 1974 queen introduction rate of 28.2 percent of total colonies would probably be little better than natural supersedure rates. At current levels of queen replacement it should not be surprising to find a considerable variation in queen and colony performance within apiaries.

The decrease in the rate of requeening appears to be related to the 16.1 percent increase in hive holdings over the last two years. Beekeepers have not devoted proportionately more time to queen replacement in their expanded enterprises. It would be courting financial disaster if the swing towards extensive beekeeping operations was made at the expense of maintaining or improving the honey-producing unit — the colony.

An additional 30,000 queen bees per annum would be required to meet the stated needs of the 60 surveyed beekeepers—or an estimated 40,000 queen bees for all the North Island commercial beekeepers. Opportunities thus appear to exist for the establishment of further queen breeding enterprises. Although the survey indicates that beekeepers are somewhat reluctant to purchase their stock from queen breeders, this attitude may change as enterprises expand in size and as beekeepers become increasingly aware that the production of good quality queens in large numbers is a specialist occupation.

Our somewhat temperamental spring climate makes it difficult in most areas to raise good quality queens for the

September-October peak demand period. New Zealand's few queen breeders can seldom guarantee a good supply of queens before November. Some untapped areas of New Zealand appear to offer some potential for early season queen breeding, particularly the Bay of Plenty and the East Coast-Gisborne regions.

The survey showed that queen bee producers paid little attention to drone quality. Drones are every bit as important as the selection of queens if stock improvement is sought. The multiple mating habit of queens requires the isolation of mating yards (at least 7 kilometres from neighbouring apiaries) and a surplus of mature drones of known quality. The dangers of inbreeding should also be recognised. If a queen is related to drones in the area then low egg hatchability of daughters could be anticipated — shown by a spotted or pepper pot appearance of the brood.

The 1974 quen bee utilisation survey underlines the shortage in supply of young mated queens as a major problem affecting the progressive development of the New Zealand beekeeping industry — at least in the North Island. Such management practices as requeening, replacing winter losses or weak colonies, making increases, and establishing two-queen systems are all handicapped without a guaranteed supply of young queen bees. Once some significant improvement has been achieved in the level of queen introduction more emphasis could be placed on breeding.

**TABLE 1: Preferred Rate of Requeening.**

| frequency | number of beekeepers |
|---|---|
| Once a year | 26 |
| Once every 2 years | 30 |
| Once every 3 years | 1 |
| Once every 4 years | 0 |
| Infrequently/as required | 3 |
| | 60 |

**TABLE 2: Preferred Month for Queen Introduction.**

| | |
|---|---|
| August | 1 |
| September | 21 |
| October | 21 |
| November | 2 |
| February | 10 |
| March | 4 |
| April | 1 |
| | 60 |

**TABLE 3: Main Reasons for Queen Introduction.**

| | |
|---|---|
| Replacing old queens | 51 |
| Making increases | 22 |
| Establishing two-queens | 13 |
| Replacing winter losses | 4 |
| Other | 2 |

(Some beekeepers gave more than one reason).

# POLLEN SUPPLEMENTS

## I—Relationships between Supplements, Pollen and Broodrearing

By Keith M. Doull

Waite Agricultural Research Institute,
The University of Adelaide, Adelaide, South Australia

**NO KNOWN** pollen supplement can be considered as a complete replacement for pollen, for there is no supplementary food that is capable of fulfilling all the roles of pollen in the nutrition of honeybees.

Nevertheless, despite their inadequacies, most pollen supplements may be used with success in many situations. Beekeepers will make the most effective use of these artificial foods if they take into account the various biological, physiological and behavioural factors that influence feeding and broodrearing of honeybees.

This paper is the first of a series that will discuss the application of information gained from research on the development and use of pollen supplements.

### The Basic Roles of Pollen

The maintenance of broodrearing in honeybee colonies is dependent entirely upon the bees receiving adquate supplies of the protein, vitamins, enzymes and minerals that are essential for the production of larval food. In nature, these nutrients are obtained from pollen, and in undisturbed colonies the rate of broodrearing varies throughout the year according to the amount of pollen available.

Complete dependence on natural supplies of pollen often creates difficulties for beekeepers, and it is useful if they can intervene, and provide the essential nutrients in the form of pollen supplements. However, it is not enough simply to provide an artificial food that contains appropriate concentrations of all the nutrients that bees require. Pollen is not simply a source of these nutrients for honeybees, although of course this is its main function in the hive. It is also the source of some important stimuli that influence the activities of nurse bees. A brief discussion of the sequence of events in the initiation and maintenance of broodrearing will clarify these roles of pollen.

In a broodless colony, the ovaries of the queen are inactive, and are not producing eggs. When appropriate conditions prevail, the ovaries become active and oviposition begins. This is the first phase of broodrearing, and development of the next phase — the feeding of the larvae — is dependent upon the ability of the nurse bees to secrete larval food.

In the broodless colony, the brood food glands of the nurse bees are also inactive, although they are normally fully developed and capable of secretory activity. The presence of brood provides the primary stimulus for activation

of these glands. The bees then become "prepared" to respond to pollen, which is the only source of the nutrients they require for the elaboration of larval food.

Specific stimuli presented by particular chemicals in pollen then elicit feeding behaviour in these bees, so that they eat the pollen and obtain these nutrients. There is also evidence to suggest that pollen may provide some specific stimulus that initiates secretory activity in the brood food glands of the bees that have already perceived the stimulus presented by the brood.

Once the brood food glands are actively secreting larval food, nurse bees are able to respond to stimuli presented by newly hatched larvae, and they deposit food in cells containing such larvae.

It follows that the initiation and maintenance of broodrearing in normal colonies requires in the first place the presence of the stimulus that induces oviposition by the queen bee. Once oviposition has begun the brood food glands of nurse bees must be activated if the resultant larvae are to be fed. Pollen must be available both to stimulate secretory activity by these glands and to provide the nutrients that are required for the production of larval food.

Pollen supplements may provide all the essential nutrients that bees require, but they do not contain the specific chemicals that induce the bees to feed on pollen and to secrete larval food. Nevertheless, bees do eat pollen supplements readily in many situations. In order to understand why this should be so, it is necessary to consider the basic relationship between the consumption of supplements, the availablity of pollen and the rate of broodrearing.

### Pollen, Pollen Supplements and Broodrearing

These relationships may be discussed most simply in terms of the main points that have been demonstrated in research:—

**1. The primary stimulus for broodrearing is provided by an intake of sugars:**

The stimulus that elicits oviposition by the queen bee, and that therefore leads to the initiation and maintenance of broodrearing, is presented when the colony receives an intake of sugars. This stimulus is provided naturally when the bees locate a source of nectar, and is provided artificially whenever a colony is given sugar syrup.

The processes by which an intake of sugars provides this stimulus are not understood. It is likely, however, that the biological mechanisms involved are part of the system of "safeguards" in the behaviour patterns of honeybees. These "safeguards" act to reduce the chance that the energy resources of the colony will be dissipated in activities that may not confer any benefit to the colony, or that may be detrimental to it.

A practical implication of this information is that the presence of pollen or of a pollen supplement will not necessarily lead to the initiation or maintenance of broodrearing in colonies that are not receiving an intake of sugar.

A second implication is that beekeepers who intend to use pollen supple-

ments to stimulate broodrearing should also consider providing the colonies with a source of sugar.

**2. The provision of pollen supplements will not lead to the initiation or maintenance of broodrearing in normal colonies that are devoid of pollen.**

When the queen is laying in response to the intake of sugars the presence of pollen in the hive leads to normal broodrearing. However if the colonies are devoid of pollen the provision of a pollen supplement will not in itself enable the bees to initiate or maintain broodrearing. In fact, in such conditions, the bees do not consume measurable amounts of any supplement, and although the eggs may hatch, many of the resulting larvae will not be fed, and will die shortly after hatching.

The addition of 10-20% of pollen improves the acceptability of the supplement, for it provides the specific stimuli that are lacking. There is then an immediate change in the situation. The bees consume the supplement readily, and normal ratios of eggs, larvae and pupae soon appear in the colony.

A similar result appears if the bees are provided with pollen cake as well as the supplement. Bees consume the pollen cake and begin secreting larval food. This secretion of larval food creates in the nurse bees an increasing need for the essential nutrients that are present in the larval food they produce. They then become less "selective" and will feed on the supplement as long as they have access also to some pollen, and as long as there is brood to be fed.

A practical implication of this information is that bees in broodless colonies will not eat pollen supplements. Indeed, failure to consume an otherwise acceptable pollen supplement may often be taken as an indication that the colony is broodless.

A second implication is that bees in normal colonies will not initiate or maintain broodrearing in the absence of pollen even though they are provided with a pollen supplement. Beekeepers who contemplate using pollen supplements should always ensure that some pollen will be available to their bees.

**3. The rate of broodrearing in any colony varies throughout the year in direct relationship to the amount of pollen available in the hive.**

This is a logical consequence of the previous statement, for pollen is the only source of the chemicals that produce the specific stimuli associated with feeding and broodrearing by nurse bees.

This statement also clarifies the true role of the present generation of pollen supplements. They are a **supplementary source of essential nutrients** for honeybees, and so must be regarded only as **Supplements to Pollen.**

This does not mean that these foods are valueless because they cannot be used as **Substitutes** for pollen. They will not stimulate bees in normal colonies to rear brood in the absence of pollen, but when pollen is scarce, the use of supplements will enable the colonies to maintain higher rates of broodrearing than they would otherwise have done.

**4. The rate of consumption of pollen supplements varies in direct relationship to the rate of broodrearing.**

This statement applies equally to pollen, for both pollen and pollen supplements are consumed by bees rearing brood. The amount of larval food produced by nurse bees varies in direct relationship to the number of larvae to be fed, and it follows that bees' requirements for the nutrients that are secreted in the larval food must also vary in direct relationship to the number of larvae to be fed. The rate of consumption of both pollen and pollen supplements are most likely to be located if they are placed on the top bars of the

**5. The rate of consumption of pollen supplements is influenced by their position in the hive in relation to the position of the brood area.**

The initial response of bees to the particular volatile chemicals in pollen is to move about the combs apparently "searching" for the food they need. When they locate the food, other components — sugars, water and amino acids — induce them to feed.

Supplements do not contain these volatile chemicals that elicit "searching" behaviour. They do contain the other nutrients, however, and it follows that bees that locate them "accidentally" will be induced to feed. Thus pollen supplement candies must be placed in those positions in the hive in which nurse bees in their normal movements about the combs are most likely to locate them.

Nurse bees do not normally move far from the brood combs and many of them spend their "rest periods" at the tops of the combs. Thus pollen supplements are most likely to be located if they are placed on the top bars of the brood combs directly above the brood cluster. They are **least likely** to be located by nurse bees if they are placed above the combs in honey supers.

## Conclusions

None of the supplements that are available today are of any real value when pollen is very scarce. It follows that no known supplement will completely relieve beekeeprs of their dependence upon natural pollen.

The addition of 1-2% of pollen has been recommended but it is unlikly that this small amount of pollen will serve any useful purpose. The key to the successful use of any pollen supplements lies in the availability of stored pollen, or of an intake of fresh pollen.

It is clear, however that the provision of a pollen supplement or the presence of pollen in the hive is not in itself always sufficient to stimulate bees to breed. Oviposition, the first phase of broodrearing, is stimulated by an intake of sugars, and hence the colonies should have an intake of sugars. This may occur naturally if there is some nectar available for the bees to collect, or they may be provided with sugar syrup.

Provided that beekeepers understand and take account of these and other factors that influence feeding and broodrearing by honeybees, they will find pollen supplements a useful aid to better and more profitable beekeeping.

In this paper, it has been assumed that the pollen supplements were in the form of sugar candies provided inside the hive. The use of this and other methods of providing supplementary foods for bees will be discussed in the next paper in this series.

*I started beekeeping in 1931 with the purchase of eight hives in petrol cases at a cost of a dollar each and sold the first honey for five cents a pound.*

*I was a carpenter and as work was not plentiful in the depression the hive numbers were gradually increased, much against the wishes of my parents.*

*I joined the Canterbury Branch of the N.B.A. and when the Secretary, Mr. James Foster of Washdye retired and the South Canterbury members decided to form a branch of their own, I became secretary of Canterbury with its headquarters in Christchurch.*

By R. R. Bushby

# LET'S PUT THE SQUEEZE ON OUR BEES

For over a hundred years since Langstroth invented the movable frame hive, beekeepers the world over have striven to increase the yield of honey from their hives. Many like myself have spent a lifetime trying to breed more productive queens. Two queen hives, hybrid queens and all manner of systems of management have been used to try and boost production, most of them with limited success. At our 1975 Conference Mr I. Forster stated in his address that no significant break-through had been made in the beekeeping industry. We may be nearer to it than you think.

About 1967 we found that colonies in which the Queen was restricted to one brood box with TEN frames produce more honey than those whose queens had the run of two supers. We thought at this stage we were making some progress.

In 1971 in the course of a world tour I attended the 23rd Apicultural Congress in Moscow. About a year later I received the report of this meeting which gave in full all papers submitted. Only about a quarter of these papers were actually read at the Congress as their writers were not present. An article by M. A. Alber of Italy entitled A CENTURY OF WRONG SPACING interested me. Alber wrote "That Hoffman relied on natural combs built by German Blacks before adopting 35 mm or 1 3/8" spacing for Langstroth bodies. Quinby suggested 1½" spacing and Dadants adopted it and this was followed by some British and German researchers. While the right cell size caused endless discussion for long years with the only exception of the Soviet Union nobody seemed to be interested in right comb spacing. More than 20 years ago Livenets described the reduction of space as a current trick for better spring built up. Later Soviet reasearch revealed that a narrow space of only 30 to 31 mm. 1 3/16" to 1 1/4" gave about 25% more brood surface as compared to that of wider spaced colonies (see "Pchelovodstvo 1951/1").

Much research was done by Alber on measuring combs built with swarms of various races of bees which are available in Europe and the spacing varied from 30-35 mm; Italians preferring the narrower and Carniolians the wider space. In June 1970 Alber & Compagna revealed excessive spacing as the main cause of violent Nosema and therefore decided to study the natural spacings of various races of bees. From this it was found most swarms remained more or less below the narrower 35 mm Langstroth hives. Italians of the universally known PIANA stock had a scarce 31 mm (1 3/16") spacing, (exactly what Soviet scientists had found best for their smaller bees of the south).

M. A. Alber made no mention of the resultant honey crop, possibly he had not got round to it, never the less his findings aroused my interest and my son James and I decided to make our next batch of frames with 1 1/4" end bars. On assembling them we found that eleven frames would go in a super and give about 1/4" clearance. There didn't seem any point in using only 10 frames when eleven would go in even though most apiary instructors tell us to use nine, as it makes manipulations easier.

In the November 1974 N.Z. Beekeeper, G. M. Walton, on metric measurements for Langstroth hives goes into great detail on bee space but nothing is said on comb spacing only in the list of frame sizes, he gives the size of Hoffman end bars as 33 mm. Only ten such frames will go in a super with 7/8" sides. By reducing it to 32 mm, then eleven frames would go in.

It took some time to get supplies of drawn combs to try out as a brood nest and with only one swarm the first year, nothing significant was noted. However, last season we made considerable increase in colonies and with a reasonable honey flow and a number of colonies dispersed through the outfit with eleven frame brood chambers the results were apparent to even a casual observer, as myself, who is physically limited to removing lids and hive mats and doing the lighter jobs involved in apiary management.

A conservative estimate, was at least 25% more honey surplus, this, was not counting the top brood box or food chamber, which is left on over winter with the excluder removed. This "food" super contains ten frames and the queen is put down in the bottom box in the spring and the excluder replaced between the brood supers. The bees then proceed to fill the food chamber as any brood in it hatches and this honey is left for winter stores. Only supers above the second box being harvested.

On shifting the hives to their wintering sites (it is too cold and wet to leave them on some of their summer sites on the West Coast) it was noticed that those hives with eleven frame brood boxes were much heavier than the rest. It therefore, appears that they could have stored some honey in the bottom box as well. These hives produced one super more than the others which were four storey, and it appears that they could have produced more had we had the supers to put on them so that an increase of nearer 50% could be possible.

Now let us examine the situation and see how this is achieved. We all know that bees will not tolerate open spaces in the brood nest and proceed to fill it

with comb. With eleven frames per box with 1 1/4" end bars we find that we have 3/8" between the top bars which are 7/8", the same thickness as a brood comb, (Australian type top bars of 1" are useless here) we have two layers of bees one on each face of the comb. With 1 3/8" end bars we have 1/2" between combs, so we get three layers of bees, and the result is we squeeze out this extra layer. These bees which were serving no useful purpose other than maintaining the micro climate, to the outside of the cluster therefore enabling the queen to lay in these outer combs which would otherwise, be unattended. Hence the faster build-up with 25% more brood, as found by the Soviet researchers 25 years ago, or should it be nearer 33%? When the brood chamber becomes full of bees the overflow moves into the supers and out into the fields to work so we have 25% more workers, as there are no "hangers-on" in this eleven frame set up, except under the bottom bars. However, this area could be built up with drone comb, as there is no space for drone comb with 1 1/4" spacing. Drone comb, according to Alber requires 1 1/2" or 40 mm spacing.

With this system we get straight flat combs provided the foundation has not been stretched or buckled. There is no need for brace comb or bridging pieces or lumps of wax on the sides of the top bars or supers. It is these pieces of wax on the sides of the supers which make the removal of the first comb difficult, even in nine frame units. A hive tool with a hook on one end is a help especially if you have thick fingers.

How is the space in a super used?

In a super containing nine frames we have 8" taken up with comb and 6 1/4" space for bees. With eleven frames, we have 9 5/8" for combs and 4 5/8" for bees and therefore we have approximately 25% less bees and two more frames of brood. It takes 25% more bees to fill a nine frame brood box and we have 20% less comb area. It is this comb area, per cubic foot, that is the vital factor. To spread the brood combs out through more supers only accentuates the problem of idle bees and perhaps it could be these bees which get the swarming impulse.

I know that some will say that with an up tight brood nest there will be no freeway for the hordes of returning honey gatherers. We know that pollen collectors deposit their loads directly in the cells but most honey gatherers disgorge their load just inside the hive. Perhaps a top entrance made by sliding back the super on the queen excluder could be to the bees' advantage when the honey flow starts.

There is still a lot more to learn on this and our Apiculturists are limited in their work by the lack of basic materials. It is up to us as beekeepers to try and test any methods which can help us with our crops and to pass on what we have learnt through our Journal.

In conclusion, my thanks go to Mr M. A. Alber of Italy for making his research available to beekeepers through Apimondia. My only regret is that we hadn't the information on Soviet Union research 25 years ago.

# BEEKEEPING CONFERENCE AT BANZ, PAPUA NEW GUINEA

**Thursday, June 19 to Saturday, June 21**

**By Chris Dawson**

In opening the Conference, Mr John Swincer, Beekeeping Project Manager with D.S.A.F. welcome vistors from the area, stretching from Port Moresby and Erave in the Southern Highlands, to Goroka in the Eastern Highlands. After outlining the programme, he invited Mrs Lyndsay Kidd to present the opening paper. Mrs Kidd, a tutor at University of Papua New Guinea, is studying and collecting information on various aspects of bees and beekeeping. She opened her lecture with a survey of the early history of bees and beekeeping in P.N.G. and described the relationship of nationals to indigenous bees.

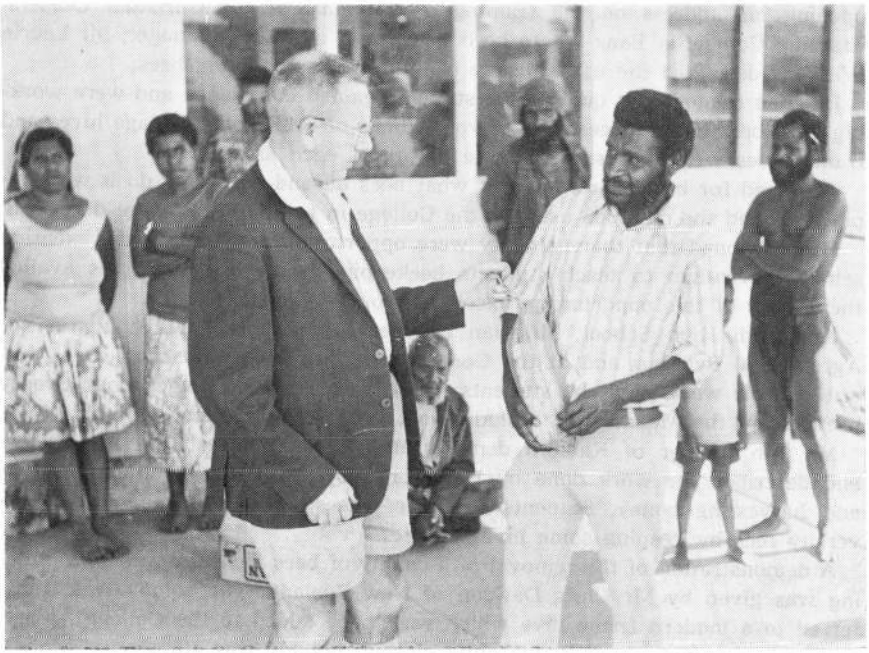
The first historical record appears in a Patrol Report of a Mr Smith in 1910 in Samerigi when he recorded how the people were using either oil or honey and wax from the nests of the small native bee to ornament their hair and make it into rolls. It is believed that Italian bees were introduced prior to World War II but no records have been located regarding these importations. Mrs Kidd asked that anyone who knew anything about this should communicate with her.

In September, 1948, two hives were imported from Gatton College in Queensland to Aiyura Highlands Agriculture Research Station. In two years, these two hives increased to thirty and many swarms escaped to the surrounding bush. The bees prospered in their wild state, and their new environment was so attractive that they spread within nine years to seventy miles from Aiyura. Today these bees live in areas like Lae at sea level up to Tambul at 7,500 feet and near Kandep at 9,500 feet above sea level.

In his address, Mr John Swincer gave details of the location and number of beehives of all known beekeepers. In the areas from Erave in the South to Vanimo in West Sepik, bees are being successfully farmed and honey harvested in varying quantities. Mr Swincer has 175 test hives under his supervision; 45 of these in the Enga and Western Highlands Districts and 130 in the Koroka area. These are being cared for by nationals in training. One hive at Kuk has produced 100 pounds of honey since March, 1975. The immediate requirements to continue and expand these pilot trials were outlined by Mr Swincer.

It was noted that an application had been made for this purpose from New Zealand Aid Programme.

Because there is a wide range of different beehive sizes used, and there was need for standardisation, the need for adoption of a P.N.G. standard was emphasised.



**The Queens which Chris Dawson brought in the same plane as he travelled from New Zealand in, being handed over to Mr Peter Kunlupu, a national being trained in beekeeping.**

In a discussion later during the Conference, Mr Bob Walker of Kabiufa stressed the need for a standard to be set and adopted by a substantial body of beekeepers. The necessity for Australian and New Zealand equipment to be interchangeable was also emphasised. The urgent need for restrictions on the importation of breeds of bees was also stressed by Mr Swincer.

It is believed that, as the Italian bee is the predominant breed in the area, and is the most successful and widely used honeybee in the world, all other breeds should be prohibited from importation.

Mr Chris Dawson, a bee breeder from New Zealand, outlined some of the dangers and difficulties encountered when mixed breeds of bees were present in a country where bees thrived.

Statistics presented by Mr John Swincer showed the quantity of honey imported. This was equal to the harvest of under two thousand hives. This number of hives could be operated in any of the Highlands districts and supply all present P.N.G. requirements. However, he believes the local consumption will increase when people are able to purchase the local product at a lower cost. A survey of possible ways of introducing beekeeping into the local economy was the opening subject of an address by Mr David Anderson, an Agricultural Economist of Goroka. His survey included suggestions for this introduction at both village level and as a co-operative type of business. In

opening his address on the training of nationals at the Christian Leaders' Training College at Banz where he is a lecturer, and farm manager, Mr Laurie Williams described the usual dislike of students for handling bees.

He then related how quickly the students gained confidence and were working with bees quite successfully. Two methods of beekeeping, village hives and frame hives were discussed and the merits of each assessed.

The need for basic knowledge of what bees do and why they do it was emphasised and the methods used by the College in teaching this were described.

He mentioned that there already were opportunities present in the exisiting school curriculum to teach students beekeeping and if more schools availed themselves of this opportunity, excellent progress could be made.

At Mendi High School, Mrs Jan Hatcher has included beekeeping in her Agricultural Syllabus and at the Conference, she and her husband, Don, described their work with the students. They successfully manage about twenty beehives in the Mendi area, including six in the High School grounds.

Mr Bob Walker of Kabiufa demonstrated equipment made in his College and described the work done by Form One boys in managing their beehives and harvesting honey. Students in other places have paid school and university fees by keeping some hives of bees.

A demonstration of the removal of a colony of bees from the wall of a building was given by Mr Chris Dawson of New Zealand. The colony was transferred to a modern frame hive which was to be added to the College Apiary. Although a crowd watched this quite closely, nobody was stung.

He also gave a resume of the books available from the New Zealand Beekeepers Technical Library, and described how books could be borrowed by beekeepers in P.N.G.

The Conference concluded with a resolution to send to the New Zealand Beekeepers in Annual Conference at Timaru, New Zealand, the following message:

**"The first Conference of beekepeers in session at Banz in the Highlands of Papua New Guinea sends greetings to Conference of New Zealand Beekeepers in session at Timaru. We thank you for loaning us Mr Dawson who continues to inspire and give help to us all."**

Paper presented at 1974 Taupo Seminar

# HONEY HOUSE DESIGN

**By Grahame M. Walton, Apiculture Advisory Officer, Palm. North**

In the short time that I have available to discuss this important topic I must of necessity be brief. I can provide only a basic outline. Arising out of this talk it is planned to prepare a more detailed publication on honey-house design.

Honey houses are very much a personal thing. What may well suit the requirements and ambitions of one beekeeper may be totally inadequate for another. There is no ideal specification for a honey-house. A most satisfactory honey-house arrangement for 500 hives will undoubtedly prove inadequate for a 2,000-hive, let alone a 10,000 hive outfit. Again, a honey-house adequately coping with light bodied clover-type honeys would probably be unsuited to the heavier-bodied manuka and ling heather honeys.

In building a honey-house the most important step is the first one — the planning stage. Without adequate planning — looking at the options, examining the short and long-term requirements, and plotting a step by step course — the final objective would unlikely be achieved successfully.

**Your aspirations and requirements**

The planning of a honey-house and its equipment is a personal one and is governed by your, or your company's, present and future ambitions and requirements. You need to examine the size and scope of your operation. How many hives, apiaries? What methods of management do you use or intend to use? You need to examine your product — honey. Have you a ready market for the honey-types you plan to produce? Is it economical? Have you made allowances in your proposed development programme for the labour and equipment needed both in the field and in the honey-house?

Walls, windows and doors should be designed with the movement and storage of bulk equipment in mind. An internal truck-loading dock, or docks, could be provided, level with the deck of the truck. On the other hand, if fork lift trucks are contemplated one level floor is desirable. Above all, the building should be bee-tight.

In building a new honey-house beekeepers should familiarise themselves with local authority by-laws and Health Department requirements.

**Honey-house layout**

The extraction room is the hub of the honey house. It is an enclosed room for the uncapping of combs, extraction, warming and straining of liquid honey. It may or may not be partitioned off from the honey tanking and packing area. The floor, walls and ceiling must be sealed or lined according to food hygiene requirements. The extraction room should give sufficient area for present and future honey-house equipment requirements, and enough passage-way for the flow-through of honey supers.

The truck loading and unloading area(s) should be within the honey-house building and handy to the extraction room. For the small to medium com-

mercial unit a convenient truck bay arrangement is one with the deck of the truck at honey-house floor level. However for the larger enterprise a one-level floor combined with fork-lifting is a more flexible arrangement. In this latter case the concrete flooring must be stronger, the buidings larger (for vehicle mobility) and the roof higher (for stacking).

Between the truck unloading area and the extraction room should be an incoming storage area. In New Zealand we recommend the use of a "hot" room. If it is adequately designed, built and heated, a hot room helps ensure that honey is maintained as a quality product. A controlled hot-room can remove water from high moisture-content honey and can add it to exceedingly dry honeys (seldom the case in the North Island). A hot room aids in the extraction of honey from the combs. Radiant floor heating in the hot room is considered the best when honey extraction is on a regular basis. Good air turbulence and thermostatic control (35°C or 95°F) is important. The incoming storage area or hot-room, should be large enough to hold at least one day's intake of honey supers, without the need to restack.

The storage of extracted supers should be handy to both the extraction room and the truck loading area. This same room may serve as a feed-honey or container storage area; however this equipment should not impede the daily flow-through of the extraction and storage rooms.

A timber, painting, engineering and spare parts workshop is essential in any medium to large honey-house. It may be incorporated within the storage room but for appearances and for functional reasons it is better that this be a separate room.

The size of the wax rendering room depends substantially on the method of cappings handling adopted in the extraction room. As the risks of fire are higher, this room should be somewhat isolated from the rest of the honey-house.

To complete the honey-house complex other rooms are desirable, if not essential. A toilet is a health and hygiene requirement. An office for your business dealings and a lunch room for your staff should be considered. A shop or display room for honey door sales may be an important adjunct to your method of marketing.

The size of the honey-house complex depends, of course, on many factors; including finance, the number of colonies, honey through-put, method of marketing, and the quantity of equipment. Although no hard and fast guide-line can be indicated for the total area of a honey-house a rule of thumb is a 100-150 square foot (9-14 square metres) honey-house for every 100 hives.

**Equipment**

Honey-house equipment should be selected and designed to maintain a quality product, whether it is honey or bees-wax. For instance extraction combs should be white, not old brood combs; heat should be used judiciously, and definitely not direct steam heat. Care is also required in the straining and storage processes. Stainless steel equipment is preferred.

*(Continued on page 72)*

# HANDLING MANUKA HONEY

## I — By Peter Pegram, Frazertown, Northern Hawkes Bay

In discussing manuka honey, its handling and its processing problems, I should point out that our New Zealand Honey Grader has expressed the comment that the type of manuka that I produce is the thickest and most thixotropic he has seen. The methods used elsewhere for handling this type of honey do not seem to work for me.

The area I operate is 80 miles north of Napier, 70 miles south of Gisborne, in the northern Hawkes Bay. It is a thick manuka honey area except for some dairy flats and rolling pumice country areas. The whole of the Wairoa County and East Coast is much the same. My theory for the heaviness of the honey is partially climatic but mainly soil type.

I have found it hard to predict if a frame will extract or not. A frame that looks like clover on the surface could have a significant amount of manuka in the base of the cells, preventing its extraction. Compared to other honey flows in the district, manuka extends over a long period. I believe it true that bees prefer manuka to other sources and are all too willing to fly over paddocks of clover. I have known seasons where not one comb will extract conventionally. It is enough to send you up the wall!

Over the years I have tried most of the methods for extracting manuka honey. Many of the recognised methods work somewhat, but fall down when bigger through-puts are required. Wax pressing is too slow, and messy, for commercial enterprises. Many of you use prickers for breaking the surface tension in the honey cells, but unless you have room to position two or three of them and men to work them, your output would be low. I have found the pricking machine satisfactory for some seasons but in others it is too slow and causes damage to the frames. A hot-room at various temperatures did not help. The problem was in the type of honey itself.

My method now is to scrape the frames down to the foundation using a modified type of Rosedale plane used on the back edge. Output per day is limited to the number of boxes that can be scraped and the number of boxes per ton of honey. If I scrape 60-70 boxes a day I am reasonably happy.

My whole business is a two-man operation. My wife is the other man! She scrapes the wax off the top bar, grades the frames and feeds them into an uncapping machine. Combs that are not manuka are put to the side for a separate run.

The Rosedale plane must be well supplied with steam so that the plane clears itself between the finish of one stroke and the start of the next. Hot combs cannot be scraped. The wax must be at air temperature and brittle. The frames are then put in a 21-frame semi-radial extractor to dry-off the honey on the comb and frame woodwork. The cappings wax, side-wall wax

and the bulk of honey is handled, in our set-up, by a whirl-dry (or spin-dry) machine. It has many advantages over pressing and hot-top rendering. We use an adapted 4-frame extractor shell with 4 segment baskets fitted into it. Each basket can hold about 2 hours of cappings. They are dry enough to be just tipped out. This separates most of the honey from wax. Although our two whirl-dry's do not perform a continuous process they are easy to operate. The gauze I use is quite fine — 3/16 inch, which means that I do not fill the machines over-much, and I operate them frequently. It is a good pre-straining system. The wax from the whirl-dry is dumped into a jacked half ton tank and then melted down with a steam coil.

To spin dry and to strain honey it must be warm. I have a hot sloping tray under the uncapper and then it is further warmed in a holding tank to 27-30°C (85-90°F), suitable for the spin-dry.

Honey from the spin-dry and extractor pass through a baffle-jacked water heater then to a circular strainer. It is of 30-mesh stainless steel and requires frequent turning to permit effective straining. The problem I am faced with at the moment is the proper heating and straining as a result of surges of honey through the spin-dry, and I am working on improvements to this area. Another problem is the melting of some wax into fine spherical globules that pass through most of the strainers.

My description may give you the impression of a "mickey mouse" outfit, and perhaps you are right. I am far from satisfied with it. On the basis of extracting 1-1½ tons of manuka honey a day I am sure it would be an easy 2 tons plus a day if I could get clover honey.

I hope I haven't frightened you away from bulk manuka production. Although it has its problems with extraction there is considerable potential for it. Let us hope technology will make it easier for us that it is today.

## II — By Malcolm D. Haines, Kaitaia, Northland

In our 1,700-hive enterprise in the north of the North Island we have many types of manuka. In the far north we have a very light bodied manuka. In the more mountainous areas, over 600 feet, we have the heavier bodied honey somewhat akin to that of Mr Pegram's area. We also have kanuka, with similar properties to manuka. In fact when extracting kanuka it comes out of the cells in pellets and tumbles down the side of the extractor.

We have found that manuka will extract better from foundation than from brood or aged honey combs. We sometimes use the strip comb method, which is no more than a wax strip placed in an empty frame. Full combs are then cut out.

Our honey-house machinery is designed to handle all types of honey. We can handle 2-3 tons in an 8-8½ hour day — from walk-in to walk-out. We find a hot-room essential, although we endeavour to remove honey from the hives as early as possible. Our hot-room can hold 400 supers at 32-35°C (90-95°F). Honey is thoroughly heated to this temperature. We use a 4 kilowatt under-floor heat as well as 3-kilowatt fan heaters above.

Our mechanical uncapper cuts as deep as we can — at least to the frame wood. The cappings are broken up and transferred to a whirl-dry. This is a 50-frame radial extractor converted to contain a stainless steel screen and a stainless steel cone on the bottom. The cappings are spun slowly at first, stopped, further broken up, then spun again. Our cappings wax in the end contains only 2-5% honey — far better than pressing. With manuka, hot-tops are no good other than for making excellent toffee.

We do not use a pricking machine to aid with the extraction. The hot-room is sufficient to move the honey from the comb. Our 3 extractors are 8-frame Pender types. For heavy bodied honey we have found that extractors must be fully reversible — semi radials just do not work. They travel at 350-400 revolutions per minute and care must be exercised in speeding-up and reversing. The baskets in the extractor are made of wire, and not gauze.

No other heat is used other than in the hot-room. The honey runs freely although a jelly sometimes forms in the extractor which is removed at the end of the day. We use a circular strainer with 60-mesh gauze. They should be turned often and not left to become overloaded with granulated honey, wax or debris. One of these circular strainers can handle 2-3 tons of manuka honey a day without any problem, and it is a dream for clover honey. The circular strainer must be well constructed and should be mounted on rollers. We are planning to build into the circular strainer a re-cycler to overcome clogging. In the whole operation we find that it is the strainer that is the bottleneck for manuka honey.

Many people are turned off the production of darker honeys — and thixotropic manuka honey in particular. Others regard it only as a feed source. In my opinion it is one of the easiest honeys to market because of its high public demand. This demand is increasing. At the same time New Zealand's darker honey areas are becoming less and less, and heightening the demand.

## III — By Grahame M. Walton, Apicultural Advisory Officer, Palmerston North

The problems associated with manuka (Leptospermum spp.) honey outlined by the two previous speakers are also shared by another honey — ling heather (Calluna vulgaris).

Ling heather is a relative newcomer to New Zealand. This European scrub plant was introduced to the Tongariro National Park area of the North Island ostensibly to provide a ground cover for the grouse game-bird. However the rapidly spreading ling heather proved more attractive to the bees than to the establishment of grouse. Beekeepers capitalized on this late season nectar source and reasonable honey yields have resulted.

Ling heather and manuka honeys possess similar properties of thixotropy and elastic recoil making their extraction and straining a difficult process. Both types of honey form a jelly-like condition, called a gel, in the honey comb. A gel state may also occur with time in the extractor, honey pipes, tanks and at other points along the processing line. Ling heather has in fact

been known to retain its full hexagonal shape after careful removal from the cell of a honey-comb.

The cause of thixotropy in ling heather and manuka honeys is not known. It is believed that large amounts of colloidal matter, and particularly proteins, is a contributing factor. In comparison to other types of honey, ling heather has high ash content and pH values. However this does not hold for manuka honey.

The jelly-like properties of heather and manuka honeys can cause serious problems in their processing. Bubbles of air are often held in suspension and are difficult to remove. The air bubbles are unable to ascend through the gel. A beekeeper's best approach to this problem is one of prevention rather than one of cure. He should ensure that air bubbles are not incorporated with the manuka or ling heather honeys. Honey should not be poured, dropped or dripped from one receptacle to another. For instance, the entrance pipe for honey running into a sump or baffle tank should be below the level of honey in the sump tank. The position, speed and type of honey-pump is also important. A sliding-vane pump is preferable to a gear pump; the latter tends to mince wax flakes into finer particles which are themselves held in suspension.

Heating to excessive temperatures can quickly damage ling and manuka honeys. Temperatures above 65°C (150°F) cause the precipitation of the protein portion of honey. This alters the character and flavour of honey. Thixotropic honey from a cappings melter is also highly likely to be impaired. Wax melts near to this critical 65°C temperature. Portions of wax and its pigments may become embodied in the precipitated protein.

The two previous speakers in this session have mentioned the types of equipment which they have found best in handling and processing manuka honey. The same equipment would be satisfactory for ling heather honey. A few other thoughts on the handling of thixotropic honeys are worthy of mentioning.

Honey frames are subjected to considerable stresses when extracting manuka and ling heather honeys. They should be stoutly constructed. If Hoffman frames are used 4-wired foundation is better than 3-wired foundation. White combs are easier to extract and produce a better quality product than brood combs. Consideration should be given to the Manley frame which is specially designed for honey production.

A "hot" room to warm the supers of honey before extraction is desirable. It should be thermostatically controlled so that the temperature is no greater than 35°C (95°F). Air circulation in the hot room is an advantage. Although the warming of honey does not reduce the jelly-like consistency of pure ling heather and manuka honeys it aids in the extraction process once each cell of honey has been "pricked".

Over the years New Zealand beekeepers have developd various types of pricker systems to break down the thixotropic gel state; from simple hand operated pads to semi-automatic machines. However these prickers have proved to be too slow for the requirements of today's medium to large businesses, beekeepers preferring to either crush the comb or to produce cut comb or

section comb honey. A European company (Thomas Ltd., of Orleans, France) manufactures an automatic pricking machine which has commercial possibilities in New Zealand. A battery of needles enters each comb cell 8 times, two frames at a time.

The radial extractor is ineffective in extracting manuka and ling heather honeys. The semi-radial and tangential extractors are better, but even then care must be exercised in reversing them, lest the weight of unextracted honey should break the combs.

The cylindrical wire strainer has been discussed as an effective strainer of honey. The rotary filter is another French-made alternative, but at present it is not in use in New Zealand. The rotary filter works on the same principle as the whirl-dry except that the spinning tub is lined with a nylon mesh bag to trap the fine particles of wax. One item of equipment that could have considerable potential in New Zealand is the (Cook and Beal's) honey-wax separator. This machine, which will be on display at the field-day tomorrow, separates the wax from honey in a continuous process. The Ministry of Agriculture and Fisheries plans to test the effectiveness of the honey-wax separator in its processing of thixotropic honeys. Its success has already been noted overseas. A commercial beekeeper in Scotland (Mr A. M. Kirkwood of Blairgowrie) uses the honey-wax separator in combination with a New Zealand automatic uncapping machine and the French pricking machine described above for the processing of ling heather honey. The honey leaves the separator free of any wax and is then pumped direct to the storage tanks.

# QUEEN BEE PRODUCTION COURSE

## Flock House, January 19-23, 1976

*Following the success of the Ministry of Agriculture and Fisheries course in January 1975 a repeat course on "Queen Bee Production" is planned for January 19-23, 1976. The course will again be held at the Ministry's training farm, Flock House, Manawatu.*

*This course is orientated mainly at New Zealand commercial beekeepers and potential queen breeders. The subjects to be discussed and demonstrated include: queen raring, breeding, grafting programmes, economics, queen and drone anatomy and behaviour, diseases, and export potential.*

*A tour of New Zealand by Canadian beekeepers is planned for January 1976. They may visit Flock House for a day or two, in which case the programme will be modfied for the benefit of everyone.*

*To apply for registration and for further course particulars, write by October 31st 1975 to: Flock House Course for Beekeepers, Ministry of Agricul. & Fisheries, Private Bag, P. Nth. The course will be limited to 16 persons and a place cannot* be guaranteed for all those that apply.

# NEW IDEAS IN PROCESSING OF HONEY

**By G. M. Reid, Apicultural Advisory Officer, Christchurch**

Automatic uncappers, large extractors, honey pumps, and so on, have been developed that are capable of operating faster than a beekeepr can supply them but the handling of the cappings always causes a bottleneck in the extracting room.

Most commercial beekeepers handle their cappings in ovens of several designs, the most popular being the hot-top melter. In these melters the cappings drop into a hopper and are melted by a large coil of heating cable soldered under the lid.

Unfortunately, these melters have several drawbacks; they are not designed for the rapid throughput of automatic uncappers and clog up easily. They can also seriously darken the honey by overheating it. Honey should not be heated above 49°C for any length of time, yet the melting point of beeswax is about 63°C. Beeswax, however, has a lower specific gravity than honey, so when the cappings are melted the wax will float to the surface, thus protecting the honey from the heat applied from above.

Mr D. Penrose, of Southbridge, Canterbury and Mr Cloake, of Fairview, near Timaru, are both trying to solve the problem of handling the vast quantities of cappings from their automatic uncapping machines with the minimum amount of heat and greatest efficiency.

Mr Penrose has combined features of the hot-top melters with a basic oven design that preceded the hot-top models and is still used by some beekeepers in New Zealand.

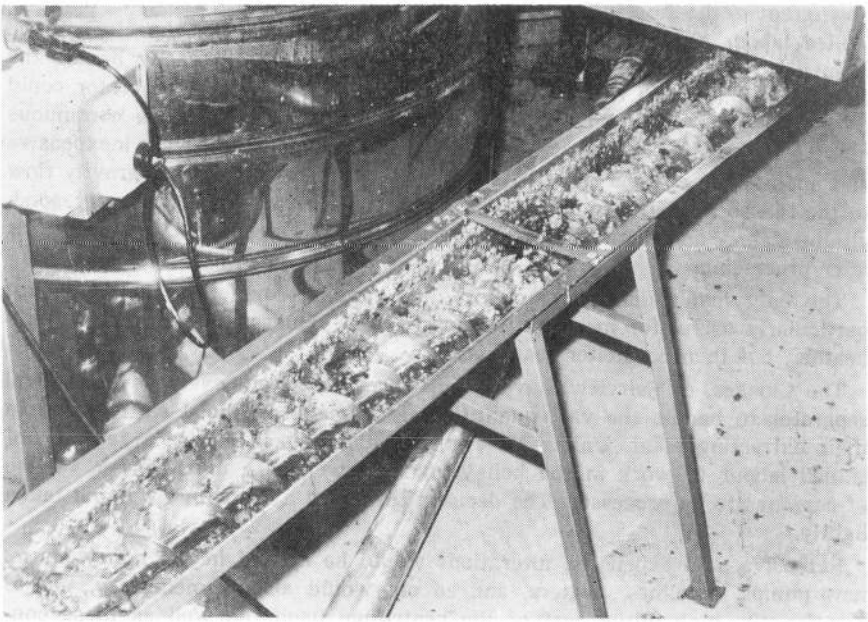
The cappings are initially carried to a series of four baskets by a stainless steel auger which is driven by the automatic uncapper. This auger also breaks the cappings into small pieces, which is essential for optimum draining of the honey.

The welded-wire baskets, which are coated with a heat-resistant plastic, are covered with sections of cheesecloth. These act as strainers for the honey and also contain all the dross after the baskkets have been through the melter.

The strong point of this set-up is that very little honey actually goes into the melter, and the system is foolproof. There is nothing to break down, which makes it ideal for an extracting system employing unskilled labour.

At the end of the day the baskets are wheeled on to the draining base of the oven. This base is water-jacketed and the heaters thermostatically set at 74°C. A large lid, which is suspended from the rafters, is lowered over the baskets and the heat is turned on.

The base is just warm enough to allow the molten honey and wax to drain out into the separator while the main heat comes from the heating cable in



**A stainless steel auger carrying honey and wax cappings from automatic uncapping machine. In Mr Penrose's plant these cappings fall into draining baskets; in Mr Cloake's plant they are collected in a pumping tank.**

the lid, thermostatically set at between 88° and 93°C, depending on how many baskets of cappings are to be melted. A simmerstat is also incorporated in the system to prevent too rapid a build-up of heat when the elements are first turned on.

In the morning after the melting cycle is completed, the cheesecloth strainers are lifted out and stored for later processing. Meanwhile, in the water-jacketed separator, the wax floats to the surface of the honey and is run off into a larger tank containing 7 to 10cm of heated water in the bottom. The wax is kept hot for about 24 hours to allow all the dirt particles to settle in the water.

This water becomes stained from the dirt in the wax and has to be changed after 8 to 10 tonnes of cappings have gone through the melter. The wax itself is run off from a tap just above the waterline and is allowed to cool in moulds. The honey is collected in another container and is best kept separate from the rest of the honey crop.

This heated honey will have lost some quality of flavour and bouquet and will be darker in colour. As both colour and flavour are parameters used in grading honey, the beekeeper runs the risk of downgrading his whole crop somewhat by mixing in a darker line.

The numerous advantages of this type of cappings melter are: (a) Only a minimum amount of honey is heated to any degree, thus reducing the risk of

downgrading the honey crop (b) Its simplicity of operation means that unskilled labour can be entrusted with the extracting; (c) The capacity can be adapted to the rate of extraction. The unit described will easily handle the cappings from 1 to 2 tonnes of honey, which is what a single operator could be expected to extract in a day. The use of extra baskets and a continuous melting cycle could double this capacity; (d) The unit is relatively inexpensive and operates on cheaper night-rate electricity; (e) The melter uses gravity flow to the full so no extra pumps are necessary; (f) The wax quality is very good, all the debris and slum gum being retained in the cheesecloth strainers for later processing.

The only major disadvantage with this cappings melter is that it is not particularly useful for more viscous or jelly-like honeys, such as manuka and heather, but then no melter really is.

The Cloakes, of Fairview, have imported an American-developed centrifugal separator to handle the vast quantities of cappings produced each season in their extracting plant. Unlike Mr Penrose, the Cloakes had a larger pool of skilled labour to work in the honey house-as well as a much larger volume of cappings to be processed. The decision to import a centrifuge was not taken lightly.

Extensive, and expensive, alterations would be needed in the honey house; new pumps, pipelines, heaters, and so on, would also be necessary, not to mention the high initial cost of the centrifuge itself. As well as these considerations there are as many denigrators of these machines as there are proponents.

The decision was made, however, and the machine imported and installed. Then the trouble began. With all new equipment and principles one can expect teething troubles and the Cloakes have had their share of these.

The principle on which the separator operates is very simple — on paper, anyway. Basically, the machine looks and works like the spin-dryer that many housewives use every washday. The heated wax and honey drops into the centre of the machine and the honey is spun out against the outside wall, while the wax is trapped against the inside wall.

Unlike the laundry spin-drier in which the clothes are lifted out through the top, the wax in the centrifugal separator is shaved off by heated knives when it builds up to a certain depth and drops out through the bottom. A fine water jet is also directed into the wax cappings, so by the time they drop into the collector underneath they are rather like coarse breadcrumbs in texture and only slightly sticky. Thus the process is a continuous one.

The depth of wax on the centrifuge walls is itself controlled by the setting of the knives and is usually about 3 to 4cm. This depth affects the degree to which the honey is strained and a lot of experimenting was necessary to get this right.

Considerable experimentation was also needed to find the optimum speed for the centrifuge. If it was run too slow, the honey was not strained properly and the whole operation was slowed down, but if the centrifuge was run too fast, the honey was flung against the outside wall too vigorously and tiny air bubbles (which are very difficult to remove) were incorporated into the honey.

Once the cappings are cut from the honeycombs, they are carried by a stainless steel auger into a small header tank. Honey from the extractors also collects here before being pumped to the heater and thence to the centrifuge. The successful operation of the centrifuge is critically dependent on a steady flow of warm cappings and honey.

Any surging in the supply of honey, as happens after a blocked extractor or pipeline is cleared, "overloads" the separator; the honey is flung out too vigorously and air bubbles may be incorporated into it. The cappings are heated very rapidly to about 45° to 50°C in a series of aluminium plate heaters, especially designed for the purpose.

Meanwhile, the honey from the centrifuge collects in a baffle tank where most of the air bubbles and fine particles of wax are trapped. A final straining through a nylon cloth ensures all specks are removed before the honey is run into 44-gallon drums, ready for export.

This plant is capable of handling about 6 tonnes of clover honey a day and certainly makes life easier for the three men who work in the extracting room. A beekeeper using more conventional equipment and a lot more physical effort could probably extract about two tonnes of honey a day, which is about the same on a per-man basis as that handled by the highly automated extracting plant of the Cloakes.

Thus, the extra expense of the centrifuge and associated equipment (approximately four times the cost of Mr Penrose's melter) and the skilled labour necessary to operate them can only be justified if a large volume of honey is put through the plant. The Cloakes plan to use their equipment to capacity by extracting honey for other beekeepers in the area on a contract basis.

The two systems described for processing the cappings from honeycombs, are radically different in design of equipment and principle of operation, yet they achieve the same results. Mr Penrose required a foolproof system that used little heat and could handle the cappings produced by an unskilled operator working on his own.

The Cloakes on the other hand, wanted a system to handle large volumes of cappings from their own hives as well as that of other beekeepers and labour considerations were not so critical. Both systems use a minimum of heat.

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## Conference Remits and Discussions

*Continued from page 11*

**Remit No. 35, Waikato (Carried):** That Waikato be host and that Taupo be the venue for the 1976 Conference.

**Remit No. 36, Otago (Withdrawn):** That Conference congratulate the Editor of "Beekeeper" for his article in the February journal on the subject of compensation for hives destroyed by pesticide contamination, and compensation to be paid by Government.

## Editorial: Quo Vadis?

*(Continued from page 4)*

similar manner to that of the Apple and Pear Board. But I cannot see any reason to prefer this above the modifications of the H.M.A. suggested.

This is the time, too, to remind those eligible to vote that they should by now have had their H.M.A. Voting Papers. These should be completed at once and sent to The Returning Officer, P.O. Box 4080, Wellington by September 10.

## Honey House Design

*(Continued from page 60)*

The honey-handling equipment should have a capacity to meet an excellent season's production, and yet be flexible enough to meet future requirements. Equipment should be carefully selected so that they work in concert with one another, without stress or bottlenecks.

Equipment should be simple and standard, so that even unskilled employees can operate them. There is a wide range of standard equipment available, many items pioneered by New Zealand beekeepers themselves. Instead of buying standard, proven equipment many beekeepers exhibit the "do it yourself" kiwi characteristic of making their own. Unfortunately the "prototypes" on the rubbish pile behind the honey-house bear testimony to the cost of this experimentation — in terms of time, labour and finance.

## Swarm Subjugation

*Continued from page 12*

horizontal. The owner had just finished washing and waxing his car and it stood gleaming proudly on the lawn some 40ft from the base of the cliff.

I drilled a hole about 8ft back from the exit and poured a quart of petrol in, started up the hose and lit the hole. Nothing happened for some time excepting a small jet of flame at the drilled hole, then suddenly, a loud thump — the mixture behind the hive became explosive and did so. A mess of wax, burnt bees and honey came out of the end of the branch like grape-shot from the mouth of a cannon, all over the owner's car.

"That'll be £5 please."

## Correspondents' Questions

*Continued from page 40*

colonies. If either of the young queens are missing unite the old queen nuc to the colony when the young queen has not been accepted.

If, while you are doing any of this colony management, there is robbing, keep everything covered with sacks while you work except the slots in which you are working. The chances of acceptance of a new queen are decreased in proportion to the intensity of robbing fever.